International Code Council

ICC IS-3DACT Committee Meeting Minutes – Meeting #20

September 5, 2025 – 10:00 AM PDT

1. Welcome and opening remarks

Co-Secretariat, Aileen Vandenberg called the meeting to order at 10:15 am PDT 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 roll called the IS-3DACT committee with the following members registering attendance. Ms. Vandenberg noted there was enough for a quorum.

2025 IS-3DACT COMMITTEE MEETING						
NAME	**#15 3/7/25**	**#16 3/21/25**	**#17 4/11/25**	**#18 8/15/25**	**#19 8/29/25**	**#20 9/5/25**
Gabriel Carrera [D]	x	x	x	X	-	x
Bora Gencturk [C]	x	x	x	X	x	x
Rory Hamaoka [H]	x	-	-	-	-	-
Werner Hellmer[H]	x	x	x	X	-	x
Maryam Hojati [D]	x	x	-	X	x	x
Berok Khoshnevis [D]	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	x	x
David Langefeld [B]	x	x	x	X	x	x
Eric Kreiger	x	x	x	X	x	x
TOTAL	10/12	7/12	9/12	9/12	7/12	9/12

Interested parties in attendance included Greg Black, Trevor Ragno, Abdul Peerzada, Khadija El Cheikh, Peter Cooperman, Larry Stevig, Dham Mahir, Hussain Ashoor, Babak Zareiyan, Mahmut Ekenel, Muhammad Shakeel Akhtar

3. Approval of Agenda Motion

Chair Mr. Gencturk asked for a motion of approval for the agenda. Mr. Werner Hellmer motioned, and Mr. Bing Tian 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. Ms. Maryam Hojati motioned, and Mr. Tian seconded. The previous meeting minutes were unanimously approved.

5. Public Comments Round 2 Discussion

Mr. Gencturk continued the discussion on the public comments for Round 2. The comments that were addressed during the discussion are as follows:

#	Comment Proponent	Section	Comment	Reason	Committee Response	Committee Vote
12	Larry Stevig	Table 403.7	[b] Reinforcement shall be fully embedded in *3D printing materials* and shall be protected from corrosion by using stainless steel or a hot-dipped galvanized coating or epoxy coating. If the above corrosion protection requirements are not met, minimum concrete cover 3/4 in. ~~shall be the same as for other reinforcement~~. Reinforcement material specifications shall comply with Section 404.2.3.	In Table 403.7, for minimum cover for cross ties and horizontal reinforcement exposed to weather or in contact with ground when not galvanized or stainless steel needs better clarification than footnote provides as written. Proposal suggests giving prescriptive requirement of 3/4" as required for WWF in ACI 318.	Approve with minor modifications	Mr. Kreiger motioned Mr. Carrera seconded Approved Unanimously **Applies to comments 12 through 18**
19	Hussain Ashoor	Figure 501.3	Overlap ¼" min for round nozzle. Overlap 0" min for rectangular nozzle	The current figure specifies a minimum overlap of 1/4" for all nozzle types, which is impractical for rectangular nozzles in 3D concrete printing. When using rectangular nozzles, overlap significantly affects the geometry of the element and can lead to defects or dimensional inaccuracies. For example, the COBOD printer Standard Operating Procedure states that any circular element printed must have a minimum radius equal to the nozzle width. If the nozzle width is 40 mm, the minimum printable radius is also 40 mm, resulting in zero overlap between adjacent print lines. Achieving an overlap of 6.35 mm (1/4") would require reducing the radius to approximately 36.8 mm, which is not feasible for the printing system. The proposed revision ensures practicality and compliance with current 3DCP technology while maintaining clarity between nozzle types.	Added a new section 501.6.1, revised the reporting requirements in Section 501.7, and Figure 501.3 needs to be modified to change the overlap from 1/4" min. to max two bead widths.	Mr. Kreiger motioned Mr. Carrera seconded Approved Unanimously

#	Comment Proponent	Section	Comment	Reason	Committee Response	Committee Vote
20	Hussain Ashoor	501.4	1. ~~The delay between print layers 8 and 9, and 10 and 11 shall be~~ The prequalification element shall include 4 layers that represent the maximum interlayer print time that will be used during construction without application of bonding agent or special surface preparation between printing layers. During prequalification construction, there shall be no application of bonding agent or special surface preparation between these 4 printed layers ~~printing layers 8 and 9, and 10 and 11~~. 2. A print stop of at least 8 hours shall be incorporated between two designated layers of the prequalification element ~~layers 9 and 10~~. The producer's print stop interlayer protocol shall be followed prior to resuming printing. The print stop protocol may consist of the application of a bonding agent or other surface preparation techniques when used in the construction. The protocol shall be documented as part of the submittal and incorporated into the construction documents. 3. The prequalification element shall extend to the full height of the actual project, starting at the same level as the lowest printed layer in the structure. The prequalification element shall include 16 layers, with the 8-hour stop incorporated between layers 9 and 10, and the interlayer time matching the maximum expected during construction. Previous prequalification data shall be submitted to the licensed engineer before project execution. This documentation shall clearly state the layer times for each layer, mix design details, layer dimensions, nozzle specifications, and printer type.	• Printing the prequalification element under separate conditions does not accurately replicate real construction conditions. Let us break this down: • If the element is printed separately before the project execution, start-stop procedures would need to be artificially implemented to simulate the actual layer times. Based on our experiments and experience, artificially creating layer times by start-stop printing is not representative of actual printed elements and results in a significant reduction in material performance. • If multiple prequalification elements are printed together to achieve realistic layer times, this would cause significant delays (up to two extra days) and increase costs. • If the element is printed during the project, the designated stop layer location might not align with the actual construction sequence, causing project management and scheduling issues. **Our proposed approach:** • Print the prequalification element alongside the actual structure as a full-height element. • This ensures accurate simulation of interlayer time, print-stop protocol, curing, and material performance. • Test specimens can be extracted from this element without impacting the main structure. Data from previous projects will serve as prequalification for future projects while simultaneously acting as a QA/QC measure.	Disapprove (language already clear, no modifications are made)	Mr. Langefeld motioned Mr. Kreiger seconded Approved Unanimously
21	Abdul Peerzada	501.6.1.4	A minimum of six specimens for compression strength tests shall be molded from each prequalification element. The specimens for *3D printing mortar* shall be 2 in. (50 mm) cube specimens molded in accordance with ASTM C109/C109M ~~or cylinder specimens molded according to ASTM C39/C39M~~	As explained earlier in chapter 3. There is no research at the moment that supports use of cylinders for compression testing of mortar. This section should be removed and if committee still wants to have this test method, please provide scientific evidence which can effectively oppose all the published articles which suggest that mortar cannot be testing using a cylinder geometry as given in ASTM C39 (4x8 in minimum).	Refer comment #7 (same change requested related to compression tests)	Not vote needed

#	Comment Proponent	Section	Comment	Reason	Committee Response	Committee Vote
22	Abdul Peerzada	501.6.2.1	The line 4-5 second Paragraph of the section is confusing.	Clarity needed.	Approve with minor modifications	Mr. Hellmer motioned Mr. Tamimi seconded Approved Unanimously
23	Abdul Peerzada	501.6.2.1	The actual dimensions of the sawn samples shall be determined as the average of five measurements taken for each cube face. One measurement at each corner and one measurement at the face center. ~~Similarly, for *3D printing concrete* samples, procedures in ASTM C109/C109M shall be followed for testing, and the load rate shall be modified to impart a stress rate equivalent to what is specified in ASTM C109/C109M.~~	There are no correction factors to support this statement. Additionally astm C109 specifies 2-inch cube which are extremely small for concrete. Might need larger cubes and some non-astm standards allow large cubes for concrete.	Refer comment #7 (same change requested related to compression tests)	
24	Hussain Ashoor	502.4.3(9)	Maximum design wind speeds no greater than 160 mph for Exposure B, 136 mph for Exposure C, and 125 mph for Exposure D in accordance with ASCE 7.	To clarify that the exposure categories refer to those defined in ASCE 7, ensuring better understanding for users unfamiliar with ASCE terminology.	Approve with minor modifications	Mr. Hellmer motioned Ms. Hojati seconded Approved Unanimously
25	Abdul Peerzada	502.4.3	This section defeats the purpose of why the chapter 5 was created. It wasn't discussed over in the working group meetings with all members. We suggest it should be removed.	Loop-hole in the chapter for field testing.	Three affirmative Three Negative One Abstain The rest of the votes will be collected.	Mr. Tian motioned Ms. Hojati seconded

6. New Business

There was no new business.

7. Next Meeting

If necessary, the next meeting will be determined at a later date.

8. Action Items & Summary

Ms. Vandenberg will collect the remaining votes for Comment #25, Mr. Langefeld will send a revised figure for Figure 501.3.

Mr. Gencturk moved to adjourn the meeting. Mr. Hellmer motioned for adjourning and Mr. Tian seconded. The meeting adjourned at 11:45am Pacific Daylight Time.