



RICHARD N. WRIGHT

1932–2019

Elected in 2003

“For sustained leadership in building research, for the development of standards, and for representing the US building industry and research community worldwide.”

BY HRATCH G. SEMERJIAN

RICHARD NEWPORT WRIGHT III died May 31, 2019, at the age of 87, after a short illness. He had chosen and practiced his vocation as a civil engineer with the conviction that well-designed structures could help make the world habitable and safe for communities and people.

Dick (“Bo” to his parents, siblings, and cousins) was born May 17, 1932, in Syracuse, New York, to Richard N. Wright II and Carolyn Baker Wright. His older sister Fleta and younger brother John were his constant companions in the family’s rustic summer “camp” in Conklin Falls, and the three of them spent the post–World War II years working nights and weekends in the family’s store in downtown Syracuse. Both parents shared their love of local history, literature, and music.

A gift from his father—the four volumes of *Lives of the Engineers: With an Account of Their Principal Works* by Samuel Smiles (1862)—inspired Dick at about age 12 to set his sights on civil engineering. He was educated in Syracuse public schools and received his bachelor’s degree in civil engineering (1953) from Syracuse University. He then worked for the Pennsylvania Railroad Company (1953–54), an experience he regarded as formative for his future engineering career.

From 1955 to 1957 he served in the enlisted ranks of the US Army and was assigned to the Army Engineer School in Fort

Belvoir, Virginia. He ended up teaching, as a corporal, non-commissioned officers, junior officers, and advanced officers; he said, "It was fun with corporal's stripes on my arm to be giving classes to captains and majors and light colonels and so forth at the Engineer School. It had a terrific effect on my career because a couple of the younger officers I was working with there had received their master's degree at the University of Illinois in the area of structural dynamics and structural response to extreme loads.... They thought that I really ought to go to the University of Illinois and extend my knowledge there and they recommended me." He then served for a year in the Okinawa Engineering District of the US Army Corps of Engineers where, among other duties, he observed the Redwing series of nuclear tests on the Eniwetok Atoll.

After completing his military service, he was able to go to the University of Illinois at Urbana-Champaign as both a full-time instructor and a graduate student, receiving a master's degree in 1955. He continued his education with a doctoral dissertation on "Loading Rate Effects in Structural Steel." After earning his PhD in civil engineering (1962), he joined the university as a faculty member, attaining the rank of full professor in 1970. His research and teaching yielded applications for the construction of highways, bridges, and buildings, as well as early computer design tools.

His years at the university were also productive in another important way: there he met Teresa Rios, a teacher from Mexico City on a 2-year scholarship to study English. They married in Guadalajara on August 23, 1959, and went on to have four children. Teresa is credited with expanding Dick's interest in seeking to make his neighborhood, town, county, and country safe, inclusive, and supportive places.

In 1971 Dick took a leave of absence from the University of Illinois to work at the National Bureau of Standards (NBS), where a new program was initiated by the Department of Housing and Urban Development (HUD) called Operation Breakthrough. The NBS program was to develop performance criteria for industrialized housing systems and then evaluate the housing systems supplied by various companies. Dick was

chief of the Structures Section of the NBS Building Research Division (1971–72). He also got involved with development of a program on earthquake research after the February 1971 San Fernando earthquake, and was part of a team that investigated the structural performance of buildings in the Managua, Nicaragua, earthquake of December 1972. This was also the period when major efforts on energy conservation were initiated at NBS.

Dick returned to the University of Illinois as a professor of civil engineering for the academic year 1973–74. He and his family had just bought a new house and started landscaping when he got a call from NBS encouraging him to apply for the position of director of the newly established Center for Building Technology (CBT). He was selected for the position and returned to NBS in June 1974. The family moved to Montgomery Village, Maryland, and Dick reveled in the opportunity to explore the area's Civil War battlefields, Smithsonian museums, and Potomac River hiking trails with his family.

He initiated several major programs at NBS that had significant impacts for the nation. In the mid-1970s, as a result of the 1973 OPEC oil embargo, several agencies pursued major new programs in energy conservation for buildings and industrial processes; for example, the new Department of Energy (DOE) and its predecessors planned large programs to reduce the nation's energy consumption. NBS was a critical element of those programs; at the request of HUD and DOE, solar energy programs were initiated at NBS and standards and test methods were developed for solar systems used in housing.

Dick was instrumental in developing the National Earthquake Hazards Reduction Program. In 1978 legislation was enacted and a plan signed by President Jimmy Carter with a specific role for NBS: research and technical support for the development of standards for earthquake hazards.

Dick also launched a series of structural failure investigations. In 1973, when a concrete apartment building under construction in Fairfax, Virginia, collapsed and killed 14 workers,

NBS sent a team to investigate the cause of the collapse. The Occupational Safety and Health Administration (OSHA) commissioned NBS to determine the technical cause of the failure in order to assess responsibilities and penalties for violations of standards and criteria. Other investigations were conducted for OSHA through the 1980s. By congressional mandate, NBS also investigated the cause of the 1981 collapse of skywalks in the Kansas City Hyatt Regency Hotel that killed more than 100 guests.

The credibility of these investigations led to legislative authority for such activities and many subsequent requests over the decades, including investigation of the collapse of the World Trade Center Towers after the terrorist attacks on September 11, 2001.

In response to the signing of the Montreal Protocol in 1987, NBS established, under Dick's direction, the Alternative Refrigerants Program. Aimed at identifying potential alternatives for ozone-depleting compounds (e.g., chlorofluorocarbons, CFCs) used in refrigeration, fire suppression, and other industrial systems, the program enabled US implementation of the Montreal Protocol ahead of schedule and had long-lasting benefits.

The 1980s were challenging for the CBT as, under a new administration, it went 7 successive years without any increase in funding, resulting in personnel cuts and worrisome days for the staff. Dick was successful in garnering industry support for the center's programs; organizations such as the National Institute of Building Sciences, National Conference of States and Building Codes and Standards (NCSBCS), ASHRAE, and ASTM went to Congress to articulate the importance of CBT programs for industry. The programs were ultimately restored and expanded.

In 1988 NBS was renamed the National Institute of Standards and Technology (NIST) and reorganized into several "laboratories," with more emphasis on technology programs. Dick was the founding director of the Building and Fire Research Laboratory and served in that capacity until his retirement (1991–99).

Richard Wright's career was characterized by understated leadership in efforts of national and international importance, promoting collaborative activities that brought together government, academia, and the private sector to improve quality of life. He chaired (1982–99) the Interagency Committee on Seismic Safety in Construction, which helped formulate executive orders for the seismic safety of federal buildings and led to adoption of these standards by the private sector. He cochaired (1994–99) the Subcommittee on Construction and Building of the President's National Science and Technology Council, which led to the Partnership for Advancing Technologies in Housing (PATH), the High-Performance Construction Materials and Systems Program, and a project on Streamlining the Building Regulatory Process.

On the international front he was a member (1980–89) and president (1983–86) of the International Council for Building Research, Studies, and Documentation; president of the liaison committee of International Civil Engineering Organizations (1985–87); and US chair of the US/Japan Panel on Wind and Seismic Effects (1983–99).

He was a very active member of the American Society of Civil Engineers (ASCE) and played important roles in the Civil Engineering Research Foundation (CERF), chairing many committees and subcommittees related to structural engineering and sustainability. For the National Research Council, he chaired the Board on Infrastructure and the Constructed Environment (1999–2002) and served on the Committee to Develop a Long-Term Research Agenda for the Network for Earthquake Engineering Simulation, as well as NAE membership committees.

He contributed to the education of future civil engineers as a teacher, mentor, and author of seminal books and papers such as "Computer Integrated Construction,"¹ *The Representation and Use of Design Specifications* (with Steven J. Fenves),²

¹ *IABSE Proceedings*, P-123/88:17–25, 1988.

² *NBS Technical Note 940*. Washington: Department of Commerce, National Bureau of Standards, 1977.

“Constraint Processing in Design” (with LeRoy T. Boyer and John W. Melin),³ and many others. He coauthored more than 100 research articles.

Richard Wright’s contributions to science, technology, and engineering were recognized with many honors. He received the Department of Commerce Gold Medal Award for distinguished achievement in the federal service (1982), Federal Engineer of the Year Award from the National Society of Professional Engineers (1988), Presidential Meritorious Executive Rank Award (1988), Charles Mahaffey Award from the NCSBCS (1998), ASCE’s Henry L. Michel Award for Industry Advancement of Research (1999), the International Award of the Japan Society of Civil Engineers (2003), an Alumni Award for Distinguished Service from the University of Illinois College of Engineering (2006), the ASCE President’s Medal (2010), and the Hans Oser Standards Alumni Association Distinguished Service Award (2014). In addition to his election to the NAE, he was designated a fellow of ASCE and the American Association for the Advancement of Science.

After his retirement, Dick continued his professional activities under the auspices of ASCE with particular emphasis on sustainable infrastructure and adaptation to climate change, which included development of a textbook for teaching sustainable design, *Engineering for Sustainable Communities, Principles, and Practices* (with William E. Kelly and Barbara Luke; 2017, published by ASCE). He appreciated the importance of history and published an institutional history, *Building and Fire Research at NBS/NIST* (2003, NIST Building Science Series). He was also an active member of the NIST Standards Alumni Association and received its Distinguished Service Award (2003).

Richard N. Wright III is survived by Teresa; their children John Wright-Rios (Ann Butwell), Carolyn Camacho (Rodolfo), Elizabeth Wright (Antonio Quiroga), and Edward Wright-Rios (Gini Pupo-Walker); and six grandchildren.

³ *Journal of the Structural Division* 97(1), 1971.