

Strategic Research Strengths at Western

Wind Engineering & Natural Disaster Mitigation

For more than 45 years, Western University has been internationally recognized as the leading university for wind engineering and wind-related research. Its researchers are world leaders in knowledge related to the social, political, economic and practical dynamics of environmental disaster mitigation, with specific strengths in wind and earthquake research.

Boundary Layer Wind Tunnel Laboratory (BLWTL)

- World's first boundary layer wind tunnel for man-made structures, built in 1965 to solve complex wind engineering problems
- Used to reveal dynamics and properties of loads by subjecting scale models of buildings and bridges to high winds in two wind tunnels
- Provides architects with insight to design safer structures that can better sustain extreme winds

WindEEE Institute

- World's first three-dimensional wind-testing chamber, addressing scientific, economic and societal challenges related to wind
- Enables investigations of swirling flows like tornadoes and cyclones, and transient shear flows like downbursts and microbursts
- Establishes the most advanced experimental facility for studying the effects of damaging winds on buildings and structures, and the design of wind turbines and wind farms

The Insurance Research Lab for Better Homes

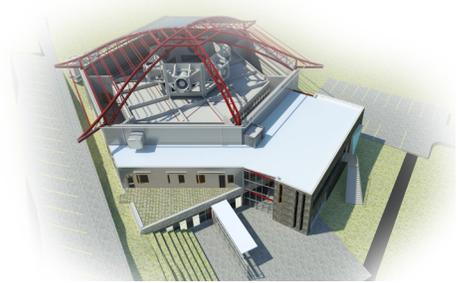
- First of its kind in the world to allow researchers to simulate and study realistic damage to full-scale houses from wind, snow and rain – all within a controlled environment
- Simulates pressures as strong as a Category 5 hurricane
- Allows engineers and architects to build safer, healthier, more cost-effective homes, develop cost-effective ways to retrofit existing homes and reduce human error during construction

Advanced Facility for Avian Research

- Houses the world's first hypobaric bird wind tunnel, providing researchers with precise control over such internal conditions as moisture, temperature and pressure
- Simulates the climate and altitudes experienced by birds as they fly
- Makes it possible for scientists to understand how environmental change affects avian neural and physiological systems

Natural Disaster Mitigation

- Home to the **Institute for Catastrophic Loss Reduction** (ICLR), a partnership with the insurance industry and other institutions
- Leading earth sciences research that better predicts earthquakes, including their scientific, engineering and economic impact
- Western's **Geotechnical Research Centre** has secured hundreds of industrial contracts to solve challenging civil, geotechnical and geoenvironmental engineering problems



The revolutionary WindEEE Institute will uncover aspects of wind storms and wind energy that cannot be elucidated by wind tunnels alone.

Highlights:

- More than 45 years of global leadership in wind engineering
- World's most significant set of wind-related research infrastructure, at four facilities
- More than 20 researchers from four faculties engaged in wind research
- More than 1,000 industrial projects at BLWTL since 1965, including World Trade Center, Sears Tower, CN Tower and Confederation Bridge
- Canada's only graduate program in wind engineering
- Home to a Canada Research Chair and Industrial Research Chair in earthquake science
- Geographer Gordon McBean was lead author for the *Intergovernmental Panel on Climate Change* awarded the 2007 Nobel Peace Prize



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