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In memory of the late Professor Stanisław Kuś Engineer – Scientist – Social Activist

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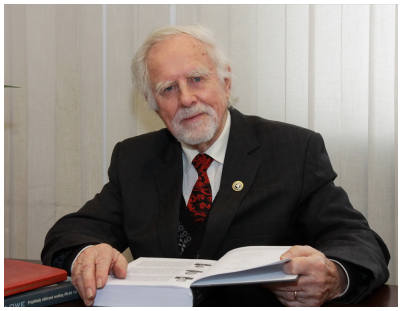

(1925–2020)

Professor Stanisław Kuś – an outstanding civil engineer, scientist, and social activist, known and respected in the Polish and international professional and academic community. In his long life, for over 70 years, he combined professional activity, engineering, and scientific work with teaching, organizational, and social work. He was a man of many talents with many passions and skills, direct, reliable, and realistically looking at reality.

Professor Stanisław Kuś was born on February 1, 1925, in Rzeszów in the family of a junior high school professor, Dr. Andrzej Kuś, and Jadwiga Kuś, people actively engaged in social and educational activities for the residents of the city and the region. During the German occupation, he graduated from a craft school and worked for 2 years as a locksmith and grinder at the aircraft factory Flugenmotorenwerk Reichshof (before the war Rzeszów PZL), continuing his education at secret courses. As a member of the Home Army, he took part in small sabotage and in Operation "Storm". In 1945, he graduated from the Secondary School of Mathematics and Physics in Rzeszów, and the following year he started studies at the Faculty of Civil Engineering of the Warsaw University of Technology, graduating with a master's degree in civil engineering in 1951.

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Already during his studies, he started working in construction at the B. Sławiński Construction Company and continued after graduation in the Investment Team of Headquarters Horticulture, the Investment Studies Office of the Ministry of Internal Trade, the Construction Department of the State Economic Planning Commission and as a designer at the Office for the Study and Design of Industrial Building in Warsaw (BISTYP) in the team of MSc. Eng. Wacław Zalewski, later a professor at MIT in Boston. At the same time, in the years 1952–1957, he was an assistant at the Department of Prefabrication and Prestressed Concrete of the Warsaw University of Technology, headed by Prof. Tomasz Kluz. Collaboration in the design and testing of prototype prestressed concrete structures, designed by designers and scientists in these teams and with the Prestressed Concrete Workshop of the Building Research Institute in Warsaw (ITB), headed by Prof. Wiktor Grzegorzewski resulted in the implementation of the production of the first prestressed girders in Poland and numerous implementations of industrial halls using them. Already at that time, MSc. Eng. S. Kuś was a consistent and effective propagator of the principle of unity of design, research, and implementation of their results during the construction of building structures. He obtained the degree of Doctor of Technical Sciences based on the dissertation entitled "Circularly symmetrical prestressed structures", Arkady, 1957. Until 1966, he worked at the Department of Prefabrication and Prestressed Concrete of Warsaw UT as an assistant professor, and after being appointed to the position of associate professor in 1965, he moved to the ITB in Warsaw, where until 1971, he held the position of deputy director for scientific and technical affairs. In 1969, he obtained a habilitated doctor's degree at the Warsaw University of Technology, presenting a thesis entitled "Strands as prestressing reinforcement in pre-stressed concrete structures." In the years 1972–1990, he headed the Department of New Structures and was an advisor to the director for scientific and technical matters at the Research and Design Centre "BISTYP" in Warsaw. He obtained the title of professor in 1974 and full professor in 1990. In 2014, he was awarded the title of Doctor Honoris Causa of the Rzeszów University of Technology.

In 1976, the Professor began working at the Rzeszów University of Technology and was actively involved in the Rzeszów engineering and social environment, while continuing to work at the "BISTYP" design office. From 1977, he headed the Department of Building Structures at the Rzeszów University of Technology, transformed into a department in 1990, and began building a team and research base, introducing employees to the design of structures and inspiring and supporting research work in the field of shaping and designing structures.

For three terms (in 1987–1990, 1990–1993 and 1996–1999) he was the rector of the Rzeszów University of Technology, demonstrating organizational skills, the ability to build and activate the work of research teams, enthusiasm, and openness to new initiatives and ideas. He successfully led the University through the difficult period of political changes, creating the basis for the development of its scientific and didactic potential and material base. As the rector, he led to the inclusion of the Aviation Training Center in Rzeszow-Jasionka into the structures of the University, obtaining funds for its operation and additional equipment, and also to establish, together with the Warsaw University of Technology, the Gliding Training Center in the Bieszczady Mountains. He retired in 2015, remaining in close contact with the academic staff of the university and the Podkarpacie engineering community until the end of his life.

According to the definition of civil engineering, often quoted by the Professor as a discipline in which knowledge of science and technology, obtained as a result of studies, research, practice, and experience, is applied in the design and implementation of construction objects serving man. His research was inspired by problems arising during the design and implementation of innovative structures, the research and analysis of which allow the design and construction of increasingly perfect structures. In his scientific and professional works, issues related to the shaping and design of structures and to scientific justification and their generalization interpenetrate and complement each other, on the basis of feedback, disseminated in the professional environment and passed on to students during lectures, design exercises, and seminars.

The Professor's scientific and research achievements cover a wide spectrum of important issues in civil engineering. In short, they concern, among others:

- theory, technology, and research on reinforced concrete and prestressed structures, composite structures, timber structures, in particular glued laminated structures, folded steel structures,
- shaping structures, especially large-span roofs, thin-walled shell structures, and folded steel structures,
- shaping structures "for constant force", "imitating the course of internal forces", and "fast methods of checking internal forces in structures of complex form",
- issues of standardization in the design of building structures and its scientific foundations,
- research on the elimination of thermal and shrinkage cracks in the walls of concrete tanks,
- research on strands and anchorages of prestressing tendons for prestressed concrete elements and on structures, prestressed circularly symmetrical structures,
- research concerning actions, especially meteorological loads, on building structures and the issues of standardization in structure design.

Professor St. Kuś is the author of 2, co-author of 10 monographs and technical books, over 300 articles, scientific as well as technical reports, and 10 Polish building standards.

At the Building Research Institute in Warsaw, Rzeszów University of Technology, and Warsaw University of Technology, he promoted 10 doctors of technical sciences. He was also a reviewer of several dozen doctoral and habilitation theses and applications for the academic title of professor.

From the beginning of his professional and scientific career, Professor was actively involved in the activities of national and international scientific organizations and association. He was an active member of the Committee for Civil and Water Engineering of the Polish Academy of Sciences (6 terms) and its sections dedicated to concrete, metal and timber structures (since 1970), as well as a member of the scientific councils of scientific and research institutes and dozens of scientific committees of national and international congresses, and conferences. Knowledge of four foreign languages made it easier for him to make presentations and make contacts abroad. In the sixties of the last century, he completed a few months of internship in the design office and company of Prof. E. Freyssinet in Paris. He delivered several dozen general and review papers at congresses, international conferences, and invited lectures at universities, including Berlin, Paris, Montreal, Eindhoven, London, Rome, Moscow, Leningrad, Lviv, Aleppo, etc.

In 1966–1970 he chaired the Polish National Group of the Research and Development of Materials and Structures Association (RILEM). For many years, he was a member of the Prestressing Steels Commission of the International Association of Prestressed Structures (FIP), and he participated in the work of the W18 Working Group – Timber Structures and in the congresses of the International Construction Council (CIB). He was also a member of the American Society of Civil Engineers (ASCE) and a full member of the Academy of Transport and Construction of Ukraine, a member of the Prestressing Steels Commission (fip), the Working Group W18-International Construction Council (CIB), and the American Society of Civil Engineers (ASCE).

Since 1952, the Professor had been an active, highly valued academic teacher. At the Warsaw and Rzeszów Universities of Technology, he gave lectures, seminars, and design exercises, mainly in the field of reinforced and prestressed concrete structures and shaping structures, as well as courses, trainings, and lectures for civil engineers. The didactic classes conducted by the Professor, in addition to the transfer of theoretical knowledge, were always richly illustrated with inspiring examples of implemented and designed outstanding as well as defectively designed structures. He was the supervisor of several hundred diploma theses completed at the Rzeszów and Warsaw Universities of Technology, including many awarded and distinguished ones.

Professor Stanisław Kuś is one of the leading contemporary Polish designers of building structures. In his over 70-year career as a designer and academic teacher, he emphasized the importance of a creative approach to shaping structures in cooperation with an architect, which is now commonly replaced by reducing the role of the designer of structures to their analysis and dimensioning of elements. He consistently applied this approach in his design practice. Some of the first and last structures designed by the Professor were built in his hometown of Rzeszów. These are the market hall and shelters in the form of thin-walled, double-curved, prestressed concrete shells (1955), prestressed roofs for the sports hall, swimming pool, and the prestressed shell structure of the MOSIR swimming pool (early 1960s). The last one, from 15 years ago, is the steel structure of the covered grandstand of the "KS Stal Rzeszów" stadium. In total, the Professor's design achievements include authorship and co-authorship of over 110 completed original and innovative designs of structures of various buildings, sports facilities, and industrial halls. These include reinforced concrete and prestressed concrete structures, steel and glued timber structures. I will mention only a few of them: prestressed concrete silos in Janikowo, the cover construction of the artificial ice rink "Torwar", the prestressed underground part of the "Spodek" arena in Katowice, four halls in the Olympic preparation center of the Academy of Physical Education in Warsaw, the Aleppo Sport City sports complex in Syria comprising 2 stadiums, a sports hall and 2 swimming pools, and folded steel structures, including the structure of "Supersam" in Warsaw, the "Olivia" sports hall in Gdańsk, indoor swimming pools in Konin and Zgorzelec, the artificial ice rink in Głogów, the sports and entertainment hall in Rzeszów, as well as tension structures: the hanging cover of the sports hall in Elbląg and the games hall of the Academy of Physical Education in Warsaw, as well as structures made of glued timber, including the sports and entertainment halls in Gorlice, Tarnobrzeg, Grudziądz and Ciechanów. Of the several hundred expert opinions and structural strengthening projects carried out by the Professor, the design and supervision of the verticalization of an 11-storey building in Rzeszów that was at risk of a construction disaster (1972–1974) and is still in use today deserves special mention.

In parallel with his intensive professional work as a designer and expert, as well as his scientific and teaching activities, the Professor was involved in social activities both on a national and regional scale in Rzeszów and Podkarpacie. Since 1952, he was a member of the Polish Association of Civil Engineers and Technicians (PZITB). He held positions in it, including the chairman of the Main Board of the PZITB (1993–1996) and chairman of its Science Commission. For several years, he led activities for the establishment of a professional self-government of civil engineers in Poland and was chairman of the Founding Committee of the Polish Chamber of Civil Engineers, and then a member of its National Council. Since 1962, he has been a section editor of the monthly "Inżynieria i Budownictwo" (Engineering and Construction), and for a dozen or so years a member of the editorial board of "Wiadomości Projektanta Budownictwa" (Construction Designer News). For many years, he chaired the Committee of Awards of the Minister of Construction for doctoral and postdoctoral theses and outstanding publications. He held an elected position as a member of the Central Commission for Academic Degrees and Titles three times (1976–1978, 1993–1996, and 1999–2002), and in the years 1985–1987, a member of the Main Council of Higher Education.

For his outstanding achievements in engineering, science, teaching, organization, and social activities, the Professor received many state, university, and association decorations. He was awarded the Officer's Cross and the Knight's Cross of Polonia Restituta, the Gold and Silver Cross of Merit, the Home Army Cross, the Badge for participation in "Action Storm", the Medal of the National Education Commission, and the PZITB Medal named after Prof. Stefan Kaufman, the Gold and Silver Badge of PZITB and the dignity of an honorary member of PZITB, the Honorary Badge "For Merit for Construction", the Honorary Citizenship of the City of Rzeszów, several dozen awards, including from the Minister of Construction for outstanding professional achievements, the Rector of the Rzeszów University of Technology for scientific achievements and many awards from scientific and technical associations.

The presentation of the achievements and accomplishments of Professor Stanisław Kuś presented here is far from complete. In addition to the impressive scientific, professional, didactic, and organizational achievements, it is worth mentioning the features that determined the intellectual class and unique personality of the Professor. A multi-talented, hard-working, friendly, understanding, and helpful teacher, leader, and co-worker, a social activist involved in work for the scientific and professional community, a passionate patriot, the Professor enjoyed universal respect and recognition. The ability to harmoniously combine scientific, didactic, and professional work with intensive organizational activity, work for national and international scientific-technical and professional associations, active participation in the life of social and patriotic organizations, and sports and social activities aroused deep admiration and respect.

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