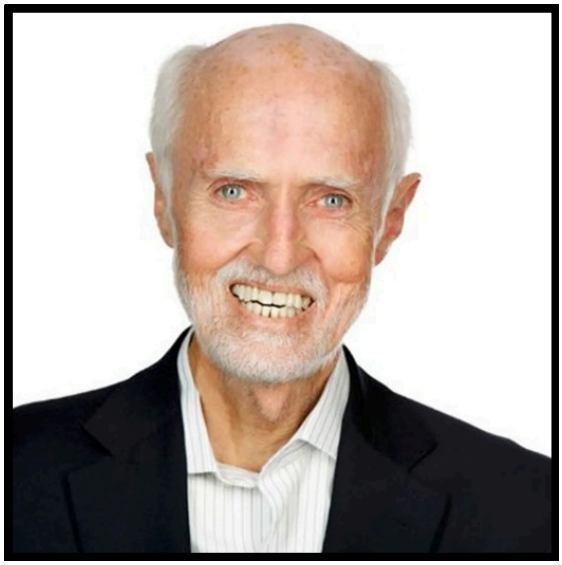
The Wind Engineer

American Association for Wind Engineering

A Tribute to Dr. P. Irwin



Dr. Peter H. Irwin, a longtime member of the wind engineering community, passed away on November 15th, 2025 in Guelph, Ontario, Canada.

Dr. Irwin was a pioneer and very active member of the wind engineering field. His contributions are tangible and long-lasting. As a wind engineering expert and practitioner, he was involved in many of the most challenging projects that our community has encountered, from complex aerodynamic designs of tall buildings to bridge aeroelasticity. In recent years, he was involved in the design of large-scale experimental facilities as a consultant and a specially appointed wind engineering faculty in our university system.

In 2022, he was elected as an International Member of the United States National Academy of Engineering. He was an active contributor to the Americas Conferences on Wind Engineering and other activities over the years.

In 2016, the AAWE created a biennial lecture series, the “Peter Irwin Lecture,” which is usually held in conjunction with the America’s Conference on Wind Engineering. The third lecture just took place in May 2025 at the 15th ACWE in St. Louis, MO. The lecture was named to honor Dr. Irwin’s career, from his earliest contributions in 1974, to his latest achievements, as an aerospace and wind engineer, bluff body aerodynamics researcher, and founder of the wind engineering consultancy RWDI.

Most importantly, Dr. Irwin was a strong advocate for young researchers and wind engineering practitioners, always kind and providing positive criticism to those who were starting to work in this field.

The AAWE Community extends our condolences to his wife, children and family.

News and Updates

Center for Wind Hazard and Infrastructure Performance Advances to Phase II IUCRC with Major NSF Funding

Contributed by Dr. Ioannis Zisis

We are thrilled to announce a significant milestone for the Center for Wind Hazard and Infrastructure Performance (WHIP): the National Science Foundation (NSF) has awarded the Center funding to officially advance to a **Phase II Industry-University Cooperative Research Center (IUCRC)**.

This new phase, supported by **NSF Awards #2435461 and #2435462**, marks the successful continuation of the WHIP Center's mission to enhance the resiliency of buildings and other infrastructure against devastating windstorms, such as hurricanes and tornadoes. The Center was originally established in 2019, with a vision to create strategies, methods, and tools that help prevent future wind hazards from escalating into societal disasters.

WHIP-C
WIND HAZARD AND INFRASTRUCTURE PERFORMANCE CENTER

NSF U.S. National Science Foundation

Expanded University Leadership

The Phase II structure builds on the strong foundation of collaboration established in the initial phase, uniting three key academic institutions and their world-class faculty and research facilities:

- **Texas Tech University (TTU)** will serve as the **Lead Site**.
- **Florida International University (FIU)** continues its role as a **Partner Site**.
- **Florida Institute of Technology (FIT)** remains an **Affiliate Site** to the TTU Lead Site.

Growing Industry Commitment

Central to the IUCRC model is the partnership with industry to pursue pre-competitive research and accelerate the conversion of fundamental knowledge to practical application. The transition to Phase II is supported by a robust and growing membership. We welcome the continued commitment of our industry partners, including:

- Berkshire Hathaway Specialty Insurance
- DDA Forensics
- ENSTALL
- FM Global
- GAF
- Gradient Wind
- NIST
- State Farm
- Verisk

This crucial collaboration with key stakeholders from the insurance, risk-modeling, consulting, and construction industries enables the WHIP Center to address real-world challenges in wind hazard mitigation.

News and Updates

WHIP Funding Cont'd

Building on Phase I Success

The successful renewal is a testament to the impactful research and deliverables generated during Phase I. Accomplishments include:

- Producing data and understanding for the development of ASCE Standards for tornado-resistant buildings, which is an initiative led by NIST, a WHIP member.
- Integrating WHIP products, including new software for wind and surge damage into the workflows of risk-modeling and insurance partners to better project and manage insured losses.
- Providing data and understanding to manufacturers to aid in the development of more wind-resistant products, including roofing materials and solar panel support systems.

Phase II: Expanding Research for a Resilient Future

Phase II of the WHIP Center will not simply continue past efforts but will strategically grow the Center's capacity and research agenda. Future research will build on the four core research themes—hazard characterization, vulnerability assessment, socioeconomic impact evaluation, and community resilience enhancement—while specifically expanding the roadmap to address timely priorities like the evolving nature of wind hazard patterns and their inclusion in catastrophe models.

The WHIP Center looks forward to leveraging this Phase II opportunity to advance the understanding of windstorms, develop new strategies and tools, and further our ultimate goal of transforming community resilience to wind hazards.

Related Links and Contacts:

https://whipc.org/
https://iucrc.nsf.gov/centers/wind-hazard-and-infrastructure-performance/

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Research Highlights

This section recognizes contributions by a member of AAWE, Dr. ND Tiwari. Dr. Tiwari graduated from Iowa State University in 2025, and is a Forensic Engineer at Walker Consultants.

Tiwari, N.D. and Sarkar, P.P., 2025. Prediction of dynamic loads and responses of a tall building in tornado wind: Numerical analysis and experimental validation. Engineering Structures, 326, p.119510. https://doi.org/10.1016/j.engstruct.2024.119510

This paper was selected as a Featured Paper by Engineering Structures. The novelty was in extending a time-domain prediction framework, originally developed for straight-line ABL winds, to transient, non-stationary tornado winds, and then validating the predicted tall-building responses against an aeroelastic laboratory test of a 1:350 tapered, circular model in the ISU-TS. The approach used coupled 2-DOF response equations, aerodynamic parameters from straight-line wind tunnel tests, tornado wind speeds measured in the simulator, flutter-derivative-based self-excited forces, and buffeting indicial functions to represent unsteady excitation. Numerical peak accelerations agreed with measured aeroelastic responses within about 7.5–16%, showing that with a well-defined transient wind field and structural properties, we can make reliable response predictions for non-synoptic events — a capability that is still limited in current tall-building wind practice.

Tiwari, N.D. and Sarkar, P.P., 2025. Cladding pressure and load characteristics of a tall building under a simulated tornado-like vortex: An experimental study. Journal of Wind Engineering and Industrial Aerodynamics, 260, p.106059. https://doi.org/10.1016/j.jweia.2025.106059

The companion JWEIA work looked more closely at aerodynamic loads and cladding pressure characteristics on the same tapered tall-building model under both stationary and translating tornado conditions. This paper examined how the building's radial distance from the tornado core affects load development, found that peak aerodynamic demand typically occurs as the vortex passes the building centerline in the translating case, and showed that force/pressure correlation decreases with increasing distance from the core. Wavelet analysis further indicated that the critical time window for peak loading differs between orthogonal directions, highlighting that tornado loading on tall buildings is both transient and direction dependent — which has implications for components, cladding, and performance-based checks.

These studies are aligned with ISU's broader initiatives here: https://www.news.iastate.edu/news/researchers-design-national-testing-facility-simulate-tornadoes-downbursts-and-gusts

President-Elect Election Results

Congratulations to Dr. Tracy Kijewski-Correa for her election as President -Elect.

Please read her bio below.

“I am a professor of civil engineering and global affairs at the University of Notre Dame, where I direct the Pulte Institute for Global Development. My research has traversed the full disaster data to knowledge life cycle, connecting full-scale monitoring and field observations to advanced system identification, data mining and simulation tools focused on quantifying and communicating windstorm risk to frontline communities and policy makers. I have been blessed to work on complex, interdisciplinary and multi-institutional projects that increasingly examine the role of human behavior in mitigating windstorm risk. I have spent the better part of my career both founding and restructuring organizations to have more effective shared governance, compelling research agendas, and strategic engagement of policymakers and practitioners.”

“These roles include founding and directing major NSF research networks like StEER, leading academic units at my university, and serving on advisory bodies to professional organizations like ASCE/SEI and ATC. I have often been called upon to guide units through times of crisis and institutional change. As we now respond to recent changes in the federal landscape, I would hope to elevate AAWE as a steadying force in uncertain times, through three concrete actions: (1) clearly articulating a Science Plan to ensure we move forward even if NHERI does not; (2) passionately messaging the impact of the wind engineering community to key stakeholders to bolster investment and cooperation; and (3) critically examine workforce development needs to ensure we are preparing the next generation of wind engineering professionals for the many challenges facing our profession.”

Job Postings and Conferences

Please see AAWE.org for up to date job postings and upcoming conferences.

Presidential Updates

Dear AAWE Members,

It is time to briefly summarize the activities of AAWE in the past few months, since the beginning of my term. This past year 2025 has been an extremely productive and interesting year for the wind engineering community.

The successful organization of the 15th Americas Conference on Wind Engineering (ACWE) in St. Louis, MO, USA, chaired by Prof. Grace Yan, has been one of the major events of the past season; several researchers presented very interesting ideas and studies.

Certainly, wind engineers face new challenges in the years ahead. Wind hazards are still causing severe damages to our communities. For example, the recent hurricane season has shown that many communities are still in need for solutions that can help protect buildings and human lives. Tornado threats and outbreaks in the United States and Canada are increasingly powerful and damaging events. However, this is also an exciting time for researchers and practitioners who work in this field, providing new opportunities for meaningful research.

I would also like to note the several activities in the field of renewable energy, involving several of our members. For example, emerging wind turbine technology requires the expertise of wind engineers who may help promote the development of safe offshore installations against hurricane threats. Furthermore, the development of large solar panel farms needs careful analysis of wind hazards to avoid potential downtime and damages to the systems.

The AAWE Board has been working to promote the activities of our community. New initiatives are currently being considered to further promote the exchange of ideas and collaboration apart from planned meetings and conferences. It is also important to recognize our members and their accomplishments and to welcome new young researchers, and to demonstrate that a career in the field of wind engineering is still a viable option and an interesting path, as the latest issues of the Newsletter have shown. I hope to report new developments about the planned activities in the next few months as we start a new exciting year.

I would like to thank the AAWE Board Members for their work and help over the last months, and all the AAWE Members for their continued support to this association.

Please also accept my personal greetings for the upcoming Holiday Season.
Merry Christmas and Happy New Year!

Yours Sincerely,
Luca Caracoglia
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Call for Newsletter Content

The American Association of Wind Engineers (AAWE) invites members to contribute content to future issues of the AAWE Newsletter. This newsletter serves as a platform to share knowledge, celebrate achievements, and strengthen connections across the wind engineering community.

Suggested content includes (but is not limited to):

- Research highlights or recent publications
- Project spotlights or case studies
- Member news, awards, or professional milestones
- Job postings, internships, and student opportunities
- Upcoming conferences, workshops, webinars, or short courses
- Calls for papers, abstracts, or participation

We welcome submissions from researchers, practitioners, students, and industry professionals at all career stages.

Please send newsletter content to luca.caracoglia@AAWE.org

The Wind Engineer is edited by Dr. Carol Friedland with assistance from Shelly Kleinpeter from the LSU AgCenter.