UNIVERSITY of HOUSTON

CULLEN COLLEGE of ENGINEERING

Department of Civil & Environmental Engineering

CIVE 6111 Graduate Seminar Series

David W. Fowler

University Distinguished Teaching Professor
Joe J. King Chair in Engineering No. 2
Civil, Architectural and Environmental Engineering
University of Texas at Austin

What Have We Learned About Concrete-Polymer Materials?

Monday, November 10, 2014
10:30 am - 11:30 am
Room: D3 W205

Abstract

Concrete-polymer materials have received considerable attention over the past 40 years or more. Their introduction was accompanied by much fanfare and predictions for applications throughout the construction industry. The basic materials that were developed were polymer-impregnated concrete, polymer-modified concrete, and polymer concrete. They were extensively researched and many applications were suggested. Polymer-impregnated concrete, ordinary concrete that has been impregnated with a low viscosity monomer that is subsequently polymerized, while having some very desirable properties, proved to be difficult to produce, especially in the field; as a result there are very few commercial applications today. Polymer-modified concrete, portland cement concrete with a water compatible polymer, e.g. latex, is similar to normal concrete with admixtures and had been a very successful material. Polymer concrete, consisting of aggregate with a polymer binder, had had numerous successful applications. The presentation will describe these materials and their applications and then discuss what we have learned. The engineering properties and behavior of materials and structures will be used to illustrate and explain the performance of the concrete-polymer materials.

About the speaker:

Dr. David Fowler is a University Distinguished Teaching Professor and holds the Joe J. King Chair No. 2 and the T.U. Taylor Professorship in the Department of Civil, Architectural and Environmental Engineering. He has taught a wide range of courses including reinforced concrete design, civil engineering materials, concrete repair, forensic engineering, advanced concrete materials, and wood engineering. His research has included a wide range of concrete-polymer materials including behavior and applications; portland cement concrete materials including overlays, repair, coatings, and durability; aggregates used in concrete; concrete proportioning to optimize cement content and performance; and wood shear wall systems for manufactured housing.

He is a member of many ACI, TRB and ASCE technical committees and has served as chair of many committees including the polymer committees in ACI and TRB. He was the first president of the International Congress on Polymers in Concrete. He has served on numerous RILEM committees. He is a Fellow in ACI, ASCE and AEI. He is a member of the National Academy of Engineering and was in the first group of non-Russians named to the Russian Academy of Engineering. He has won numerous awards including the ACI Bloem and Philleo Awards, the ICPIC Nutt Award. He was named "People In Concrete Repair" by *Concrete Repair Digest*. He has won numerous teaching awards and is a member of the university's Academy of Distinguished Teachers.