LEHIGH UNIVERSITY

P. C. ROSSIN COLLEGE OF ENGINEERING AND APPLIED SCIENCE

Spring 2008

FAZLUR RAHMAN KHAN LECTURE SERIES

Honoring a legacy in structural engineering and architecture

Presentations will be held in the Sinclair Laboratory Auditorium at Lehigh University

Receptions to precede events starting at 4:10 P.M.

http://www.lehigh.edu/frkseries

Friday, February 15th, 2008
4:30 P.M.
"Engineering of Major Architecture, Then and Now "

Friday, March 14th, 2008
4:30 P.M.
"Structural Design for Security—Past Accomplishments and Future Directions"

Friday, April 18th, 2008
4:30 P.M.
"Overcoming Barriers to Durable Steel Bridge Systems"

About the Khan Series

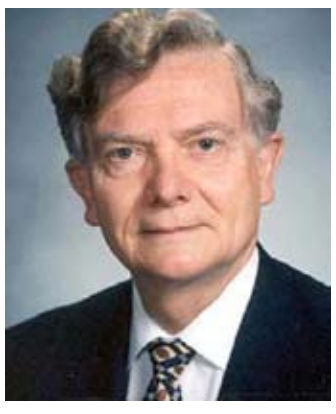
In step with the abounding vitality of the time, structural engineer Fazlur Rahman Khan (1929-1982) ushered in a renaissance in skyscraper construction during the second half of the 20th century. Fazlur Khan was a pragmatic visionary: the series of progressive ideas that he brought forth for efficient 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.

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.

Richard Tomasetti
Chairman - Thornton Tomasetti, Inc.

Jeremy Isenberg
Past-President & CEO - Weidlinger Associates, Inc.



John W. Fisher
Professor Emeritus of Civil Eng - Lehigh University

Engineering of Major Architecture, Then and Now

The nature and process of the contribution that structural engineering has made to architecture has changed over time. This is manifested by the evolution of the master builder into a collaborative team of specialists. This lecture will discuss some of the history of engineering including the integration of architecture, engineering design and materials technology. Comparisons will be made between the major structures of the past, such as domes and cathedrals, and our modern skyscrapers and long span structures. Examples will include some of the tallest buildings in the world, built and under design, as well as major sports facilities.

Structural Design for Security—Past Accomplishments and Future Directions

American response to the threat of terrorism began following the bombing in 1983 of the US Embassy and Marine Barracks in Beirut. The US Department of State instituted a program of structural hardening to protect US posts abroad. Starting with technical approaches that had been developed for Cold War threats, explosive testing and computational methods were adapted to identify and reduce hazards from chemical explosives of the type available to terrorists. This lecture will trace the development of technology for protecting civilian structures against explosive threats and illustrate applications with examples from the open literature. Suggestions as to future directions will be offered.

Overcoming Barriers to Durable Steel Bridge Systems

Experience with steel bridges has demonstrated that one of the primary barriers to durability was inadequacies in the fatigue design criteria and practice prior to 1974. The development of a rational fatigue resistance knowledge base and the introduction of stress range as the appropriate fatigue design criteria minimized this limitation. More recent work on Ultrasonic Impact Treatment (UIT) together with the need for end weld design changes are shown to effectively eliminate fatigue as controlling design. For the future, High Performance Steels (HPS) are providing enhanced weathering resistance for uncoated members along with more reliable fracture resistance and weldability.

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This lecture series is sponsored by:
Civil & Environmental Engineering: College of Engineering & Applied Science
Art & Architecture: College of Arts & Sciences