# QUEENSLAND ENGINEERING HALL of FAME 2013

## George WALKER BE ME PhD FIEAust FAIB FIPENZ ( 1938 - )

## Citation on Plaque

**George Walker's highly developed skills in research, his readiness to engage in interdisciplinary activities, and his ability to extend the findings of his research into professional practice through codes and computer based systems, and communicate this information to all levels of the community, have had worldwide impact, with the Australian community a major beneficiary in respect of wind resistant housing and catastrophe insurance premiums. All single family dwellings built in Australia now incorporate details which are a direct result of the recommendations he made following Cyclone Tracy and his subsequent research. In the insurance world he has been one of the leaders in the application of engineering based knowledge and methods to the management of catastrophe insurance loss risk by insurance and reinsurance companies. This technology has been largely responsible for the current healthy state of this sector of the global financial world despite the huge losses and the global financial crisis during the last decade, and has ensured relative stability in an industry on which most Australians depend when disasters strike.**

## Brief Biographical Background

George Redvers Walker was born in the small country town of Te Kuiti in New Zealand on 5 August 1938. He was educated at the local primary and secondary schools, apart from a final year at Mt Albert Grammar in Auckland, before attending the now University of Auckland to study civil engineering. In 1960 he graduated with a BE (1st Class Honours), to be followed in 1961 with an ME for studies of turbulent flow, and in 1966 with a PhD in earthquake engineering.

Following 4 years working as a design engineer in the prestressed concrete and nuclear power industries in 1968 George joined the then University College of Townsville, now James Cook University, to teach structural engineering design, where he stayed for 21 years. In 1989 he was appointed Assistant Chief and Program Manager for Structural Engineering of the then CSIRO Division of Building Construction and Engineering, and in 1994 joined what is now Aon Benfield Australia, a global reinsurance broking company, to pioneer the development and implementation within Australia of catastrophe insurance loss risk modelling, a financial engineering tool developed by engineers which has had a big impact on the world wide insurance and reinsurance industries during the last 20 years.

Although having an earthquake engineering background, following Cyclone Althea in Townsville in 1971 George began research in the field of wind engineering, particularly in relation to the design of tropical cyclone resistant housing, which is probably where he has made his greatest contribution to the building industry in Australia. He led the Commonwealth Government investigation of the damage to Darwin from Cyclone Tracy and played a major role in the implementation of the recommendations from the resulting report, which have subsequently had an impact on the wind resistant design of housing Australia wide. He was closely involved in the establishment of the Cyclone Testing Station at James Cook University in 1977 and was responsible for supervision of its research activities until he left the University in 1989. Since then he has continued his involvement with it as a member of its Management Committee until 2012 and since then its Advisory Committee. In addition he undertook significant research on the design of wind resistant glazing in association with research being undertaken at that time at Texas Tech University.

From 1982 George became increasingly involved with the insurance industry in the estimation of the risk to insurance companies from catastrophes such as tropical cyclones and earthquakes. This led him into the field of GIS based catastrophe insurance loss risk modelling, a technique originally developed by engineering researchers in the US. While at CSIRO he led one of the earliest applications of this technique in Australia, as a consequence of which he subsequently joined the reinsurance industry. During the past 20 years George has become more of a financial engineer as he applied his engineering knowledge of extreme value statistics and engineering design philosophy to the management of the financial risk to

insurance companies from major catastrophes and the design of national disaster insurance schemes. He played a major role in the development of the Minerva software modelling tool for the New Zealand Earthquake Commission, and led studies on the feasibility of a comprehensive disaster insurance scheme in Taiwan for the Taiwan Government, and of flood insurance in Hunan Province, China, as part of an Asian Development Bank project. In addition he oversaw the implementation of the technical approach to the purchase of catastrophe reinsurance as a core part of reinsurance broking, starting with himself as the first technical appointment within the company in the Asia Pacific region and seeing it grow to become an operation which now employs teams of specialists in Sydney, Singapore, Hong Kong and Japan. He has also continued to utilise his structural engineering background in damage investigations including the Newcastle earthquake (1989), the Kobe earthquake (1995), Cyclone Yasi (2011), and most recently Cyclone Evan in Fiji (2012).

Within IEAust George was Chairman of the Townsville Local Group of IEAust in 1974 and of the National Committee on Structural Engineering, which preceded the Structural Engineering College, in 1986-87. He is a Life Member of the Australian Wind Engineering Society in which he continues to play an active role, having been its Chairman in 1987-91. He was Regional Secretary for the Asia Pacific Region of the International Association for Wind Engineering during 1979-83.

George has been actively involved in Standards Australia activities for many years, particularly in relation to the structural design and domestic construction standards, being a former Chairman of their Joint Australia-New Zealand Structural Standards Committee, Domestic Construction Committee and Glazing Committee. During his period at CSIRO he was a member of the Australian Uniform Building Regulations Coordinating Council, which developed the Australian Building Code and was the predecessor to the Australian Building Code Board. He was Chairman of the Australian Government's Construction Regulations and Standards Internationalisation Group from its foundation in 1991 until its termination in 1998, which laid the foundation for the present activities on alignment of building standards in the APEC region. In 2005 he was a member of the Prime Minister's Science Engineering and Innovation Council working group on tsunamis. Since 1998 he has been Chairman of ISO TC59/SC15 which is standardising parameters for describing the performance of single family dwellings. During the period 1995-2007 he was a Peer Reviewer of the financial sections of the reports of the Intergovernmental Panel on Climate Change (IPCC).

Although formally retired, George continues to be actively involved in work related activities as an Honorary Research Fellow of Aon Benfield Asia Pacific, Adjunct Professor and Member of the Cyclone Testing Station Advisory Committee at James Cook University, and an Associate of Risk Frontiers at Macquarie University. His primary current research interest is the application of the insurance based modelling tools to decision making relating to adaptation to climate change, including changes in structural design codes.