

TEXAS DEPARTMENT OF INSURANCE

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PRODUCT EVALUATION DR-354

Effective February 1, 2009

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 **June 2011**.

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.

8 Foot Wood Hinged Inswing Doors with or without Sidelites, Impact Resistant, manufactured by

Signature Door, Inc.
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Altoona, Pennsylvania 16602
Telephone: (814) 949-2770
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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, this product evaluation, and the design drawing referenced in this evaluation report.

PRODUCT DESCRIPTION

The 8 foot wood hinged inswing doors and sidelites evaluated in this report are impact resistant. The wood inswing doors and sidelites evaluated in this report may have glazed panels. This product evaluation report includes the following configurations:

General Description:

System	Description	Design Pressure Rating
1	8 Foot Wood Single Inswing Doors (Half Round, Eyebrow, Quarter Round, Rectangular)	+65 psf / -80 psf
2	8 Foot Wood Double Inswing Doors (Half Round, Eyebrow, Quarter Round, Rectangular)	+65 psf / -80 psf
3	8 Foot Single or Double Inswing Doors with Sidelites	+65 psf / -80 psf

Component Dimensions:

System	Overall Size	Door Leaf Size(s)/Sidelite Size	Daylight Opening Sizes
1	37 ⁹ / ₁₆ " x 98 ¹ / ₁₆ "	One (1): 35 ³ / ₄ " x 95 ⁷ / ₁₆ "	25 ³ / ₄ " x 82 ⁵ / ₁₆ "
2	74 ¹ / ₄ " x 98 ¹ / ₁₆ "	Two (2): 35 ³ / ₄ " x 95 ⁷ / ₁₆ "	25 ³ / ₄ " x 82 ⁵ / ₁₆ "
3	153 ¹ / ₈ " x 98 ¹ / ₁₆ "	Door Leaf (two): 35 ³ / ₄ " x 95 ⁷ / ₁₆ " Sidelite (two): 35 ³ / ₄ " x 95 ⁷ / ₁₆ "	Door Leaf: 25 ³ / ₄ " x 82 ⁵ / ₁₆ " Sidelite: 28 ³ / ₄ " x 82 ⁵ / ₁₆ "

Glazing Description:

System	Glass Construction ¹	Glazing Method ²
1-3	One of the following: IG-1; IG-2; IG-3; SG-1; SG-2; SG-3	GM-1

Note: ¹ See the "Glass Construction Key" for the glass construction.

² See the "Glazing Method Key" for the glazing method description.

Glass Construction Key:

IG-1: Sealed insulating glass units. The sealed insulating glass units are comprised of a laminated glass unit and a double strength ($\frac{1}{8}$ ") fully tempered glass lite separated by Truseal Swiggle spacer system. The laminated glass unit is comprised of two $\frac{3}{16}$ " annealed glass lites with a 0.100" Glasslam Safety Plus II interlayer. The glass thickness, type, and construction used in the insulating glass unit of the tested assembly and in smaller assemblies shall comply with ASTM E 1300-02 and ASTM E 1886-02 and ASTM E 1996-02.

IG-2: Sealed insulating glass units. The sealed insulating glass units are comprised of a laminated glass unit and a double strength ($\frac{1}{8}$ ") fully tempered glass lite separated by Truseal Swiggle spacer system. The laminated glass unit is comprised of two $\frac{3}{16}$ " annealed glass lites with a 0.090" Dupont SentryGlas Plus interlayer. The glass thickness, type, and construction used in the insulating glass unit of the tested assembly and in smaller assemblies shall comply with ASTM E 1300-02 and ASTM E 1886-02 and ASTM E 1996-02.

IG-3: Sealed insulating glass units. The sealed insulating glass units are comprised of a laminated glass unit and a double strength ($\frac{1}{8}$ ") fully tempered glass lite separated by Truseal Swiggle spacer system. The laminated glass unit is comprised of two $\frac{3}{16}$ " annealed glass lites with a 0.075" Oldcastle StormGlass interlayer. The glass thickness, type, and construction used in the insulating glass unit of the tested assembly and in smaller assemblies shall comply with ASTM E 1300-02 and ASTM E 1886-02 and ASTM E 1996-02.

SG-1: Laminated glass units. The laminated glass unit is comprised of two $\frac{3}{16}$ " annealed glass lites with a 0.090" Dupont SentryGlas Plus interlayer. The glass thickness and type used in the laminated glass unit of the tested assembly and in smaller assemblies shall comply with ASTM E 1300-02 and ASTM E 1886-02 and ASTM E 1996-02.

SG-2: Laminated glass units. The laminated glass unit is comprised of two $\frac{3}{16}$ " annealed glass lites with a 0.075" Oldcastle StormGlass interlayer. The glass thickness and type used in the laminated glass unit of the tested assembly and in smaller assemblies shall comply with ASTM E 1300-02 and ASTM E 1886-02 and ASTM E 1996-02.

SG-3: Laminated glass units. The laminated glass unit is comprised of two $\frac{3}{16}$ " annealed glass lites with a 0.100" Glasslam Safety Plus II interlayer. The glass thickness and type used in the laminated glass unit of the tested assembly and in smaller assemblies shall comply with ASTM E 1300-02 and ASTM E 1886-02 and ASTM E 1996-02.

Glazing Method Key:

GM-1: The insulated glass units and laminated glass units are glazed with DOW 995 structural silicone sealant. The insulated glass units and laminated glass units are held in place with wood glazing stops. The wood glazing stops are secured to the frame with brad nails spaced approximately 1 inch from each corner and approximately 8 inches on center.

Door Frame Construction: The frame members consist of wood. The side jambs are square cut and coped. The head members are square cut. The frame head and side jamb members are butted together and fastened together with screws. The side jamb ends are notched to accommodate the threshold profile. The side jambs are secured to the threshold with screws. The threshold (Schegel Series 5000, Hagar 401-S, or Imperial 5QCW) is manufactured from aluminum.

Strike Plate Assembly (Double Doors Only): Stainless steel strike plates are applied to the frame head and frame sill with five (5) No. 10 x 2 1/2" screws through the strike plate, head and sill, and into the wall framing for wood wall framing. For concrete wall construction, use three (3) 3/16" diameter concrete anchors (minimum embedment depth of 1 1/4 inches into the concrete).

Sidelite Frame Construction: The frame members consist of wood. The side jambs are square cut and coped. The head members are square cut. The frame head and side jamb members are butted together and fastened together with screws. The side jamb ends are notched to accommodate the threshold profile. The side jambs are secured to the threshold with screws. The threshold (Schegel Series 5000, Hagar 401-S, or Imperial 5QCW) is manufactured from aluminum.

Sidelite Construction: The sidelite stiles and rails are wood. The stiles and top rails are square cut, glued, and secured with dowels. The sidelite is secured to the frame along the rails and both stiles with screws.

Door Leaf Construction: The door leaf stiles and rails are wood. The stiles and rails are square cut, glued, and secured with dowels.

Raised Panel Construction:

Option 1: The raised panel is 3/4" thick and is fabricated from two (2) 1 1/32" wood members that are glued together using TRUSEAL BOSS GS1 or DOW 995 silicone Sealant. There is a 0.009" thick PET film sandwiched between the two wood members. The raised panel is held in place with DOW 995 sealant and a wood glazing bead that is secured to the door leaf with brad nails spaced approximately 1 inch from each corner and approximately 8 inches on center.

Option 2: The raised panel is 1 3/16" thick and is fabricated from two (2) 9/16" wood members that are glued together using TRUSEAL BOSS GS1 or DOW 995 silicone Sealant. There is a 0.009" thick PET film sandwiched between the two wood members. The raised panel is held in place with DOW 995 sealant and a wood glazing bead that is secured to the door leaf with brad nails spaced approximately 1 inch from each corner and approximately 8 inches on center.

Option 3: The raised panel is 1 1/4" thick and is fabricated from two (2) 5/8" MDF members that are glued together using TRUSEAL BOSS GS1 or DOW 995 silicone Sealant. There is a 0.009" thick PET film sandwiched between the two MDF members. The raised panel is held in place with DOW 995 sealant and a wood glazing bead that is secured to the door leaf with brad nails spaced approximately 1 inch from each corner and approximately 8 inches on center.

Astragal Construction: The astragal is secured to the edge of the lock stile of the inactive leaf using a double row of screws located 3 inches from each corner and approximately 22 inches on center.

Door Panel Reinforcement:

Active Door: Each corner of the active door leaf that encompasses the lock stile is reinforced using one (1) 1/8" stainless steel plate with dimensions of 1" x 10". Each reinforcement is secured using four (4) screws.

Inactive Door: Each corner of the inactive door leaf that encompasses the lock stile is reinforced using one (1) 1/8" stainless steel plate with dimensions of 1" x 11". Each reinforcement is secured using four (4) screws.

Mullions (One of the following):

Steel Mullion Construction: The steel mullion has an overall cross section dimension of $\frac{1}{4}$ " x 4".

Attachment of Sidelites to Mullion: The side jamb is secured to the mullion with a single row of No. 10 x $2\frac{1}{2}$ " screws approximately 6 inches from each end and 14 inches on center.

Attachment of Doors to Mullion: The frame side jamb is secured to the mullion with No. 10 x $1\frac{1}{2}$ " screws, used for the hinges. Two (2) screws per hinge are required.

Wood Mullion Construction: The wood mullion has dimensions of 1.760" x 4.375".

Attachment of Sidelites to Mullion: The side jamb is secured to the mullion with a single row of No. 10 x $2\frac{1}{2}$ " screws approximately 6 inches from each end and 14 inches on center.

Attachment of Doors to Mullion: The frame side jamb is secured to the mullion with No. 10 x 2" screws, used for the hinges. Two (2) screws per hinge are required.

Hardware (Active Door Leaf):

Hinges: Doors 6'-8" or less in height require three (3) hinges per door. Doors taller than 6'-8" require four (4) hinges per door. PENROD or BALDWIN; 4" x 4" hinges; The hinges are secured to the door frame jambs with two (2) No. 9 x $\frac{3}{4}$ " screws and two (2) No. 10 x $2\frac{3}{8}$ " screws if into wood wall framing. For concrete wall construction, use two (2) No. 9 x $\frac{3}{4}$ " screws and two (2) $\frac{3}{16}$ " diameter concrete anchors (minimum embedment depth of $1\frac{1}{4}$ inches into the concrete). Each hinge is secured to the adjacent stile with two (2) No. 9 x $\frac{3}{4}$ " screws and two (2) No. 10 x 2" screws.

Lock Stile: One of the following:

- HOPPE 5-point lock system HLS9000 featuring stainless steel roundbolts/shootbolts. Secured with thirteen (13) No. 6 x $1\frac{1}{2}$ " steel screws.
- FUHR 5-point Multisafe lock system featuring stainless steel shootbolts. Secured with thirteen (13) No. 6 x $1\frac{1}{2}$ " steel screws.
- GU Rhino 5-point lock system. Secured with fourteen (14) No. 6 x $1\frac{1}{2}$ " steel screws.
- Baldwin 6021 Mortise lock (Single doors only). Secured with two (2) No. 12 x 1" combo screws.
- HOPPE 3-point lock system HLS9000 featuring stainless steel roundbolts (Single doors only). Secured with eleven (11) No. 6 x $1\frac{1}{2}$ " steel screws.
- FUHR 3-point Multisafe lock system featuring stainless steel shootbolts (Single doors only). Secured with eleven (11) No. 6 x $1\frac{1}{2}$ " steel screws.
- GU Rhino 5-point lock system (Single doors only). Secured with eleven (11) No. 6 x $1\frac{1}{2}$ " steel screws.

Lock Strike Plate: Three (3) required; Each is secured to the door frame side jamb with two (2) No. 6 x $\frac{3}{4}$ " screws (Single doors only).

Hardware (Inactive Door Leaf):

Hinges: Doors 6'-8" or less in height require three (3) hinges per door. Doors taller than 6'-8" require four (4) hinges per door. PENROD or BALDWIN; 4" x 4" hinges. The hinges are secured to the door frame jambs with two (2) No. 9 x $\frac{3}{4}$ " screws and two (2) No. 10 x $2\frac{3}{8}$ " screws if into wood wall framing. For concrete wall construction, use two (2) No. 9 x $\frac{3}{4}$ " screws and two (2) $\frac{3}{16}$ " diameter concrete anchors (minimum embedment depth of $1\frac{1}{4}$ inches into the concrete). Each hinge is secured to the adjacent stile with two (2) No. 9 x $\frac{3}{4}$ " screws and two (2) No. 10 x 2" screws.

Hardware (Inactive Door Leaf) - continued:

Lock Stile: One of the following:

- HOPPE 2-point lock system HLS9000 featuring stainless steel roundbolts/shootbolts. Secured with eleven (11) No. 6 x 1 1/2" steel screws.
- FUHR 2-point Multisafe lock system featuring stainless steel shootbolts. Secured with eleven (11) No. 6 x 1 1/2" steel screws.
- GU Europa 2-point lock system. Secured with thirteen (13) No. 6 x 1 1/2" steel screws.

Lock Strike Plate: Two (2) required; Each is secured to the astragal with two (2) No. 6 x 3/4" screws.

Product Identification: A label will be affixed to the assembly. The label includes the manufacturer's name; the product name; the name of the product: **8' Wood Inswing Entry System**; the design pressure rating; and that the doors are Large and Small Missile Impact Rated.

LIMITATIONS

Design pressures (DP):

System	Overall Width (in.)	Overall Height (in.)	Design Pressure (psf)
1	37 9/16	98 1/16	± 65/-80
2	74 1/4	98 1/16	± 65/-80
3	153 1/8	98 1/16	± 65/-80

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

Tested to Higher Negative Design Pressure: The label indicates that the product was tested to a higher negative design pressure rating. The higher negative design pressure rating is specified in the table above.

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

Mulled Assemblies: Mullered assemblies may consist of a single door with sidelite(s); double doors with sidelite(s); or double doors with single door(s). A maximum of four units may comprise an assembly. The maximum dimensions for the mulled assembly shall not exceed the dimensions of System 3 in the Limitations Section.

INSTALLATION INSTRUCTIONS

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

Substrate: Substrate shall be minimum Southern Yellow Pine dimension lumber, cast-in-place concrete, precast concrete, or concrete masonry units.

Fasteners: For wood framing, fasteners shall be minimum No. 10 screws. Fasteners shall penetrate a minimum of $1\frac{3}{8}$ inches into the wood framing. For cast-in-place concrete, pre-cast concrete, and concrete block, the fasteners shall be minimum $\frac{3}{16}$ " diameter Elco or ITW Ramset/Red Head Tapcons, Hilti Kwik-Con II or Powers Rawl fasteners and shall penetrate a minimum of $1\frac{1}{4}$ inches into the wall construction.

Installation:

Single Doors: Along the head and sill, the fasteners shall be spaced 6 inches from each end. Along the hinge side jamb, the fasteners shall be through the hinges and into the wall framing. Two fasteners per hinge are required. Along the opposite side jamb, the fasteners shall be spaced 6 inches from each end and 14 inches on center.

Single Doors (Half Round): Along the sill, the fasteners shall be spaced 6 inches from each end. Along the head, a fastener shall be located 6 inches from the spring line, 6 inches from the side jamb, and 16 inches on center. Along the hinge side jamb, the fasteners shall be through the hinges and into the wall framing. Two fasteners per hinge are required. Along the opposite side jamb, the fasteners shall be spaced 6 inches from each end and 14 inches on center.

Double Doors: Along the head and sill, the fasteners shall be spaced 6 inches from each end and 6 inches on either side of the centerline of the door assembly. Along each hinge side jamb, the fasteners shall be through the hinges and into the wall framing. Two fasteners per hinge are required. For strike plates located at the head and at the sill, five (5) No. 10 screws are required for wood framing or three (3) $\frac{3}{16}$ " diameter concrete anchors are required for concrete wall construction.

Double Doors (Half Round): Along the sill, the fasteners shall be spaced 6 inches from each end and 6 inches on either side of the centerline of the door assembly. Along the head, a fastener shall be located 6 inches from the spring line, 6 inches on either side of the door centerline, and 16 inches on center. Along each hinge side jamb, the fasteners shall be through the hinges and into the wall framing. Two fasteners per hinge are required. For strike plates located at the head and at the sill, five (5) No. 10 screws are required for wood framing or three (3) $\frac{3}{16}$ " diameter concrete anchors are required for concrete wall construction.

Doors and Sidelites with Mullions: Along the head and sill, the fasteners shall be located 6 inches from the side jamb at each end of the assembly. Strike plates at the head and sill shall be as required for double doors. At mullion locations, three (3) fasteners are required on either side of the mullion, 2 inches on center. The sidelite frame jamb shall be secured to the wall framing with fasteners spaced 6 inches from each end and 14 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.