

3460301 PORTLAND CEMENT CONCRETE
COMMENTS FROM INDUSTRY REVIEW

Bill Sears
954-934-1115
william.sears@dot.state.fl.us

Comment: (10/8/09)

The penalty in specification 346-12 of twice the invoice price seems arbitrary and precipitous.

Response:

Rod Nelson
386-961-7526
rod.nelson@dot.state.fl.us

Comments: (10/8/09)

Maybe this is not the place to say this but central office structures design office needs to address whether the section 346-10 Investigation of low strength concrete for structural adequacy percentage of 10% reduction should be lowered. D2 feels this percentage needs to be lowered in order to require the construction personnel to contact the EOR for their input on the structural adequacies of low concrete strengths more often.

Response:

Steven Sheffield
Turnpike
407-264-3444

Comments: (10-9-09)

Some clarification needs to be done to this paragraph, Subarticle 346-6.4, second paragraph.

Reject concrete with slump or air content ~~exceeding~~ *that does not fall within the above specified tolerances and immediately notify the concrete production facility that an adjustment of the concrete mixture is required so that it will fall within specified tolerances.* **If adjustments are not implemented by the next load of concrete, reject the concrete and terminate further production until adjustments are implemented.** *Test the plastic properties of the first adjusted load and every load that arrives at the project site prior to first adjusted load. If adjustments are not implemented the Contractor does not implement adjustments, the Engineer may reject the concrete and terminate further production until the Contractor makes corrections are implemented.* *The Engineer may authorize placement of concrete that would otherwise have been rejected because the permanent structure will be adversely affected.*

Yellow highlighted areas show contradicting procedure. Which is it; reject or may reject?

Response:

Steven Sheffield
Turnpike
407-264-3444

Comments: (10-9-09)

Here is another comment.

346-7.7 Adding Water to Concrete at the Placement Site: Perform an initial slump before the addition of water at the jobsite. If the slump, is *as* delivered, ~~within~~ *is outside* the target *tolerance* range, ~~no water will be added to~~ *reject* the load. If the slump is outside the target range ~~but is within the tolerance range~~, that load may be adjusted *by adding water provided the addition of water does not exceed the water to cementitious materials ratio as defined by the mix design*. After adjusting the slump, perform a *slump* test to confirm ~~that the slump of the concrete is within the slump tolerance target range as defined in Table 62.~~ **Perform Confirm with another a slump test on that the next load to ensure the concrete is within the target slump tolerance range.** Maintain the slump within the target *tolerance* range on successive loads. Repeated incidents of concrete being placed outside the target range may result in revocation of that portion of the QCP. Do not place concrete represented by slump test results outside of the tolerance range.

Highlighted area with the strike outs removed.

Perform a slump test on the next load to ensure the concrete within the slump tolerance range.

May need 'is' inserted after concrete to read ...to ensure the concrete is within...

Response:

Steve Plotkin
904-360-5501
steven.plotkin@dot.state.fl.us

Comments: (10-9-09) comments in Yellow highlight

346-3.2.1 Slump Loss Test Requirements: Provide slump loss tests before drilled shaft concrete operations begin, demonstrating that the drilled shaft concrete maintains a slump of at least 5 inches throughout the concrete elapsed time. Inform the Engineer at least 48hours before performing such tests. Perform slump loss testing of the drilled shaft mix using personnel

meeting the requirements of Section 105. *The Engineer may require a new slump loss test in the event that temperature, environmental conditions, or change in structural conditions change.*

Perform the following procedures for slump loss tests:

- (1) Begin all elapsed times when water is initially introduced into the mixer.
- (2) The slump loss test is performed at a temperature consistent with the highest ambient and concrete temperatures expected during actual concrete placement. *This test may be used for lower temperature placements without any admixture adjustments.*
- (3) Ensure that the mix is at least 3 cubic yards and is mixed in a truck mixer.
- (4) After initial mixing, determine the slump, ambient and concrete temperatures, and air content. Ensure that the concrete properties are within the required specification **limits** ~~target~~ **range** *as specified in 346-3.1, Table 2.*

346-7.7 Adding Water to Concrete at the Placement Site: Perform an initial slump before the addition of water at the jobsite. If the slump, ~~is~~ *as* delivered, ~~within~~ *is outside* the ~~target~~ *tolerance* range, ~~no water will be added to~~ *reject* the load. If the slump is ~~outside the target range but is~~ within the tolerance range, that load may be adjusted *by adding water provided the addition of water does not exceed the water to cementitious materials ratio as defined by the mix design.* After adjusting the slump, perform a *slump* test to confirm ~~that the slump of the concrete is~~ within the *slump tolerance* ~~target~~ range as defined in **346-6.4** ~~Table 62~~. *Perform* ~~Confirm with another a~~ *slump* test ~~on that~~ the next load *to ensure the concrete* ~~is~~ *is* within the ~~target~~ *slump tolerance* range.

Maintain the slump within the target *tolerance* range on successive loads. Repeated incidents of concrete being placed outside the target range may result in revocation of that portion of the QCP. Do not place concrete represented by slump test results outside of the tolerance range.

Response:

Duane Brautigam

Comments: (10-9-09)

- (1) 346-3.1(e) - The last sentence is not in active voice
- (2) 346-3.2.1 - The last sentence in the first paragraph is awkward, i.e, ending in "... or change in structural conditions change." Suggest "... in the event of changes in temperature, environmental conditions or structural conditions". Having said that, what do we mean by a change in "structural conditions"?
- (3) 346-6.4 - Could use some active voice formatting
- (4) 346-9.4 - In the first sentence, is it the intent that the Contractor accepts or rejects, as formatted in active voice, or should this be formatted to say the Engineer will accept or reject?

Response:

Eddy Scott
D2 Specs/Design Review
386-961-7831
eddy.scott@dot.state.fl.us

Comments:

Just a couple of comments on the following portion.

346-12 Pay Adjustments for Plastic Properties

If concrete is placed even when the result of plastic properties testing requires its rejection, a fee of twice the invoice price per cubic yard of the placed concrete will be assessed for all the concrete in the load that is placed. If the Engineer authorizes placement of the concrete in accordance with 346-6.4, no fee will be assessed.

1. Should this be re-worded to indicate a pay adjustment instead of a fee?
2. It seems a little confusing if the Engineer “rejects” the load due to failing the test and then allows it to be placed anyway wouldn’t he be “authorizing placement” and therefore there would be no fee?

Response:

Dan Hurtado
850-414-4155
dan.hurtado@dot.state.fl.us

Comments: (10-19-09)

SECTION 346-12 SHOULD BE REMOVED.

Response:

David Wang
850-414-4152

Comments: (10-20-09)

1. **346-3.1 General:** (e) When precast three-sided culverts, box culverts, endwalls, inlets, manholes or junction boxes require a Class III concrete, the minimum cementitious materials will be 470 lb/yd³. The air content range will not apply and the maximum allowable slump shall be 6 inches.

Delete the word “allowable”.

Response:

2. **346-3.2.1 Slump Loss Test Requirements:** Provide slump loss tests before drilled shaft concrete operations begin, demonstrating that the drilled shaft concrete maintains a slump of at least 5 inches throughout the concrete elapsed time. Inform the Engineer at least 48 hours before performing such tests. Perform slump loss testing of the drilled shaft mix using personnel meeting the requirements of Section 105. The Engineer may require a new slump loss test in the event that temperature, environmental conditions, or ~~change in~~ structural conditions change.

Delete the words “change in”.

Response:

3. **346-6.1 General:** Ensure the QCP includes any anticipated requirements for adjusting the concrete at the placement site. Include the testing procedures that will be implemented to control the quality of the concrete and ensure that concrete placed is within the ~~target-~~ *tolerance* range.

Delete extra space before “tolerance”.

Response:

4. **346-7.7 Adding Water to Concrete at the Placement Site:** Perform an initial slump *test* before the addition of water at the jobsite. If the slump *value*, ~~is-as delivered, within-~~ *is outside* the ~~target-~~ *tolerance* range, ~~no water will be added to~~ *reject* the load. If the slump *value* is ~~outside the target range but is within~~ the *tolerance* range, that load may be adjusted *by adding water provided the addition of water does not exceed the water to cementitious materials ratio as defined by the mix design.* After adjusting the slump, perform a *slump* test to confirm ~~that the slump of the concrete is within the~~ *slump-tolerance* ~~target-range as defined in Table 62.~~ *Perform* ~~Confirm with another-a~~ *slump* test ~~on~~ that the next load *to ensure the concrete* is within the ~~target-~~ *slump tolerance* ~~tolerance~~ range. Maintain the slump within the ~~target-~~ *tolerance* ~~tolerance~~ range on successive loads. ~~Repeated incidents of concrete being placed outside the target range may result in revocation of that portion of the QCP.~~ Do not place concrete represented by slump test results outside of the tolerance range.

Add space between “*slump tolerance*”. and “perform a”.

Response:

Ghulam Mujtaba
352-955-6685
ghulam.mujtaba@dot.state.fl.us

Comments: (10-20-09)

1. Subarticle 346-3.1, Table 2, Third Column Delete “Value”. It is redundant. There is no reason for not adding the same word in the 2nd and 4th columns.

Response:

2. Subarticle 346-3.1 (a), First Sentence Start a new sentence after, “the maximum allowable slump...” and modify it to read, “The maximum allowable slump shall be 6 inches, except as noted in (b).”

Response:

3. Subarticle 346-3.1 (b) Expand note (b) to read, “The Engineer may allow higher target slump when Types F, G, I, or II admixtures are used in concrete. The maximum target slump of 7 inches will be allowed when these admixtures are used in concrete, with the exception of flowing concrete, which the target slump shall be 9.0 inches.”

Response:

4. Subarticle 346-3.1 (e) Expand the note to read, “...slump shall be 6 inches, except as noted in (b).”

Response:

5. Section 346-3.2.1 The terminologies “environmental conditions” and “structural conditions” need to be defined.

Response:

6. Section 346-3.2.1 (2) At lower temperature placements, there will be a need for admixture adjustment. It should be clarified that the same mix design be used with admixture adjustment to obtain the required slump.

Response:

7. Section 346-4.2.2 Certification The word “certification” in this title does not match the description of the proposed specification.

Response:

8. 346-6.3 The delivery ticket includes all the information about plastic properties. How can the contractor verify that the delivered concrete complies with the requirements of Table 4 without testing hard concrete, unless the certification is based on chloride content of concrete materials ingredients?

Response:

9. 346-6.4, Second Paragraph, Last Sentence In the sentence, "...if adjustments are not implemented, the engineer may reject the concrete ... until corrections are implemented.", the word "may" should be changed to "shall" or "will".

Response:

Ken Zinck
386-740-3471
ken.zinck@dot.state.fl.us

Comments: (10-26-09) (Comments by Diego Pagan of Leesburg Operations)
There are typos in 346-3.2.1(6): "...equal to the midrange..." And SUBARTICLE 346-7.7:
"...to ensure the concrete is..."

Response:

Ron Holcomb
Cemex-Florida Division
rholcomb@cemexusa.com

Comments: (11-2-09)
346-3.2.1- Slump loss test requirements The proposed revision states that; The Engineer may require a new slump loss test in the event that temperature, environmental conditions, or change in structural conditions change. Then, in note 2; (2) The slump loss test is performed at a temperature consistent with the highest ambient and concrete temperatures expected during actual concrete placement. This test may be used for lower temperature placements without any admixture adjustments.

COMMENT: This would seem to be open to interpretation, as the engineer can require a new test for a change in temperature or environmental conditions. In effect, if the ambient temperature decreases, no admixture adjustments need to be made, based on Note 2; yet since it was a temperature or environmental change, a new test could be required. Requiring multiple slump loss tests for varying ambient conditions results in additional expense, possible delays to the project, and the environmental impact of disposing of the concrete used for the slump loss test.

Response:

Ron Holcomb

Cemex-Florida Division
rholcomb@cemexusa.com

Comments: (11-2-09)

346-6.4 Plastic Properties Tolerances- The statement; "If adjustments are not implemented by the next load of concrete, reject the concrete and terminate further production until adjustments are implemented", implies that the subsequent load, which may already be in transit, would be rejected regardless of the plastic properties, if an adjustment is not noted. In previous versions, there was an allowance for concrete in transit; The Engineer will take into consideration trucks already in route from the concrete production facility after the facility has been notified. This previous wording could be amended to state that the Engineer will take into consideration trucks already in route from the concrete production facility after the facility has been notified, as long as those trucks in route meet the plastic property tolerances, and the water-cement ratio for the class of concrete has not been exceeded.

Response:

Ron Holcomb
Cemex-Florida Division
rholcomb@cemexusa.com

Comments: (11-2-09)

346-6.4 Plastic Properties Tolerances - As long as the allowable jobsite water and the water-cement ratio for the class of concrete is not exceeded, it would seem that slump adjustments to concrete less than the tolerance could be allowed. Two sets of criteria would be used for the basis of rejection or acceptance, such as concrete with a tested slump over the allowable tolerance will be rejected. Concrete with a slump less than the allowable tolerance can be adjusted to within the tolerance range as long as the allowable jobsite water and the water-cement ratio requirements are not exceeded.

Response:

Ron Holcomb
Cemex-Florida Division
rholcomb@cemexusa.com

Comments: (11-2-09)

346-9.4 and 346-12- The revision of 346-12 seems unfair and unclear- payment based on plastic properties, "fee of twice the invoice price will be assessed" for plastic properties. It would seem that the statement is aimed to prevent placing concrete with excessive slump, when adjusted at the site with allowable water. Since the statement in 346-9.4 states "will accept at full pay only LOTs of concrete represented by plastic properties which meet the requirements", would the

“twice the invoice” affect only one load as stated in 346-12, or the entire LOT it represents? It would seem if the concrete met the hardened properties, that “twice the invoice price” is a stiff penalty for a slightly low air test or a slump 1/4” too tight due to waiting to discharge, especially if a replacement load is not readily available within the allotted time to avoid losing the structure being placed.

Response:

No Name

Comments: (11-3-09)

346-3.2.1 In the last sentence of the first paragraph, "or change in structural conditions change". Ackward, suggest or structural conditions change. The active voice and rewording added clarity.

Response:

JC Miseroy
Granite Construction Co.
813-623-5877
jc.miseroy@gcinc.com

Comments: (11-5-09)

Hi Duane, I had some comments on the proposed 3460301 Portland Cement Concrete Sepcification. Hopefully you can still consider these comments, even though I missed the deadline.

1. 346-6.4 Plastic Property Tolerances. We would like to be able to add water to delivered concrete when the slump is within tolerance, but low for placement purposes. Of course this would only work if the water added was still within the allowe WC ratio.

2. 346-7.7 Adding Water to Concrete at the Placement Site. To conform with our proposal above, we would suggest changing 'is outside' in the second sentence to 'is above'. As discussed above, this would permit the addition of allowable water to produce a more workable concrete. Thanks for your consideration of these comments.

Response:
