

# TEXAS DEPARTMENT OF INSURANCE

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## PRODUCT EVALUATION GDR-81

Effective Date: May 1, 2013

*The following product has been evaluated for compliance with the wind loads specified in the **International Residential Code (IRC)** and the **International Building Code (IBC)**. This product shall be subject to reevaluation **May 2017**.*

*This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.*

*This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.*

**Models 221X, 228X, 421X, 428X, 521X, 528X, 591X, and 598X Residential Sectional Steel Garage Doors, Impact Resistant, manufactured by:**

**C.H.I. Overhead Door Company**  
**P.O. Box 260**  
**Arthur, Illinois 61911**  
**Telephone: (800) 677-2650**

will be acceptable for use in designated catastrophe areas along the Texas Gulf Coast when installed in accordance with this product evaluation and the appropriate design drawings referenced in this evaluation report.

## PRODUCT DESCRIPTION

Model 221X, 228X, 421X, 428X, 521X, 528X, 591X, and 598X doors are residential sectional garage doors constructed from galvanized steel with a baked on polyester finish. The 2283, 2284, 4283, 4284, 5283, 5284, 5983, and 5984 model doors are constructed from 27 gauge steel and insulated with expanded polystyrene insulation. The 2285, 2286, 4285, 4286, 5285, 5286, 5985, and 5986 model doors are constructed from 26 gauge steel with 27 gauge steel back panels and insulated with expanded polystyrene insulation. The 2216, 2217, 4216, 4217, 5216, 5217, 5916, and 5917 model doors are constructed from 26 gauge steel with 27 gauge steel back panels and insulated with poured in urethane insulation. The doors use 3" U-bars for horizontal reinforcement. Drawing number, design pressures, door width, horizontal reinforcement, and glazing options are shown in Table 1.

**Product Identification:** A label will be affixed to the sectional overhead door. The label shall include the manufacturer's name, product name, and the allowable design pressure rating. The installer will verify that the label is clearly marked indicating which door assembly is being installed, in addition to verifying that the design pressure rating is clearly marked.

## LIMITATIONS

**Maximum Section Height:** The maximum height of each door section shall not exceed 21 inches.

**Maximum Width:** The doors shall have a maximum width of 20'-02". Refer to Table 1 and the design drawings for the allowable door width dimensions.

**Maximum Height:** The doors shall have a maximum height of 20 feet. Refer to the design drawings for allowable door heights for specific doors.

**Horizontal Reinforcement:** The doors are reinforced with 17 gauge 3" steel U-bars. The quantity, placement, and installation of the U-bars are shown on the design drawings.

**Design drawings:** Specified in Table 1.

**Design pressures:** Specified in Table 1.

**Glazing (Optional):** Glass options are specified on the design drawings.

**Impact protection:** These garage door assemblies have been tested for windborne debris resistance. These garage door assemblies will not need to be protected with an impact protective system when installed in areas where windborne debris protection is required.

### INSTALLATION INSTRUCTIONS

**Design Drawings:** The doors shall be installed as specified on the design drawings. The design drawings shall be provided with the door. The drawing numbers are specified in Table 1. Each page of the design drawings are dated March 18, 2013. Each page is signed, sealed, and dated April 1, 2013 by John E. Scates, P.E. The following information, as a minimum, shall be provided on the design drawings:

- Drawing Number
- Design Pressures Rating
- Maximum Width and Maximum Height
- Maximum Section Height

**Supplemental Instructions:** The doors shall also be installed as specified in the following document, which shall be provided with the door:

- "Supplemental Instructions Impact Rated Residential Sandwich or Urethane Doors," pages 1 thru 2 of 2. Each page of the Supplemental Instructions shall be signed, sealed, and dated April 1, 2013 by John E. Scates, P.E.

**Attachment of Doors to Wall Framing:** In addition to providing the design drawings, the following documents shall be provided with the door:

- Back Jamb Attachment Detail Concrete Anchors, Drawing Number BJA-101-03, dated 8-15-2012, signed, sealed, and dated April 1, 2013 by John E. Scates, P.E.
- Back Jamb Attachment Detail Lag Screw, Drawing Number BJA-102-02, dated 8-15-2012, signed, sealed, and dated April 1, 2013 by John E. Scates, P.E.
- Steel Attachment Detail, Drawing Number BJA-103-02, dated 1-7-2013, signed, sealed, and dated April 1, 2013 by John E. Scates, P.E.
- CMU Block Wall Detail, Drawing Number BJA-104-04, dated 1-15-2013, signed, sealed, and dated April 1, 2013 by John E. Scates, P.E.
- Concrete Wall Attachment Detail, Drawing Number BJA-105-03, dated 1-15-2013, signed, sealed, and dated April 1, 2013 by John E. Scates, P.E.

**Note:** The manufacturer's installation instructions, the appropriate design drawings, the Supplemental Instructions, and the appropriate attachment detail shall be available on the job site during installation. All fasteners shall be corrosion resistant as specified in the International Residential Code (IRC), the International Building Code (IBC), and the Texas Revisions.

**Table 1**  
**Models 221X, 228X, 421X, 428X, 521X, 528X, 591X, and 598X**

Door Width	Horizontal Reinforcement	Design Pressure (psf) With Windows	Design Pressures (psf) Without Windows	Drawing Number
6'-00"	17 gauge, 3" U-bars	N/A	+23.2 / -26.2	TZ4i-09-02513
7'-00"		N/A	+23.2 / -26.2	
8'-00"		N/A	+23.2 / -26.2	
9'-00"		N/A	+23.2 / -26.2	
10'-02"	17 gauge, 3" U-bars	N/A	+22.2 / -24.7	TZ4i-16-02513
12'-00"		N/A	+22.2 / -24.7	
13'-00"		N/A	+22.2 / -24.7	
14'-00"		N/A	+22.2 / -24.7	
15'-00"		N/A	+22.2 / -24.7	
16'-00"		N/A	+22.2 / -24.7	
16'-02"	17 gauge, 3" U-bars	N/A	+22.2 / -24.7	TZ4i-18-02513
17'-00"		N/A	+22.2 / -24.7	
18'-00"		N/A	+22.2 / -24.7	
10'-02"	17 gauge, 3" U-bars	N/A	+30.6 / -34.1	TZ6i-16-02513
12'-00"		N/A	+30.6 / -34.1	
13'-00"		N/A	+30.6 / -34.1	
14'-00"		N/A	+30.6 / -34.1	
15'-00"		N/A	+30.6 / -34.1	
16'-00"		N/A	+30.6 / -34.1	
16'-02"	17 gauge, 3" U-bars	N/A	+30.3 / -33.7	TZ6i-18-02513
17'-00"		N/A	+30.3 / -33.7	
18'-00"		N/A	+30.3 / -33.7	
6'-00"	17 gauge, 3" U-bars	N/A	+38.3 / -43.5	TZ7i-09-02513
7'-00"		N/A	+38.3 / -43.5	
8'-00"		N/A	+38.3 / -43.5	
9'-00"		N/A	+38.3 / -43.5	
6'-00"	17 gauge, 3" U-bars	+49.9 / -56.7	+49.9 / -56.7	TZ7i-10-02513
7'-00"		+49.9 / -56.7	+49.9 / -56.7	
8'-00"		+49.9 / -56.7	+49.9 / -56.7	
9'-00"		+49.9 / -56.7	+49.9 / -56.7	
9'-06"		+47.1 / -54.2	+47.1 / -54.2	
10'-00"		+44.7 / -51.5	+44.7 / -51.5	
10'-02"	17 gauge, 3" U-bars	+39.5 / -44.4	+43.0 / -48.3	TZ8i-18-02513
11'-00"		+39.5 / -44.4	+43.0 / -48.3	
12'-00"		+39.5 / -44.4	+43.0 / -48.3	
13'-00"		+39.5 / -44.4	+43.0 / -48.3	
14'-00"		+39.5 / -44.4	+43.0 / -48.3	
15'-00"		+39.5 / -44.4	+43.0 / -48.3	
16'-00"		+39.5 / -44.4	+43.0 / -48.3	
18'-00"		+39.5 / -44.4	+39.5 / -44.4	
19'-00"		+35.5 / -39.8	+35.5 / -39.8	
19'-06"		+33.7 / -37.8	+33.7 / -37.8	
20'-00"		+32.0 / -36.0	+32.0 / -36.0	
20'-02"		+31.5 / -35.4	+31.5 / -35.4	

**Table 1**  
**Models 221X, 228X, 421X, 428X, 521X, 528X, 591X, and 598X**

Door Width	Horizontal Reinforcement	Design Pressure (psf) With Windows	Design Pressures (psf) Without Windows	Drawing Number
6'-00"	17 gauge, 3" U-bars	+49.9 / -56.7	+49.9 / -56.7	TZ9i-10-02513
7'-00"		+49.9 / -56.7	+49.9 / -56.7	
8'-00"		+49.9 / -56.7	+49.9 / -56.7	
9'-00"		+49.9 / -56.7	+49.9 / -56.7	
10'-00"		+49.9 / -56.7	+49.9 / -56.7	
10'-02"	17 gauge, 3" U-bars	+42.1 / -46.9	+43.0 / -48.3	TZ9i-18-02513
11'-00"		+42.1 / -46.9	+43.0 / -48.3	
12'-00"		+42.1 / -46.9	+43.0 / -48.3	
13'-00"		+42.1 / -46.9	+43.0 / -48.3	
14'-00"		+42.1 / -46.9	+43.0 / -48.3	
15'-00"		+42.1 / -46.9	+43.0 / -48.3	
16'-00"		+42.1 / -46.9	+43.0 / -48.3	
18'-00"		+42.1 / -46.9	+42.1 / -46.9	
19'-00"		+37.8 / -42.1	+37.8 / -42.1	
19'-06"		+35.9 / -40.0	+35.9 / -40.0	
20'-00"		+34.1 / -38.0	+34.1 / -38.0	
20'-02"		+33.5 / -37.4	+33.5 / -37.4	