Scott A. Brown, Professional Engineer

Evaluation reports are the opinion of the evaluation entity, based on the findings, and in no way constitute or imply approval by a local building authority. I, Scott A. Brown P.E. have reviewed the data submitted by Raynor Garage Doors and in my opinion, the product, material, system, or method of construction specifically identified in this report conforms to the requirements of the 7th Edition (2020) of the Florida Building Code, subject to the limitations in this report.

Report No.: 35-I

Submitted: 12/05/16
Revised: 10/13/17
Revised: 12/14/17
Revised: 6/11/18
Revised: 04/10/19
Revised: 01/29/20
Revised: 04/03/20
Revised: 08/16/21

Category: Exterior Doors

Submitted By:
Raynor Garage Doors
1101 East River Road
Dixon, IL 61021

Evaluation Entity:
Scott Brown P.E.
698 Timber Creek Road
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Evaluation Test Standards:
ANSI/DASMA 108-2017
ANSI/DASMA 115-2017

1. Product Trade Name

1.1 Sandwich Doors

1.1.1 AP138
1.1.2 AP200
1.1.3 AP138C
1.1.4 AP200C
1.1.5 AP200LV
1.1.6 Eden Coast by Raynor

2. Scope of Evaluation

2.1 Structural: Transverse Wind and Impact/Cyclic loads

3. Uses

3.1 Raynor garage doors are used as garage doors with specified allowable transverse wind pressures.

4. Models

4.1 AP138: Sections shall be sandwich-style, 1-3/8" inch thick insulated door panels with tongue-and-groove section joint made from minimum 0.014-inch-thick galvanized steel roll-formed exterior skins and .013-inch-thick interior skins with wood grain texture. The doors are insulated with a foam in place polyurethane foam. Available with 19-5/16" x 14-7/16" Colonial windows or 42-1/2" x 14-7/16" Ranch windows. Maximum door height is 10'-0".

4.2 AP200: Sections shall be sandwich-style, 2" inch thick insulated door panels with tongue-and-groove section joint made from minimum 0.014-inch-thick galvanized steel roll-formed exterior skins and .013-inch-thick interior skins with wood grain texture. The doors are insulated with a foam in place polyurethane foam. Available with 19-5/16" x 14-7/16" Colonial windows or 42-1/2" x 14-7/16" Ranch windows. Maximum door height is 10'-0".

4.3 AP138C: Same as AP138 with maximum door height of 18'-0"

4.4 AP200C: Same as AP200 with maximum door height of 18'-0".

4.5 AP200LV: Also known as LuxeVue. Sections shall be sandwich-style, 2" inch thick insulated door panels with tongue-and-groove section joint made from minimum 0.014-inch-thick galvanized steel roll-formed exterior skins and .013-inch-thick interior skins with wood grain texture. The doors are insulated with a foam in place polyurethane foam and come with 42-3/4" x 17-1/4" LuxeVue windows. Maximum door height is 10'-0".

4.6 Eden Coast by Raynor: Sections shall be sandwich-style, 2" inch thick insulated door panels with tongue-and-groove section joint made from minimum 0.014-inch-thick galvanized steel roll-formed exterior skins and .013-inch-thick interior skins with wood grain texture. The doors are insulated with a foam in place polyurethane foam. The exterior of the door is trimmed with non-structural decorative composite overlay boards to create different door designs. Overlay boards are a minimum of 1" thick giving an overall section thickness a minimum of 3". Maximum door height is 10'-0".

5. Reinforcing

5.1 General: Raynor garage doors sections listed in this report shall be reinforced horizontally with roll-formed galvanized steel U-bars and or Box Struts.

5.1.1 U-bar: Horizontal reinforcing U-shaped sections, 2-5/8" deep x 2" wide x 18 ga. (.049 minimum) or 20 ga. (.035 minimum) galvanized steel, 80 KSI minimum tensile.

5.1.2 Box Strut: Horizontal reinforcing U-shaped sections, 4-1/2" deep x 5.04" wide x 20 ga. (0.035 inch minimum) galvanized steel, 80 KSI minimum tensile.

6. Installation

6.1 General: Raynor garage doors are to be installed in accordance with the manufacturer's published installation instructions, engineering drawings and this report. The manufacturer's published installation instructions and this report shall be strictly adhered to and a copy of these instructions shall be available at all times on the job site during installation. The information within this report governs if there are any conflicts between the manufacturer's instructions and this report.

7. Allowable Wind Loads

7.1 General: The doors shown in Table 1 were tested to ANSI/DASMA 108 for static air pressure and doors shown in Table 2 were tested for ANSI/DASMA 108 for static air pressure and ANSI/DAMSA 115 for large missile impact resistance.

Table 1

Door Model(s)	Tested Door Width	Number of Center Stiles	Drawing Number(s)	Design Loads		Large Missile Impact Resistant	Test Report Number	Test Date
AP138 AP138C	9' - 0"	1	P-2339-B P-2439-A	+11.4	-12.4	No	1735	10/26/16
				+12.6	-14.2		1935	2/26/20
AP200 AP200C	9' - 0"	1		+18.5	-20.9	No	1744	1/25/17
AP138 AP138C	9' - 0"	1	P-2340-C P-2440-A	+27.6	-31.2	No	1731	10/26/16
				+34.2	-38.6		1936	2/28/20
	12' - 0"	2		+21.4	-23.7		1742	11/30/16
				+18.5	-20.9		1939	3/5/20
	15' - 11.875"	2		+10.9	-12.2		1948	4/1/20
	16' - 0"	3		+12.0	-13.4		1734	10/27/16
				+10.9	-12.2		1950	4/7/20
							1946	3/26/20
AP200 AP200C	9' - 0"	1		+43.2	-48.9	No	1751	2/6/17
	12' - 0"	2		+24.3	-27.5		1749	2/2/17
	16' - 0"	3		+13.7	-15.5		1752	2/6/17

AP138 AP138C	9' - 0"	1	P-2341-C P-2441-A	+49.0	-54.4	No	1732	11/28/16
				+46.2	-54.4		1937	3/20/20
	12' - 0"	2		+27.6	-30.6		1743	11/30/16
				+21.3	-27.5		1953	4/16/20
	16' - 0"	3		+15.5	-19.7		1736	10/27/16
				+13.1	-17.2		1947	3/31/20
							1945	3/24/20
	20' - 0"	4		+9.9	-11.0		1739	11/9/16
				+7.7	-9.9		1956	5/15/20
	20' - 2"	3		+7.5	-9.2		1957	5/19/20
AP200 AP200C	9' - 0"	1		+56.1	-62.6	No	1746	1/26/17
	12' - 0"	2		+31.6	-35.2		1750	2/2/17
	16' - 0"	3		+17.8	-19.8		1753	2/7/17
	20' - 0"	4		+11.4	-12.7		1755	2/8/17
AP138 AP138C	9' - 0"	1	P-2342-C P-2442-A	+66.3	-73.0	No	1758	2/13/17
				+55.0	-62.0		1983	11/18/20
	12' - 0"	2		+41.5	-46.9		1984	1/24/20
	16' - 0"	3		+37.0	-45.0		1760	2/14/17
				+29.3	-32.6		1985	12/2/20
				+32.7	-36.5		1986	12/4/20
	20' - 0"	4		+33.4	-36.7		1738	2/10/17
				+20.4	-22.7		1990	12/16/20
	20' - 2"	3		+17.7	-19.7		1988	12/11/20
AP200 AP200C	9' - 0"	1		+73.3	-80.0	No	1747	1/30/17
	16' - 0"	3		+45.0	-52.0		1754	2/7/17
	20' - 0"	4		+33.4	-36.7		1738	2/10/17
AP138 AP138C AP200 AP200C	9' - 0"	1	P-2344-A P-2444-A	+51.1	-57.7	No	1966	7/24/20
	12' - 0"	2		+41.5	-46.9		1967	7/28/20
	15' - 11.875"	2		+26.4	-29.4		1971	8/11/20
	16' - 0"	3		+26.4	-32.6		1969	8/5/20
	16' - 0"	3					1970	8/6/20
	20' - 0"	4		+17.7	-19.7		1972	8/17/20
	20' - 2"	3					1989	12/15/20
AP138 AP138C AP200 AP200C	9' - 0"	1	P-2345-A P-2445-A	+60.8	-68.7	No	1997	3/12/21
	12' - 0"	2		+41.5	-46.9		1998	3/18/21
	15' - 11.875"	2		+23.3	-26.0		2013	7/16/21
	16' - 0"	3		+26.4	-29.4		2011	7/14/21
	16' - 0"	3					2012	7/15/21
	20' - 0"	4		+14.5	-16.2		2016	7/28/21
	20' - 2"	3					2015	7/23/21
AP138	10' - 0"	1	P-2446-A	+50.0	-55.0	No	1882	4/10/19
	16' - 0"	3		+20.4	-22.7		1880	3/27/19
AP200LV	9' - 0"	1	P-2371-B	+18.5	-20.9	No	1902	9/5/19
	12' - 0"	2		+11.4	-12.9		1906	9/12/19
AP200LV	9' - 0"	1	P-2372-B	+32.7	-36.5	No	1904	9/9/19
	12' - 0"	2		+21.3	-27.5		1920	1/7/20
	15' - 11.875"	2		+13.1	-14.6		1929	1/28/20
	16' - 0"	3		+13.1	-15.5		1927	1/23/20
Eden Coast	10' - 0"	1	P-2381-A	+27.6	-31.2	No	1761	3/10/17
AP200LV	9' - 0"	1	P-2373-B	+43.3	-49.0	No	1932	1/31/20
	12' - 0"	2		+27.6	-31.2		1922	1/9/20
	15' - 11.875"	2		+15.5	-17.2		1930	1/29/20
	16' - 0"	3		+15.5	-19.7		1928	1/24/20
	18' - 0"	3		+12.0	-13.9		1931	1/30/20
Eden Coast	10' - 0"	1	P-2382-A	+29.7	-33.0	No	1764	4/5/17
	16' - 0"	3		+18.3	-20.4		1765	4/7/17
AP200LV	16' - 0"	3	P-2374-A	+32.7	-36.5	No	1933	2/18/20
	18' - 0"	3		+23.3	-29.4		1934	2/21/20

Table 2

Door Model(s)	Tested Door Width	Number of Stiles	Drawing Number	Design Loads		Large Missile Impact Resistant	Test Report Number	Test Date
AP138	9' - 0"	1	P-3342-C	+66.3	-73.0	Yes	1758 1783	2/13/17 9/28/17
	12' - 0"	2		+51.5	-60.6	Yes	1759 1801	2/27/17 11/16/17
	16' - 0"	3		+37.0	-45.0	Yes	1760 1780	2/14/17 9/15/17
	20' - 0"	4		+33.4	-36.7	Yes	1738 1781	2/10/17 9/20/17
AP200	9' - 0"	1	P-3342-C	+73.3	-80.0	Yes	1747 1778	1/30/17 9/5/17
	12' - 0"	2		+56.5	-65.5	Yes	1757 1802	2/27/17 11/9/17
	16' - 0"	3		+45.0	-52.0	Yes	1754 1779	2/7/17 9/13/17
	20' - 0"	4		+33.4	-36.7	Yes	1738 1782	2/10/17 9/22/17
AP138	9' - 0"	1	P-3343-B	+49.0	-54.4	Yes	1732 1791	11/28/16 10/13/17
	12' - 0"	2		+27.6	-30.6	Yes	1743 1799	11/30/17 11/6/17
AP200	9' - 0"	1		+56.1	-62.6	Yes	1746 1792	1/26/17 10/16/17
	12' - 0"	2		+31.6	-35.2	Yes	1750 1800	2/2/17 11/14/17
AP138	9' - 0"	1	P-3344-B	+55.0	-62.0	Yes	1838 1839	4/13/18 4/17/18
	12' - 0"	2		+39.1	-43.5	Yes	1844 1847	5/22/18 5/23/18
	16' - 0"	3		+29.7	-33.1	Yes	1813 1814	5/10/18 5/11/18
	20' - 0"	4		+22.5	-24.7	Yes	1845 1846	5/29/18 5/30/18
AP200	9' - 0"	1	P-3344-B	+60.0	-65.0	Yes	1819 1820	5/16/18 5/18/18
	12' - 0"	2		+42.8	-47.6	Yes	1850 1851	6/12/18 6/13/18
	16' - 0"	3		+32.5	-35.9	Yes	1848 1849	6/8/18 6/11/18
	20' - 0"	4		+24.5	-26.9	Yes	1811 1812	6/4/18 6/5/18
AP200	9' - 0"	1	P-3345-A	+60.0	-65.0	Yes	1855 1856	11/07/18 11/08/18
AP138	10' - 0"	1	P-3346-A	+50.0	-55.0	Yes	1860 1861	12/11/18 12/12/18
	16' - 0"	3		+20.4	-22.7	Yes	1870 1871	2/25/19 2/26/19

8. Substantiating Data

8.1 Test Reports: Testing for doors shown in Table 1 and Table 2 were done at Raynor Garage Doors test lab in Dixon, Illinois which was accredited by ANSI National Accreditation Board (ANAB) at the time of testing, scope of accreditation can be found at www.anab.ansi.org. Testing was witnessed by an independent third-party Florida Registered Professional Engineer, Scott A. Brown P.E. Test reports were prepared by the test lab and signed and sealed by the witnessing Florida P.E. See Table 1 and Table 2 for report numbers and test dates.

8.2 Engineering Drawings: Drawings were prepared by Raynor Garage Doors under the direction of Scott A. Brown P.E. and then reviewed, signed, sealed and dated by Scott A. Brown P.E. See Tables 1 and 2 for drawing numbers.

8.3 Calculations: Calculations on jamb attachment, the results are shown on drawings listed in this report. Calculations were used to establish load ratings for door widths not tested. Section bending was evaluated using the bending moment equation $M = w * L^2/8$ where "w" is wind load and "L" is door width. Also, total load on the door edge hardware was evaluated so that no load on a calculated door component exceeded the load of a tested door component.

9. Limitations

9.1 The doors shall be installed in accordance with the manufacturer's published installation instructions in this report and the manufacturer's published installation instructions, engineering drawings and this report.

9.2 The structural elements supporting the door track brackets shall be designed by a registered professional engineer for the wind loads shown on the drawings listed in this evaluation.

9.3 The doors shall not be installed in areas where the transverse wind loads exceed the allowable loads shown in Tables 1 and 2.

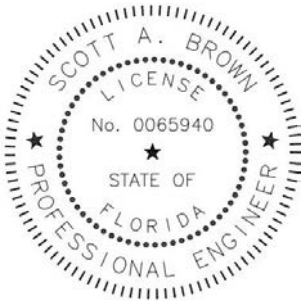
9.4 Doors listed in this report do not address the requirements of the High Velocity Hurricane Zone (HVHZ).

10. Identification

10.1 Each Raynor Garage Door covered by this report shall be labeled with the manufacturer's name, drawing number and Florida approval number for field identification.

11. Further Information

11.1 Scott A. Brown F.P.E. #65940 does not have, nor intend to acquire a financial interest in Raynor Mfg. or any other company manufacturing or distributing products for which this report is being issued; Scott A. Brown F.P.E. #65940 is not controlled by Raynor Mfg. or any other company manufacturing or distributing any portion of the product being tested, evaluated or approved by this report.



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