

The Evolution of Wind Engineering

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Abstract

Wind Engineering as a named specialty within engineering is a little over 50 years old, and yet draws from a much older tradition dating to ancient times as structures struggled to resist one of nature's most destructive forces. 'Kit' Scruton played a role in the evolution of wind engineering from pragmatic provider of wind loading data to 'prophetic' predictor of structural response of increasingly complex structures in increasingly chaotic flows. Scruton's and other recent contributors to the 'evolution' of wind engineering will be discussed, with emphasis on moving from the wind loading chain to the wind loading wheel to account for greater complexity and sophistication of our understanding of wind loading and response.

As our understanding of wind flow has matured, structural form has also evolved and using nature for inspiration, efficient building forms to resist wind actions are being studied and proposed as potential solutions to the planet's rapid urbanization. The *Saguaro cactus* will be presented as one model for 'wind-resistant' tall buildings.

Short Bio

Chris Letchford received his BE in Civil Engineering from the University of Queensland in 1980. After 4 years in practice with Ove Arup & Partners in Australia and the UK he undertook graduate studies at Oxford University in Fluid Dynamics. An academic on three continents with appoints at Universities in Australia, the UK, and USA (Texas Tech & RPI) he has a long history of involvement in engineering education and wind engineering research. As Chairman of the Australasian Wind Engineering Society he organized the 4th Asia-Pacific Symposium on Wind Engineering in 1997. He chaired the Scientific Committee of the 11th International Conference on Wind Engineering in Lubbock in 2003 and co-chaired the 8th Bluff Body Aerodynamics and Applications conference in Boston in 2016. He is immediate past President of the American Association of Wind Engineering and has given keynote lectures at the most recent International Conference on Wind Engineering, the European and African Wind Engineering Conference and the Asia-Pacific Wind Engineering Conference. In 2015 he gave the biennial Scruton Lecture at the Institution of Civil Engineers in London.

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