AGENDA

ACI 214 – Evaluation of Strength Test Results of Concrete
ACI Fall Convention 2016 – Philadelphia, Pennsylvania
October 24, 2016 4:00 PM-5:30 PM – Room 408-409

1. Call to order. Welcome members and guests.
2. Self-Introductions
   a. Regrets
3. Administrative Topics
   a. Membership review and discussion
      i. Voting 36 - Associate 20 - Consulting 1
      ii. 19 Replied to inquiry – 19 voted/17 did not
   b. We need a 214 Secretary
   c. We need a chair and secretary for the 214A Doc Prep
5. Core Evaluation Document Report - Mike Bartlett
   a. Reapproved by ballot
   a. Balloted – Failed due to lack of response summary attached.
7. Tech Note 2 vs 3 Cylinders Report – Castles
   a. Summary status is attached.
8. New Business
9. Adjournment
To the Committee -

Tech Note – Two or Three 4x8’s – Summary thoughts by Castles October 2016

Can a case be made for using 2 rather than 3 4x8’s for concrete acceptance?

We have been asked to create a tech note addressing the issue of the need for 2 or 3 4x8’s as is currently required by 318. The Tech Note would make a case for the use of 2 4x8 cylinders rather than the currently required three.

We have one year to publish a Tech Note that can be presented to the 318 committee justifying support for a change to ACI 318. The time limit constrains our ability to develop new data.

The current justification requiring 3 4x8’s is based on the premise that the within-test variability of 4x8’s is higher than the variability of 6x12’s and in order to have a comparable confidence interval on the estimated average strength of a batch of concrete tested by 4x8’s, three 4x8 cylinders are necessary (CI Nov 2009 Concrete Q&A).

There are published articles that conclude that the variability 4x8’s is not higher than that of 6x12’s. (Detwiler et.al. CI in Jan 2006 and May 2009 are two such articles, there are others). Other data exists indicating that there is a differences in variability between 4x8’s and 6x12’s.

One approach to the Tech Note could be to rely on and summarize the articles that indicate 4x8’s and 6x12’s have similar with-in test variability (are not statistically different). A second approach may be to accept the premise that the 4x8’s have a higher variability and promulgate the affects that a wider confidence interval on an individual test has on the acceptance process. Stated another way, the confidence interval of the estimated mean of a batch is reduce to XX% when only 2 4x8’s are used for acceptance testing.

Many of us have reviewed historical test data that includes 3 4x8’s per test. When we eliminate one of the cylinders, the resulting average of the set is seldom changed by a significant amount and the statistical data for the data does not change. This was the basis of my impromptu presentation at Milwaukee Spring 2016. We are confident that analysis of your three cylinder test data will show similar results. However, this does not address the question of differences in with-in test variability between 4x8’s and 6x12’s.

We need your help with this. If you are aware of publications or presentations, especially within the last 10 years, that support the change from two to three, please send those in with comments if you can. Time is short. We need your help.