

December 15, 2011 (revised 10/19/23)

Evaluation Report for Clopay Corporation Sectional Garage Doors, W7 through W9

I have evaluated the wind load door designs as shown on the drawings listed below. I have reviewed the test reports, which were generated by accredited independent laboratories as required by the relevant Florida Administrative Rule, the engineering rational analysis, and the product drawings. The test reports are listed below. Testing was conducted by American Test Lab North Carolina and Hurricane Engineering and Testing Inc.

For the doors listed in the Tables below, Static Pressure Tests were conducted in accordance with TAS 202-1994, ASTM-E330-2002 and ANSI/DASMA 108-2005. Missile Impact and Cyclic Pressure Tests were conducted in accordance with TAS 201-1994 and TAS 203-1994 and ASTM E1886-2005 and ASTM E1996-2009 and ANSI/DASMA 115-2005. The pressures listed on the drawings are either direct results of these tests or results obtained through engineering rational analysis based on actual tests. I have concluded that the sectional garage door designs listed below in the Tables below are in compliance with these High Velocity Hurricane Zone test requirements of the Florida Building Code and therefore are qualified as impact-resistant assemblies (large missile impact).

TABLE 1: Drawings for doors with Manufacturing Product Code (MPC) PAN-2F153:
101702-Rev13, max. door size 9'0" x 16'0", +42/-48 PSF (design load)
101296-Rev15, max. door size 9'0" x 16'0", +46/-50 PSF (design load)
104857-Rev00, max. door size 16'2" x 16'0", +42/-48 PSF (design load)

TABLE 2: Drawings for doors with Manufacturing Product Code (MPC) PAN-2F143:
102621-Rev08, max. door size 18'2" x 16'0", +42/-46 PSF (design load)
103287-Rev05, max. door size 9'0" x 16'0", +54/-62 PSF (design load)
103547-Rev06, max. door size 9'0" x 16'0", +48/-54 PSF (design load)
101300-Rev17, max. door size 16'2" x 16'0", +46.6/-52 PSF (design load)
101706-Rev14, max. door size 9'0" x 16'0", +62/-72 PSF (design load)

TABLE 3: Drawings for doors with Manufacturing Product Code (MPC) DSIE-1F171:
101703-Rev13, max. door size 9'0" x 16'0", +48/-60 PSF (design load)
101488-Rev14, max. door size 16'2" x 16'0", +46.6/-52 PSF (design load)
103028-Rev09, max. door size 18'2" x 16'0", +46/-50 PSF (design load)

TABLE 4: Drawings for doors with Manufacturing Product Code (MPC) DSIEO-1M479:
103436-Rev03, max. door size 9'0" x 16'0", +54/-60 PSF (design load)
103560-Rev05, max. door size 16'2" x 16'0", +46.6/-52 PSF (design load)

TABLE 5: Drawings for doors with Manufacturing Product Code (MPC) C-DSIE-1F447:
101705-Rev09, max. door size 12'2" x 18'0", +52/-58 PSF (design load)

TABLE 6: Drawings for doors with Manufacturing Product Code (MPC) C-PAN-1E448:
 102645-Rev08, max. door size 12'2" x 18'0", +50/-56 PSF (design load)
 103288-Rev04, max. door size 14'2" x 18'0", +50/-56 PSF (design load)

TABLE 7: Drawings for doors with Manufacturing Product Code (MPC) PAN-2F443:
 104067-Rev03, max. door size 16'2" x 16'0", +46.6/-52 PSF (design load)
 104121-Rev06, max. door size 9'0" x 16'0", +50/-58 PSF (design load)

TABLE 8: Drawings for doors with Manufacturing Product Code (MPC) DSIE-1F471:
 104119-Rev05, max. door size 9'0" x 16'0", +54/-60 PSF (design load)
 104038-Rev03, max. door size 16'2" x 16'0", +46.6/-52 PSF (design load)

TABLE 9: Drawings for doors with Manufacturing Product Code (MPC) DSIU-1F171:
 104185-Rev03, max. door size 9'0" x 16'0", +48/-50 PSF (design load)
 104280-Rev02, max. door size 16'2" x 16'0", +46.6/-52 PSF (design load)
 104281-Rev02, max. door size 18'2" x 16'0", +46/-50 PSF (design load)

TABLE 10: Drawings for doors with Manufacturing Product Code (MPC) DSIUO-1K479:
 104277-Rev03, max. door size 9'0" x 16'0", +54/-60PSF (design load)
 104278-Rev03, max. door size 16'2" x 16'0", +46.6/-52 PSF (design load)

TABLE 11: Drawings for doors with Manufacturing Product Code (MPC) C-DSIU-1F447:
 104112-Rev03, max. door size 16'2" x 18'0", +50/-56 PSF (design load)

TABLE 12: Drawings for doors with Manufacturing Product Code (MPC) C-DSIU-1D447:
 104245-Rev03, max. door size 12'2" x 18'0", +52/-58 PSF (design load)

Test Reports:

ATL 0428.01-09 (6/30/09), 1112.01-96 (11/13/96), 0907.01-23 (10/12/23),
 0305.01-08 (5/28/08), 0924.02-02 (10/29/02), 0823.01-06 (12/18/06), 0827.01-04
 (10/22/04), 1008.01-07 (11/5/07), 0606.01-05 (7/29/05), 0107.01-09 (2/2/09),
 1018.01-04 (7/13/10), 0415.01-08 (5/15/08), 0331.01-08 (5/13/08), 1106.01-07
 (11/29/07), 0128.01-08 (3/13/08), 0327.01-08 (5/13/08), 0610.01-08 (7/16/08),
 1202.01-08 (12/17/08), 1210.01-08 (12/17/08), 0609.01-09 (7/28/09), 0512.01-09
 (6/22/09), 0127.01-09 (2/4/09); HETI 95-494 & 95-496 (10/23/95), 94-252 & 94-254
 (7/29/97), 02-1267 & 02-1268 (11/21/02), 03-1358 & 03-1359 (11/19/03). These
 reports documents compliance with the TAS testing standards and are signed by David
 Johnson (FL PE 61915), ATL or William Mehner (FL PE 7496), ATL or Hector Medina (FL
 PE 13008), HETI or Rafael Droz-Seda (FL PE 39228), HETI.

Product Description for doors with MPC PAN-2F153:

These doors consist of 2" thick steel pan sections with min. 25 ga. (0.019")
 skins. The steel skin is at least G40 DDS per ASTM A653. The maximum section height
 is 21". These doors may have optional Impact-Resistant Glazing (molded). Optional
 Impact-Resistant Glazing is a one-piece injection-molded front frame and glazing. The
 following models are at least structurally equivalent to the tested door: 73, 75, 6RST,
 42, 42B, 84A, 94, 98, 4RST, 4F, 48, 48B, 1500, 190, 55, 55S. Not all models may be
 shown on a given drawing.

Product Description for doors with MPC PAN-2F143:

These doors consist of 2" thick steel pan sections with min. 24 ga. (0.0239") skins. The steel skin is at least G40 DDS per ASTM A653. The maximum section height is 21". These doors may have optional Impact-Resistant Glazing (molded). Optional Impact-Resistant Glazing is a one-piece injection-molded front frame and glazing. The following models are at least structurally equivalent to the tested door: 84A, 93, 94, 98, 4RST, 4F, 48, 48B. Not all models may be shown on a given drawing.

Product Description for doors with MPC DSIE-1F171:

These doors consist of 2" double-skin insulated sections with an EPS core laminated to both skins. Both inner and outer skins are min. 27 ga. (0.016") G40 DDS per ASTM A653. The maximum section height is 21". These doors may have optional Impact-Resistant Glazing (molded). Optional Impact-Resistant Glazing is a one-piece injection-molded front frame and glazing. The following models are at least structurally equivalent to the tested door: 4300, 4301, 4310, 4400, 4401, HDG, HDGL, HDGF, 66, 66G, 67, 67G, 68, 68G, 6200, 6201, 6203, SP200, SF200, SE200. Not all models may be shown on a given drawing.

Product Description for doors with MPC DSIEO-1M479:

These doors consist of a base 2" double-skin insulated section with an EPS core laminated to both skins. Decorative overlays are attached to the exterior skin, adding not more than 5/8" to the total thickness. Both inner and outer skins are min. 27 ga. (0.016") G40 CS Type B per ASTM A653. The maximum section height is 24". The following models are at least structurally equivalent to the tested door: CGnn, CPnn, HPnn, CXnn, SXnn, AGnn. Note that 'nn' represents the arrangement of the decorative overlays. Not all models may be shown on a given drawing.

Product Description for doors with MPC C-PAN-1E448:

These doors consist of 2" thick steel pan doors with min. 24 ga. (0.022") outer skins. The steel skin is at least G40 CS-B per ASTM A653. The maximum section height is 24". The following models are at least structurally equivalent to the tested door: 524, 520, 224, C4ST, C0ST. Not all models may be shown on a given drawing.

Product Description for doors with MPC PAN-2F443:

These doors consist of 2" thick steel pan doors with min. 24 ga. (0.022") outer skins. The steel skin is at least G40 DDS per ASTM A653. The maximum section height is 24". These doors may have optional Impact-Resistant Glazing (Aluminum). Optional Impact-Resistant Glazing is an aluminum front frame and a separate polycarbonate glazing. The following models are at least structurally equivalent to the tested door: G4S, GS4, GD4S, GR4S, G4SV, GS4V, GD4SV, GR4SV, E4S, ED4S, E4SV, ED4SV, MR4S, SS4, AR4S, MR4SV, SS4V, AR4SV. Not all models may be shown on a given drawing.

Product Description for doors with MPC DSIE-1F471:

These doors consist of 2" double-skin insulated sections with an EPS core laminated to both skins. Both inner and outer skins are min. 27 ga. (0.016") G40 DDS per ASTM A653. The maximum section height is 24". These doors may have optional Impact-Resistant Glazing (Aluminum). Optional Impact-Resistant Glazing is an aluminum front frame and a separate polycarbonate glazing. The following models are

at least structurally equivalent to the tested door: GD2SP, GR2SP, GD2LP, GR2LP, AR2SP, AR2LP, ED2SP, ED2LP, 4302, HDGC, 6202, MFC68, 4305, HDGR, MFR68, 6205, SFR68, SFC68. Not all models may be shown on a given drawing.

Product Description for doors with MPC PAN-2F151:

These doors consist of 2" thick steel pan doors with min. 25 ga. (0.019") outer skins. The steel skin is at least G40 DDS per ASTM A653. The maximum section height is 21". The following models are at least structurally equivalent to the tested door: 76, 76V.

Product Description for doors with MPC DSIU-1F171:

These doors consist of 2" double-skin insulated sections with polyurethane insulation foamed in place between both skins. Both inner and outer skins are min. 27 ga. (0.016") G40 DDS per ASTM A653. The maximum section height is 21". These doors may have optional Impact-Resistant Glazing in either the top section or the next-to-the-top section. Optional Impact-Resistant Glazing is a one-piece injection-molded front frame and glazing. The following models are at least structurally equivalent to the tested door: HDP20, HDPF20, HDPL20, 7200, 7201, 7203, 8200, 8201, 8203, 9200, 9201, 9203. Not all models may be shown on a given drawing.

Product Description for doors with MPC DSIUO-1K479:

These doors consist of a base 2" double-skin insulated section with polyurethane insulation foamed in place between both skins. Decorative overlays and optional cladding are attached to the exterior skin, adding not more than 1" to the total thickness. Both inner and outer skins are min. 27 ga. (0.016") G40 CS Type B per ASTM A653. The maximum section height is 24". The following models are at least structurally equivalent to the tested door: CAN2nn-XX, GLN2nn-XX, MWL2nn-XX. Note that 'nn' represents the arrangement of the decorative overlays and 'XX' represents the type of cladding. Not all models may be shown on a given drawing.

Product Description for doors with MPC C-DSIE-1F447:

These doors consist of 2" double-skin insulated sections with an EPS core laminated to both min. 24 ga. (0.019") exterior and 27 ga. (0.016") interior skins. The steel skins are at least G40 CS-B per ASTM A653. The maximum section height is 24". The following models are at least structurally equivalent to the tested door: 3200, 3205, 3220, 240, 240G. Not all models may be shown on a given drawing.

Product Description for doors with MPC C-DSIU-1F447:

These doors consist of a base 2" double-skin insulated section with polyurethane insulation foamed in place between both skins. Both inner and outer skins are min. 27 ga. (0.016") G40 CS Type B per ASTM A653. The maximum section height is 24". The following models are at least structurally equivalent to the tested door: 3720, C7X20, 240U, 3722, C0X22, 3724, C7X24. Not all models may be shown on a given drawing.

Product Description for doors with MPC C-DSIU-1D447:

These doors consist of a base 1-3/4" (min.) double-skin insulated section with polyurethane insulation foamed in place between both skins. Both inner and outer skins are min. 27 ga. (0.016") G40 CS Type B per ASTM A653. The maximum section height is 24". The following models are at least structurally equivalent to the tested door:

3717, C7X17, 3718, C7X18, 3720, C7X20, 240U, 3722, C0X22, 3724, C7X24. Not all models may be shown on a given drawing.

Impact Resistant Glazing (Aluminum):

The optional impact resistant glazing is an aluminum front frame and a separate polycarbonate glazing that is an approved C1 plastic in accordance with testing required by FBC-B 2606 and complies with FBC-B 2615 testing requirements. Approved polycarbonate materials are Sabic IP Lexan 9034 (versions also approved: MR10, 9030, 90318, 90316, 90317, 90311, 90314, 90355) and Bayer Makrolon GP (versions also approved: SL, AR, 15). Approval based on review of NOA 13-0717.01 (Sabic) and NOA 12-0605.05 (Bayer) and manufacturer's product datasheets.

Impact Resistant Glazing (Molded):

The optional impact resistant glazing is an injection-molded polycarbonate front frame and glazing (LEXAN SLX2432T) that is an approved C1 plastic in accordance with testing required by FBC-B 2606. FBC-B 2615 compliance based on review of the following tests:

HETI-06-A002 ASTM G155; HETI-06-T566 ASTM D638 (before); HETI-06-T634 ASTM D638 (after); ETC-06-1024-17496.0 ASTM D2843, ASTM D635, ASTM D1929.

Limitations:

The drawing(s) cited above are an explicit part of this evaluation report. The text of this report does not attempt to address all design details and relies on the illustrations and text of these drawings as well.

Jambs, lintels, sills or other structural elements required to prepare openings are not covered. The design of the supporting structural elements shall be the responsibility of the professional of record for the building or structure and in accordance with current building codes for the loads listed on the drawing(s) referenced above.

Installation requirements per the relevant Florida Administrative Rule, including attachments, are detailed on the drawing(s) listed above. Installation must be in accordance with manufacturer's installation instructions and must be as shown on the drawing(s) listed above. The manufacturer's licensed design professional listed on the drawing(s) has reviewed the attachment details and installation requirements.

Signature:


James D. Wheeler, P. E.
Florida P. E. No. 91932

Date: 10/19/23

