Agenda
ACI 544 Main Committee Meeting, Fiber Reinforced Concrete
FALL CONVENTION
Denver, Colorado
Tuesday, Nov 10th, 3:00 PM - 5:30 PM GRAND BALLROOM I

1. Call to order and approval of agenda
2. Introductions
3. Approval of previous minutes (ACI Spring Convention, , Kansas City, MO, 2015)
4. Remarks from the Chair / Secretary
5. Announcements
   upcoming and recent events. Please provide announcements electronically to committee secretary so it can be included in the minutes of the meeting.
6. Report from the membership secretary (MacDonald)
   Results of recent membership survey, subcommittee assignments, voting and activity records. (10 minutes)
7. Subcommittee reports
   □ 544-SC FRC- Steering committee (Mobasher)
   □ 544-A FRC-Education, Production & applications (MacDonald)
      a) Status plan: 544.1R-96
      b) Nomenclature Document
   □ 544-C FRC-testing (Ferrara)
      a) Status of the Testing Document, Chapters submitted to TAC for Review
   □ 544-D FRC- Structural uses (Mobasher)
      a) Elevated Slabs, Publication
      b) ETR report on FRC Segmental Tunnel Lining, Ballot results, Lead Author: M. Bakhsi
      c) Status plan 544-4R new Design Document, Lead author: A; Bonakdar
   □ 544-E FRC- Mechanical Properties (Krstulovic)
      a) 544-6R
   □ 544-F FRC-durability (Aldea)
      a) Technotes under Ballot
      b) “Corrosion Resistance of FRC” (J. Barros),
8. Liaison reports
   • ACI 360
   • ACI 506 Jeff Novak
   • ACI 440 Mahmut Ekenel,
   • ACI 701 Cliff MacDonald
   • ASTM C 09.42
   • ASTM C 27
   • ASTM C 17
   • RILEM
   • FIB TG8.6 Bruno Massicotte
   • FIB TG8.6
   • FRCA Michael Mahoney
9. Additional reports
ACI 239: Mobasher
ACI 350-B: Document on the use of fibers in hot weather concrete
ACI 360:
ACI 440:
ACI 506: Novak
ASTM C 09.42 on FRC:
9. Other business / presentations / informal discussion of projects

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<td>544</td>
<td>Fiber-Reinforced Concrete</td>
<td>Tuesday</td>
<td>3:00 PM - 5:30 PM</td>
<td>GRAND BALLROOM I</td>
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<td>544-A</td>
<td>FRC-Education Production Application</td>
<td>Monday</td>
<td>10:00 AM - 1:00 PM</td>
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<td>544-D</td>
<td>FRC-Structural Uses</td>
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<td>544-E</td>
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<td>544-F</td>
<td>FRC-Durability</td>
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Repair and rehabilitation of concrete infrastructure remain a formidable challenge. We need not only to understand the performance of repair systems, but also develop innovative materials and placement processes that lead to durable, cost-effective and aesthetically pleasing repairs. In this context, fiber reinforced concrete is emerging as a promising repair material. Fibers provide an increased resistance to crack growth, enhance deformability and impart concrete with an improved fatigue endurance and impact resistance.

Unfortunately, the influence of fibers on the mechanical properties of the interface developed between the old concrete and a fiber reinforced repair material remains poorly understood. This aspect is being investigated at the University of British Columbia through an experimental program including inherent mechanical interface characterization, strength and damage assessment, and fracture analysis.

Slant shear tests with different inclinations of the bond plane were performed. Shear stress - normal stress interaction diagrams were generated to obtain adhesion strength and angle of internal friction. Repair mortars with different contents of Polyvinyl Alcohol (PVA) fibers were investigated and the influence of wet-dry cycles was measured.

The Contoured Double Cantilever Beam (CDCB) test was performed to assess the interface Mode-I crack growth resistance. Stress intensity factor - effective crack length curves were computed based on a Linear Elastic Fracture Mechanics approach.

Results show that the addition of PVA fibers to the repair can significantly enhance the interfacial adhesion (Figure 1). Furthermore, addition of fibers to the repair material enhances the substrate-repair interface crack growth resistance. In conclusion, an overall improvement of the substrate-repair interfacial cohesive behavior was observed as PVA fibers were added. Experimental results will be presented and the mechanisms that allowed the enhancement of substrate-repair adhesion will be discussed.