Grand Lisboa Hotel, Macau, P.R. China

Wind Engineering Study

Client	Structural Engineer	Architect
DLN Architects (HK) Ltd.	Maunsell Consultants	DLN Architects (HK) Ltd.
Height	**Year Tested**	**Model Scale**
236 metres	2005	1:400

The Project

The development consists of an elaborate flower-shaped 236m tall tower. The 5-star hotel tower contains 900 rooms. The 6-storey domed podium structure contains retail, casino and restaurants. This expansion is linked to the existing Lisboa Hotel by an underground tunnel.

The project site in Macau has a range of upstream exposure including open water, built-up urban area and hilly terrain extending into Mainland China.

The Wind Tunnel Studies

The wind tunnel studies provided cladding and structural loads. A topographic study was performed to provide matching wind conditions to full scale over the hilly terrain in the vicinity of Macau.

The 1:3000 scale topographic model extends for a full scale diameter of about 14 km. Wind speeds and turbulence intensities were measured for 18 wind directions to provide wind characteristics for the 1:400 scale model tests.

The structural loads and responses were determined using the force balance technique. The force balance technique is suitable for this very unusual, complex shape. The pressure model was instrumented with 878 pressure tap locations.

The proximity model extended 500 meters from the site. Two configurations of surroundings were tested to investigate sheltering effects.

The Boundary Layer Wind Tunnel Laboratory

Western

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