



DASMA
Door & Access Systems
Manufacturers Association
International

COMMERCIAL & RESIDENTIAL GARAGE DOOR DIVISION

TECHNICAL DATA SHEET

#168

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WIND LOADS ON GARAGE DOORS FREQUENTLY ASKED QUESTIONS

1. **Does orientation of the door, i.e. front-facing vs. side-facing, affect design wind load?** No. Door size, least horizontal dimension of the building, mean roof height of the building, and garage door distances from corners affect design wind load.
2. **Does the compass direction the door faces affect wind load design?** No. Worst-case winds directly toward and away from garage door are considered in wind load design. Winds may come from any direction during a storm, particularly a hurricane with its large circular pattern of wind.
3. **What high wind events are covered?** Primarily straight-line winds associated with velocity pressures that are a result of hurricanes, thunderstorms and other non-tornadic events.
4. **Why are positive and negative wind load values required?** To account for both negative and positive velocity pressures occurring due to winds enveloping a structure or a combination of structures.
5. **Why are the negative pressures higher for a double story house, versus a single story house?** Breaching of an upper level window may cause the resultant higher interior wind pressure at that level to equalize at the garage door level, in homes that do not have self-closing doors separating upper levels from lower levels.
6. **What if the door size is other than what is shown on the chart?** Either use the values for the next smaller garage door size shown in the DASMA wind load guide, or contact the garage door manufacturer or a qualified design professional if a more precise analysis is needed.

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.

7. **What effect does garage door glazing have on design wind pressures, versus non-glazed garage doors?** This topic applies to an area where building windborne debris resistance is required. Pressures are based on building glazing, not just garage door glazing. If building openings are not protected per code requirements, they may need to be designed for higher wind load pressures.
8. **Who performs product testing?** An independent firm/testing agency, or an independent Professional Engineer, that certifies both the test report and equipment used.
9. **Does house layout configuration affect garage door wind load?** Yes. The least wall dimensional length of the structure affects design wind load.
10. **Why can't the industry just supply a 100 MPH door?** Wind speed is not the defining factor in determining the capability of a structure or component's performance in the event of a high wind occurrence. It is the amount of velocity pressure that the wind is capable of producing at a given wind speed.
11. **What is the difference between wind speed and wind pressure?** Wind pressure represents the force exerted by wind. It is calculated starting with wind speed, but is greatly dependent on a number of factors related to the structure configuration and site location. It is not enough to say a product will meet a given wind speed alone.
12. **Why are wind pressures better than wind speeds when specifying doors?** Velocity pressure equates to the amount of work or energy that the wind expends due to its velocity or speed. This energy or work can be either calculated or tested.
13. **What is the difference between design load and test load?** Design load is a velocity pressure representing the greatest anticipated wind condition based on historical data; test load represents a predetermined maximum load a door is tested to under controlled laboratory conditions. A test load may be a higher load than the design load by a predetermined factor of safety, usually 50%.

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14. **Are garage door manufacturers and installers responsible for the supporting structure's ability to resist loads applied via wind loads on garage doors?** Installers carry the responsibility of determining if existing mounting surfaces are suitable. A qualified design professional may need to be consulted to verify supporting structure for the door installation.
15. **Does the High Winds Load Guide apply to retrofitted doors?** The authority having jurisdiction is the sole and final determiner of the source for applicable wind load provisions to retrofitted garage doors.
16. **What is the difference between fastest mile wind speed and three-second peak gust wind speed?** The gust speed is the highest sustained gust over a three second period of time. The fastest mile speed is the highest sustained speed over a longer period. Gust is typically 20%-25% higher than fastest mile. Model building codes have converted to three-second peak gust wind speeds because that means of measurement is now commonly used at wind speed reporting stations across the U.S.
17. **Why do the DASMA Garage Door Wind Load Guides have pressures different from wind load tables in the International Building Code or the International Residential Code?** The Codes show pressures based on different Wind Zones on a wall. Garage doors are assumed to be located in more than one Wind Zone, and thus a "weighted average" method is used to calculate wind loads for DASMA wind load guides.
18. **How do we determine the wind load on a garage door if the door is in two different building wind zones?** By using a concept known as "weighted average", which is a function of the garage door area in each zone.
19. **What is Exposure B versus Exposure C?** Exposure B is associated with a site condition commonly encountered in a typical residential subdivision more than a mile away from the hurricane oceanline. Scattered subdivision "obstructions", such as houses and trees, must prevail for at least 1500' in all directions from a structure in question. Exposure C is associated with a site condition either containing an adjacent open field extending at least 1500' from the structure in question or within a mile of the hurricane oceanline.

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