

Cite this article

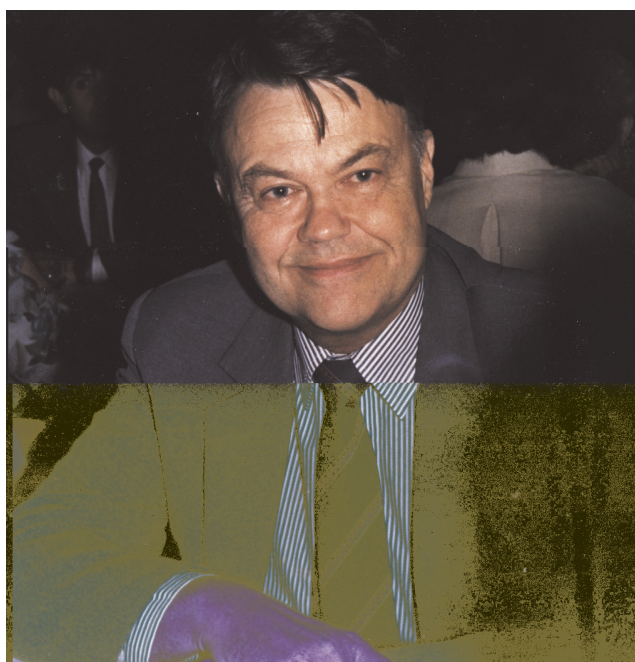
Massarsch KR, Fellenius BH and Holtz RD (2025)
Obituary: Professor Bengt B. Broms.
Proceedings of the Institution of Civil Engineers – Geotechnical Engineering **178(1)**: 128–129,
<https://doi.org/10.1680/jgeen.24.00230>

Obituary

First published online 05/02/2024

Emerald Publishing Limited: All rights reserved

Obituary: Professor Bengt B. Broms



Professor Bengt Baltzar Broms, 1928–2023

Professor Bengt Baltzar Broms, Stockholm, Sweden, passed away at the age of 95. Next of kin are his wife Carina and children Erik, Karin and Peter.

Bengt Broms was a leading figure in Swedish and international geotechnical and foundation engineering. He is mourned by many colleagues worldwide, not least by his former doctoral students, whom he guided with high competence and generous advice. During his long career, Broms authored nearly 500 scientific publications and textbooks in geotechnics, foundation engineering and soil dynamics. Broms showed a great interest in the history of soil mechanics and geotechnical engineering, publishing several papers on the subject. He has also presented keynote addresses, special lectures and short courses in more than 40 countries.

Born on 17 June 1928, in Örebro, Sweden, Broms graduated in 1952 with a civil engineering degree from Chalmers University, Gothenburg, where he earned outstanding grades. He then pursued an academic career at the University of Illinois, Urbana-Champaign, USA, receiving a Master of Science in 1954 and a PhD in 1956. The primary focus of his theses was structural engineering. He benefitted from the guidance and advice of the late Professor R. B. Peck and changed his interest towards soil mechanics. During 3 years following his PhD, he worked as a research engineer in the Shell Development Company in Houston, Texas, USA. He then joined Cornell University, Ithaca, New York, USA as an Associate Professor. From 1964 through to 1974, he was Director General of the Swedish Geotechnical Institute (SGI). In 1974, Broms was awarded the professorship of soil and rock mechanics at the Royal Institute of Technology (KTH) in

Stockholm, Sweden. In 1983, he moved to Singapore to serve as Professor of the Geotechnical Department responsible for building up a new geotechnical group at Nanyang Technological University (NTU), from where he retired in 1995.

Broms was vice president for Europe (1977–1981) and president (1985–1989) of the International Society of Soil Mechanics and Foundation Engineering (ISSMFE). His innovative thinking and indifference to prestige helped to enhance international cooperation within the society.

Broms has had many responsible tasks and essential assignments, including the chairmanship of the Royal Swedish Commission on Pile Research, a unique collaborative effort between industry, academia and government agencies. He was an honorary member of the Swedish Geotechnical Society (SGF). In 1970, he was elected a member of the Royal Academy of Engineering Sciences (IVA). Broms initiated in 1976 the creation of the Swedish Vibration Society (SVIB), which today encompasses the Nordic region. To honor his contributions in the area of soil dynamics, the Swedish Geotechnical Society created the 'Bengt Broms lecture', held in connection with the reoccurring Nordic Ground Vibration Day.

Broms was always interested in international collaboration, especially during his time in Stockholm, where many internationally eminent geotechnical engineers visited and shared their experiences, especially with young engineers at the SGI, some of whom formed long-lasting relations. He also encouraged the standardisation of in situ tests and organised the European Symposium on Penetration Testing (ESOPT) in Stockholm, Sweden in 1974. Largely as a result of this effort, different penetration tests were subsequently standardised. He also played an active role in developing and practically applying dynamic methods of pile testing and initiated the first two international conferences on 'Application of stress wave theory to piles' in Stockholm in 1980 and 1984.

At NTU, Broms organised a series of international geotechnical seminars and symposia, attracting geotechnical engineers worldwide. The Bengt B. Broms Symposium on Geotechnical Engineering was held in Singapore in 1995, basically a retirement symposium, but it also recognised his many outstanding contributions and achievements in geotechnical engineering.

Few Swedish researchers have had such a significant influence on the development of geotechnical know-how and its practical application in the construction industry. Broms achieved an exceptional record in civil engineering practice. He pioneered research in several areas, including cracking in reinforced concrete members and especially in the lateral resistance and buckling of piles. His studies on horizontally loaded piles were groundbreaking, not least for the development of offshore technology in the Gulf of Mexico. He also introduced new concepts regarding geosynthetic-reinforced earth structures and landslide stabilisation.

Broms participated in developing several internationally used foundation methods, such as stabilising soft clays with drains, lime-cement columns and more effective use of prefabricated concrete piles. At SGI, he initiated research on the long-term response of piled foundations to general subsidence. His work on the effect of soil compaction on horizontal earth pressure against retaining structures is widely referenced and he made pioneering contributions to the study of soil dynamic problems, such as vibratory compaction and dynamic methods of testing piles.

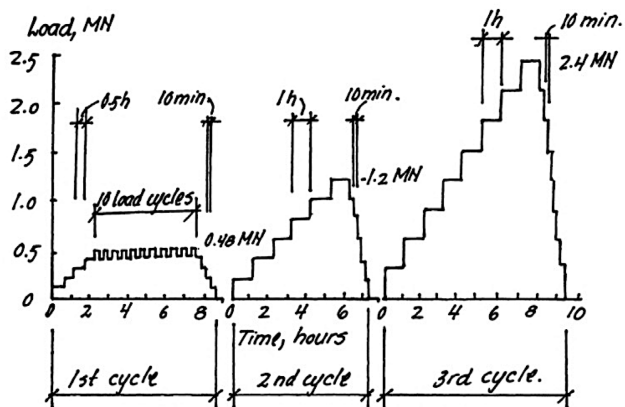


Figure 1. Hand-drawn sketch illustrating the pile response to cyclic loading

Broms had the unique ability to find practical solutions to complex problems, applying theoretical knowledge to engineering practice, which is why clients worldwide valued his extensive knowledge. His record as a specialist consultant in more than 30 countries is impressive. During his

years in Singapore, he actively participated in many local and regional projects.

Professor Broms was known widely as an energetic educator, having taught at universities on three continents. As a teacher and lecturer, Broms could present even complicated problems in an easy-to-understand way – sometimes with hand-drawn sketches and diagrams (see Figure 1) – typical of the many facets of Broms’ personality. Students at all levels very much appreciated his teaching.

His exceptional intellectual capacity, combined with a personal shyness, sometimes obscured the social contact he sought from his collaborators and students. By example and the atmosphere he created, he imparted a lasting bond with and among his many students and team members.

This obituary was prepared on behalf of his former students and collaborators to recognise the immense influence he had on their professional development and their personal lives.

K. Rainer Massarsch
Bengt H. Fellenius
Robert D. Holtz