



Exciting News for SEI Standards

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For many in the structural engineering industry, when we hear of the SEI standards, we automatically think of the ASCE/SEI 7, *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*, and that is where our knowledge stops. However, the Codes and Standards Activities Division (CSAD) of SEI is responsible for developing and updating twenty-five standards.

Recently Published and New Standards

Recently, SEI published the 2022 edition of ASCE/SEI 7, which includes new provisions for the design of buildings for tornado effects and updates for all hazards. New in ASCE/SEI 7-22, all hazard data is available digitally from the ASCE 7 Hazard Tool at [asce7hazardtool.online](https://www.asce.org/hazard-tool), which is free to access by everyone and used to determine the required design criteria for any project site. Other widely used industry standards recently published include ASCE/SEI 43-19 *Seismic Design Criteria for Structures, Systems and Components in Nuclear Facilities*, ASCE/SEI 48-19 *Design of Steel Transmission Pole Structures*, and ASCE/SEI 49-21 *Wind Tunnel Testing for Buildings and Other Structures*. In addition to the well-known standards, SEI recently published a new standard to aid the profession in designing athletic field lighting in the ASCE/SEI 72-21 *Design of Steel Lighting System Support Pole Structures*. Each of these standards is used every day by segments within our profession to complete designs for their clients and provide the safety to the public that we are obligated to provide.

In partnership with the Charles Pankow Foundation, two SEI publications advance performance-based design: ASCE/SEI *Prestandard for Performance-Based Wind Design* and the *Performance-Based Structural Fire Design*, available for free from [asce.org/sei](https://www.asce.org/sei).

ASCE 7 Wind Research

It has been more than 40 years since any concerted and focused effort has been made to perform wind tunnel research in support of the ASCE 7 wind load provisions. Thousands of wind tunnel studies have been performed for select buildings and bridges during the past several decades. Those studies have enabled the design and construction of many landmark structures and iconic tall and supertall buildings around the globe. Unfortunately, despite our growing knowledge, the needed funding to bring our wind provisions to an achievable level with today's technology was not available until recently.

In 2020, SEI members of the ASCE 7 Wind Load Subcommittee appealed to many firms, organizations, and industry partners to support the development of a three-year wind research effort. The goal is to study the possible combination of the ASCE 7 Chapter 27 *All-Heights Directional Method* and the Chapter 28 *Low-Rise Envelope Method* into a single procedure. Not only will this bring current technology to the provisions, but it is also intended to reduce the confusion associated with having two methods for determining the wind loads on buildings. The response to these fund-raising efforts has been overwhelming. Several firms, individuals, and industry partners generously pledged this research (see the sidebar).

The research effort includes two components: wind tunnel testing and the development of a single methodology. Data for 66 models ranging

from low- to high-rise buildings have been analyzed in previous research efforts, including 30 wind tunnel models funded previously with support from the Charles Pankow Foundation and SEI. Greg Kopp, Ph.D., and Jin Wang, Ph.D., have analyzed this data to identify how the overall wind loads for uplift and shear depend on the geometric parameters, with results published in the ASCE/SEI *Journal of Structural Engineering*. Building on these previous studies, the researchers have defined the path needed to develop a full set of geometries to analyze in the wind tunnel to create a complete dataset. Further, the previous analyses results suggest that once they have a full set of data, it will be reasonable to develop a single, new method for wind load analysis. These new provisions will capture the important advantages of each of the current Chapter 27 and 28 methodologies while eliminating the current disadvantages and confusion of using two.

Currently, wind tunnel studies are underway to provide data for the additional building and roof configurations needed. A video explaining these efforts and procedures can be viewed at <https://youtu.be/eYOn1qmDDwE>. After completing the wind tunnel testing, the researchers, an advisory panel, a peer review team, and many ASCE 7 Wind Loads Subcommittee members will collaborate to develop the new methodology. Results of these research efforts will include proposals to the ASCE 7-28 Wind Load provisions to change the way wind loads are evaluated by unifying the various methods into a single procedure. The comprehensive effort and partnership across many experts is only possible because of the generous support of many in the profession. We are all indebted to them for advancing the profession.

Although SEI is known primarily for developing the ASCE/SEI 7 Standard, there is much more happening within SEI to support and advance our profession. If you would like to join a committee effort, apply at [asce.org/SEI](https://www.asce.org/sei).



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ASCE 7 Research Supporters

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