

STRUCTURAL SOLUTIONS, P.A.*

Structural Engineering ■ Investigations ■ Consulting

GARAGE DOOR STATIC PRESSURE TEST REPORT

Garage Door No.:	IRC-6018-130-24-L		Test Date:	12/21/2016	Project No.:	16-109
Design Pressures:	+25.4 psf, -28.7 psf		Report Date:	10/28/2020	Model #	600
Test Pressures:	+38.1 psf, -43.1 psf		Test Location:	Entrematic, 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:	Robert Richardson - Entrematic / Amarr; Thomas L. Shelmerdine, PE - Structural Solutions, P.A.					

Description of Test Specimen:

A 18'-0" wide x 7'-0" high sectional garage door, one section wide by four sections high, each section being 2" thick by 21" high 25 gauge galvanized steel sheet. Each section was reinforced with one or two 4 1/2" 20 gauge galvanized steel R-trusses, 2 on the bottom & 3rd sections, and 1 on the 2nd & top sections. The door sections were connected together with one 14 gauge galvanized steel end hinge at each end stile and one 14 gauge galvanized steel center hinge at 5 interior stiles (3 at the top section) as shown on the drawing. Model 600 manufactured by Entrematic was used in the test. The test unit is further described on Drawing IRC-6018-130-24-L.

Manner of Testing:

This test was conducted at Entrematic, 165 Carriage Ct., 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 108-05 and ASTM E330-14. Both positive and negative pressures were tested. The specimen was installed in an enclosure framed with welded structural steel 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:

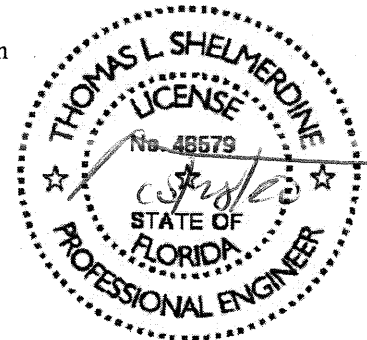
No failures occurred as a result of the noted loadings. The door remained operable after both positive and negative tests.

Summary:

The 18'-0"x7'-0" Model 600 as described on drawing IRC-6018-130-24-L meets or exceeds the testing criteria as described above. By comparison to the construction of the 18'-0"x7'-0" Model 600, the following doors also meet or exceed the above testing criteria, when constructed in accordance with drawing IRC-6018-130-24-L:

- 18' x 7' Model 950 doors (which are constructed of thicker 24 gauge steel in lieu of 25 gauge steel)
- 18' x 7' Model 650 doors (which have the "Oak Summit" embossment pattern in the skin)
- 18' x 7' Amarr Oak Summit 1000, Amarr Stratford 1000, and Amarr Heritage 1000, which are alternate names for Models 650, 600 & 950 respectively
- 18' x 7' Amarr Oak Summit 2000, Amarr Stratford 2000, and Amarr Heritage 2000 doors, which are alternate names for Models 650, 600 & 950 respectively with drop-in insulation
- Short, Long, Flush, and Oak Summit Panels, which are alternate embossment patterns in the skin
- Model 600, 650, 950, Amarr Oak Summit 1000 & 2000, Amarr Stratford 1000 & 2000, and Amarr Heritage 1000 & 2000 doors with widths up to 18'-0" and heights up to 14'-0"
- 4 long panel windows (38 1/8" x 10 5/8") of 3/32" SSB glass (meets ASTM E1300-04) may be installed in 1 section

Submitted By:



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

Thomas L. Shelmerdine, PE (NC PE #14654; Florida PE #0048579)

5921-G West Friendly Avenue ■ Greensboro, North Carolina 27410 ■ (336) 856-2686 ■ www.sspa.biz ■ NC Firm #C-1096