



## IN MEMORIAM

Alexander C. Scordelis

Byron L. and Elvira E. Nishkian Professor of Structural Engineering, Emeritus  
UC Berkeley  
1923 – 2007

Alexander C. Scordelis, distinguished structural engineer, researcher and teacher, died in Berkeley on August 27, 2007, at the age of 83, following a long illness.

Alex was born in San Francisco, California, on September 27, 1923, the youngest of three children of Greek immigrants who owned a grocery store in the Marina district. He attended San Francisco public schools, graduated from Galileo High School at the age of 16 and entered the University of California, Berkeley, to study civil engineering. As a member of the ROTC Corps of Engineers, he was called to active duty to serve in World War II as an officer in the 309th Engineer Combat Battalion of the 84th Infantry Division in the European Theater of Operations (ETO). His unit fought in the Battle of the Bulge, and he was awarded the Bronze Star, Commendation Ribbon, the European Theatre Ribbon with three battlestars for his meritorious achievement, and a Purple Heart for wounds sustained in combat. His unit was among the troops that liberated concentration camps at the close of the war. He was then separated from active duty with the rank of captain, continuing in the Army Reserve for a number of years before retiring with the rank of major. The experience gained during the war at a young age accelerated the development of leadership skills that became evident in his later life.

Following his separation from the Army he returned to UC Berkeley, completing his bachelor's degree in civil engineering in 1948. A year later he earned his master's degree in civil engineering at the Massachusetts Institute of Technology.

Alex returned to Berkeley as instructor in civil engineering in 1949, beginning a distinguished faculty career of 41 years in the Department of Civil Engineering. He was promoted to assistant professor in 1951, associate professor in 1957 and professor in 1962. In 1987 he was named Byron L. and Elvira E. Nishkian Professor of Structural Engineering, a title he held until retirement in 1990.

Recognized by his colleagues as an inspirational and effective leader, Alex was called upon to serve in academic administrative positions on a number of occasions. He was assistant dean in the College of Engineering from 1962 to 1965 with responsibility for international programs. He later served as vice chairman, Division of Structural Engineering and Structural Mechanics, in the Department of Civil Engineering from 1970 to 1973 and as acting chairman of the department in 1981.

Alex Scordelis was a consummate teacher. He taught undergraduate and graduate courses in the analysis and design of structures, and his class notes on structural analysis that were accompanied by ingenious examination problems with elegant solutions became a favorite reference of students and instructors worldwide. He was known for his Socratic teaching style, engaging students in the subject matter by calling

on them to answer questions, thus developing an attitude of critical thinking about the behavior of structures. Many of his students went on to notable careers in academia and professional practice.

Over a productive career spanning more than 40 years, Alex Scordelis' research and consulting made significant contributions to the analysis and design of long- span shell roofs, reinforced and prestressed concrete structures, and all types of bridges.

Early research studies in the late 1950s and early 1960s dealt with the behavior and analysis of prestressed concrete structures, which were relatively new in the Western Hemisphere in the 1950s. These studies initiated a close collaboration with Professor T. Y. Lin that was to last a lifetime and produced insightful research studies and several outstanding structures all over the world.

Inspired by the development of the finite element method for the computer analysis of structures in the late 1950s and its rapid evolution in Berkeley in the early 1960s, Alex Scordelis embarked on the development of suitable finite element analysis procedures for reinforced and prestressed concrete structures. Starting with the first landmark paper on the analysis of cracking in reinforced concrete beams in 1967, and continuing until his retirement in 1990, Alex developed computer analysis procedures for long- span shell roofs and prestressed concrete bridges. He also studied the behavior of box- girder bridges with large- scale experiments that set the standard for this type of investigation for many years to come. This intense research activity with graduate students and visiting scholars from around the world resulted in over 150 technical papers and influenced the design and analysis of all types of structures, from long- span roofs and bridges to nuclear containment structures and offshore platforms.

With this work Alex became recognized around the world as a foremost authority on the analysis of reinforced and prestressed concrete structures and was asked to serve as consultant in several noteworthy projects. Among these were the first concrete offshore platform in the Norwegian Sea and several spectacular reinforced or prestressed concrete shell roofs, such as the 400- foot span elliptical paraboloid roof for the Oklahoma State Fair Arena, the 380- foot span circular paraboloid roof for the Arizona State Fairgrounds Coliseum in Phoenix, the 260- foot diameter inverted dome for the Garden State Art Center in New Jersey, the 140- foot- high hyperbolic paraboloid roof of St. Mary's Cathedral in San Francisco, and the 314- foot span prestressed cable net roof structure for the San Juan Coliseum in San Juan, Puerto Rico. He also served as consultant to several state and federal agencies. Noteworthy is his service for many years on the Seismic Advisory Board of the California Department of Transportation, on the Golden Gate Bridge Seismic Instrumentation Advisory Panel, and on the Governor's Board of Inquiry following the 1989 Loma Prieta Earthquake, which in 1990 issued its landmark report "Competing Against Time" on the earthquake risk assessment of California highway structures.

The contributions of Professor Scordelis to the research base for the practice of structural engineering, and his recognized international stature as a consulting engineer, have been recognized by many honors and awards. He was elected to the National Academy of Engineering in 1978 with the citation "for pioneering the development and application of advanced structural analysis to the design of record- breaking and unique structural systems." He was an honorary member of the American Society of Civil Engineers (ASCE), a fellow of the American Concrete Institute and an honorary member of the International Association for Shell and Spatial Structures (IASS).

Among his many awards are preeminent international recognitions: The Torroja Medal from IASS and the Freyssinet Medal of the International Federation for Prestressed Concrete. He was a winner of the Howard Award and a three- time winner of the Moisseiff Award of the ASCE for research papers.

Upon retirement he received the Berkeley Citation and the Berkeley Engineering Alumni Society Distinguished Engineering Alumnus Award.

Alex is survived by his wife of 59 years, Georgia; son Byron Scordelis and daughter- in- law Stephanie of Saratoga; daughter Karen Holtermann and son- in- law Robert of Berkeley; and four grandchildren, Marisa, Alexander and Stephen Scordelis and Wesley Holtermann.

Karl S. Pister  
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