

TEXAS DEPARTMENT OF INSURANCE

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PRODUCT EVALUATION WIN-1367

EFFECTIVE FEBRUARY 1, 2011

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 **October 2013**.

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.

Series 9040 Aluminum Double Hung Windows, 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 Series 9040 window is an aluminum double hung window. The aluminum double hung windows evaluated in this report are individual, impact resistant windows. This product evaluation report is for aluminum double hung windows based on the following tested constructions:

General Description:

System	Description	Label Rating
1	Series 9040 Aluminum Double Hung Windows; (X/X); Equal Lite; Large Missile Impact Rating	H-C90 60 x 99; Neg DP=150 psf Missile Level D
2	Series 9040 Aluminum Double Hung Windows; (X/X); Cottage Vent; Large Missile Impact Rating	H-C90 60 x 99; Neg DP=150 psf Missile Level D
3	Series 9040 Aluminum Double Hung Windows; (X/X); Equal Lite; Small Missile Impact Rating	H-C90 60 x 99; Neg DP=150 psf Missile Level A
4	Series 9040 Aluminum Double Hung Windows; (X/X); Cottage Vent; Small Missile Impact Rating	H-C90 60 x 99; Neg DP=150 psf Missile Level A

Product Dimensions:

System	Overall Size	Top Sash Size	Bottom Sash
1	60" x 99"	56 $\frac{7}{16}$ " x 50 $\frac{1}{8}$ "	56 $\frac{7}{16}$ " x 50 $\frac{5}{16}$ "
2	60" x 99"	56 $\frac{7}{16}$ " x 38 $\frac{7}{16}$ "	56 $\frac{7}{16}$ " x 62"
3	60" x 99"	56 $\frac{7}{16}$ " x 50 $\frac{1}{8}$ "	56 $\frac{7}{16}$ " x 50 $\frac{5}{16}$ "
4	60" x 99"	56 $\frac{7}{16}$ " x 38 $\frac{7}{16}$ "	56 $\frac{7}{16}$ " x 62"

Glazing Description:

System	Glass Construction ¹	Glazing Method ²
1	IG-1	GM-1
2	IG-1	GM-1
3	IG-2	GM-1
4	IG-2	GM-1

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:

IG-1: The window contains an insulating glass unit. The insulating glass unit is comprised of a $\frac{3}{16}$ " fully tempered glass lite and a laminated glass unit separated by a desiccant filled spacer system. The laminated glass unit is comprised of two double strength ($\frac{1}{8}$ ") heat strengthened glass lites with a 0.060" thick SGP interlayer by DuPont.

IG-2: The window contains an insulating glass unit. The insulating glass unit is comprised of a $\frac{3}{16}$ " fully tempered glass lite and a laminated glass unit separated by a desiccant filled spacer system. The laminated glass unit is comprised of two $\frac{3}{16}$ " heat strengthened glass lites with a 0.035" thick SGP interlayer by DuPont.

Glazing Method Key:

GM-1: The insulating glass units are interior wet glazed with Sika 552 sealant backbedding compound. An aluminum glazing stop with a vinyl impact glass stop secures the glass units in place.

Frame Construction: The frame members are manufactured from thermally broken extruded aluminum. The frame corners are attached with screws. The fixed meeting rail is secured to the frame jambs with an attachment block. The attachment block is secured top the fixed meeting rail and to the frame side jambs with screws.

Sash Construction: The sash members are manufactured from thermally broken extruded aluminum. The sash corners are attached with screws.

Reinforcement: None.

Hardware:

- Spiral balances; Two (4) required; One (1) in each sash.
- Sash guide bracket: One (1) required; Attached to the upper and lower sash top rails
- Snap locks; Four (4) required; Two (20 per sash
- Flush (shoot) bolt assembly; One (1) required; Located on the upper sash.
- Flush sash lock; One (1) required; Located on the lower sash.

Product Identification: Two certification program labels (Keystone) will be affixed to the window. One certification program label includes the manufacturer's name, performance characteristics and approved inspection agency to indicate compliance with the requirements of AAMA/WDMA/CSA 101/I.S.2/A440-05. The second certification program label includes the manufacturer's name, performance characteristics and approved inspection agency to indicate compliance with the requirements of ASTM E1886 and ASTM E 1996.

Each label contains a Certification Authorization Report (CAR) number located on the top right side of the label and a model name for the window. The following CAR numbers and model names are located on each label:

Label Identification:

System	Model	Certification Authorization Report (CAR) number	
		Label with AAMA/WDMA/CSA 101/I.S.2/A440-05	Label with ASTM E 1886 and ASTM E 1996
1	9040 Impact Double Hung	167-411	167-233
2	9040 Cottage Impact Double Hung	167-417	167-235
3	9040 Impact Double Hung	167-410	167-232
4	9040 Cottage Impact Double Hung	167-416	167-234

LIMITATIONS

Design pressures:

System	Maximum Width (in.)	Maximum Height (in.)	Design Pressures (psf)
1	60	99	+90/-150
2	60	99	+90/-150
3	60	99	+90/-150
4	60	99	+90/-150

Impact Resistance:

Systems 1 and 2: These window assemblies satisfy the Texas Department of Insurance's criteria for protection from windborne debris in both the **Inland I zone** and the **Seaward zone**. The window assemblies passed Missile Level D specified in ASTM E 1996-04. The window assemblies may be installed at any height on the structure as long as the design pressure rating for the assemblies is not exceeded. These window assemblies will not need to be protected with an impact protective system.

Systems 3 and 4: These window assemblies satisfy the Texas Department of Insurance's criteria for protection from windborne debris in both the **Inland I zone** and the **Seaward zone**. The window assemblies passed Missile Level A specified in ASTM E 1996-04. The window assemblies may be installed at heights **30 feet or higher** on the structure as long as the design pressure rating for the assemblies is not exceeded. **Note: These window assemblies may not be installed at heights less than 30 feet.** These window assemblies will not need to be protected with an impact protective system.

Tested to Higher Negative Design Pressure: The Keystone 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: Window assemblies with dimensions equal to or smaller than those specified above are acceptable within the limitations specified in this report.

INSTALLATION INSTRUCTIONS

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

Installation:

Wall Framing Construction: The windows may be mounted to several types of wall framing construction. The types of wall framing construction allowed include:

- Concrete (minimum compressive strength: 3,192 psi)
- Hollow concrete block (ASTM C-90, Grade N, Type 1 or greater)
- Wood dimension lumber (minimum Spruce-Pine-Fir)
- Wood backed (minimum Spruce-Pine-Fir) minimum 20 gauge steel

Fasteners:

- Concrete and hollow concrete block wall framing; Minimum $\frac{1}{4}$ " diameter ITW Tapcons; Minimum $1\frac{1}{4}$ " embedment; Minimum $2\frac{1}{2}$ " edge distance.
- Wood and wood backed steel wall framing; Minimum No. 14 screw; Minimum $1\frac{3}{4}$ " embedment

Fastener Spacing: The fasteners shall be installed through the window frame and into the wall framing. Two rows of fasteners are required. Along the head, the fasteners shall be located approximately 6 inches from each end and approximately 16 inches on center. Along the sill, the fasteners shall be located approximately 6 inches from each end. Along each side jamb, the fasteners shall be located approximately 6 inches from each end, 6 inches on either side of the meeting rails, and approximately 16 inches on center. At the meeting rail location on each side jamb, three (3) fasteners per row are required, spaced 2 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.