



The Natural Hazards Engineering Research Infrastructure (NHERI) component at Florida International University, known as the Wall of Wind, is the nation's largest and most powerful university-based wind engineering facility. Powered by a 12-fan system generating 8,400 horsepower, the WOW simulates Category 5 hurricane winds up to 157 mph, providing a vital research capability that does not otherwise exist.

ADVANCING HURRICANE AND WINDSTORM RESILIENCE

High-wind-speed destructive testing to determine component failure modes.
Simulation of boundary layer wind, wind-driven rain, and transient events like downbursts.
Experimental options include advanced particle imaging and cyberphysical simulations.

A SHARED-USE LABORATORY FOR WIND ENGINEERING RESEARCH AND TESTING



THE VALUE OF PHYSICAL TESTING

Large- and full-scale experiments provide physical and numerical validation for wind engineers and researchers designing protective measures for structures vulnerable to hurricanes and windstorms.

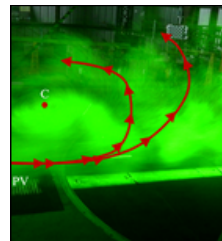


<p>ENHANCING CODES & STANDARDS Canopies attached to low-rise and mid-rise buildings (ASCE 7-16 and ASCE 7-22) Rooftop pavers (ASCE 7-22), elevated homes (ASCE 7-22), and Partial Turbulence Simulation (ASCE 49-21)</p>	<p>TRUSTED RESEARCH PARTNER WOW has served 29 industry clients, 17 academic institutions, and 11 federal and state agencies – all conducting impactful research and product testing.</p>	<p>EDUCATING RESEARCHERS WOW conducts workshops and webinars for researchers and practitioners. Educates cohorts of graduate students, post-doctoral researchers, and undergraduates.</p>	<p>INFORMING THE PUBLIC Organizes educational community events such as the WOW Challenge, STEAM Weather Day, and Eye of the Storm. Attracts high-profile media coverage from the Discovery Channel, IMAX, <i>Wall Street Journal</i>, <i>USA Today</i>, <i>ABC World News</i>, <i>PBS NewsHour</i>, among others.</p>
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Making impact: the NHERI WOW



SECURING ELEVATED HOMES
Large-scale experimental data from WOW research on elevated homes, common in coastal communities, led to improved building code specifications related to their design. These provisions are expected to enhance the resilience of these structures to extreme winds.



UNDERSTANDING EXTREME WINDSTORMS
The WOW's large-scale, wall-jet downburst simulator reproduces key downburst features, such as the rolling primary vortex, transient time history, abrupt wind-speed changes, and the distinctive nose-shaped velocity profile. Recent WOW downburst simulations have helped researchers explain damage patterns observed from the 2024 Houston derecho event.



IMPROVING ROOF PAVER PERFORMANCE
WOW performed full-scale destructive testing on roof pavers to determine the most effective installation methods and practices, as well as investigating the performance of these pavers under simulated hurricane winds – resulting in enhancements to building code.



MITIGATING DAMAGE, HARNESSING WIND
The WOW team invented a system of screw-like turbines (bottom) for mounting to building eaves or gutters. In the Aerodynamic Mitigation and Power System, AMPS, the turbines disrupt damaging vortices (top) generated by strong winds and generate renewable energy that can power a house for 7 days after a hurricane-related power outage.



LEARN MORE
Visit the WOW facility in Miami, Florida, or online, and discover how we can help you improve wind hazard resilience.

