



International Code Council

ICC IS-3DACT Committee Agenda – Meeting #14

February 14, 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.

Ms. Vandenberg explained that due to an increased number of Interested Parties that the format of the Teams Meeting would be different – committee members were free to speak, but interested parties would need to raise their hands to speak. A new Q&A chat format would replace the free Chat.

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					
	#11 8/9/2024	#12 9/13/24	#13 10/11/24	#14 2/14/25	#15 3/7/25	#16 TBD
Gabriel Carrera [D]	X	X	x	X		
Bora Gencturk [C]	X	X	x	X		
Rory Hamaoka [H]	-	-	x	X		
Werner Hellmer[H]	X	-	x	X		
Maryam Hojati [D]	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		
David Langefeld [B]	X	X	x	X		
Eric Kreiger	X	X	x	X		
TOTAL	9/14	8/13	11/12	12/12		

Interested parties in attendance included Greg Black (), Raymond Dumas (OPCMIA528), Matt Carli (Putzmeister), Jordan Russeff (OPCMIA528), Mike Raymond (OPCMIA528), Scott Sewell (OPCMIA528), Larry Stevig (State Farm), Atta Ur Rehman (Yonsei University), Travis Metzger (OPCMIA528), Abdul Peerzada (Quikrete), Babak Zareiyan (Beyond Engineering), Pasquale

Caccavo (Karlos-3D), Mahmut Ekenel (ACI), Stephan Mansour (ACI), Mohsen Khanverdi (University of Windsor), Randy Wright (HGA), Jose Ortiz (CPH Corp)

3. Approval of Agenda

Chair Mr. Bora Gencturk asked for a motion of approval for the agenda. Mr. Paul Messplay 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 Ms. Maryam Hojati seconded. The previous meeting minutes were unanimously approved.

5. Public Comments Round 1 Discussion

Mr. Karl Aittaniemi explained the rules for discussing the public comments. He explained the proponent of the comment will be allowed to explain their comment briefly to the committee and in return the committee can ask questions of the proponent. Mr. Gencturk will then ask for a motion from a committee member with the following options – 1) Approve the Comment as submitted, 2) Approve the comment with a friendly amendment, and 3) Disapprove the comment. Once the motion has been seconded, the committee discusses the comment and then votes on it. If the vote is not unanimous then Mr. Gencturk calls a roll call vote with the majority carrying the motion. If a comment requires a major revision, the comment can be put aside and given to a working group to further discuss. For Options 2 and 3 the committee needs to provide a reason for the modification or rejection, respectively. Mr. Aittaniemi also added a comment can be split up into parts with each part being voted on.

With that Mr. Gencturk started the discussion on the public comments. Below are the comments that were addressed during the discussion.

#	Comment Proponent	Section, Comment and Proposed Resolution	Committee Response	Committee Vote
1	Mr. David Langefeld	Section 101 PURPOSE The standard includes more than just design. Suggest the committee be more descriptive: “...to establish design, <u>qualification, inspection, and acceptance</u> provisions...”	Approve with minor revisions The purpose of this standard is to establish material specifications, qualification, inspection, and design provisions....	Mr. Hellmer motioned Mr. Doug Mayer seconded Vote – Approved unanimously
2	Mr. Mahmut Ekenel	Section 101.1 Purpose. Suggest adding material specifications and...	Approve with minor revisions The purpose of this standard is to establish material specifications, qualification, inspection, and design provisions....	Mr. Hellmer motioned Mr. Doug Mayer seconded Vote – Approved unanimously

#	Comment Proponent	Section, Comment and Proposed Resolution	Committee Response	Committee Vote
3	Mr. Ekenel	<p>Section 102 SCOPE</p> <p>This standard does not mention fire performance limitations. At least a statement such as <u>"Fire & smoke prevention features, where required, must comply with IBC Chapter 7 and local building code requirements"</u> can be added.</p>	<p>Approve with minor revisions</p> <p><i>(added at end of 102.1)</i></p> <p>Fire resistance and smoke prevention, where required, must comply with IBC Chapter 7 and local building code requirements.</p>	<p>Mr. Adil Tamimi motioned</p> <p>Mr. Tian seconded</p> <p>Vote – Approved unanimously</p>
4	Mr. Langefeld	<p>Section 102.1 Scope.</p> <p>The section describes a number of types of wall systems. Suggest the committee exclude this description in Chapter 1 and allow Chapter 4 to cover what is possible/permissible.</p> <p>Recommend striking: "The walls are to be constructed by printing (extruding) the 3D printing material in layers to create wall configurations including, but not limited to, a wall with two printed outer face shells with a core fill grout poured between the shells to form a solid wall, a wall with two printed outer face shells and composite action achieved through a printed web and/or</p>	<p>Approve with minor revisions</p> <p>The walls are to be constructed by printing (extruding) the 3D printing material in layers to create wall configurations as specified in Sections 401.3.2 through 401.3.5.</p>	<p>Mr. Adil Tamimi motioned</p> <p>Mr. Tian seconded</p> <p>Vote – Approved unanimously</p>
5	Mr. Ekenel	<p>Section 103.1 Compliance Alternatives.</p> <p>Instead of starting with negativity, it is suggested to include language similar to 2024 IBC Code Section 104.2.3 language, such as:</p> <p>103.1 Compliance alternatives. <u>The provisions of this standard are not intended to prevent the use of...</u></p>	<p>Approve with minor revisions</p> <p>The provisions of this standard are not intended to prevent...</p>	<p>Mr. Hellmer motioned</p> <p>Ms. Hojati seconded</p> <p>Vote – Approved unanimously</p>
6	Mr. Ekenel	<p>Section 104 TESTING LABORATORIES AND REPORTS</p> <p>This section 104 contradicts with Section 406.2. Section 406.2 requires labs to be accredited under 17025; whereas Section 104 only requires results to be reported per ISO 17025. These sections have two different languages with different meanings. Suggest Section 406.2 language is used in Section 104.</p> <p>Also see my comment below about Section 406.2.</p>	<p>Disapprove</p>	<p>The comment was withdrawn because it was found to be not applicable to this section.</p>

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7	Mr. Langefeld	<p>Section 104.1 Testing Laboratories and Reports.</p> <p>Chapter 1 does not clearly reference testing, except through special inspections. Suggest the committee update the reference to “laboratory tests specified in this chapter.” Also, does the lab need the certifications listed? IBC and IRC do not reference ASTM E329, C1077, or ISO 17025. Suggest the committee revisit this and align with current requirements in IBC and other Codes.</p> <p>Refer to definition of “Approved Agency” in 2024 IBC, and Section 1703.1 to see if the references are necessary.</p>	<p><i>Approve with minor revisions</i></p> <p>The testing agency used for the laboratory tests specified in this standard shall be accredited in accordance with the requirements of ASTM C1077 or ISO/IEC Standard 17025.</p>	<p>Mr. Gabriel Carrera motioned</p> <p>Mr. Hellmer seconded</p> <p>Vote – Approved unanimously</p>
8	Mr. Ekenel	<p>Section 105.1 Special Inspection.</p> <p>This section is narrow in content, and I do not think it satisfies the intent of IBC Chapter 17. Because there is no 3D printing in the IBC, especially in Section 1705.3, Section 105.1 needs to be more specific. Suggest the following:</p> <p>105.1 Special Inspection. Special inspection shall be provided in accordance with Sections 1705.1.1 and applicable parts of Section 1705.3 of the IBC during the mixing, printing, and placing of the <i>3D printing material</i> shells and <i>core fill grout</i>. The inspection shall include verification that the concrete compressive strength is in compliance with the minimum compressive strength specified in the construction documents. Applicable requirements of Sections 501 and 502 determined by registered design professional in responsible charge may also apply.</p>	<p><i>Tabled for additional discussion within the Structures Working Group.</i></p> <p>Editorial change Use ACI definition for design professional not IBC.</p> <p>registered-licensed design professional</p>	<p>Mr. Hellmer motioned</p> <p>Mr. Tamimi seconded</p> <p>Vote – Approved unanimously</p>
9	Mr. Langefeld	<p>Section 106.1 Structural Observation.</p> <p>Does the language in Section 106.1 contradict with Section 501.7 language about what is mandated? See underlined.</p> <p>501.7 Submittal Requirements. Upon completion of the field prequalification, <u>a submittal shall be provided to the licensed design professional</u> that demonstrates suitable properties for workability, structural performance, and durability for the intended construction project.</p>	<p><i>Disapprove</i></p> <p><i>Section 106.1 is related to during construction, while Section 501.7 is related to prior to construction</i></p> <p>Minor change to 501.7</p> <p>...properties for workability, material and structural performance...</p>	<p><i>No vote needed because it was considered editorial.</i></p>

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10	Mr. Langefeld	<p>Section 108.1 General.</p> <p>The “weight of the structure considered” is unclear. Suggest the committee reword the item.</p> <p>Replace “weight of the structure considered” with “...unit weight of the 3D printing material or the service dead load of the 3D-ACT wall system in psf...”</p>	<p>Approve with minor revisions</p> <p>...Section 404 or Section 406 of this standard, the unit weight of the 3D printing material or the service dead load of the 3D-ACT wall system, nominal...</p>	<p>Mr. Tamimi motioned</p> <p>Mr. Rory Hamaoka seconded</p> <p>Vote – Approved unanimously</p>

Mr. Gencturk decided to skip Chapter 2 comments as they related to definitions, which can be decided on after all the other comments are addressed.

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32	Mr. Langefeld	<p>Section 302.4. Density (unit weight)</p> <p>The reference to ASTM C138 for mortar includes a lot of other information not related to unit weight. Suggest the committee simplify the test standard reference.</p> <p>Allow both 3D printed mortars and concretes to use ASTM C138 for unit weight, and delete the reference to ASTM C185. ASTM C138 references, among others, the container used in the air test from ASTM C231, which is consistent with the requirements for air content given in Section 302.3.</p>	<p>Approve with minor revisions</p> <p>Removed reference to ASTM C185 and concrete/mortar.</p> <p>The density of 3D printing material shall be determined in accordance with ASTM C138/C138M.</p>	<p>Mr. Hellmer motioned</p> <p>Mr. Messplay seconded</p> <p>Vote – Approved unanimously</p>
33	Mr. Langefeld	<p>Section 302.5 Set time.</p> <p>It states that a specific set time may be required for material performance. A user of the standard may not know when this is required, unnecessarily specifying it. Suggest the committee clearly make set time testing optional and provide guidelines on when it may be an important consideration.</p> <p>Propose the committee clearly make set time testing optional and provide guidelines on when it may be an important consideration.</p>	<p>Approve with minor revisions</p> <p>Removed reference to material performance and changed required to specified.</p> <p>When a specific set time is specified, the initial and final set times....</p>	<p>Mr. Hellmer motioned</p> <p>Mr. Eric Kreiger seconded</p> <p>Vote – Approved unanimously</p>

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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>	<i>Tabled for additional discussion</i>	<i>No vote as the committee will continue next meeting discussing this comment.</i>

Due to time, Mr. Gencturk stopped the discussion on the comments.

6. Additional Discussion

No additional discussion occurred.

7. Next Meeting

The next meeting will be March 7, 2025, at 10am PST.

8. New Business

There was no new business.

9. Action Items & Summary

The action items from the meeting were summarized as follows:

<i>Structural Working Group meets to discuss Comment #8.</i>	<i>David Langefeld</i>
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With no other questions or comments before the committee Mr. Gencturk moved to adjourn the meeting. Mr. Hellmer motioned for adjourning and Mr. Tian seconded. The meeting adjourned at 12:05pm Pacific Standard Time.