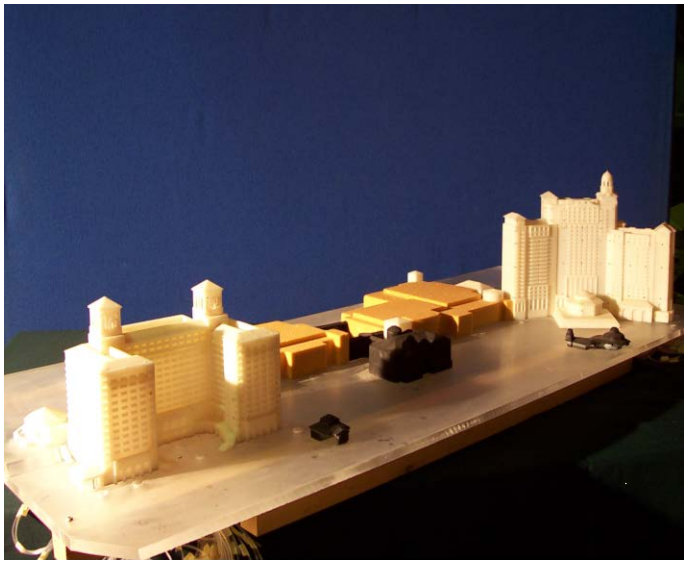
Grande Lakes, Orlando, Florida, USA

Wind Engineering Study



Client	Structural Engineer	Architect
Smallwood, Reynolds, Stewart, Stewart & Associates	Stanley D. Lindsey and Associates	Smallwood, Reynolds, Stewart, Stewart & Associates
Height	**Year Tested**	**Model Scale**
Ritz-Carlton 197 ft JW Marriott 260 ft	2000	1:400

The Project

The Grande Lakes Resort comprises of two hotels, The Ritz-Carlton and JW Marriott located on a 500-acre estate with a total of 35,500 square feet of meeting space in two major conference centres. Both hotels have viewing towers and elaborate arches. The hotels also have an extensive water play area and an 18-hole golf course. This development is located just outside of Orlando, Florida between the airport and Disney World. Designs of both hotels contain elaborate features displaying Spanish style architecture.

The Wind Tunnel Studies

A detailed model of the site and surroundings was constructed taking into account the extensive plans for outdoor usage of the development.

Information on cladding pressures was determined for the two hotels and the associated conference centres. Measurements were taken at approximately 1200 locations with emphasis on skylights and gazebo features.

Information on structural loads and building motions for the two hotels was determined by integrating instantaneously sampled local pressure loads over the surface of each hotel.

Pedestrian level wind speeds were predicted at 36 locations around the site, emphasizing the main entrance, outdoor lounge and pool areas.

The Boundary Layer Wind Tunnel Laboratory

Western

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FSTB/ 213 /October 2003 /RTE
Last Printed: September, 19, 2007