

ASCE 7 is blowing in the wind

Editor's note:

In this installment of the Tech Corner, DASMA Technical Director Dave Monsour discusses the ASCE organization and its signature document, which is the source of wind load requirements in the marketplace.



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Most members of the door industry are aware that wind load requirements change over time, but customer service personnel and estimators may be surprised when they see dealers using new terms and ways of expressing wind load requirements. Sales teams may notice that the design wind pressure requirements in a particular region are going up (or down). That is mainly because a higher level is being requested. Those with the sneaking suspicion that wind load requirements are changing over time would be correct.

Q: What is behind evolving wind load requirements? Is it a group of meteorologists updating their databases?

You are partly correct. New data is crucial, and a big part of that comes from weather stations. However, weather stations and meteorologists deal primarily with wind speed — and that's only one aspect of wind load. So the new data comes from other sources as well, principally top-level research laboratories such as Western University in Ontario, Canada, and the Insurance Institute for Business and Home Safety (IBHS) Research Center in South Carolina.

Q: Who puts all the data together and figures it all out?

Wind load requirements for buildings and their components and cladding (which is what doors are) are determined by the American Society of Civil Engineers (ASCE) and its subgroup, the Structural Engineering Institute (SEI), and are published in their standard: Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE/SEI 7-22). ASCE and SEI are extremely well-established organizations that have been considered the most credible sources of information for wind loads and other loads (e.g., snow, rain, floods, earthquakes, etc.) for generations.

Q: Does DASMA have any involvement with ASCE?

Yes. As DASMA's technical director, I am an Associate Member of two Subcommittees for ASCE 7: the Wind Load Subcommittee (WLSC) and the Seismic Subcommittee (SSC).

Q: How often is the ASCE 7 standard updated?

The update process has settled into a six-year cycle. The current edition is ASCE 7-22 (signifying publication in the year 2022). The edition currently under development will be called ASCE 7-28 and is scheduled to be published on Dec. 31, 2027.

The bottom line is that design wind pressures are expected to significantly increase across the board.

Q: Is the process fair and technically based?

The process is very fair and technically based. All major changes rely on research in publicly available databases. For the WLSC, well over a hundred Voting and Associate Members review and vote on every proposal.

The Voting Members especially are highly qualified and experienced; some of them helped to write the initial version of ASCE 7 in 1988. An incredible volume of written commentary is generated in the voting

and review process, and all of it is taken seriously. All comments require a formal response — an arduous task. All comments accompanying negative votes have to be reballedoted after the formal response. The process is impressive on many levels.

Q: Has ASCE 7 been adopted into law? What gives it “teeth”?

Two hurdles must be cleared for each new edition of ASCE 7 to have “teeth.” First, the new edition must be adopted into model codes, such as the International Building Code and the International Residential Code. Second, the updated model code must be adopted at the state level one state at a time. At that point it becomes law. You could say there is a third hurdle and that ASCE 7 doesn't really have “teeth” until the particulars of the state code dealing with wind load are enforced at the local level.

Q: Are there any big changes expected for ASCE 7-28?

Yes. DASMA's door divisions have been discussing several major proposals that are being debated and making their way up the chain of ASCE approval. The bottom line is that design wind pressures are expected to significantly increase across the board. The increases are due not to changes in the wind speed maps but to the factors used to convert speed to pressure, such as pressure coefficients and end zone sizes.

Q: What will these increases mean for the door industry?

The requirements of ASCE 7-28 are likely to begin filtering into the marketplace in about four years. DASMA is monitoring the proposed changes closely and providing feedback within the ASCE process. If the changes are adopted in their current form, then members of DASMA's door divisions will need to prepare their product lines to meet design wind pressures 30% to 50% higher than current levels — and in some cases even higher. ■

Contact us

If you have questions about this topic or suggestions for future content, please email Dave Monsour at dasma@dasma.com.