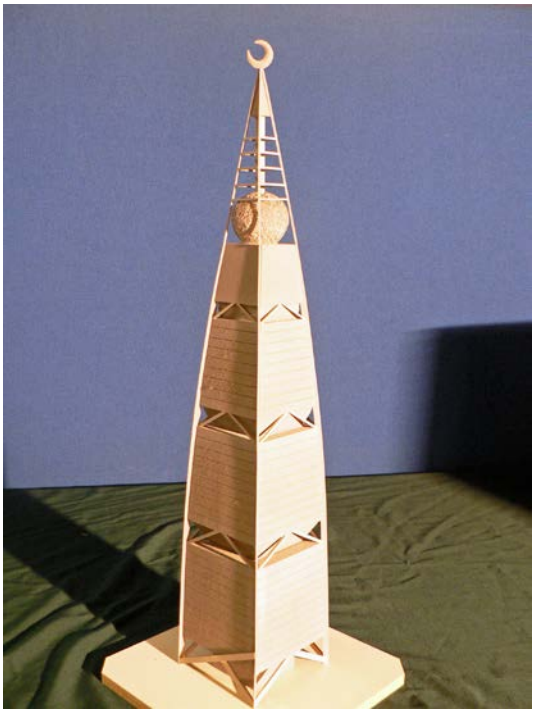
Al-faisaliah Tower, Riyadh, Saudi Arabia

Wind Engineering Study

Completed Tower



Wind Tunnel Tower Model

Client	*Structural Engineer*	*Architect*
Wieland Engineering AG	Buro Happold	Foster and Partners
Height	*Year Tested*	*Model Scale*
267 meters	1999	1:400

The Project

The tower is a mixed use development with commercial, office and hotel space. This unique structure is noted for its three storey glass globe which is 24m in diameter and houses a restaurant. The tower is located on King Fahad Road between Al Mutasini and Al Amiryah. The building has sunshades located on each floor and concern about the wind loads on these elements was the bases for this study.

The Wind Tunnel Studies

The wind engineering studies for the Al-faisaliah Tower included a flow visualization study and individual small flags use to determine local flow characteristics and to confirm the locations for wind speed measurements.

The study of wind speed on the faces of the tower were determined using 12 hot-wire probes sensitive to winds moving up and down the face of the tower. It is wind in these directions which would be the primary source of wind loading on the sunshades; "across the face" winds should not play a significant role.

The result for these test were combined with the wind climate model developed from full scale measurements at King Khalid International Airport.

The Boundary Layer Wind Tunnel Laboratory

Western

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FSTB/ 333 /July 2009 / RTE
Last Printed: July, 27, 2009