



# Cladding Pressures

## Services:

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Wind Tunnel Testing

Cladding Pressures

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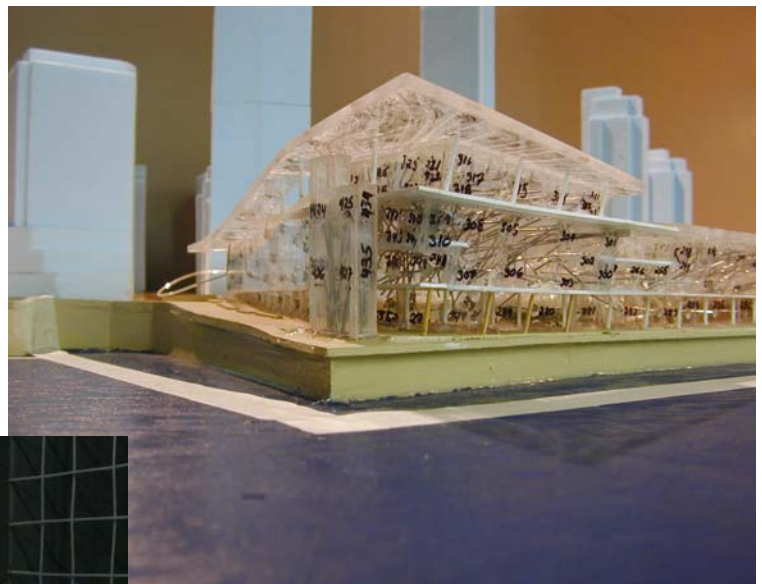
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Large and complex structures benefit from detailed knowledge of wind impacts regarding the design of cladding and structural systems. In many modern structures incorporating complex geometries and long spans, determination of cladding pressures is an important component of the design process. For many projects, cladding studies result in economic savings as compared to designs based on local building codes.

Cladding pressures are determined most accurately by wind tunnel testing of a physical scale model of the study building placed among its surroundings. The model is instrumented with large numbers of pressure measuring locations, called pressure taps. Measurements are performed simultaneously at many locations using a high-speed scanning system sampling at a rate of 500 samples per second. Results are obtained for winds approaching the site from the entire 360-degree azimuth at intervals of 10-degrees.

*Scale model of the Vancouver Convention Center showing pressure taps used for testing in GmE's wind tunnel facility*



*Cladding pressure model of a tall building in a suburban setting*



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Wind forces on roofs can be highly turbulent due to the geometry of the roof and influence of surrounding buildings. Accurate knowledge of the local wind forces may be critical to the performance of the roof cladding and roofing system selected to enclose the building. Furthermore, knowledge of the wind regime over a roof is essential for design of 'green' roofs which are part of growing sustainability initiatives in the architectural community.

*Photograph showing scale model of a study building in its urban surrounding installed in GmE's wind tunnel*



*Pressures measurements on tall buildings are required to provide accurate wind forces for design of the complex cladding forms.*

*Wind velocity measurements at balconies provides useful data to determine comfort and safety of using high level balconies.*

