LEHIGH UNIVERSITY

P. C. ROSSIN COLLEGE OF ENGINEERING AND APPLIED SCIENCE

2011

FAZLUR RAHMAN KHAN DISTINGUISHED LECTURE SERIES

Honoring a legacy in structural engineering and architecture

The three presentations at Lehigh University, organized by Professor Dan M. Frangopol, will be held in the Sinclair Auditorium.

The presentation at Princeton University, organized by Professors Maria M. Garlock and Sigrid Adriaenssens, will be held in the Friend Center.
Reception and Exhibit: 5:45pm - 6:30 pm at Friend Center Lobby & Library

http://www.lehigh.edu/frkseries

Friday, February 18th, 2011
4:30 P.M.
"Extreme Engineering"

Friday, April 8th, 2011
4:30 P.M.
"Building Disaster Resilient Communities"

Friday, September 9th, 2011
4:30 P.M.
"Personal and Professional Recollections of Fazlur Khan"
Location: Princeton University

Friday, September 23rd, 2011
4:30 P.M.
"Safeguarding Quality of Life:
The Role of Large-Scale Testing"

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 (www.fazlurrkhan.com). Fazlur Khan was a pragmatic visionary: the series of progressive ideas that he brought forth for efficient highrise 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.

David Scott
Arup, Americas Building Practice Leader; Past Chairman, CTBUH, New York, NY

Extreme Engineering

Modern computer design and fabrication technology gives architects and engineers the ability to design and build more complex and unusual structures than ever before imagined. When used effectively, modern tools enable architects and engineers to design efficiency and simplicity into some of the most complex forms and create buildings that are unusual yet easy to build and only marginally more expensive than their square box alternates. This lecture will show how these recent advances in design and construction tools are changing the industry. Examples include a range of towers and long span structures, that are both simple and complex, but all containing an elegant efficiency and construction led design.

Chris Poland
Structural Engineer & Senior Principal, Chairman & CEO Degenkolb Engineers, San Francisco, CA

Building Disaster Resilient Communities

Healthy cities continuously grow by driving economic development while protecting their cultural heritage. Success, in part, depends on a healthy built environment that is rooted in contemporary urban planning, sustainability and disaster resilience. We need to develop, and have added to the code, provisions that will provide the buildings and lifelines needed to support disaster resilience. Resilient communities have credible disaster response plans that assure a place and ability to govern after a disaster has struck. Shifting to updated codes requires new policies and community support. Time is needed to understand this issue, join the conversation on how to achieve resiliency, build it into research programs, convince owners to incorporate it in their projects, and be part of the common voice from our profession on how to change the codes.

David Billington
Princeton University, Gordon Y.S. Wu Professor of Engineering, Emeritus; Professor of Civil and Environmental Engineering, Emeritus
Princeton, NJ

Personal and Professional Recollections of Fazlur Khan

In 1961 searching for a new structures appointment at Princeton, I phoned Chester Siess for his best student. He responded "Fazlur Khan" so I called him but he preferred design to teaching. In the late 1960's two submitted papers of mine on aesthetics of structures were harshly critiqued and turned down. I later learned that the critic was Fazlur Khan (he was correct in his review). Finally in 1971 I met him and invited him to Princeton where he lectured on April 11, 1972. He told me of his deep interest in Robert Maillart's structures and agreed to write a paper comparing Maillart's bridges to his own buildings for our Maillart conference. Khan's elegant presentation together with those of Christian Menn and Felix Candela convinced me of a tradition in structural art. Khan returned to Princeton several more times, one of those being only a few weeks before he died. This presentation will present such personal and professional recollections of Fazlur Khan, who became a good friend and colleague of mine through these experiences and others that I will share. I will also reflect on the influence Khan had on others as discussed in a memorial session that Myron Goldsmith and I organized at the ASCE October 1983 convention in Houston (which led us to edit a book devoted to Khan and published by the Council of Tall Buildings and Urban Habitat at Lehigh in 1986).

Masayoshi Nakashima
Kyoto University, Disaster Prevention Research Institute, Kyoto, Japan

Safeguarding Quality of Life: The Role of Large-Scale Testing

A traditional attitude of earthquake engineering: "learning from actual earthquake damages", is no longer acceptable as the resilience of society is naturally lessened with increasing diversity and complexity of the society. A practical alternative to this old attitude is to "learn from quasi-actual earthquake damages", and one tool to this end is E-Defense, the largest shaking table in the world, developed in Japan after the 1995 Kobe earthquake. Since its inauguration in 2005, E-Defense has conducted forty some largescale shaking table tests. This lecture introduces notable tests that had explored a variety of problems related to life-safety and quality-of-life during and after large earthquakes.

LEHIGH UNIVERSITY.

This lecture series is sponsored by:

Civil & Environmental Engineering: College of Engineering & Applied Science
Art & Architecture: College of Arts & Sciences