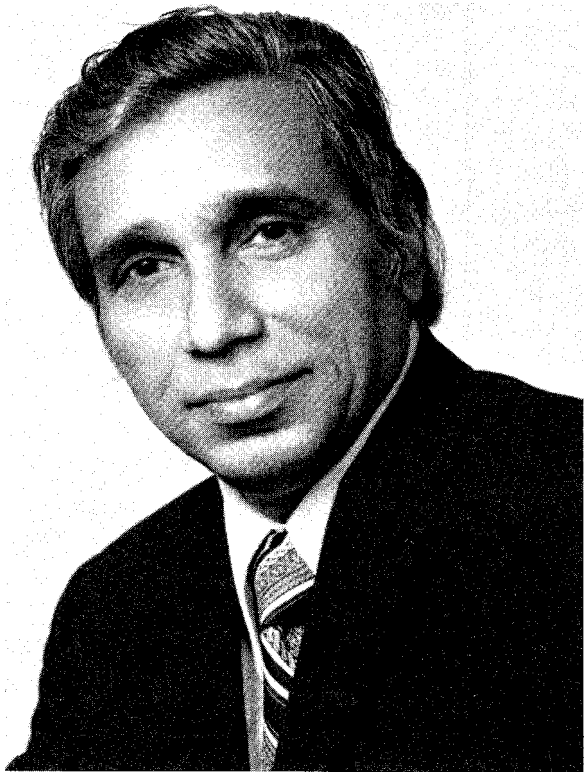

FAZLUR RAHMAN KHAN

1929–1982

BY LYNN S. BEEDLE

FAZLUR RAHMAN KHAN, prominent partner and Chief Structural Engineer of Skidmore, Owings and Merrill in Chicago, died March 27, 1982, during a business trip to the Middle East. The sudden passing of Dr. Khan-guiding structural engineering force of the Sears Tower, the world's tallest building, and other significant projects-has left a great void in the ranks of engineers of tall buildings. In the span of his career he achieved international distinction for his unparalleled work in structural systems.

Dr. Khan was a pioneer in tall-building engineering design, best known for the creation of the "bundled tube" system first used in the Sears Tower. The innovative concept calls for the use of groups of narrow tubelike structures joined together to form a tower of great height, yet with sufficient stiffness to meet lateral sway limitations. It was created as a means of reducing the amount of structural steel or concrete necessary to support a huge skyscraper, and thus making large towers economically feasible.

He was born April 3, 1929, in Dacca, Bangladesh. In 1950 he received a Bachelor of Engineering degree from the University of Dacca. He continued his education in the United States, attending the University of Illinois at Urbana. There he earned an M.S. degree in structural engineering in 1952. Three years later he completed both his M.S. degree in theoretical and applied mechanics and his Ph.D. in structural engineering.

Dr. Khan decided to make his home in Chicago and joined the

international architectural firm of Skidmore, Owings and Merrill in 1955. He remained with them until his death at age fifty-two. Becoming Senior Designer his first year there, he rose through Senior Project Engineer, to Associate Partner, to Head of the Structural/Civil Division, and finally to Partner in 1970.

Dr. Khan had been responsible for the engineering design of many major architectural projects. He developed a number of new structural systems for tall buildings, both for reinforced concrete and for structural steel. Among many of the significant tall structures he designed, three special buildings that stand out are the 714-foot-tall One Shell Plaza Building in Houston; the 100-story John Hancock Center in Chicago, the world's tallest multiuse building; and the 110-story Sears Tower in Chicago, the world's tallest building, at 1,454 feet.

Dr. Khan was also an active designer of other kinds of structures. His work in long-span structural systems made possible the design for the Haj Terminal of the King Abdul Aziz International Airport in J idda, Saudi Arabia, an immense, tentlike structure of stretched fabric and concrete completed in 1981. He was also the engineer for the Hubert H. Humphrey Metrodome, a stadium in Minneapolis, and the Baxter Travenel Laboratories, a structure with a roof suspended from cables, in Deerfield, Illinois. Among other major projects were the engineering designs for the solar telescope at Kitt Peak, Arizona, designed by Myron Goldsmith, and the United States Air Force Academy in Colorado Springs, designed by Walter Netsch.

Though he was not an architect, Dr. Khan worked easily with architects and prided himself on his collaborative role with them. In particular, he worked closely with two of his partners in Skidmore, Owings and Merrill's Chicago office: Bruce Graham, with whom he worked on his major skyscraper designs, and Myron Goldsmith, with whom he taught in the Architecture Department of the Illinois Institute of Technolo gy. Togethe r, D r. Khan and Mr. Graham devised the design for the John Hancock Center. The pattern of the huge X-braces on the exterior of the tower made it clear that the structural system was an important aspect of the building's aesthetics, and the dramatic form brought both Dr. Khan and Mr. Graham considerable public notice. For the Sears Tower, nine tubes were

used. They were of different heights, both to express their separate natures and to give the building a lively profile on the Chicago skyline. Most other bundled tube designs have used tubes of uniform height, making these buildings appear somewhat more conventional.

In addition to his work with Skidmore, Owings and Merrill, Dr. Khan also participated actively in many professional organizations. He was elected to the National Academy of Engineering in 1973. From 1976 to 1979 he was Vice-Chairman of the International Council on Tall Buildings and Urban Habitat and was elected Chairman in 1979, a post he held until his death.

The American Society of Civil Engineers (ASCE), the American Concrete Institute (ACI), the American Welding Society, and the IABSE, to name a few, all listed his name on their rosters. He achieved distinction among their ranks, receiving many awards and honors. Some of the most notable include Fulbright Scholar, Chicagoan of the Year in Architecture and Engineering, American Institute of Steel Construction Special Award, Chicago Civil Engineer of the Year (ASCE), Alumni Honor Award of the University of Illinois, Middlebrooks Award (ASCE), Alfred E. Lindau Award (ACI), State Service Award (Illinois Council of the American Institute of Architects), Ernest E. Howard Award (ASCE), and G. Brooks Ea rnest Award (ASCE Cleveland Section) .

He was also cited among the Men Who Served the Best Interests of the Construction Industry, in 1966, 1969, and 1971, and was voted Construction's Man of the Year in 1972, by *Engineering News Record.* Many medals, such as the Wason Medal for most meritorious paper from ACI (1971), the Lloyd Kimbrough Medal from AISC (1973), and the Oscar Farber Medal from the Institute of Structural Engineers in London (1973), were bestowed upon this engineering giant.

His untiring devotion to his field included the belief that it was not enough just to keep his many theories, discoveries, and "school of hard knocks" knowledge to himself. He published more than seventy-five technical papers in engineering and architectural journals on topics relating to the analysis, design, and construction of complex structures. He also gave freely of his time as an Adjunct Profes-

sor of Architecture at the Illinois Institute of Technology in Chicago where he taught from 1961 until the time of his death.

As a professional, Dr. Khan gave every fiber of his talent, energy, and creativity to the development of new and innovative concepts, all the while preserving what was essential in the tried and true solutions.

As a person, he felt that structures should serve mankind, not the other way around. He was keenly interested in a union of architectural and engineering expertise, with the common goal of function al, economical, and yet beautiful tall buildings. As was so aptly stated by *Engineering News Record,* "The consoling facts are that his structures will stand for years, and his ideas will never die."

He is survived by his wife, Liselotte; his daughter, Yasmin; and his stepson, Martin Reifschneider.