

RESPONSE 2 TO COMMENTS RECEIVED FROM INDUSTRY REVIEW

Ghulam Mujtaba

1. Page 2- 347-1 The last sentence of this sub-article is in conflict with last paragraph of the document. This sub-article does not allow the crack and the latter one does. I recommend the deletion of the last sentence and it should be replaced with "ensure that the concrete is placed and cured in a manner to ensure that the strength and durability of concrete is maintained.

RESPONSE: *Agree to change*

2. Page 2 -347-2 Delete "and AASHTO M 85 or ASTM C 150". Instead, modify the asterisk part of the footnote to read: "The heat of hydration requirements of 921 is not applicable to non-structural concrete. Also, the cement meeting the requirements of AASHTO M 85 or ASTM C 150 is allowed for the non-structural concrete."

RESPONSE: *Agree to change*

3. Section 347-3.1- Fifth Line- Change: "Production facilities quality control plan" to "Production facility's quality control plan".

RESPONSE: *This section was removed*

4. Section 347-3.3- Second line - Change: "Provide the ratio values .." to " provided that the values of water-t-cementitious materials ratio and slump.....design.". Fourth line- Change: "are used deliver" to "are used to deliver".

RESPONSE: *Agree to change*

5. Section 347-3.4- last sentence - Change the sentence to read: "Pre-bagged mixture in accordance with the manufacturer's recommendation and meeting the requirements of this Specification".

RESPONSE: *Agree to change*

6. Section 347 4.1 - Do not delete the 28-day strength requirements. It belongs to this section.

RESPONSE: *Agree to change*

7. Section 347-4.2 - The pronoun for the word "Engineer" is "his" or "her" not "their". I recommend that it should be changed: "The Engineer may sample and test concrete to verify its quality". Also, modify the last sentence by changing "minimum compressive strength" to "minimum 28-day strength". Move this sentence to section 347-4.1.

RESPONSE: *Agree to change*

8. Section 347-5.1- The last two paragraphs:

9. Provide the metric equivalent of the dimensions.

RESPONSE: *This section was changed*

10. It has been mentioned that the Engineer may accept the concrete that may not serve its intended function. It should be changed to read: "The Department may accept the repairable non-complying concrete at reduced price, if it serves its intended functions."

RESPONSE: *Agree to change*

11. This Sub-article is in conflict with 347-1. This Subarticle allows the crack of smaller magnitude while 347-1 requires crack free concrete.

RESPONSE: *This section was changed*

Rodney Powers

My only comment on 347 is as follows:

Relative to allowable cracks, 347-5 reads, "or has 50 feet or more of cracks that are 0.020 inches in width in 200 square feet..." This raises questions in my mind. The allowable crack area would then be 50x0.020=1.0 square inch or 0.005% of the concrete surface area. What if we had more than 100 feet of cracks 0.010 inches in width? Conceivably, this could be a worse situation since the concrete may now be in twice as many pieces. Lets say we're talking about transverse cracks in a sidewalk. In a 4 foot wide sidewalk, 50 feet of 0.020 cracks would be one crack every 12.5 feet. This seems reasonable.

But, what would we do if we had 49 feet of 0.020 cracks and 200 feet of 0.019 cracks? Looks to me like we would have to accept it.

Alternately, maybe we should say that the measured surface area of cracks shall not exceed 0.005% of the concrete surface area.

RESPONSE: *This section was rewritten*

Rod

Randy Brown

In Section 347-3.3

A comma after ".....are used" would read easier.

RESPONSE: *Agree to change*

In Section 347-5

Suggest changing "may not" to "will" serve it's intended purpose.

RESPONSE: *Agree to change*

Randy Brown

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David Westcott

FDOT Proposed section 347

347-1 states in part "Ensure the hardened concrete meets its intended purpose free of cracks or deficiencies." Suggest revising to readintended purpose free from *uncontrolled* cracks.....

RESPONSE: *This section was re-written to remove verbiage referring to cracking*

347-5 p1, requires an electronic Delivery ticket meeting the example provided by the Department or approved alternative. Suggest eliminating the electronic requirement as there is no requirement that a ready mix plant controls be computerized.

RESPONSE: *Electronic Delivery Tickets will be required, and intend to allow the industry 6 months to implement.*

347-5 p2, requires potential removal of concrete due to deficient compressive strength. Suggest including a reference to the coring provision of 346 to permit in-place evaluation of compressive strength prior to removal of concrete.

RESPONSE: *No change*

Section 347 – 1 "Ensure the hardened concrete meets its intended purpose free of

cracks or deficiencies. “ This can lead to back charges, as it does not assign cause.

Section 347-347-5 “replace at no cost...or has 50 feet or more of cracks greater than 0.020 inches....” There is no timeframe laid out for this inspection, there can also be situations where the cracking is not due to concrete.

RESPONSE: *References to cracking is removed*

General: Removal of concrete due to cracking is a potentially huge issue for FTBA. Cracking that occurs in concrete can be as much a function of design as execution. Unless all contracts are let design build, it does not appear prudent to automatically place the responsibility for cracking at the feet of the contractor.

RESPONSE: *References to cracking is removed*

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Comments:

I have the following comments for 347 alone here, and will forward comments for remaining specifications whenever available.

347 Concrete

Title: Remove connotation "Class I".

RESPONSE: *Cannot at this Time due to recent Design Standards update. We intend to make this change in the near future.*

Section 1: Remove connotation "Class I".

RESPONSE: *Cannot at this time, see above*

Section 2.1, a. Portland Cement: ... section 921* ... AASHTO M-85 and ASTM C-150 should be moved down to " * meet requirements of section 921 for use of AASHTO M-85 and ASTM C-150 except that heat of hydration doesn't apply ...".

RESPONSE: *Agree to change*

Section 3.1:

... production facility certified by NRMCA or and DMO (otherwise could produce without

Department interaction or review).

The DMO may inspect to verify compliance with QCP ??? and specifications. Which is it? We took 347 producers off the approved list because they didn't have a QCP by specification, now they do? Which means they can be on the list after all? I'm confused with intent.

RESPONSE: *Correct, NS producers are not required to have a QC plan, they will need to have a plant number. Will change.*

Section 3.3: When volumetric mixers are used meet requirements of VMMB should be removed from this section and added to section 3.1 below the NRMCA for ready-mixers, and also approved by the DMO.

RESPONSE: *Agree to change*

Section 4.1 Mix Designs:

Without some guidelines, there is nothing the engineer can base approval. Should keep maximum W/C, slump range and minimum 28-day strength (2500 psi), and ADD a demo batch to verify approved mix designs.

Show all approved design mix data with batch adjustments on the Delivery Ticket > even though this information should be in section 5, 1st paragraph where recording material quantities incorporated into the mix on the Delivery Ticket.

Substitution materials is pre-reviewed and approved (new mix number) by DMO prior to batching (see section 2.3).

RESPONSE: *The intent of this revision is to eliminate the cost of qualified testing lab and qualified technicians for testing. Cannot include additional testing.*

Section 4.2: Should keep the old way.

RESPONSE: *This has not changed from the 2004 spec book*

Section 5:

ADD > Contractor rejects "loads" not meeting W/C, slump or strength requirements ... How would contractor know 28-day strength during placement, especially if no testing ???

RESPONSE: *This section has been changed*

How would contractor / engineer know what to replace if failing 28-day strength if not testing?

RESPONSE: *If concrete cracks and looks ugly the Engineer has the option to have it removed?*

50 feet in 200 feet, is a lot of cracking, poor aesthetics.

RESPONSE: *If uncontrolled cracks appear the Engineer can have it removed*

Reduced pay on what basis ? Should state IE -25%, -50%, -?% ???

Rinker Material's

347-1 states in part "Ensure the hardened concrete meets its intended purpose free of cracks or deficiencies." Suggest revising to readintended purpose free from *uncontrolled* cracks.....

RESPONSE: *Removed reference to cracking in subsection 1 and revised to say uncontrolled cracks in subsection 5.*

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RESPONSE: *Electronic Delivery Tickets will be required, and intend to allow the industry 6 months to implement.*

347-5 p2, requires potential removal of concrete due to deficient compressive strength. Suggest including a reference to the coring provision of 346 to permit in-place evaluation of compressive strength prior to removal of concrete.

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RESPONSE: *This verbiage has been removed*

General: Removal of concrete due to cracking is a potentially huge issue for FTBA. Cracking that occurs in concrete can be as much a function of design as execution. Unless all contracts are let design build, it does not appear prudent to automatically place the responsibility for cracking at the feet of the contractor.

RESPONSE: *See above*