



**DASMA**  
Door & Access Systems  
Manufacturers Association  
International

COMMERCIAL & RESIDENTIAL GARAGE DOOR DIVISION

# TECHNICAL DATA SHEET

## #194

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## PSF versus MPH in Door Specifications

As with all other exterior building components, doors are sold by their strength rating, not by weather conditions. Garage doors are not sold by wind speed in miles per hour (MPH). Garage doors are rated to withstand specific wind pressures in pounds per square foot (PSF), and this Technical Data Sheet will explain why wind pressure ratings are applicable.

### ASCE 7 is Used to Determine Wind Pressure Using Wind Speed

ASCE 7, *Minimum Design Loads for Buildings and Other Structures*, is the standard referenced in building codes such as the International Building Code and the Florida Building Code to determine wind design pressures. ASCE 7 provides:

- A means to determine the required wind speed for a specific address
- The computation method for converting wind speed to wind pressures (positive and negative). The equation involves squaring the wind speed in MPH from the appropriate risk-based map and multiplying it by a topographical factor, a building “exposure” factor, a surface pressure factor, and a conversion factor to obtain the wind pressure in PSF.

The conversion of wind speed to wind pressures is a complex process requiring a significant amount of information about the specific building and the terrain surrounding the building site, which the garage door manufacturer cannot know or observe. This process is not just knowing the address of the building. ASCE 7 could require different wind pressures for doors on four different buildings at the same intersection of streets.

Some other factors to consider include, but are not limited to:

1. Mean roof height of the building
2. Slope of the building roof
3. Nearby wooded areas and buildings may qualify to reduce wind pressures because they help block the wind

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**Note: Technical Data Sheets are information tools only and should not be used as substitutes for instructions from individual manufacturers. Always consult with individual manufacturers for specific recommendations for their products and check the applicable local regulations.**

This Technical Data Sheet was prepared by the members of DASMA's Commercial & Residential Garage Door Division Technical Committee. DASMA is a trade association comprising manufacturers of rolling doors, fire doors, grilles, counter shutters, sheet doors, and related products; upward-acting residential and commercial garage doors; operating devices for garage doors and gates, sensing devices, and electronic remote controls for garage doors and gate operators; as well as companies that manufacture or supply either raw materials or significant components used in the manufacture and installation of the Active Members' products.

4. A nearby hill may accelerate the wind and increase the required pressures
5. A nearby large body of water, which allows the wind to speed up
6. The “importance” of the building. A hospital or fire station requires a higher “factor of safety” than commercial or residential buildings.
7. The size of the “component.” The smaller the component, the greater the requirement for wind pressures. Garage doors require a lower PSF than an entry door.
8. The proximity of the garage door to the corner of the building
9. The version of ASCE 7 referenced in the local building code

These items must be evaluated for each job site because the conversion of wind speed to wind pressures may require someone to visit and view the construction site. Because of this, local codes generally require that a design professional (often designated as the "Engineer of Record") resolve the site-specific requirements. Once the design professional computes the conversion of wind speed to wind pressures for the exterior building components (e.g., windows, entry doors, garage doors), suppliers can be contacted to provide appropriate products.

### **How Manufacturers Determine Which Products to Supply**

Manufacturers combine an appropriate wind speed from model codes or local codes and outlined wind pressures in DASMA Technical Data Sheet #155 to provide compliant garage and rolling door products.

### **Why Wind Design Pressures and Test Pressures Are Not Converted into MPH Wind Speeds**

The factors listed above eliminate the possibility of a manufacturer converting a rating for a product from PSF to MPH.

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