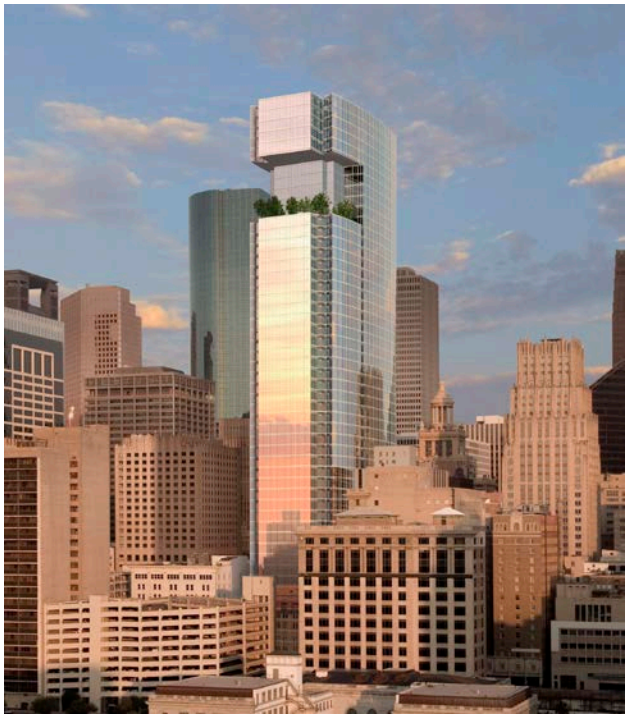
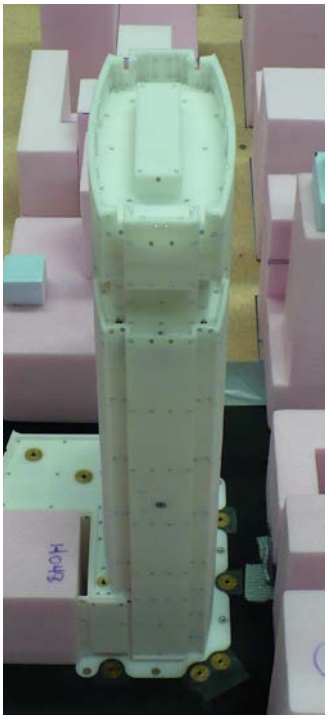
MainPlace, Houston, TX, USA

Wind Engineering Study





Client	*Structural Engineer*	*Architect*
Ingenium Inc.	Ingenium Inc.	Pickard Chilton Architects, Inc.
Height	*Year Tested*	*Model Scale*
627.75 feet	Tower - 2007 Vertical Fins - 2008	Tower - 1:500 Vertical Fins - 1:1

The Project

The MainPlace (formerly Hines Main Street, Block 93) development in Houston, Texas consists of a 46-storey tower with 36 floors of offices atop a 10-storey podium comprising of retail, restaurants and a nine level parking garage. It is located on Main Street on the block bordered by Fannin, Rusk and Walker streets.

At the 39th floor, a skygarden is recessed into the building with a terrace and atrium.

Vertical glass fins on the west façade are used for shading. These fins, spaced at 5 feet, protrude 13.75 inches from the façade, and extend the full height of the tower.

The Wind Tunnel Studies

The wind engineering studies for MainPlace included a study of the wind-induced structural loads and responses, local cladding pressure loads and pedestrian level winds.

Overall structural loads and responses were determined for the tower using the force balance technique. A study of wind-induced cladding pressures was carried out for 598 measurement locations distributed over the tower and podium. Pedestrian level winds were measured at 16 locations including street level, the podium, and the skygarden.

The study of wind forces on the glass fins was made using 1) the 1:500 scale pressure model of the tower instrumented with 6 hot-wires on the west elevation to measure wind speeds at the fin locations, and 2) pressure tests with a 1:1 scale mock-up of the vertical fins.

The Boundary Layer Wind Tunnel Laboratory

Western

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