3460203 Structural Portland Cement Concrete
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

Mark Conley
FDOT
863-519-4233

Comments: (8-30-22, Industry)
Comment 1: Will samples be allowed to be entered into the Materials Acceptance and Certification (MAC) System with the 56 day compressive strength as an alternative to the 28 days?

Response:

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Steven Nolan
FDOT
850-414-4272

Comments: (8-31-22, Industry)
Comment 1: Table 346-2, Footnote (5) is not clear on what concrete classes or environments this relaxation of HRP mix proportion % applies too. I suggest adding the following clarification to the beginning of the Note "For Slightly Aggressive and Moderately Aggressive Environments…"

Proposed revised footnote would be: "(5) For Slightly Aggressive and Moderately Aggressive Environments, highly reactive pozzolans may be used below the specified ranges to enhance strength and workability. A minimum concrete Surface Resistivity (SR) value is not required."

Response:

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josephp.conover@cemex.com
(for) James W Mack

Comments: (9-13-22 Industry)
On behalf of CEMEX for James W Mack, we provide the following comments for your consideration.
When the FDOT Section 350 specification was previously revised, FDOT Section 346 was purposely referenced so that there were no conflicts between sections. We see the proposed change as a step away from that philosophy. Unless the sampling frequency is being removed from that section 346 we don't feel any other guidelines need to be added to the Section 350 specification. In reviewing the 346 specifications, we do agree that some additional language to better represent paving could be added, but it should be done in the 346 section.

We also feel that the proposed language is too prescriptive and only provides one way to reduce lot size based on compressive strength on cores or cylinders. We would also like to have the Maturity of the concrete included as an alternative to evaluate strength. We also accept the thought process that tests from previous projects can be used. We would like to see alternate strength methods and other ways to show that lot size can be reduced and accepted too.

Response:

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Thomas Frank
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Comments: (9-15-22 Industry)

1. In sub article 346-2.3, Class I (Seal) was not included. Recommend modifying the first paragraph asfollows; expand the sub article and include Class I (Seal) in the exceptions:

> SUBARTICLE 346-2.3 is deleted and the following substituted:
>
> **346-2.3 Supplementary Cementitious Materials:** Supplementary cementitious materials (SCMs) are required in all classes of concrete specified in Table 346-3. Nonreinforced concrete Class I (Seal) and Class I (Pavement) are exempted, and Class II when used in slightly aggressive environments.
>
> The quantity of portland cement that is replaced with SCMs must be on an equal weight replacement basis of the total cementitious materials in accordance with Table 346-2. When using Type IP, IS or IT blended cements, the total quantity of SCMs, including the blended cement added separately at the concrete plant shall meet the requirements of Table 346-2.

2. In Table 346-9, Class V (Special), as highlighted below, should be removed for consistency.

Table 346-9
Sampling Frequency

Class Concrete (1)	LOT Size
I (Seal)	Each seal placement
I (Pavement)	According to Section 350
II, II (Bridge Deck), III, IV, V (Special), V, VI, VII	50 cubic yards, or one day's production, whichever is less
IV (Drilled Shaft)	50 cubic yards, or one day's production, whichever is less (2)

(1) For any class of concrete used for roadway concrete barrier, the lot size is defined as 100 cubic yards, or one day's production, whichever is less.
(2) Start a new LOT when there is a gap of more than two hours between the end of one drilled shaft placement and the beginning of the next drilled shaft placement.

Response:

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Comments: (9-15-22 Industry)
Under Article 346-8, consider clarifying that density testing for lightweight concrete is for the hardened density, not plastic density.
Response:

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Scott Rogers
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Comments: (9-30-22 Industry)
Below is our comment (CEMEX) regarding the new proposed changes to 346-4.4

With the LW we did on I-4, we used +/-3 for equilibrium density, and +/- 4 for plastic density. We are not in support of the proposed +/- 2 equilibrium and +/- 3 plastic.

ACI 301

7.2.2.1 *Density*—Proportion lightweight concrete to meet equilibrium density specified in Contract Documents. Unless otherwise specified, calculate the approximate equilibrium density of mixture from measured or calculated oven-dry density in accordance with ASTM C567/C567M.

Correlate equilibrium density with fresh density of concrete. Fresh density will be used as the basis for acceptance during construction.

7.3—Execution

7.3.1 *Field quality control*

7.3.1.1 *Density*—Acceptance of lightweight concrete in field will be based on fresh density measured in accordance with ASTM C138/C138M. Required fresh density is based on specified equilibrium density and correlation with fresh density, as established in 7.1.3.1. Unless otherwise specified, do not use concrete for which fresh density varies by more 4 lb/ft^3 from the required fresh density.

Applying coefficient of variation data from ASTM C567, +/- 3 is more realistic for equilibrium.

I too would want a better understanding of the penalty if applicable.

Response: