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Wind Load Ratings for Non-Tested Garage Door and Rolling Door Sizes

This Technical Data Sheet explains how manufacturers of sectional garage doors and rolling steel doors may determine wind load performance for door sizes other than those tested. Note: Windborne debris impact resistance, commonly associated with hurricane-prone region applications, is beyond the scope of this TDS.

Two general statements encompass a method most commonly used by manufacturers:

A manufacturer may rate a sectional garage door, or rolling steel door, for a higher wind load pressure if the door is not as wide as a tested door of the same model and construction.

Conversely, a manufacturer may rate a sectional garage door, or rolling steel door, for a lower wind load pressure if the door is larger in size than a tested door of the same model and construction.

Supporting rationale for these statements is as follows:

1. Calculation methods, using standard engineering principles, are well-established in the door industry for both sectional garage doors and rolling doors, and have been used by manufacturers to obtain various local and state approvals for many years.
2. For a given wind pressure and consistent door construction, the relationship between door width and maximum component loads may be determined by these calculation methods. If maximum component loads are kept the same, a door can be accepted based on a tested door of a different width.
3. Door height, within limits established by actual door tests, has negligible effect on component loads.

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. If a vertical post or posts are part of the reinforcement, then engineering analysis of the connections to the header and floor along with the bending strength of the post shall also be considered.

The state of Florida, well known throughout the country for close regulation of exterior envelope products, enacted Rule 61G20.070 allowing evaluation of products based upon testing, comparative or rational analysis. An excerpt regarding this method of acceptance reads as follows:

... An evaluation report from a Florida Registered Architect or a licensed Florida Professional Engineer developed and signed and sealed, based upon standard tests or standard comparative or rational analysis, or a combination thereof and indicates that the product was evaluated to be in compliance with the Code and that the product is, for the purpose intended, at least equivalent to that required by the Code.

This rule is typical of nationally accepted means of determining wind performance by allowing for rational engineering analysis based on approved standard tests. The registered design professional conducting the analysis has the ability to review the complete body of tests performed on the product and the design drawings of the product in question. Within this review, the registered design professional may use engineering design principles to perform a rational engineering analysis of the product or use comparative analysis to evaluate the performance of the product configuration in question.

To conclude, door manufacturers are not required to test every configuration nor are they limited to using only one test report for a given analysis. Extrapolation of data when based upon sound engineering principles is acceptable.

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