



STEPHEN J. RESSLER

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 & Design.



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2022 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 PROFESSOR DAN M. FRANGOPOL

The Fazlur Rahman Khan Endowed Chair of Structural Engineering and Architecture
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STEPHEN J. RESSLER, P.E.

Professor Emeritus from the U.S. Military Academy (USMA) at West Point, NY;
Current President of the Lehigh Valley Section, American Society of Civil Engineers (ASCE)

“The Ashtabula Bridge Disaster and the Advent of Civil Engineering Professionalism”

Friday, February 18, 2022 – 4:30 pm

Lecture will be live streamed only, please register for link ([Register here](#))
<http://www.lehigh.edu/frkseries>

Stephen J Ressler, P.E., Ph.D., Dist. M. ASCE, F. ASEE, is Professor Emeritus from the U.S. Military Academy (USMA) at West Point, NY, and currently serves as President of the Lehigh Valley Section, American Society of Civil Engineers (ASCE). He holds a B.S. degree from USMA, M.S. and Ph.D. degrees in civil engineering from Lehigh University, and a Master of Strategic Studies degree from the U.S. Army War College. Dr. Ressler served for 34 years as a commissioned officer in the U.S. Army Corps of Engineers, including 21 years as a faculty member at USMA. In 2007, he deployed to Afghanistan to develop a civil engineering program for the National Military Academy of Afghanistan (NMAA) in Kabul. He also served for seven years as Professor and Head of the USMA Department of Civil and Mechanical Engineering.

Dr. Ressler's passion is engineering education. He has produced four on-line engineering lecture series for The Great Courses and is a frequent guest lecturer at a variety of venues, including seven cruises. He was the developer and director of the West Point Bridge Design Contest, a nationwide online engineering competition that engaged over 100,000 middle school and high school students. For over a decade, he has served as an instructor for ASCE's landmark faculty development program—the Excellence in Civil Engineering Education (ExCEED) Teaching Workshop. He has written over seventy scholarly papers on engineering accreditation, curriculum assessment, faculty development, teaching techniques, K-12 engineering outreach, and information technology. He has received numerous awards, including the ASCE Outstanding Projects and Leaders (OPAL) Award—the society's highest honor.

The Ashtabula Bridge Disaster and the Advent of Civil Engineering Professionalism. Constructed in 1865, the 154-foot railroad truss bridge over the Ashtabula River in northeastern Ohio represented a unique and innovative response to the challenge of adapting traditional timber bridge-building techniques to a new and fundamentally different structural material—iron. The Ashtabula Bridge served its purpose with minimal problems for eleven years. But on the evening of December 29th, 1876, during a severe blizzard, the structure collapsed under the weight of a routine service loading—a passenger train pulled by two steam locomotives. Tragedy then turned to unspeakable horror, as coal-fired heating stoves in the passenger coaches set the wreckage on fire. Within minutes, many passengers who had survived the collapse perished in an uncontrollable blaze. The official death toll was 92—but the actual number was probably much higher, because there was no reliable count of passengers on the train. The Ashtabula Bridge disaster was America's worst rail accident up until that time. The event shocked the nation and prompted a rigorous response from the civil engineering professional community.

In this lecture, we will examine the unique design of the Ashtabula Bridge, its troubled construction process, and the likely causes of the collapse. We will also explore the surprising impact of this catastrophe on bridge design practice during a pivotal period when civil engineering was undergoing an important transition from a craft-based occupation to a profession.

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.*”



1 PDH will be awarded to eligible attendees for each lecture (minimum webinar participation time of 55 minutes is required)

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