Hilton Niagara Falls, Niagara Falls, Canada

Wind Engineering Study

Architects Rendering

View of Pressure Model

View of Niagara Gorge Topographic Study

Image Credit: Stanford Downey Architects

Client	*Structural Engineer*	*Architect*
Hospitality Motels Ltd.	Quinn Dressel Associates	Stanford Downey Architects
Height	*Year Tested*	*Model Scale*
New Tower - 180 metres	2006	1:400

The Project

This project consists of a new 180m tall tower and extensive low-rise podium being erected adjacent to the existing 100m and 50m tall towers of the Hilton Niagara Falls. The plan dimensions of the entire project measure approximately 150m north-south and 100m east-west. The low-rise podium includes several sidewalk level arcades, domed roofs and a 10-segment tent roof covering a large ballroom area. Also featured, is a drive-through passageway with entrances mid-block off Murray Street and at the southeast corner of the project off Fallsview Blvd.

The Wind Tunnel Studies

The Niagara Gorge is located approximately 550m to the east of the project site and is approximately 50m deep and varies in width from about 300 to 400m. The wind engineering studies for the Hilton Niagara Falls included a partial topographic study of the Niagara Gorge to better determine its effects on the winds approaching from the easterly directions. Also, a study of the wind-induced structural loads and responses and local cladding pressure loads was carried out.

The study of overall structural loads and responses was determined for the proposed 180m tall tower using the pressure integration technique.

A study of wind-induced cladding pressures was carried out for 918 measurement locations distributed over the three towers and an extensive podium. A study of the pedestrian level wind environment was also carried out for 40 locations.

The Boundary Layer Wind Tunnel Laboratory

Western

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