COMMERCIAL & RESIDENTIAL GARAGE DOOR DIVISION
DASMA 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 faction 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

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.