

TEXAS DEPARTMENT OF INSURANCE

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PRODUCT EVALUATION CWSF-21

Effective August 1, 2012

*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 **July 2016**.*

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.

FG-2000 Aluminum Storefront System, Non-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 FG-2000 Storefront System, Non-impact Resistant is an aluminum frame window wall system used for commercial storefront installations. The aluminum frame storefronts are fixed windows. The perimeter frame members are $1\frac{3}{4}$ " x $4\frac{1}{2}$ " and the mullions are $1\frac{3}{4}$ " x $4\frac{1}{2}$ ". The aluminum storefront system evaluated in this report is standard storefront system. This product evaluation report is for an aluminum frame storefront system based on the following tested constructions:

General Description:

System E1: FG-2000 Aluminum Frame Storefront System which is comprised of four fixed window assemblies mullied together along their side jambs (vertical mull). The assembly has daylight opening sizes of $46\frac{1}{4}$ " x $92\frac{1}{2}$ " and 70" center two bottom lites and $20\frac{3}{4}$ " transoms over center two lites. The overall dimension is $193\frac{3}{4}$ " x 96". The assembly is dry glazed.

System E2: FG-2000 Aluminum Frame Storefront System which is comprised of four fixed window assemblies mullied together along their side jambs (vertical mull). The assembly has daylight opening sizes of $46\frac{1}{4}$ " (width of all lites) $92\frac{1}{2}$ " high (three lites on left) $45\frac{3}{8}$ " high (stacked lites on right). The overall dimension is $193\frac{3}{4}$ " x 96". The assembly is dry glazed.

System E3: FG-2000 Aluminum Frame Storefront System which is comprised of three fixed window assemblies mullied together along their side jambs (vertical mull). The assembly has daylight opening sizes of $46\frac{1}{4}$ " (width of all lites) $116\frac{1}{2}$ " high (two lites on left) $57\frac{3}{8}$ " high (stacked lites on right). The overall dimension is $145\frac{3}{4}$ " x 120". The assembly is dry glazed.

System E4: FG-2000 Aluminum Frame Storefront System which is comprised of three fixed window assemblies mullered together along their side jambs (vertical mull). The assembly has daylight opening sizes of 78" wide (lites on left and right side), 46 1/4" wide (center lite) 20 3/4" high (bottom and top lite left side 71 1/2" high (center lite, left side) 116 1/2" high (center lite) 57 3/8" high (stacked lites, right side). The overall dimension is 209 1/4" x 120". The assembly is dry glazed.

Glazing Description:

System	Glass Construction ¹	Glazing Method ²
E1-E4	SG-1	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:

SG-1: The storefront utilized 1/4" thick tempered glass.. The glass thickness and type used in the storefront systems shall comply with ASTM E 1300-04.

Glazing Method Key:

GM-1: The storefront is exterior glazed against a FG-1133 vinyl gasket on both the exterior and interior side of the glass. There are two (2) neoprene setting blocks between the glass on the bottom and the aluminum at each section of the glass unit.

Frame Construction: The frame members consist of extruded aluminum members.

Vertical Mullions: The vertical members consist of hollow extruded aluminum with various wall thickness' are continuous from head to sill. The corners were straight cut, butted sealed with butyl tape and secured with (3) #14 X 1 " hex head fasteners through the jambs into the head, sill and horizontal members.

Horizontal Mullions: The horizontal members consist of hollow extruded aluminum with various wall thicknesses. The corners were straight cut, butted sealed with butyl tape and secured with (3) #14 X 1 " hex head fasteners through the jambs into the horizontal members.

Reinforcement: Specified in limitations section.

Hardware: None.

Product Identification: A label will be affixed to the window wall system. The label includes the manufacturer's name; the product name; the design pressure rating.

LIMITATIONS

Allowable Frame Dimensions and Mullions Options

System E1:

Maximum Individual Window Dimensions: 49 3/4" x 96"

Infinite Overall Frame Width

Maximum Vertical Length: 96"

Maximum Horizontal Mullion Length: 46 1/4"

Maximum Day Light Opening: 46 1/4" x 92 1/2"

Mullion: FG-2101 & FG-2102 with no steel reinforcement.

System E2:

Maximum Individual Window Dimensions: $49 \frac{3}{4}$ " x 96"
Infinite Overall Frame Width
Maximum Vertical Length: 96"
Maximum Horizontal Mullion Length: $46 \frac{1}{4}$ "
Maximum Day Light Opening: $46 \frac{1}{4}$ " x $92 \frac{1}{2}$ "
Mullions: FG-2101 & FG-2102 with RS-1 steel reinforcement.
FG-2228 & FG-2102 with no steel reinforcement

System E3:

Maximum Individual Window Dimensions: $49 \frac{3}{4}$ " x 120"
Infinite Overall Frame Width
Maximum Vertical Length: 120"
Maximum Horizontal Mullion Length: $46 \frac{1}{4}$ "
Maximum Day Light Opening: $46 \frac{1}{4}$ " x $116 \frac{1}{2}$ "
Mullions: FG-2228 & FG-2102 with RS-9 steel reinforcement
FG-2228 & FG-2102 with RS-10 steel reinforcement

System E4:

Maximum Individual Window Dimensions: $81 \frac{1}{2}$ " x 120"
Infinite Overall Frame Width
Maximum Vertical Length: 120"
Maximum Horizontal Mullion Length: 78"
Maximum Day Light Opening: 78" x $57 \frac{3}{8}$ "
Mullions: FG-2228 & FG-2102 with RS-9 steel reinforcement
FG-2228 & FG-2102 with RS-10 steel reinforcement

Design pressures (DP):

System E1: ±40 psf
System E2: ±55 psf
System E3: ±60 psf
System E4: +50, -40 psf

Impact Resistance: These window assemblies do not satisfy the Texas Department of Insurance's criteria for protection from windborne debris. These window assemblies will need to be protected with an impact protective system when installed in areas where windborne debris is required.

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

INSTALLATION INSTRUCTIONS

General: The storefront assembly shall be prepared and installed in accordance with "FG-2000 Storefront for High Design Pressure and Shuttered Applications Installation and Glazing Manual," sheets 1 thru 13 of 13, dated May 2012, Oldcastle BuildingEnvelope and this product evaluation report. Detailed installation instructions and drawings are available from the manufacturer.

Installation: The wall framing shall be a minimum of Spruce-Pine-Fir dimension lumber for all systems.

E1: The FG-2169 continuous subsill is sealed with Dow 795 sealant and anchored with Powers $\frac{1}{4}$ " x $2 \frac{3}{4}$ " long Phillips flat head Tapper screws to the framing member. The screws are placed at midpoint

between each lite opening. The FG-2182 sill filler and FG-2105 sill are snapped together and placed on the FG-2169 subsill. The FG-2105 sill and FG-2182 sill filler is secured to the FG-2169 subsill using Dow 795 sealant. Powers $\frac{1}{4}$ " x $2\frac{3}{4}$ " long Phillips flat head Tapper screws are fastened to the framing member through the FG-2169 sill, FG-2182 sill filler, and FG-2169 subsill as well as the FG-2103 head and FG-2122 flat filler. The screw spacing is 2" and 6" on center from each FG-2100 and FG-2103 jamb and FG-2101 mullion corner. Dow 795 sealant is placed over the FG-2105 sill screw heads. The FG-2100/FG-2103 jamb and FG-2122 flat filler are fastened to the framing member using Powers $\frac{1}{4}$ " x $2\frac{3}{4}$ " long Phillips flat head Tapper screws. The screws are located 6" from each corner and spaced 12" o.c. thereafter. Dow 795 sealant is placed over the screw heads. Dow 795 sealant is also applied around the full interior and exterior perimeter of the frame.

E2: The FG-2169 continuous subsill is sealed with Dow 795 sealant and anchored with Powers $\frac{1}{4}$ " x $2\frac{3}{4}$ " long Phillips flat head Tapper screws to the framing member. The screws are placed at midpoint between each lite opening. The FG-2182 sill filler and FG-2105 sill are snapped together and placed on the FG-2169 subsill. The FG-2105 sill and FG-2182 sill filler is secured to the FG-2169 subsill using Dow 795 sealant. Powers $\frac{1}{4}$ " x $2\frac{3}{4}$ " long Phillips flat head Tapper screws are fastened to the framing member through the FG-2169 sill, FG-2182 sill filler, and FG-2169 subsill as well as the FG-2103 head and FG-2122 flat filler. The screw spacing is 2" and 6" on center from each FG-2100 and FG-2103 jamb and FG-2101/FG-2228 mullion corner. Dow 795 sealant is placed over the FG-2105 sill screw heads. The FG-2100/FG-2103 jamb and FG-2122 flat filler are fastened to the framing member using Powers $\frac{1}{4}$ " x $2\frac{3}{4}$ " long Phillips flat head Tapper screws. The screws are located 6" from each corner and spaced 12" o.c. thereafter. Dow 795 sealant is placed over the screw heads. Dow 795 sealant is also applied around the full interior and exterior perimeter of the frame.

E3: The FG-2169 continuous subsill is sealed with Dow 795 sealant and anchored with Powers $\frac{1}{4}$ " x $2\frac{3}{4}$ " long Phillips flat head Tapper screws to the framing member. The screws are placed at midpoint between each lite opening. The FG-2182 sill filler and FG-2105 sill are snapped together and placed on the FG-2169 subsill. The FG-2105 sill and FG-2182 sill filler is secured to the FG-2169 subsill using Dow 795 sealant. Powers $\frac{1}{4}$ " x $2\frac{3}{4}$ " long Phillips flat head Tapper screws are fastened to the framing member through the FG-2169 sill, FG-2182 sill filler, and FG-2169 subsill as well as the FG-2103 head and FG-2122 flat filler. The screw spacing is 2", 6" and 10" on center from each FG-2100 and FG-2103 jamb and FG-2228 mullion corner. Dow 795 sealant is placed over the FG-2105 sill screw heads. The FG-2100/FG-2103 jamb and FG-2122 flat filler are fastened to the framing member using Powers $\frac{1}{4}$ " x $2\frac{3}{4}$ " long Phillips flat head Tapper screws. The screws are located 6" from each corner and spaced 12" o.c. thereafter. Dow 795 sealant is placed over the screw heads. Dow 795 sealant is also applied around the full interior and exterior perimeter of the frame.

E4: The FG-2169 continuous subsill is sealed with Dow 795 sealant and anchored with Powers $\frac{1}{4}$ " x $2\frac{3}{4}$ " long Phillips flat head Tapper screws to the framing member. The screws are placed at midpoint between each lite opening. The FG-2182 sill filler and FG-2105 sill are snapped together and placed on the FG-2169 subsill. The FG-2105 sill and FG-2182 sill filler is secured to the FG-2169 subsill using Dow 795 sealant. Powers $\frac{1}{4}$ " x $2\frac{3}{4}$ " long Phillips flat head Tapper screws are fastened to the framing member through the FG-2169 sill, FG-2182 sill filler, and FG-2169 subsill as well as the FG-2103 head and FG-2122 flat filler. The screw spacing is 2", 6" and 10" on center from each FG-2103 jamb and FG-2228 mullion corner. Dow 795 sealant is placed over the FG-2105 sill screw heads. The FG-2100/FG-2103 jamb and FG-2122 flat filler are fastened to the framing member using Powers $\frac{1}{4}$ " x $2\frac{3}{4}$ " long Phillips flat head Tapper screws. The screws are located 6" from each corner and spaced 12" o.c. thereafter. Dow 795 sealant is placed over the screw heads. Dow 795 sealant is also applied around the full interior and exterior perimeter of the frame.

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.