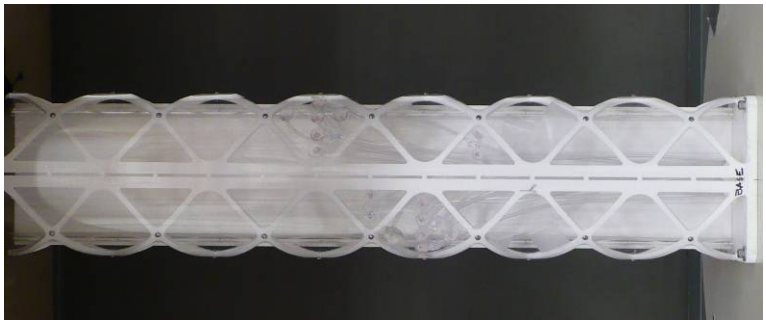
Bow River Pedestrian Bridge, Calgary, Alberta

Wind Engineering Study



Client Santiago Calatrava Valls S.A. Zurich	*Structural Engineer and Architect* Santiago Calatrava Valls S.A. Zurich	*Span* 124.6 m
Deck Width 8.0 m	*Year Tested* 2009	*Model Scale* Section Model: 1:80

The Project

The proposed Pedestrian Bridge over the Bow River in Calgary, Alberta has a 124.6m long single span helical through truss superstructure and incorporates an 8.0m wide deck. The superstructure is covered with curved, triangular and diamond-shaped glass roof panels, offering protection from the weather to the pedestrians and cyclists using the bridge.

The Wind Tunnel Studies

The wind engineering study of the Bow River Bridge included a wind climate analysis for Calgary, Alberta, as well as pressure and section model studies.

The aim of these studies were:

a) to provide basic aerodynamic information to confirm the deck section design;

b) to investigate the overall stability of the deck section and its buffeting response in turbulent wind;

c) to develop the equivalent static loads to assist in the design of the bridge deck;

d) to determine the wind load factor used in ULS (ultimate limit state) design in the Canadian Highway Bridge Design Code;

e) to provide detailed design pressure loads on the glass roof panels.

The Boundary Layer Wind Tunnel Laboratory

Western

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