

**4554200 – MIXING, PUMPING AND TESTING CEMENT GROUT
RESPONSE TO COMMENTS FROM INDUSTRY REVIEW**

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Comment

Specification should follow normal CQC guidelines and include verification testing similar to concrete section 346. There have been many problems with this specification where it indicates contractor sampling and department testing. Contractor sampling and testing under an approved QCP would improve the end product and verification testing resolve acceptance issues.

Response: We will incorporate CQC testing, but this may require an additional industry review process.

Bob Hipworth
District 5 FDOT

Comment:

We need to make sure the CO ACIP software development team is aware of the proposed revisions to this ACIP portion of the 455 spec. The latest ACIP software being developed, and likely the associated ACIP pilot training course, reflect the current spec 455 (2x2 cubes and 18-14 sec testing). I've cc'd Sastry & Tom on this reply. So, hopefully this is something CO & MO are working together on. I don't have particular comments regarding the spec 455-42 changes, except:

I'm not sure if the 21 sec minimum on the flow test is reasonable or not (possibly the 18-20 sec grout was considered too fluid, etc.?). In my opinion, the ACIP Contractors (ex. Ebsary, etc.) should be contacted/included on these type of developments, as we have done during the recent spec changes, and associated ACIP software development efforts - it's good to get the reaction and input from their side of the fence, or in this case sound wall!

Response: Additional changes concerning CQC testing may hold this specification until an additional re-write can be reviewed.

Ghulam Mujtaba

General Comment:

The word "LOT" simplifies the sampling and testing quantity. In addition, all national standards such as ASTM & AASHTO use this terminology. In case if it is unnecessary to use the terminology "LOT" in FDOT Specification, in the beginning of the Specification, a general note should be included to indicate such a use for all materials.

Response: Agree to include in the changes.

Specific Comment:

1. 455-43 Testing Cement Grout, Paragraph 1, Sentences 1 & 2
The requirements for less than 50 yd³ should also be included. The results of the test cylinders should be correlated with the results of cubes. Lower strength is expected when testing cylinders in comparison with cubes tests or in the plans cylinder test should be included in lieu of cube tests.
Response: We will include language about the requirements for cubes versus cylinder testing during the trail mix for approval.
2. 455-43 Testing Cement Grout, Paragraph 1, Sentence 3
Since the Department personnel are performing sampling and testing of the grout , it should be called QA, Verification, or IA samples
Response: The revision will include a requirement for CQC testing with random V testing.
3. 455-43 Testing Cement Grout, Paragraph 1, Sub-item (a)
Change “QC sample” to QA Sample”
Response: this will be addressed in the changes
4. 455-43 Testing Cement Grout, Paragraph 4, Sentence 2
Change “QC, verification, or IA” to the “quantity represented by the sample”
Response: Agree to make the changes

Dan Haldi
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Comments

The actual change looks good except for the following:

455-42: No range on the consistency will make more difficulty achieving a goal ... usually as loose as obtainable ... the likelihood of hitting 21 exactly and being acceptable. I suggest a target of 21 +/- 3 seconds ... "range" is customary or all other cementitious material uses.

Is 21 from a 3/4 inch orifice (prior) the same as from a 1/2 inch orifice (current)? Doesn't seem likely to me.

Response: Agree we will clarify the flow with a tolerance range.

455-43: Why change sample to "QC" whenever other areas indicate "Acceptance". Traditionally QC and Acceptance have different uses and connotation. I suggest sample be deemed an Acceptance sample, since traditionally these are for pay and leave in-place. Acceptance samples generally over-rule QC samples.

Response: We will clarify through a CQC process.

Not included in current changes, but ideas of concern:

455-40, -41, -42 and -43: Many places conflicting terminology; IE: Fluidizer vs Fluidifier, Grout vs Concrete, QC vs Acceptance. I suggest choose one and be consistent. Proper term for coarse aggregate-less material is grout. ASTM C 937 et. al. uses "Fluidifier".

Response: Agree we will look to maintain consistency with consistent terminology

455-42: Should consider grout could be Ready-mix as well as Site-mixed. Current spec only discusses Site-mix procedures. Ready-mix incorporation is simple. I suggest: Change 2. by adding in front of current verbiage ... For Site mix, accurately measure all materials(all else remains same). Afterward, ADD ... For Ready mix follow Sections 346 and MM 9.2.

Response: Agree, good comment we will incorporate.

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Comments

455-42: No range on consistency is difficult to achieve. I suggest retain a target range say 21 +/- 3 sec, customary of cementitious material usage. Furthermore ... Is 21 from a 3/4 inch orifice same as from a 1/2 inch orifice?

-43: QC sample is not compatible with Acceptance sample. Traditionally Acceptance samples are for pay ... QC for quality check.

-40, -41, -42, -43: Many places conflicting terminology, IE Fluidizer vs Fluidifier, Crout vs Concrete, QC vs Acceptance. Choose best and be consistent. Coarse Aggregate-less material is grout, ASTM C 937 et. al. uses Fluidifier.

-42: Consider Grout can be Ready-Mix and Site-Mix. Current only identifies with site-mix. Ready-Mix incorporation is simply ... CHANGE '2.' by ADDING in front of current verbiage ... "For Site-Mix", accurately measure ..., and afterwards ADD "For Ready-Mix follow Section 346 and MM 9.2 for batching sequence" etc.

End of Comments ... Thank-you.

Response: These appear to be duplicates of the above comments.
