

RWDI works with owners and design teams to identify areas of critical snow accumulations and to provide specific recommendations for the design of roofing structural systems.

Key Features:

RWDI provides project-specific design snow loads which incorporate the most appropriate aerodynamic and climatic considerations using one of the three following knowledge bases.

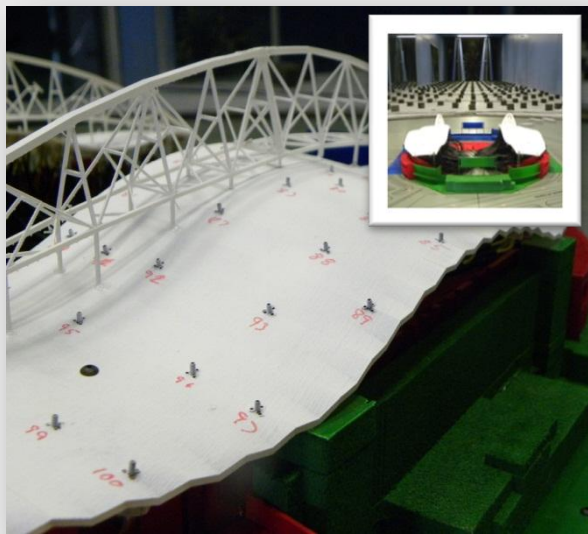
Desktop: Experience-based qualitative design recommendations for snow loads are produced as an interpretation of code provisions (including considerations of non-standard building aerodynamics where possible).

Waterflume: Recommendations for design snow loads are produced based on an analysis of the local meteorological data and on scale model waterflume research to assess the aerodynamics of the specific project. These tools provide detailed information on the local building aerodynamics that are not available using the desktop approach, such as specific loading patterns for areas of known concern. This approach is more applicable as the project shape becomes unusual.

Hybrid FAE: This approach provides comprehensive structural loading recommendations based on a combination of wind tunnel research into the wind velocity field over the shape of the roof and an hour-by-hour simulation of snow accumulation, drifting and ablation. Codes and standards allow for the use of this approach through endorsement of comprehensive methods including wind tunnels and water flumes.



Example of Typical Snow Accumulation



Example of Sensors for FAE Study

Design Challenges Warranting Finite Area Element (FAE) Study

Large Span Roofs

Large roofs are especially susceptible to snow loading and to complex accumulation patterns produced under a wide range of wind speeds and directions.

Construction of Large Buildings

Additional massings can alter local wind flow patterns, which can lead to higher snow load on existing buildings for which they were not designed.

Buildings of Unique Shape or Complex Structural Design

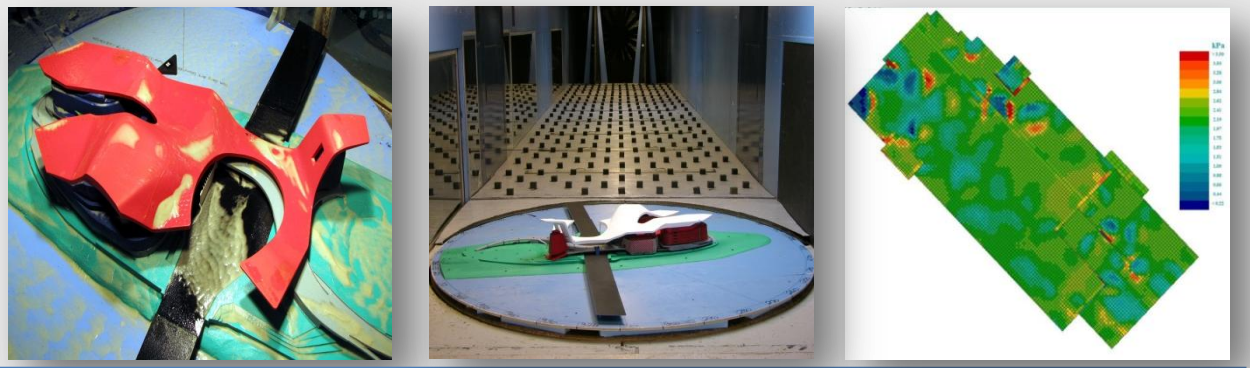
Non-traditional building designs are challenging for the typical application of code of equations. They can produce and be sensitive to accumulation patterns that may not be captured by code.

Unusual Thermal Properties

These unique conditions can lead to higher or lower design loads, or to the need for unique engineering solutions involving heating systems.

Our Comprehensive Analysis Tools Can Help You to:

- Refine structural designs, thereby saving structure and cost to the project. These tools allow for the consideration of additional building characteristics such as insulation and internal temperature; predominant wind directionality; realistic combination of multiple storms during design-severity winters; and refined wind and snow load combination factors
- Improve the safety of unique facilities when compared to designs prepared with building code provisions
- Reduce exposure to insurance claims due to roof failures from snow accumulation



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