

## AGENDA

### UBC COMMISSION STRUCTURAL ADVISORY COMMITTEE

February 3, 2022 3:00 pm

*This agenda is subject to change up to 24 hours prior to the meeting.*

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1. Roll call
2. Approve the minutes from the December 2, 2021 meeting
3. Review current amendment to IBC Section 1905.1.9

Next Scheduled Meeting: as needed

Please call Sharon at 530-6163 or email [ssmalley@utah.gov](mailto:ssmalley@utah.gov) if you do not plan on attending this meeting.



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# MINUTES

## UTAH UNIFORM BUILDING CODE COMMISSION STRUCTURAL ADVISORY COMMITTEE MEETING

December 2, 2021 3:00

CONVENED: 3:05

ADJOURNED 4:06

### STAFF:

Steve Duncombe, Bureau Manager  
Sharon Smalley, Board Secretary

### COMMITTEE MEMBERS:

Jeremy Achter  
Oliver Burt  
John Saunders  
Tyler Wright

Josh Blazzard, Commission Liaison  
Patrick Tomasino  
Brent Maxfield

### VISITORS:

### MINUTES

A motion was made by John Saunders to approve the minutes from the November 4, 2021 meeting as written. The motion was seconded by Oliver Burt and passed unanimously.

### REVIEW AMENDMENTS FOR IBC CHAPTER 16

The committee reviewed the current amendments for Chapter 16 and the following motions were made following the discussion for each amendment.

A motion was made by Jeremy Achter to delete the current amendment (6) for Section 1608.1.2. The motion was seconded by John Saunders and passed unanimously.

A motion was made by Jeremy Achter to keep the current amendment for Table 1604.5. The motion was seconded by John Saunders and passed unanimously.

A motion was made by Jeremy Achter to modify the current amendment for Section 1605.2 as previously reviewed. The motion was seconded by Tyler Wright and passed unanimously.

A motion was made by Jeremy Achter to modify the current amendment for Section 1605.3.1 as

discussed. The motion was seconded by Tyler Wright and passed unanimously.

A motion was made by Jeremy Achter to modify the current amendment for Section 1608.1 as discussed. The motion was seconded by John Saunders and passed unanimously.

A motion was made by Jeremy Achter to keep the current amendment for Section 1608.1.1. The motion was seconded by Tyler Wright and passed unanimously.

A motion was made by Jeremy Achter to modify the current amendment for Section 1608.1.3 as discussed. The motion was seconded by Tyler Wright and passed unanimously.

A motion was made by Jeremy Achter to modify the current amendment for Section 1608.2.1 as discussed. The motion was seconded by John Saunders and passed unanimously.

A motion was made by Jeremy Achter to modify the current amendment for Section 1613.1.1 as discussed. The motion was seconded by Tyler Wright and passed unanimously.

#### FINAL REVIEW OF THE STRUCTURAL PORTION OF THE IBC, IRC, AND IEBC

The committee had no further recommendations to make for the structural portions of the 2021 codes. The committee will meet again in April to do a final review of all the recommendations they have made.

The meeting adjourned at 4:06.

*Note: These minutes are not intended to be a verbatim transcript but are intended to record the significant features of the business conducted in this meeting. Discussed items are not necessarily shown in the chronological order they occurred.*

**Title 15A. State Construction and Fire Codes Act**  
**15A-3-108 amendments to Chapter 17 through 18 of IBC.**  
**Proposed changes for the 2021 IBC**

(3) A new IBC, 1905.1.9, is added as follows: "1905.1.9 ACI 318, Section 19.3.1.1. "Modify ACI 318, Table 19.3.1.1 to read as follows: In the portion of the table designated as "Condition," the following Exposure category and class is deleted and replaced with the following: "F0: Concrete elements not exposed to freezing and thawing cycles to include footing and foundation elements that are completely buried in soil."

**Comments & Questions:**

**Table 19.3.2.1 – Requirements for concrete by exposure class**

Please note that for Exposure class F0 (which now specifically includes footing and foundation elements), the maximum water/cement ratio in NA, and the minimum concrete compressive strength  $f'_c = 2,500$  psi. For additional requirements, no air entrainment is required.

Is this the intent that footings and foundations for commercial buildings, (which would also include basement construction and below grade parking garages) could have low strength, 2,500 psi concrete and an unlimited water/cement ratio, and no air entrainment?

I believe this has unintended consequences of allowing a concrete mix design in a commercial building that has no durability characteristics. This will result in concrete deterioration such as spalling, pop-outs, plastic shrinkage cracks, drying-shrinkage cracks, crazing, delamination, etc. This will greatly increase the cost of future concrete repairs for below grade parking garages, buildings with basements and foundations. Less cement, more water, and no air entrainment, means no durability and is in direct violation to Chapter 19 of ACI.

Deteriorated concrete is what contributed to the recent collapse of the apartment building in Miami this last year. Many existing below grade parking garages in Utah have also had similar concrete deterioration due to the lack of durable concrete.

A minimum concrete compressive strength greater than 2,500 psi should be required for durability.

A maximum water/cement ratio should also be required for durability.

Air entrainment should also be required for durability.

The bottom of footings are typically set at frost depth. The footing concrete above the frost depth is subjected to moisture from the ground due to landscaping, snow, rain, drainage and runoff, etc. and is exposed to some freezing.

I believe the intent of this proposed change was to allow for a concrete strength of less than 3,500 psi to be used for footings and foundations, specifically 3,000 psi concrete. Or others may have wanted 2,500 psi so they would not have to have testing done. An engineer could design for 2,500 psi to avoid testing, but the minimum compressive strength for concrete should be 3,000 psi for durability (if the community is against the code prescribed 3,500 psi).

I believe this code amendment should be revised to not eliminate the durability requirements intended by the building code. Maybe footings and foundations should be considered an F1 exposure class and the minimum compressive strength should be changed to 3,000 psi, leaving the minimum requirements for a water/cement ratio of 0.55 and an air entrainment of 6% + or – 1%? Or should this proposed change simply be omitted?

The proposed change as written appears to save money, but it will in fact cost much more money for future repairs and maintenance.

Sincerely,

James M Williams PE, CE, SE, AIA, LEED AP  
UNIFIED CODE ANALYSIS COUNCIL - UT  
ICC GENERAL CODE DEVELOPMENT COMMITTEE