

Minutes

ACI 440K – FRP Material Characteristics

Tuesday, 5 April 2011, 8:00-10:00 am
Harbor Island Westin, Ballroom 1, Tampa, Florida
Chairman: Chuck Bakis

Harries ‘appointed’ secretary by Shield
Required actions in bold text.

1. Call meeting to order – 8 am
2. Attendees introduction & attendance sheet
3. Approval of the last meeting minutes (see 440 web page)
Move to accept minutes as posted (Busel; second Shield); passed
4. Approval of and changes to agenda
Items 6 and 7 reversed from preliminary agenda (reflected in these notes)
Move to approve (Bradberry; second Blazak); passed
5. Test methods underway in ASTM D30
 - a. Lap Shear Tension, ASTM WK22346
 - b. Transverse Shear, ASTM WK22348
 - c. Bar Alkaline Tension, ASTM WK27200

Brief review of ACI 440K-D30 relationship and status of 440.3R tests
B4 and L3 are newly passed at D30

L3 is single shear lap for wet lay up only – Jeff Brown took lead
B4 guillotine shear test – Gentry took lead

Bar Alkali Test completed 4th ballot Jan/Feb 2011. Anticipate approval at next ballot
Tap water vs deionized water issue has been raised again as comment
Gremel commented that data points at 1,2,3,4 and 6 months may be too much –
suggested dropping month 4 as a matter of practicality.

All present agreed that dropping the 4th month data point was acceptable

6. 440.3R-04 reapproval
Document was updated to reflect ASTM D30 activities
Comment on ‘old’ content taken as new business
Document balloted as whole (no technical changes)
Results of 440.3R-04 ballot: 46 affirmative; 3 affirmative with comment; 1 negative; 1
not returned. Meets ½ and 2/3 rule.
Resolution of Comments and Negative:
Three editorial comments (Witt, Parretti, Lee) all easily addressed
(Shield, Witt, Parretti) Section 9.1: error in circumference equation: change 2π to
 π (no objection to addressing this as editorial)
Additional comments by Koch and Lee also addressed.

Negative (Porter):

Change 2π to π : no objection to addressing this as editorial

Insert four references into document essentially to provide 'history';

Insertion into Section R.2, a general listing of conference proceedings.

Bakis: are we opening 'can of worms' by adding new references at this stage?

Shield: since R.2 is not test method specific, should we remove R.2 altogether since the ultimate goal is for this document to fade away completely.

Harries: not certain that negative is in spirit of ballot (i.e.: should this be new business)

Porter: change vote to affirmative with comment

No motions required – **editorial comments will be addressed as indicated.**

7. Formative work

a. ASTM D7205 Reapproval (Bar Tension)

5 year reapproval cycle at ASTM

Discussion of possible changes to Anchorage Annex

Drouin: *Importance of Sample Preparation in Tensile Testing FRP Rebar*

issue of anchored bar being exposed to high temperatures (above T_g) exothermic during cure of potting material when using ASTM D7205 anchorage detail.

Further issue that 'centering cap', when reused 'wears' out and no longer effectively centers bar and may damage surface of rod.

Appears that both mean and standard deviations improve (increase and decreases, respectively) when using Pultrall anchorage as compared to D7205 Annex.

Proposal is essentially to change ID of anchorage tubes for larger bars and replace 'cap' with 'ring' for all bar sizes.

Crushing of anchorage is a 'known' problem.

It is specifically noted that Annex is NOT mandatory and should not be interpreted as such.

Discussion: remove table altogether and replace with mandatory language such as: i) make sure anchorage wall does not crush; ii) grout does not overheat bar

ACTION: Form TG to address this Annex: Gremel, Boot, Hutchison, Seshappa, Gibson, Porter. TG will report to Bakis.

b. Sheet Pull-off

Harries presented brief overview of beam bond test. **Initial draft of standard is posted in 440K work area.** Comments received in meeting:

NSM Method B would be very good addition

Does curvature of beam affect results? Perhaps this could be included as an 'interference'.

Lopez presented brief overview of shear bond test. No comments received in meeting.

People interested in contributing to either standard development activity should contact Harries and/or Lopez.

c. Bar Bond

Porter: pullout tests are fine for parametric studies but focus of a bond test is also to establish an actual value of the in situ bond strength. **Background document will be posted in 440K work area.**

Three approaches to be considered – guidance for selecting appropriate method:

Simply supported beam with cantilever overhang

Beam-end specimen

Spliced bars in simply supported beam

Shield: clarification that pull-out test is adequate for 440.6 specification.

Benmokrane also has provided a draft document on beam test for k_b .

8. Future work

Finish transferring 440.3 tests to D30

Specimen prep guide for wet-layup

ASTM summary document for bars in concrete

9. New Business

Gentry via Bakis: Perhaps new subcommittee in D30: D30.10 Infrastructure Composites.

Prof. Gentry was awarded an ASTM award of recognition for his efforts towards test methods development. Due recognition was made by those in attendance.

10. Adjourn at 10 am

Attendance

Chuck Bakis

Gregg Blaszk

Matthew Boot

Timothy E. Bradberry

John Busel

Dominique Deschamps

Jonathan Fischer

Robert Gibson

Will Gold

Doug Gremel

Rishi Gupta

Kent Harries

Didier Hutchison

Mehdi Taher

Khorramabadi

Insung Kim

Maria Lopez

Charlie McClaskey

Wassim Naguib

Ayman Okeil

Max Porter

Guillermo Reciros-

Melendez

Venkatesh Seshappa

Carol Shield

Sam Steere