

STRUCTURAL SOLUTIONS, P.A.

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GARAGE DOOR STATIC PRESSURE TEST REPORT

Garage Door No.:	IRC-3316-130-24		Test Date:		9/4/2013	Project No.:	13-086
Design Pressures:	+25.3 psf, -28.8 psf		Report Date:		11/3/2020	Model #	3000
Test Pressures:	+38 psf, -43.2 psf		Test Location:		Amarr Garage Doors, Winston-Salem, NC		
ASCE 7-16 Criteria:	Up to 5 Feet of Door Width in Zone 5; Any Roof Slope; Enclosed Building						
	Exp. B, 30' MRH	Exp. C, 15' MRH	Exp. C, 25' MRH	Exp. D, 15' MRH	Exp. D, 25' MRH		
	168 mph	152 mph	145 mph	138 mph	133 mph		
Witnessed By:	Brandon Gentle - Amarr Garage Doors; Thomas L. Shelmerdine, PE - Structural Solutions, P.A.						

Description of Test Specimen:

A 16'-0" wide x 8'-0" high residential steel sectional garage door, one section wide by three sections high, each section being 2" thick by 32" high 27/25 gauge galvanized steel sheet. Each section was reinforced with two galvanized steel struts: the bottom section had two 4.5" 20 gauge R-trusses, the other sections had one 4.5" 20 gauge R-truss and one 3" 20 gauge strut. The door sections were connected together with one 12 gauge galvanized steel end hinge at each end stile and one 14 gauge galvanized steel center hinge at three interior stiles as shown on the drawing. Garage door Model 3000 manufactured by Amarr Garage Doors was used in the test. The test unit is further described on Drawing IRC-3316-130-24.

Manner of Testing:

This test was conducted at Amarr Garage Doors in Winston-Salem, NC, which is accredited by the American Association for Laboratory Accreditation, Certificate #2595.01. The specimen was tested for static pressure structural performance in substantial conformance with the procedures described in DASMA 108 "Standard Method for Testing Sectional Garage Doors - Determination of Structural Performance Under Uniform Static Air Pressure Difference", and ASTM E330 "Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference". Both positive and negative pressures were tested. The specimen was installed in an enclosure measuring approximately 5' deep, 9' high, and 25' long. The enclosure was framed with shop welded structural steel square tubing and covered with 3/4" thick plywood. The door was covered with 2 mil plastic sheeting to prevent leakage of air pressure. One pressure blower was attached to the enclosure with flexible ducting to provide the positive and negative pressures. Pressure transducers connected to a computer were used to measure and record the pressures in the enclosure.

Test Procedure:

The specimen was subjected to the above pressures for the following durations. Positive pressure was applied on the exterior face of the door first, and then negative pressure was applied.

Step 1: Preload the door to 50% of the Design Pressure and hold for 10 seconds. Step 2: Unload the door for 1 to 5 minutes.
Step 3: Load the door to 100% of the Design Pressure and hold for 60 seconds. Step 4: Unload the door for 1 to 5 minutes.
Step 5: Load the door to 150% of the Design Pressure (which equals 100% of the Test Pressure) and hold for 10 seconds.
Step 6: Repeat 1 through 5 above for negative pressure.

Observations:

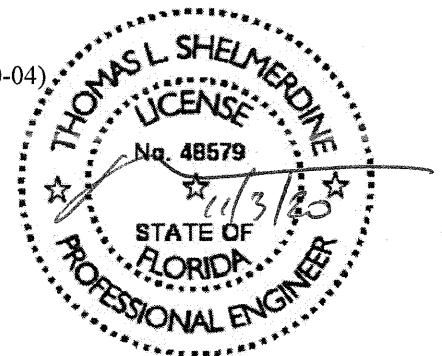
No failures occurred as a result of the noted loadings. The door remained operable after both positive and negative tests.

Summary:

A 16'-0"x8'-0" Model 3000 as described on drawing IRC-3316-130-24 meets or exceeds the testing criteria as described above. By comparison to the construction of the 16'-0"x8'-0" Model 3000, the following doors also meet or exceed the above testing criteria, when constructed in accordance with drawing IRC-3316-130-24:

- Classica 3000 doors (which is an alternate name for the Model 3000)
- Model 3000 and Classica 3000 doors with widths up to 16'-0" and heights up to 14'-0"
- 4 long panel windows may be installed in 1 section (1/8" tempered glass - meets ASTM E1300-04)

Submitted By:



STRUCTURAL SOLUTIONS, P.A. (Florida: dba Structural Solutions of North Carolina, Inc., Firm #29412)

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