Sears Tower, Chicago, Illinois

Wind Engineering Study

Client	Owners	Architect & Engineers
Skidmore, Owings & Merrill	Sears Roebuck & Co.	Skidmore, Owings & Merrill
Height	**Year Studied**	**Model Scale**
442 meters	1970, 1975, 1987, 1991	1:2000,1:400 and 1:500

The Project

The Sears Tower is an office tower and at its completion in 1973 it was the tallest building in the world. The Sears tower has subsequently been renamed to the Willis Tower as of March 2009 by its tenant Willis Group Holdings Ltd.

The building has two antennas which went to a total of 520.3m, a subsequent increase in the western antenna extended its total height to 527m in June 2000.

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The Wind Tunnel Studies

Wind speed measurements using a topographic model of the surroundings of 8.000 ft from the site at a scale of 1:2000 were made.

The results for the topographic model were used to develop the upstream characteristics for the study of wind-induced loads and response using the first ever aeroelastic model of a building in 1970 at a scale of 1:400.

A number of pressure studies of the tower have been performed over the years to obtain cladding loads and to update when the lower portions have been redesigned.

Along with pressure studies a pedestrian level wind study was measured at 32 location in the surround plaza area.

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