



Sharon L. Wood



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Spring 2012 Khan Distinguished Lecture Series

The Fazlur Rahman Khan Distinguished Lecture Series honors Dr. Fazlur Rahman Khan's legacy of excellence in structural engineering and architecture
Initiated and Organized by: DAN M. FRANGOPOL

Fazlur Rahman Khan Endowed Chair of Structural Engineering and Architecture
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Sharon L. Wood

Robert L. Parker, Sr. Professor in Engineering and Chair, Department of Civil, Architectural, and Environmental Engineering, University of Texas at Austin

"Opportunities and Challenges for Infrastructure Monitoring"

Friday, March 23rd, 2012 – 4:10 pm

Location: Sinclair Lab Auditorium, Lehigh University, 7 Asa Drive, Bethlehem, PA

<http://www.lehigh.edu/frkseries>

In step with the abounding vitality of the time, structural engineer **Fazlur Rahman Khan** (1929-1982) ushered in a renaissance in skyscraper construction during the second half of the 20th century. Fazlur Khan was a pragmatic visionary: the series of progressive ideas that he brought forth for efficient high-rise construction in the 1960s and '70s were validated in his own work, notably his efficient designs for Chicago's 100-story John Hancock Center and 110-story Sears Tower -- the tallest building in the United States since its completion in 1974. For more information on Fazlur R. Khan please visit:

<http://www.fazlurrkhan.com>



Fazlur Rahman Khan

Lehigh endowed a chair in structural engineering and architecture and has established this lecture series in Khan's honor. It is organized by **Professor Dan M. Frangopol**, the university's first holder of the Fazlur Rahman Khan Endowed Chair of Structural Engineering and Architecture, and sponsored by the Departments of Civil & Environmental Engineering, and Art & Architecture.

Sharon L. Wood, Robert L. Parker, Sr. Professor in Engineering and Chair, Department of Civil, Architectural, and Environmental Engineering, University of Texas at Austin: Professor Wood's research and teaching interests are related to studying the behavior of reinforced concrete structures. She has also conducted diagnostic load tests on existing reinforced and prestressed concrete bridges, investigated the fatigue response of cable-stayed and prestressed concrete girder bridges, and used measured rainflow data to evaluate the remaining fatigue life of fracture-critical bridges. She also studied the use of composite materials to strengthen existing reinforced concrete bridges. She has developed a passive, wireless sensor platform to monitor the performance of civil infrastructure systems. Prototype sensors have been developed to detect the onset of corrosion in reinforced concrete structures.

Professor Wood is a fellow of the American Concrete Institute (ACI) and chaired its Technical Activities Committee between 2003 and 2006. She is also a member of the Structural Concrete Building Code Committee. She served on the ACI Board of Direction from 1997 through 2000 and as chair of the ACI Publications Committee from 1995 through 2002. In 1993 she received the Alfred Noble Award from the American Society of Civil Engineers for her paper "Seismic Response of R/C Frames with Setbacks." She received the Arthur J. Boase Award from the Reinforced Concrete Research Council in 1998 in recognition of her research and teaching in the field of structural concrete, the Joe W. Kelly Award from the American Concrete Institute in 2002 "in recognition of her dedication to improving the seismic behavior and design of reinforced concrete structures through the education of students and engineers," and the Henry L. Kennedy Award from the American Concrete Institute in 2006 "for outstanding technical and administrative contributions to the Institute, particularly as a member of ACI Committee 318, Chair of the ACI Publications Committee, and Chair of the Technical Activities Committee." She served as the Distinguished Lecturer for the Earthquake Engineering Research Institute in 2010.

Opportunities and Challenges for Infrastructure Monitoring:

Technical advances over the past decade have led to the development of comprehensive, structural-health monitoring systems. Yet visual inspection is still used as the primary method for evaluating the condition of infrastructure systems in the US. Examples of using measured bridge response to augment visual inspections will be presented, along with the challenges of implementing these technologies.

FAZLUR RAHMAN KHAN (1929 - 1982) One of the foremost structural engineers of the 20th century, Fazlur Khan epitomized both structural engineering achievement and creative collaborative effort between architect and engineer. Only when architectural design is grounded in structural realities, he believed — thus celebrating architecture's nature as a constructive art, rooted in the earth — can "the resulting aesthetics ... have a transcendental value and quality." His ideas for these sky-scraping towers offered more than economic construction and iconic architectural images; they gave people the opportunity to work and live "in the sky." Hancock Center residents thrive on the wide expanse of sky and lake before them, the stunning quiet in the heart of the city, and the intimacy with nature at such heights: the rising sun, the moon and stars, the migrating flocks of birds. Fazlur Khan was always clear about the purpose of architecture. His characteristic statement to an editor in 1971, having just been selected Construction's Man of the Year by *Engineering News-Record*, is commemorated in a plaque in Onterie Center (446 E. Ontario, Chicago): **"The technical man must not be lost in his own technology. He must be able to appreciate life; and life is art, drama, music, and most importantly, people."** For more information on Fazlur Rahman Khan please visit: <http://www.fazlurrkhan.com>

Please contact the Khan Chair office at 610-758-6123 or Email: infrk@lehigh.edu with any questions.