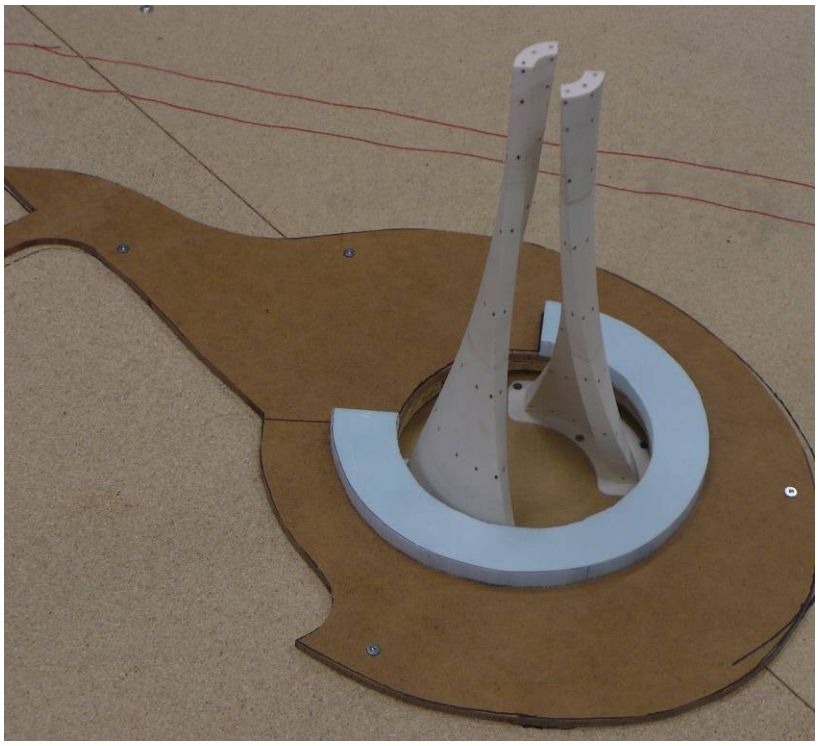
Bicentenario Towers, Toluca, Mexico

Wind Engineering Study



Client	Structural Engineer	Designer
Oritia & Boreas, Granada, Spain	Enrique Franco, Spain	Metalcom
Height	**Year Tested**	**Model Scale**
65 m	2010	Pressure Model 1:200

The Project

Toluca, Mexico will be the site of a monument called the "Torre Bicentenario" to celebrate the Bicentennial of the Independence of Mexico. It will be on the highway coming into Toluca from Mexico City and will replace the Puerta Tollotzin.

The Bicentenario Towers Project consists of two crescent shaped legs which twist 90 degrees as they rise over the height of the towers. The two towers are identical geometrically and structurally, but are independent to each other and not structurally connected. The plan views of the towers' top and bottom exterior geometries fall on the perimeters of two concentric circles. The two circles are about 29.5m at its base and 10m at the top in diameter respectively. The heights of the two towers are identical at 65m.

The Wind Tunnel Studies

The wind engineering studies for the Bicentenario Towers project included a wind climate analysis for Toluca, and a study of the wind-induced structural loads and responses, and local cladding pressure loads as well as key structural actions using the pressure model study. The study was carried out for 160 measurement locations distributed over the two towers.

Information on the overall structural loads and responses as well as key structural actions was determined from detailed simultaneous pressure measurements with the aid of structural influence coefficients using the load-response-correlation (LRC) method. Fatigue analysis of selected members based on the results of the load effect analysis was performed to assess possible fatigue failure due to axial loads from wind effects.

The Boundary Layer Wind Tunnel Laboratory

Western

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