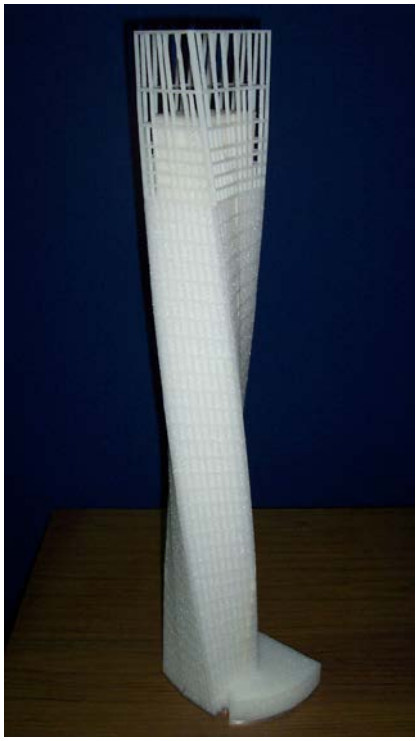
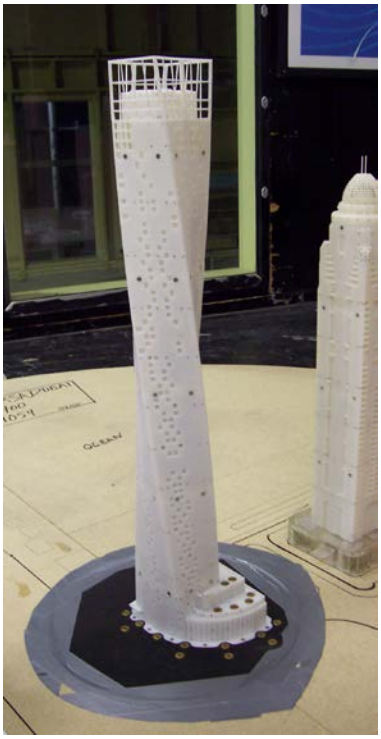
Cayan Tower, Dubai, UAE

Wind Engineering Study

Rendering of Tower



Force Balance Model (2005)



Pressure Model (2006)

Developer/Builder	*Structural Engineer*	*Architect*
Cayan Investment and Development	Skidmore, Owings and Merrill	Skidmore, Owings and Merrill
Height	*Year Tested*	*Model Scale*
Overall Height - 307m	2006	1:400

The Project

Cayan Tower is a high-rise building located in the Dubai Marina area in the UAE. With a total of 73 stories, the tower will rise to a total height of about 307 meters.

The Cayan Tower, designed by Skidmore Owings & Merrill (SOM), upon completion will be the world's tallest building with a twist of 90° from bottom to top. This unique twisting design leads to spectacular views of the Dubai Marina, Palm Island and surrounding seascape.

The building has the distinction of winning the 2007 CNBC International Property Award for the "Best High Rise Architecture".

The Wind Tunnel Studies

The wind engineering studies for the Infinity Tower included the determination of overall structural loads, cladding loads, and pedestrian level winds.

Initially, a high frequency force balance (HFFB) technique was used to determine the information on wind-induced structural loads and building motions. Subsequent changes to the overall building geometry prompted the need for an update on the wind-induced loads. To address this, the pressure cladding studies were expanded to include examination of the overall structural loads using a pressure integration technique.

Pedestrian level wind speeds were measured at 32 locations around the site, focusing on areas of high pedestrian traffic.

The Boundary Layer Wind Tunnel Laboratory

Western

The Boundary Layer Wind Tunnel Laboratory
The University of Western Ontario
Faculty of Engineering, London, Ontario
Canada, N6A 5B9 Tel: (519) 661-3338 Fax: (519) 661-3339
Internet: www.blwtl.uwo.ca E-mail: info@blwtl.uwo.ca

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