TEXAS DEPARTMENT OF INSURANCE

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PRODUCT EVALUATION Effective December 1, 2009
CWSF–06

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 March 2012.

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.

IG500/IG600 Aluminum Outswing Entrance Doors with Transom and Sidelites, Storefront Framing System, Impact Resistant, manufactured by

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will be acceptable in designated catastrophe areas along the Texas Gulf Coast when installed in accordance with the manufacturer's installation instructions and this product evaluation.

PRODUCT DESCRIPTION

The IG500/IG600 storefront framing system is an aluminum frame system used for commercial storefront installations. The aluminum storefront framing system is comprised of outswing single and double entrance doors with or without a transom and sidelites. The IG500 uses laminated glass units. The IG600 used insulating glass units. The perimeter frame members are 2 ½" x 5" and the vertical and horizontal mullions are 2 ½" x 5". The aluminum storefront framing system evaluated in this report is an impact resistant storefront framing system. This product evaluation report is for an aluminum storefront framing system based on the following tested constructions:

General Description:

System 1: IG500/IG600 Aluminum Storefront Framing System; Comprised of double outswing entrance doors; two sidelites comprised of two fixed windows each; and a transom over the doors. The overall dimension is 197" x 120". The assembly consists of the following:

Double outswing entrance doors:
- Overall dimension: 72" x 96"
- Panel Dimensions (2): 36" x 96"
- Panel Daylight Openings (2): 27 9/16" x 83 ¼"

Two Sidelites:
- Overall Dimensions: 60" x 120"
- Daylight Opening Size: 57 ½" x 96"
- Daylight Opening Size: 57 ½" x 15 7/8"

General Description (continued):

System 1 (continued):

Transom:

Overall Dimensions: 72” x 24”
Daylight Opening Size: 72” x 19”

System 2: IG500/IG600 Aluminum Storefront Framing System; Comprised of double outswing entrance doors and a transom over the doors. The overall dimension is 77” x 120”. The assembly consists of the following:

Double outswing entrance doors:

Overall dimension: 77” x 96”
Panel Dimensions (2): 36” x 96”
Panel Daylight Openings (2): 27 9/16” x 83 1/4”

Transom:

Overall Dimensions: 77” x 24”
Daylight Opening Size: 72” x 19”

Glazing Description:

System	Glass Construction [1]	Glazing Method [2]
1	IG500: SG-1 IG600: IG-1	GM-1 or GM-2
2	IG500: SG-1 IG600: IG-1	GM-1 of GM-2

Note: [1] See the “Glass Construction Key” for the glazing construction.

[2] See the “Glazing Method Key” for the glazing method description.

Glass Construction Key:

SG-1: Single glazed with a laminated glass unit. The laminated glass unit is comprised of two 1/4” heat strengthened glass lites with a 0.090” DuPont SentryGlas Plus interlayer. The glass thickness used in the laminated glass unit of the tested assembly and in smaller assemblies shall comply with ASTM E 1300-04.

IG-1: Insulating glass units. The insulating glass unit is comprise of a 1/4” heat strengthened glass lite and a laminated glass unit with a dessicant-filled aluminum spacer system. The laminated glass unit is comprised of two 1/4” heat strengthened glass lites with a 0.090” DuPont SentryGlas Plus interlayer. The glass thickness used in the insulating glass unit of the tested assembly and in smaller assemblies shall comply with ASTM E 1300-04.

Glazing Method Key:

GM-1: The laminated glass units and the insulating glass units are dry glazed using EPDM gaskets at the interior and exterior side of the laminated glass units and the insulating glass units.

GM-2: The laminated glass units and the insulating glass units are set from the exterior on glazing blocks and against a rubber gasket. The laminated glass units are the insulating glass units are wet glazed from the interior with Dow 995 silicone sealant along the perimeter.

Frame Construction: The frame head, side jambs, and subsill consist of extruded aluminum with various wall thickness. The frame members are secured together with screws. The door sill and the fixed lite sill consist of extruded aluminum and are secured to the subsill with screws.

Panel Construction: Then door panel rails and stiles consist of extruded aluminum with various wall thickness. All panel corners are secured with an aluminum shear channel and an aluminum corner block. An extruded aluminum astragal is secured to the inactive panel meeting stile with screws.

Vertical Mullions: The vertical mullions consist of extruded aluminum with various wall thickness. The vertical mullions are secured to the frame members with screws.

Horizontal Mullions: The horizontal mullions consist of extruded aluminum with various wall thickness. The horizontal mullions are secured to the frame members and to vertical mullions with screws.

Reinforcement: The vertical mullions are reinforced with a continuous steel channel. The steel channel is secured to the mullions with screws

Hardware Options:

Locks

- Single-point deadlock MS 1850-050 SS by Adams Rite; Located at the active panel stile, 34 inches from the bottom.

- Three-point deadlock MS 1850 by Adams Rite; Located at the active panel lock stile, 34 inches from the bottom. Vertical bolts at the frame head and sill penetrate $\frac{3}{4}$ inch into the frame at the bottom and $\frac{1}{2}$ inch at the top.

Flush bolts

- Standard lever type flush bolts by US Aluminum; Located at the top and bottom of the inactive panel stile. The lever is located in a millout in the edge of the stile and attached to the stile with machine screws.

- Two-point flush bolts MS 1880 by Adams Rite; Located at the top and bottom of the inactive panel stile. Vertical bolts at the frame head and sill penetrate $\frac{3}{4}$ inch into the frame at the bottom and $\frac{1}{2}$ inch at the top.

Panic Device

- 1285 concealed vertical rod panic device by Jackson Corporation; The vertical rod assembly is located in the vertical lock stile of the door with guides and mounting brackets attached to the top and bottom ends of the stiles; Horizontal touch bar operating mechanism is mounted to the lock and hinge stiles with brackets and screws furnished by the manufacturer. Cross bar assembly is located $41\frac{3}{4}$ inches up from the finished floor on entrances with high performance thresholds and $40\frac{3}{8}$ inches up from the finished floor on entrances with air resistant thresholds.

- G86 concealed vertical rod panic device by Adams-Rite; The vertical rod assembly is located in the vertical lock stile of the door with guides and mounting brackets attached to the top and bottom ends of the stiles; Horizontal touch bar operating mechanism is mounted to the lock and hinge stiles with brackets and screws furnished by the manufacturer. Cross bar assembly is located $41\frac{3}{4}$ inches up from the finished floor on entrances with high performance thresholds and $40\frac{3}{8}$ inches up from the finished floor on entrances with air resistant thresholds.

Closers – Surfaced Mounted

- Model 4111 surface mounted closer by LCN Closer Company; Mounted either to the top rail of the door panel with the closer arm attached to the door frame header or to the frame header and closer arm attached to the top rail of the door panel. The closer and the arm are secured to the door and to the frame with screws furnished by the manufacturer.

Hardware Options (continued):

Closers – Surfaced Mounted

- Model 1461 surface mounted closer by LCN Closer Company; Mounted either to the top rail of the door panel with the closer arm attached to the door frame header or to the frame header and closer arm attached to the top rail of the door panel. The closer and the arm are secured to the door and to the frame with screws furnished by the manufacturer.

Closers – Concealed Overhead

- 20-330 overhead concealed closer by Jackson Corporation; Mounted inside the door frame header with an offset arm that connects to a track assembly mounted in the top rail of the door. Mounting brackets and screws are furnished by the manufacturer.

- Concealed 2030 Series closer by LCN Corporation; Mounted inside the door frame header with an offset arm that connects to a track assembly mounted in the top rail of the door. Mounting brackets and screws are furnished by the manufacturer.

Handles

- PR032 offset pull handle by US Aluminum; Attached to the door with threaded steel inserts that are pressed into the stile of the door. A $\frac{1}{4}$-20 shoulder bolt is screwed into the steel insert and the pull bar is anchored to the shoulder stud with recessed self-locking screws, one bolt to each end of the handle.

- PR034 push bar by US Aluminum; Attached to the door with threaded steel inserts that are pressed into the stile of the door. A $\frac{1}{4}$-20 shoulder bolt is screwed into the steel insert on the strike stile of the door and the push bar is anchored to the shoulder stud with recessed self-locking screws. On the hinge stile of the door, the push bar is attached with a $\frac{1}{4}$-20 shoulder bolt through the push bar into the threaded insert.

Hinges:

- 4 $\frac{1}{2}$" x 4" ball bearing butt hinges by Hager; Six (6) required; Three (3) at each of the frame jambs. Each hinge is secured to the frame with four (4) 12-24 x $\frac{3}{8}$" PFH screws and to the door panel with four (4) 12-24 x $\frac{3}{8}$" PFH screws.

Product Identification: A label, provided by the manufacturer, will be affixed to the assembly. The label includes the manufacturer's name; the product name: IG500/IG600 Store Front Door System; the design pressure rating +/-65 psf); and the applicable standards: ASTM E 330, ASTM E 1886, and ASTM E 1996. The label is to be located in the top rail of the door.

LIMITATIONS

Allowable dimensions:

System 1 (Door and Frame Unit with Sidelites and Transom):

Overall Assembly Dimensions: 197" x 120".
Overall Double Door Dimensions: 72" x 96"
Door Panel Dimensions (2): 36" x 96"
Overall Single Door Dimensions: 36" x 96"
Door Panel Dimension (1): 36" x 96"
Panel Daylight Openings (2): 27 $\frac{9}{16}$" x 83 $\frac{1}{4}$"
Maximum Sidelite Daylight Opening Size: 57 $\frac{1}{2}$" x 96"
Transom Daylight Opening Size: 72" x 19"

Allowable dimensions (continued):

System 2 (Door and Frame Unit with Transom and Without Sidelites):

Overall Assembly Dimensions: 77" x 120"
Overall Double Door Dimensions (2): 72" x 96"
Door Panel Dimensions (2): 36" x 96"
Panel Daylight Openings (2): 27 9/16" x 83 1/4"
Transom Daylight Opening Size: 72" x 19"

Overall Assembly Dimensions Single Doors: 41" x 120"
Door Panel Dimensions (1): 36" x 96"
Panel Daylight Openings: 27 9/16" x 83 1/4"

Design pressures (DP):

System 1: ± 65.0 psf
System 2: ± 65.0 psf

Impact Resistance: These assemblies satisfy the Texas Department of Insurance's criteria for protection from windborne debris in both the **Inland I** and **Seaward** zones. These assemblies have passed Missile Level D specified in ASTM E 1996-04. These assemblies may be installed at any height on the structure as long as the design pressure rating for the assembly is not exceeded. These assemblies will not need to be protected with an impact protective system when installed in areas where windborne debris protection is required.

Acceptance of Smaller Assemblies: Assemblies with dimensions equal to or smaller than those specified above are acceptable within the limitations specified in this report.

Acceptance of Combined Assemblies: The assemblies listed in this evaluation report may be combined with assemblies listed in the TDI evaluation report for the **IG500/IG600 Aluminum Window Wall System, Storefront Framing System** as long as the allowable dimensions of the individual windows within the assembly are not exceeded.

INSTALLATION INSTRUCTIONS

General: The assembly shall be prepared and installed in accordance with the manufacturer's recommended installation instructions. Detailed installation instructions and drawings are available from the manufacturer.

Installation:

Wall Framing: The wall framing shall be either one of or a combination of the following:

- Wood: Minimum Southern Yellow Pine dimension lumber.
- Concrete: Pre-cast or cast-in-place. Minimum compressive strength of 3,000 psi.
- Concrete Masonry Units: Grout-filled, minimum 1,500 psi.
- Steel: Minimum 14 gauge.

Fasteners: The following anchors shall be used:

- Walls (Wood): 1/4" x 3 1/2" flat head Tapcon. Minimum embedment depth of 1 1/2 inches.
- Walls (Concrete): 1/4" x 3 1/2" flat head Tapcon. Minimum embedment depth of 1 1/4 inches.
- Walls (Concrete Masonry Units): 1/4" x 3 1/2" flat head Tapcon. Minimum embedment depth of 1 1/4 inches.

Fasteners (continued): The following anchors shall be used:

- Walls (Steel): ¼" x 2½" flat head Tek screw. Fastener must penetrate a minimum of 3 pitches of thread beyond the steel framing material.
- Sill (Concrete): ⅜" x 2½" Powerbolt. Minimum embedment depth of 2 inches.

System 1: The assembly shall be secured to the wall framing with the fasteners noted in this evaluation report using a single row of fasteners as follows:

- Sill:
  - Sidelites: A fastener shall be located approximately 6 inches from each corner and evenly spaced at approximately 12 ¼ inches on center.
  - Doors: A fastener located at the mid-span of each door panel and one (1) fastener at the mid-span of the door assembly.
  - Vertical mullion (intermediate between sidelite and doors): Two (2) fasteners on either side, spaced approximately 3 inches apart.

- Side Jambs (Includes sidelites and transom): A fastener shall be located approximately 6 inches from each corner and evenly spaced at approximately 15 inches on center.

- Head:
  - Sidelites and transom: A fastener shall be located approximately 6 inches from each corner and evenly spaced at approximately 13 inches on center.
  - Vertical mullion (intermediate member between the sidelite and doors): One (1) fastener on either side spaced approximately 6 inches apart.

System 2: The assembly shall be secured to the wall framing with the fasteners noted in this evaluation report using a single row of fasteners as follows:

- Sill: One (1) fastener located at the mid-span of each door panel and one (1) fastener at the mid-span of the door assembly. Two fastener shall be located at each end (adjacent to side jambs), spaced 3 inches apart.

- Side Jambs (Includes door and transom): A fastener shall be located approximately 6 inches from each corner and evenly spaced at approximately 15 inches on center.

- Head: A fastener shall be located approximately 6 inches from each corner and evenly spaced at approximately 13 inches on center.

Note: The manufacturer's installation instructions 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.