COMMERCIAL & RESIDENTIAL GARAGE DOOR DIVISION

DASMA TECHNICAL DATA SHEET

#155o

Door & Access Systems Manufacturers Association International

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DASMA Garage Door and Commercial Door Wind Load Guide
Based on the 2004 and 2007 Florida Building Code

DASMA (the Door & Access Systems Manufacturers Association) has created a ***GARAGE DOOR AND COMMERCIAL WIND LOAD GUIDES***, based on the 2004 and 2007 Florida Building Code wind load requirements[1]. The guide is intended to be used by code officials, engineers, architects, builders, owners, insurance companies and other interested parties. The Wind Load Guide also references a DASMA test procedure (ANSI/DASMA 108), which may be used by manufacturers to determine structural load performance of a garage door.

The guide is published by the Commercial & Residential Garage Door Division of DASMA, which represents an estimated 95% of all sectional garage doors sold in the United States. The Division's Technical Committee, the best technical talent in the garage door industry, developed these tables based on the latest civil engineering and building code criteria.

The DASMA members believe the ***DASMA GARAGE DOOR AND COMMERCIAL WIND LOAD GUIDES*** will improve understanding of the issues related to garage doors and wind loads. DASMA continues to monitor developments regarding wind loads and the building codes in general, and continues to develop solutions to problems which affect the garage door industry. Please contact DASMA for any questions or comments.

[1] Wind Loads for the Garage Door Wind Load Guide were calculated using the following variables, and were based on the following referenced sections, found in the 2004 and 2007 Florida Building Code:

- Basic Wind Speed Map based on 3 Second Peak Gust – Figure 1609
- Equivalent Basic Wind Speeds, i.e. Fastest Mile vs. 3 Second Peak Gust – Table 1609.3.1
- Height and Exposure Adjustment Coefficients – Table 1609.6D
- Importance Factors – Table 1604.5
- Components and Cladding Loads – Table 1609.6B
- Protection of Openings – Section 1609.1.4
- High Velocity Hurricane Zone wind load values are calculated based on Section 1620

[2] The wind load guides are based on Exposures B, C and D. Exposure B includes urban and suburban areas and wooded areas, Exposure C includes open areas and close proximity to Gulf and Ocean shorelines, and Exposure D includes proximity to large inland lakes.

GARAGE DOOR WIND LOAD GUIDE

BASED ON THE 2004 AND 2007 FLORIDA BUILDING CODE (ASCE 7-98) EXPOSURE B

Mean Roof Height	Door Size	90 MPH	100 MPH	110 MPH	120 MPH	130 MPH	140 MPH	150 MPH
Less than 30 Feet	Single	**12.8**	**15.8**	**19.1**	**22.8**	**26.7**	**31.0**	**35.6**
	9' x 7'	-14.5	-17.9	-21.6	-25.8	-30.2	-35.1	-40.2
	Double	**12.3**	**15.2**	**18.3**	**21.8**	**25.6**	**29.7**	**34.1**
	16' x 7'	-13.7	-16.9	-20.4	-24.3	-28.5	-33.1	-38.0

Design pressures above are in Pounds per Square Foot (PSF)

Testing, if required by local authority, may be performed to ASTM E-330, or preferably ANSI/DASMA 108, with acceptance criteria in accordance with ANSI/DASMA 108.

Test conditions:

1. Garage doors shall be tested to both negative and positive pressures. Doors shall be installed simulating normal conditions (i.e., top roller in track radius, other rollers in tracks, all hinges in place, reinforcing hardware in place)
2. Test durations for each test direction shall be as follows:
   A. 10 seconds at design pressure.
   B. 10 seconds at 1.5 times the design pressure.

Standard engineering principles may be used to interpolate or extrapolate test results to door sizes not specifically tested. Doors shall include a manufacturer's label certifying compliance to specific load.

This guide is provided for reference purposes only. In all cases the local building authority is the sole and final determiner of the structural and safety requirements, and suitability of the garage door.

Notes:

- Basic Wind Speeds above are three second peak-gust values
- Negative pressures assume door has 2 feet of width in building's end zone.
- Garage doors evaluated as attached to enclosed buildings with a Use Factor of 1.0.
- Doors larger than 100 square feet should use the 16 x 7 loads. Doors less than 100 square feet may be interpolated.
- Garage doors evaluated as Components and Cladding
- Installation details vary. Consult manufacturer's instructions.
- For buildings representing a substantial hazard to human life in the event of failure, or buildings designated as "essential facilities", tabulated wind load values are to be multiplied by a factor of 1.15.

For more information, contact DASMA, 1300 Sumner Avenue, Cleveland OH 44115-2851
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GARAGE DOOR WIND LOAD GUIDE

BASED ON THE 2004 AND 2007 FLORIDA BUILDING CODE (ASCE 7-98) EXPOSURE C

Mean Roof Height	Door Size	90 MPH	100 MPH	110 MPH	120 MPH	130 MPH	140 MPH	150 MPH
15 Feet Single Story	Single	**15.6**	**19.2**	**23.2**	**27.7**	**32.5**	**37.7**	**43.2**
	9' x 7'	-17.6	-21.7	-26.3	-31.3	-36.7	-42.6	-48.9
	Double	**14.9**	**18.4**	**22.3**	**26.5**	**31.1**	**36.1**	**41.4**
	16' x 7'	-16.6	-20.5	-24.8	-29.5	-34.7	-40.2	-46.2
25 Feet Double Story	Single	**17.2**	**21.2**	**25.7**	**30.6**	**35.9**	**41.6**	**47.8**
	9' x 7'	-19.5	-24.0	-29.1	-34.6	-40.6	-47.1	-54.0
	Double	**16.5**	**20.3**	**24.6**	**29.3**	**34.4**	**39.9**	**45.8**
	16' x 7'	-18.4	-22.7	-27.4	-32.7	-38.3	-44.5	-51.0

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GARAGE DOOR WIND LOAD GUIDE

BASED ON THE 2004 AND 2007 FLORIDA BUILDING CODE (ASCE 7-98) EXPOSURE D

Mean Roof Height	Door Size	90 MPH	100 MPH	110 MPH	120 MPH	130 MPH	140 MPH	150 MPH
15 Feet Single Story	Single	**18.9**	**23.3**	**28.2**	**33.5**	**39.3**	**45.6**	**52.4**
	9' x 7'	-21.3	-26.3	-31.8	-37.9	-44.5	-51.6	-59.2
	Double	**18.1**	**22.3**	**27.0**	**32.1**	**37.7**	**43.7**	**50.2**
	16' x 7'	-20.1	-24.9	-30.1	-35.8	-42.0	-48.7	-55.9
25 Feet Double Story	Single	**20.5**	**25.3**	**30.6**	**36.5**	**42.8**	**49.6**	**57.0**
	9' x 7'	-23.2	-28.6	-34.6	-41.2	-48.4	-56.1	-64.4
	Double	**19.6**	**24.2**	**29.3**	**34.9**	**41.0**	**47.5**	**54.5**
	16' x 7'	-21.9	-27.0	-32.7	-38.9	-45.7	-53.0	-60.8

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Notes:

- Basic Wind Speeds above are three second peak-gust values
- Negative pressures assume door has 2 feet of width in building's end zone.
- Garage doors evaluated as attached to enclosed buildings with a Use Factor of 1.0.
- Doors larger than 100 square feet should use the 16 x 7 loads. Doors less than 100 square feet may be interpolated.
- Garage doors evaluated as Components and Cladding
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GARAGE DOOR WIND LOAD GUIDE

BASED ON THE 2004 AND 2007 FLORIDA BUILDING CODE

High Velocity Hurricane Zone, Exposure C

Mean Roof Height	Door Size	140 MPH	146 MPH
15 Feet Single Story	Single	**37.7**	**41.0**
	9' x 7'	-42.6	-46.3
	Double	**36.1**	**39.2**
	16' x 7'	-40.2	-43.7
25 Feet Double Story	Single	**41.6**	**45.3**
	9' x 7'	-47.1	-51.2
	Double	**39.9**	**43.4**
	16' x 7'	-44.5	-48.4

Design pressures above are in Pounds per Square Foot (PSF)

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Notes:

- Basic Wind Speeds above are three-second gust values
- Doors larger than 100 square feet should use the 16 x 7 loads. Doors less than 100 square feet may be interpolated.
- Installation details vary. Consult manufacturer's instructions.
- Negative pressures assume door has 2 feet of width in building's end zone.
- Garage doors evaluated as attached to enclosed buildings with a Use Factor of 1.0
- Garage doors evaluated as Components and Cladding.
- For buildings representing a substantial hazard to human life in the event of failure, or buildings designated as "essential facilities", tabulated wind load values are to be multiplied by a factor of 1.15.

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COMMERCIAL DOOR WIND LOAD GUIDE

BASED ON THE 2004 AND 2007 FLORIDA BUILDING CODE (ASCE 7-98) EXPOSURE B

Mean Roof Height	Door Size	90 MPH	100 MPH	110 MPH	120 MPH	130 MPH	140 MPH	150 MPH
Less Than 60 Feet	*8′ x 8′*	**11.7**	**14.5**	**17.5**	**20.9**	**24.5**	**28.4**	**32.6**
		-13.3	-16.4	-19.9	-23.6	-27.7	-32.2	-36.9
	10′ x 10′	**11.4**	**14.0**	**17.0**	**20.2**	**23.7**	**27.5**	**31.6**
		-12.7	-15.7	-19.0	-22.7	-26.6	-30.8	-35.4
	14′ x 14′	**10.8**	**13.3**	**16.1**	**19.2**	**22.5**	**26.1**	**30.0**
		-12.0	-14.8	-17.9	-21.4	-25.1	-29.1	-33.4

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- Basic Wind Speeds above are three second peak-gust values
- Negative pressures assume door has 2 feet of width in building's end zone.
- Doors evaluated as attached to enclosed buildings with a Use Factor of 1.0.
- Buildings evaluated as having roof slopes less than 10 degrees.
- For buildings representing a substantial hazard to human life in the event of failure, or buildings designated as "essential facilities", tabulated wind load values are to be multiplied by a factor of 1.15.
- Doors larger than 196 square feet should use the 14 x 14 loads. Doors less than 196 square feet may be interpolated.
- Doors evaluated as Components and Cladding
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Mean Roof Height	Door Size	90 MPH	100 MPH	110 MPH	120 MPH	130 MPH	140 MPH	150 MPH
15 Feet	*8′ x 8′*	**14.3**	**17.6**	**21.3**	**25.4**	**29.8**	**34.5**	**39.6**
		-16.1	-19.9	-24.1	-28.7	-33.7	-39.1	-44.8
	10′ x 10′	**13.8**	**17.0**	**20.6**	**24.5**	**28.8**	**33.4**	**38.3**
		-15.5	-19.1	-23.1	-27.5	-32.3	-37.5	-43.0
	14′ x 14′	**13.1**	**16.2**	**19.6**	**23.3**	**27.3**	**31.7**	**36.4**
		-14.6	-18.0	-21.8	-25.9	-30.4	-35.3	-40.5
25 Feet	*8′ x 8′*	**15.8**	**19.5**	**23.6**	**28.0**	**32.9**	**38.2**	**43.8**
		-17.8	-22.0	-26.7	-31.7	-37.2	-43.2	-49.6
	10’ x 10’	**15.3**	**18.8**	**22.8**	**27.1**	**31.8**	**36.9**	**42.4**
		-17.1	-21.1	-25.6	-30.4	-35.7	-41.4	-47.6
	14′ x 14′	**14.5**	**17.9**	**21.6**	**25.8**	**30.2**	**35.1**	**40.3**
		-16.1	-19.9	-24.1	-28.7	-33.7	-39.0	-44.8

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- Doors evaluated as attached to enclosed buildings with a Use Factor of 1.0.
- Buildings evaluated as having roof slopes less than 10 degrees.
- Doors larger than 196 square feet should use the 14 x 14 loads. Doors less than 196 square feet may be interpolated.
- Doors evaluated as Components and Cladding
- Installation details vary. Consult manufacturer’s instructions.
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COMMERCIAL DOOR WIND LOAD GUIDE

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Mean Roof Height	Door Size	90 MPH	100 MPH	110 MPH	120 MPH	130 MPH	140 MPH	150 MPH
15 Feet	*8′ x 8′*	**17.3**	**21.3**	**25.8**	**30.7**	**36.1**	**41.8**	**48.0**
		-19.6	-24.1	-29.2	-34.8	-40.8	-47.3	-54.3
	10′ x 10′	**16.7**	**20.6**	**25.0**	**29.7**	**34.9**	**40.5**	**46.4**
		-18.8	-23.2	-28.0	-33.3	-39.1	-45.4	-52.1
	14′ x 14′	**15.9**	**19.6**	**23.7**	**28.2**	**33.1**	**38.4**	**44.1**
		-17.7	-21.8	-26.4	-31.4	-36.9	-42.8	-49.1
25 Feet	*8′ x 8′*	**18.8**	**23.2**	**28.1**	**33.4**	**39.2**	**45.5**	**52.2**
		-21.3	-26.3	-31.8	-37.8	-44.5	-51.5	-59.1
	10’ x 10’	**18.2**	**22.4**	**27.2**	**32.3**	**37.9**	**44.0**	**50.5**
		-20.4	-25.2	-30.5	-36.3	-42.6	-49.4	-56.7
	14′ x 14′	**17.3**	**21.3**	**25.8**	**30.7**	**36.0**	**41.8**	**48.0**
		-19.2	-23.7	-28.7	-34.2	-40.1	-46.5	-53.4

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COMMERCIAL DOOR WIND LOAD GUIDE

High Velocity Hurricane Zone, Exposure C

Mean Roof Height	Door Size	140 MPH	146 MPH
15 Feet	*8' x 8'*	**34.5**	**37.5**
		-39.1	-42.5
	10' x 10'	**33.4**	**36.3**
		-37.5	-40.7
	14' x 14'	**31.7**	**34.5**
		-35.3	-38.4
25 Feet	*8' x 8'*	**38.2**	**41.5**
		-43.2	-47.0
	10' x 10'	**36.9**	**40.2**
		-41.4	-45.1
	14' x 14'	**35.1**	**38.1**
		-39.0	-42.5

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