STORM FRONT™

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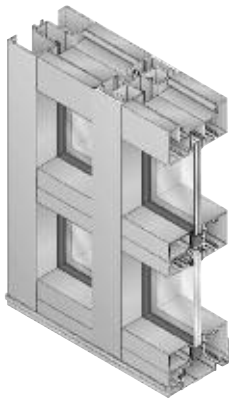
Hurricane Resistant Storefronts
- Series IG500
- Series IG600

Storm Front™



E

SECTION E3 PAGE

U.S. Aluminum warrants its High Impact Glazing Systems to perform at the published values for air and water infiltration and structural performance. Testing standards allow for unit interlayer a maximum rip size after impact and cycle testing. Though considered as successfully passing the test, water infiltration can occur through the glazing material in such cases. U.S. Aluminum does not warrant any glazing materials resulting from impact from wind-borne debris and subsequent cycling under storm conditions.

When using this product, U.S. Aluminum recommends specifying a uniform overall glazing thickness of plus or minus .020" (0.5) over the entire area of the glazing unit. This must include edges and center of unit. It is critical to check the glazing unit prior to glazing to ensure the proper thickness of the interlayer. The monolithic glass must be two pieces of 1/4" (6) thick, heat strengthened with a .090" (2.3) SentryGlas® Plus interlayer. For insulated units the glass must be two pieces of 1/4" (6) thick, heat strengthened with a .090" (2.3) SentryGlas® Plus interlayer, 1/2" (12.7) air space and 1/4" (6) thick, heat strengthened outboard lite.

Due to the diversity in state/provincial, local, and federal laws and codes that govern the design and application of architectural products, it is the responsibility of the individual architect, owner, and installer to ensure that products selected for use on projects comply with all applicable building codes and laws. U.S. Aluminum exercises no control over the use or application of its products, glazing materials, and operating hardware, and assumes no responsibility thereof.

The rapidly changing technology within the architectural aluminum products industry demands that U.S. Aluminum reserve the right to revise, discontinue or change any product line, specification or electronic media without prior written notice.

NOTE: Dimensions in parentheses ( ) are millimeters unless otherwise noted.
Other metric units shown in this publication are:
- m - meter
- Kg - kilogram
- Pa - pascal
- KPa - kilopascal
- MPa - megapascal

CRL U.S. ALUMINUM

STORM FRONT™

Specifications

Hurricane Resistant Storefronts

- Series IG500
- Series IG600

SECTION 08 41 13 ALUMINUM STOREFRONTS

SERIES	FACE WIDTH	DEPTH	GLAZING INFILLS	GLAZING METHOD
IG500	2-1/2" (63.5)	5" (127)	9/16" (14)	Exterior
IG600	2-1/2" (63.5)	5" (127)	1-5/16" (33)	Exterior

I. GENERAL DESCRIPTION

Work Included: Furnish all necessary materials, labor, and equipment for the complete installation of aluminum framing as shown on the drawings and specified herein. *(Specifier Note: It is suggested that related items such as aluminum entrance doors, glass, and sealants be included whenever possible).*

Work Not Included: Structural support of the framing system, interior closures, trim. (Specifier list other exclusions). Related Work Specified Elsewhere: *(Specifier list).*

QUALITY ASSURANCE

Drawings and specifications are based on the Series *(Specify)* IG500 / IG600 system as manufactured by U.S. Aluminum. Whenever substitute products are to be considered, supporting technical literature, samples, drawings, and performance data must be submitted 10 days prior to bid in order to make a valid comparison of the products involved. Test reports certified by an independent test laboratory must be made available upon request.

PERFORMANCE REQUIREMENTS

Air Infiltration: Shall be tested in accordance with ASTM E 283-91. Infiltration shall not exceed:

Dade County Protocol TAS 202-94

- IG500 Storefront - 1.00 cfm/ft^2 @ 6.24 psf = (5.08 L/s/m^2)
- IG500 Pair of Doors - 1.00 cfm/ft2 @ 6.24 psf = (6.10 L/s/m^2)

Outside Dade County

- IG500 / IG600 Storefront - 1.00 cfm/ft2 @ 6.24 psf = (5.08 L/s/m^2)
- IG500 / IG600 Pair of Doors - 1.00 cfm/ft^2 @ 6.24 psf = (5.08 L/s/m^2)

Water Infiltration: Shall be tested in accordance with ASTM E 331-93. No water penetration at test pressure of:

Dade County Protocol TAS 202-94

- IG500 Storefront - 12 psf
- IG500 Pair of Doors - 12 psf (Water resistant threshold)

Outside Dade County

- IG500 / IG600 Storefront - 12 psf
- IG500 / IG600 Pair of Doors - 12 psf (Water resistant threshold)

Structural Performance: Shall be tested in accordance with ASTM 330-96 and based on:

- Maximum deflection of L/175 of the span. 3/4" (19.1) max.
- Allowable stress with a safety factor of 1.65. The system shall perform to this criteria under a windload of (Specify) psf

Dade County Protocol TAS 220-94

- IG500 Storefront
  - Design 65 psf (159 mph)
  - Structural +/- 97.5 psf (195 mph)
- IG500 Pair of Doors
  - Design 65 psf (159 mph)
  - Structural +/- 97.5 psf (195 mph)

Outside Dade County

- IG500 Storefront
  - Design 65 psf (159 mph)
  - Structural +/- 97.5 psf (195 mph)
  - Design 75 psf (171 mph)
  - Structural +/- 112.5 psf (210 mph)
- IG500 Pair of Doors
  - Design 65 psf (159 mph)
  - Structural +/- 97.5 psf (195 mph)
  - Design 75 psf (171 mph)
  - Structural +/- 112.5 psf (210 mph)

Forced Entry Resistance: Shall be tested with a 300 lb. force applied to the active door panel simultaneously with a 150 lb. force applied in both perpendicular directions to the 300 lb. force.

Dade County Protocol TAS 220-94

- IG500 Pair of Doors

Outside Dade County

- IG500 / IG600 Pair of Doors

Large Missile Impact Test - Shall be tested in accordance with:

Dade County Protocol TAS 201-94 with a 9 lb. 2x4 traveling at 50 fps.

Dade County

- IG500 Storefront
- IG500 Pair of Doors

Outside Dade County

- IG500 / IG600 Storefront
- IG500 / IG600 Pair of Doors

Cycle Load Test - Shall be tested in accordance with:

Dade County Protocol TAS 201-94 for 9,000 cycles.

Dade County

- IG500 Storefront
- IG500 Pair of Doors
- IG500 / IG600 Storefront
- IG500 / IG600 Pair of Doors

II. PRODUCTS MATERIALS

Extrusions shall be 6063-T5 alloy and temper (ASTM B221 alloy T5 temper). Fasteners, where exposed, shall be aluminum, stainless steel or zinc plated steel in accordance with ASTM A 164. Perimeter anchors shall be aluminum or steel, providing the steel is properly isolated from the aluminum. Glazing gaskets shall be E.P.D.M. elastomeric extrusions.

FINISH

Aluminum extrusions shall be given a caustic etch followed by an anodic oxide treatment to obtain …*(Specify one of the following):*

_____#11 Clear anodic coating
_____#22 Dark Bronze anodic coating
_____#33 Black anodic coating

A Fluoropolymer paint coating conforming with the requirements of AAMA 2605. Color shall be *(Specify a U. S. Aluminum standard color).*

E

STORM FRONT™

Specifications

Hurricane Resistant Storefronts

- Series IG500
- Series IG600

SECTION 08 41 13 ALUMINUM STOREFRONTS

FABRICATION

The framing system shall provide for flush glazing on all sides with no projecting stops. Vertical and horizontal framing members shall have a nominal face dimension of 2-1/2" (63.5). Overall depth shall be 5" (127). Entrance framing members shall be compatible with glass framing in appearance. Provide for internal drainage of infiltrated water into an extruded aluminum subsill channel where it is drained to the exterior through weep slots.

GLAZING

Dade County

- IG500 Storefront - 9/16" (14) Heat strengthened with SentryGlas® Plus interlayer
- IG500 Pair of Doors - 9/16" (14) Heat strengthened with SentryGlas® Plus interlayer

Outside Dade County

- IG500 Storefront and IG500 Pair of Doors. Glazing must meet Impact and Cycle Testing requirements according to Local Building Codes.
- IG600 Storefront and IG600 Pair of Doors. 1-5/16" (33) Glazing must meet Impact and Cycle Testing requirements according to Local Building Codes.

SEALANTS

All metal-to-metal joints shall use DOW 795 Silicone. Door seal gaskets shall require small joint sealer.

III. EXECUTION INSTALLATION

All glass framing shall be set in correct locations as shown in the details and shall be level, square, plumb, and in alignment with other work in accordance with the manufacturer's installation instructions and approved shop drawings. All joints between framing and the building structure shall be sealed in order to secure a watertight installation.

PROTECTION AND CLEANING

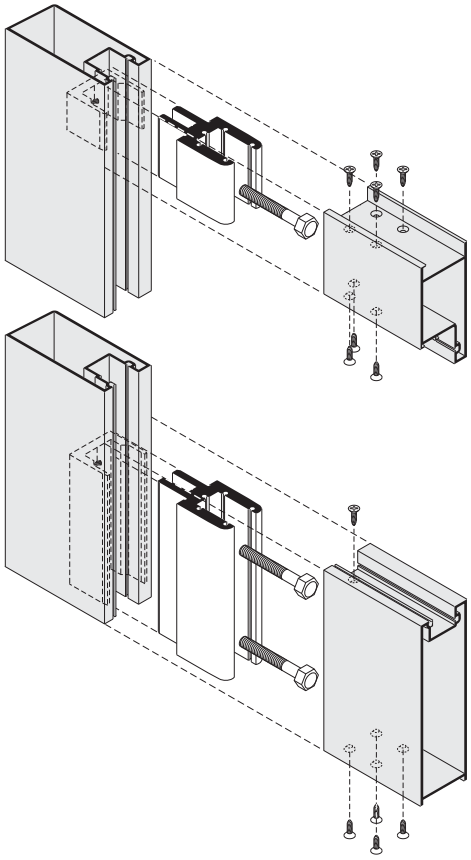
After installation the General Contractor shall adequately protect exposed portions of aluminum surfaces from damage by grinding and polishing compounds, plaster, lime, acid, cement, or other contaminants. The General Contractor shall be responsible for final cleaning.

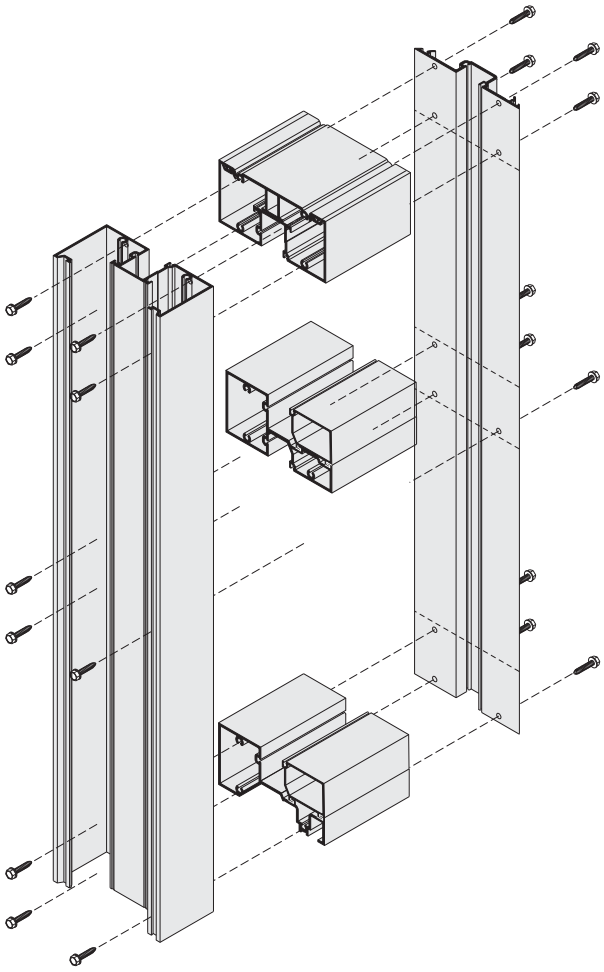
Project: Automotive Dealership, Atlanta, GA

STORM FRONT™

Special Features

Hurricane Resistant Storefronts
- Series IG500
- Series IG600

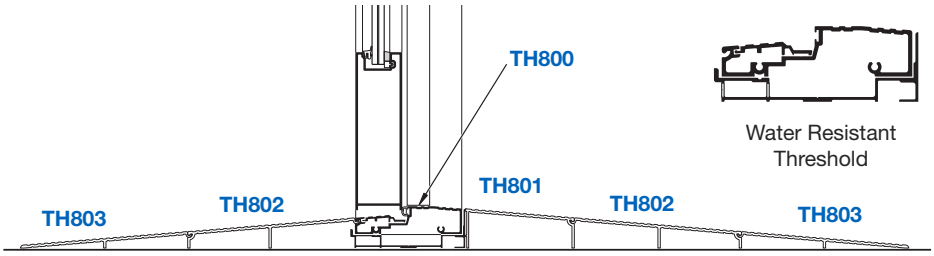




Storm Front™ Entrance Doors are 2-3/16" (55.6) thick with a .125" (3.2) wall thickness and feature a One Glass Stop Glazing System for clean sight lines on both sides of the door. Standard corner construction includes heavy-duty blocks. Corners are welded for maximum strength.

A low profile Air Resistant Threshold is offered for installations that have soffit overhangs greater than the entrance frame height. Check local codes for compliance.

High performance Water Resistant Thresholds are offered to provide superior water and air management, along with Ramps to meet A.D.A. requirements when required.



Water Resistant Threshold

Air Resistant Threshold

STORM FRONT™

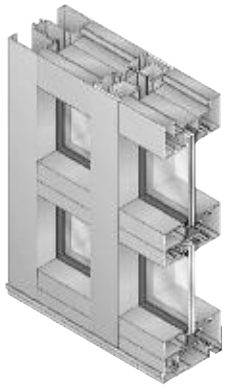
Typical Details

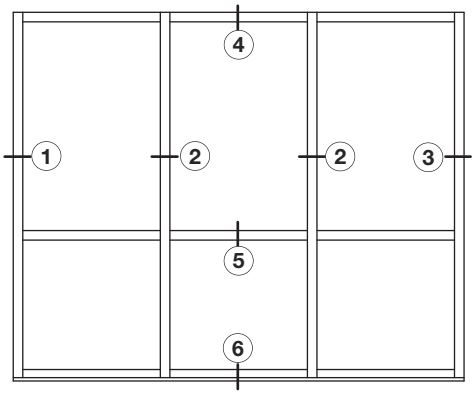
Hurricane Resistant Storefronts
• Series IG500

FOR 9/16" (14) GLASS

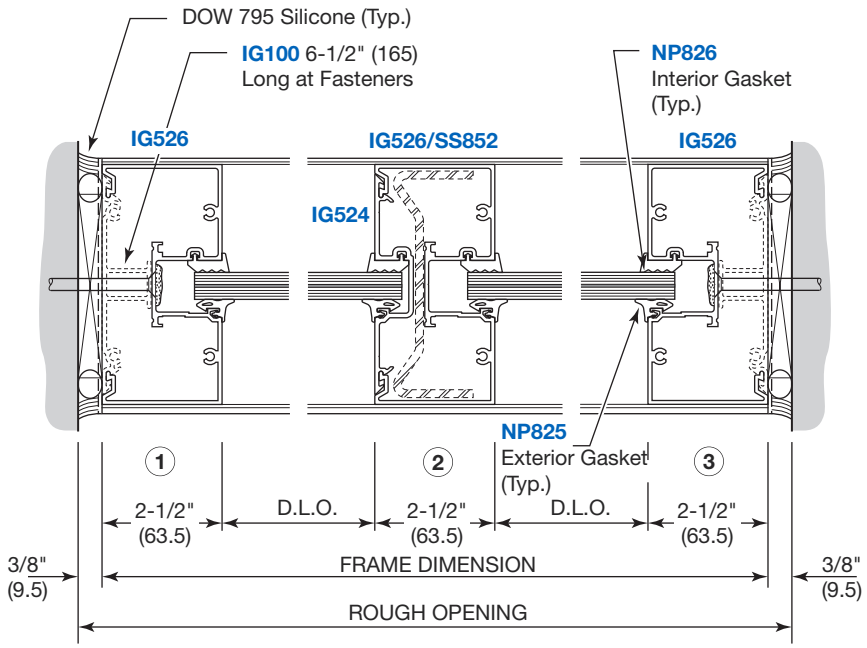
NOTE: Part numbers shown are available in 24' (7.3 m) stock lengths. Visit **usalum.com** for more information.

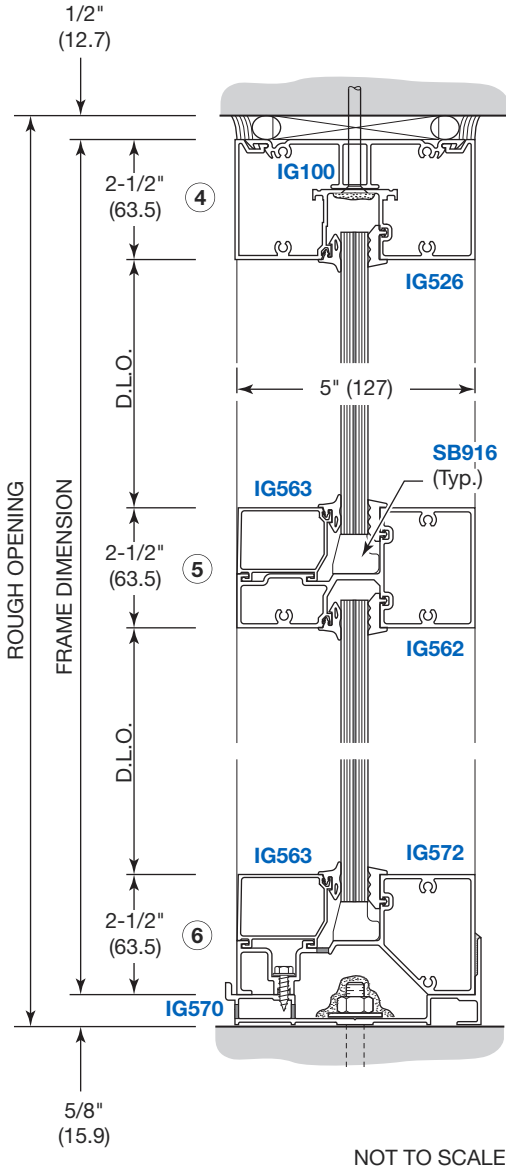
- Glass Size Maximum: 50 Square Feet (4.65 Square Meters)
- Maximum Frame Height is 10 Feet (3.05 m)





TYPICAL ELEVATION





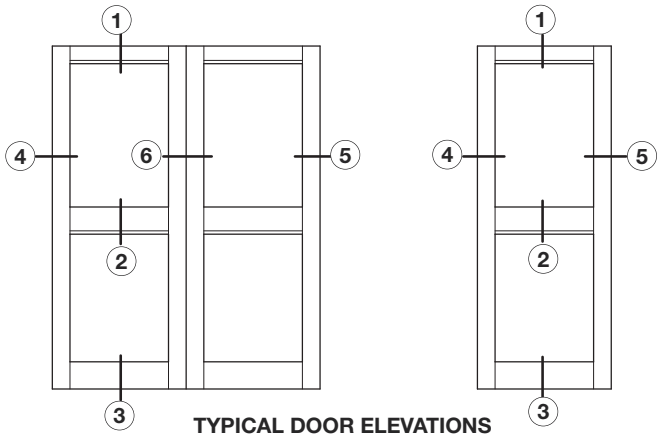
NOT TO SCALE

STORM FRONT™

Typical Details

Hurricane Resistant Storefronts
• Series IG500

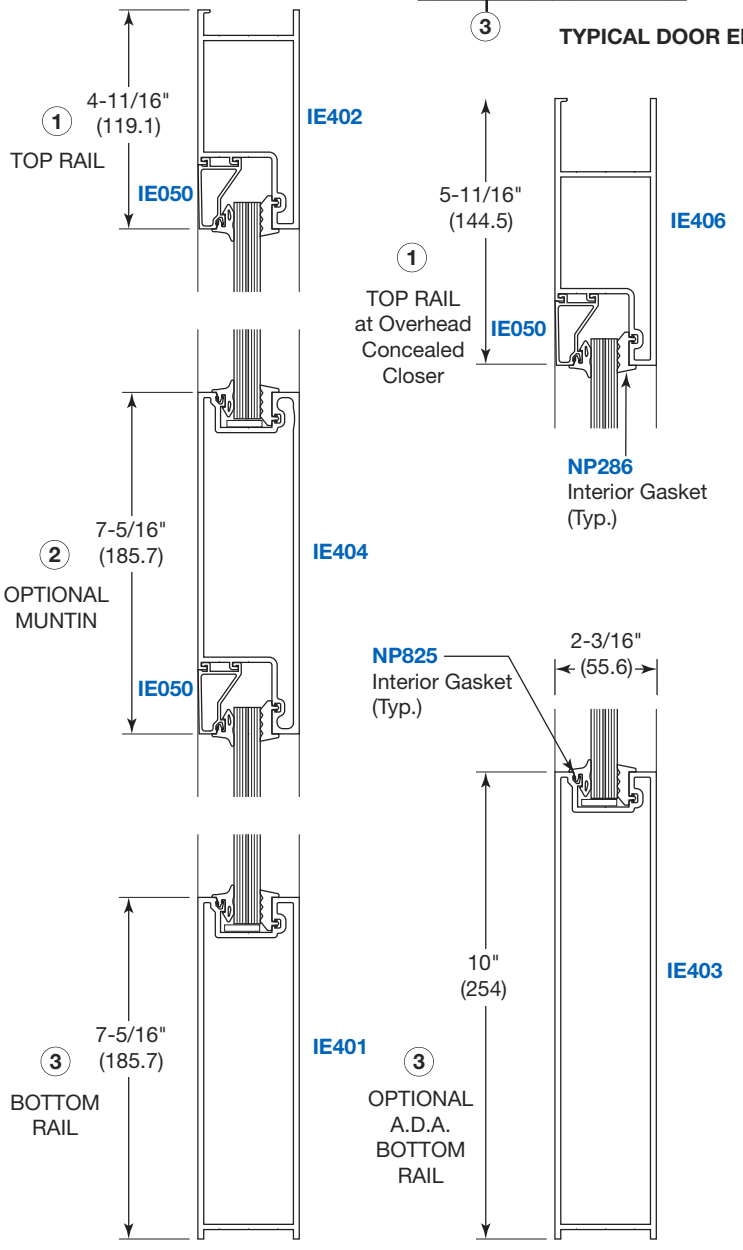
FOR 9/16" (14) GLASS

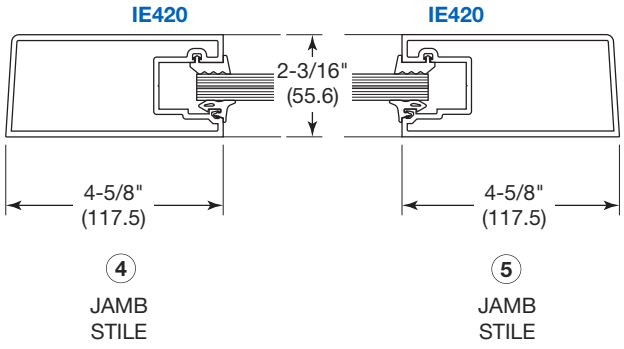


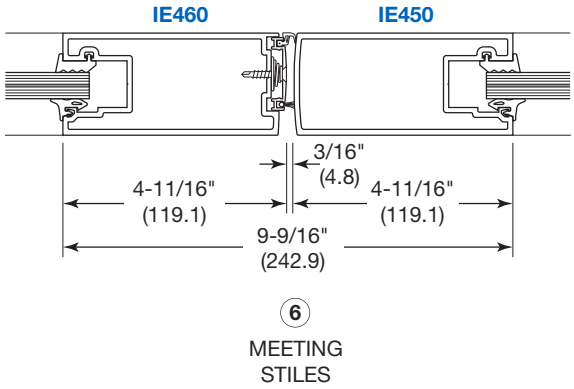
TYPICAL DOOR ELEVATIONS

Door Size Maximum:
Single Door - 44" x 96"
(1.1 x 2.4 m)
Double Door - 88" x 96"
(2.2 x 2.4 m)

NOTE: Doors are designed to withstand a pressure of +/- 65 psf (3112 Pa) without steel reinforcement.





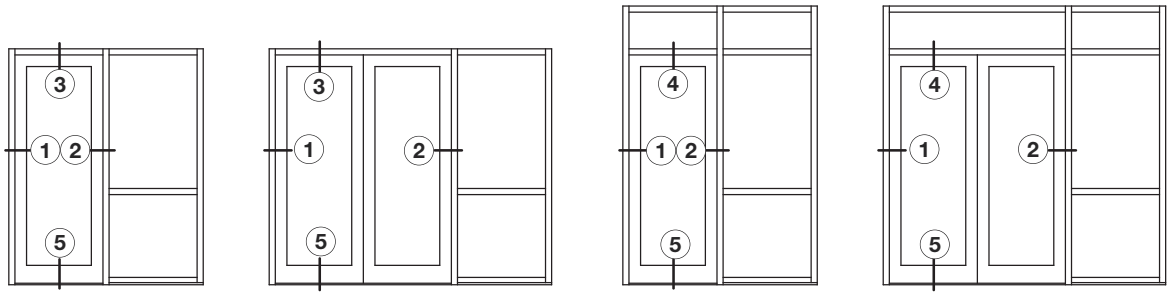


NOT TO SCALE

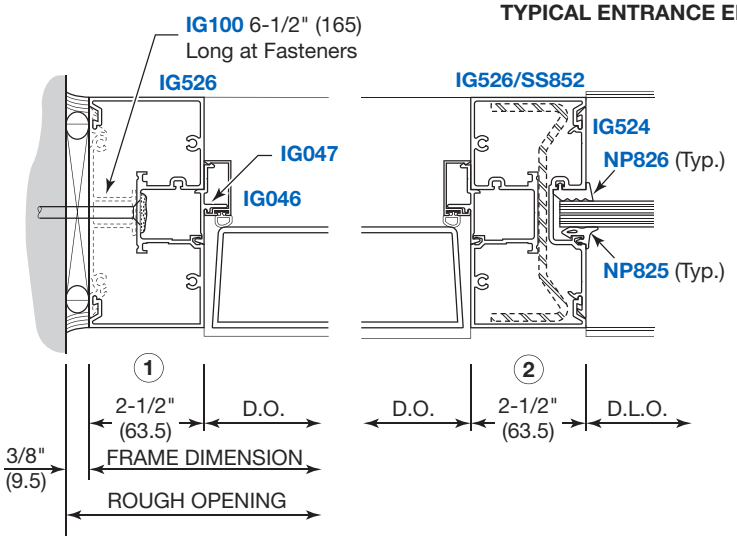
STORM FRONT™

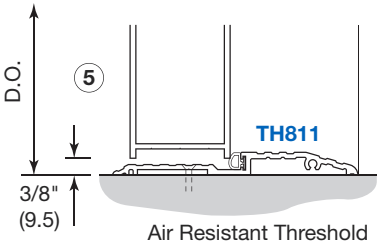
Typical Details
FOR 9/16" (14) GLASS

Hurricane Resistant Storefronts
• Series IG500

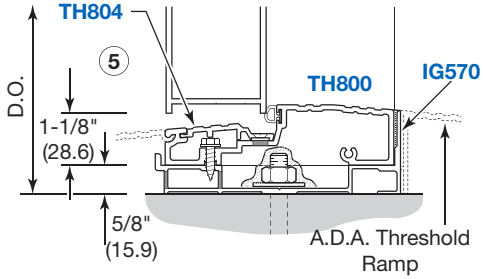


TYPICAL ENTRANCE ELEVATIONS



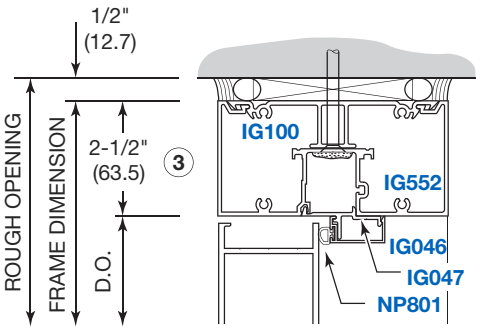


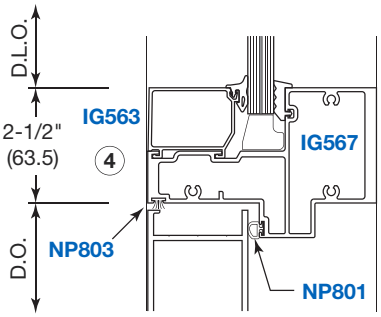
Air Resistant Threshold

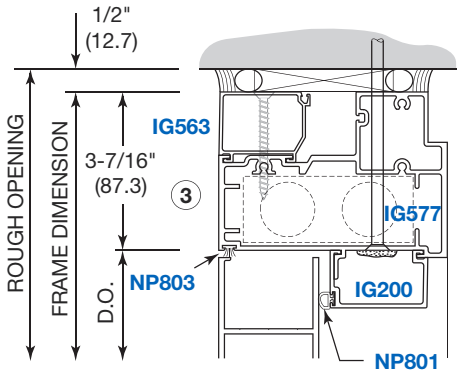


A.D.A. Threshold Ramp

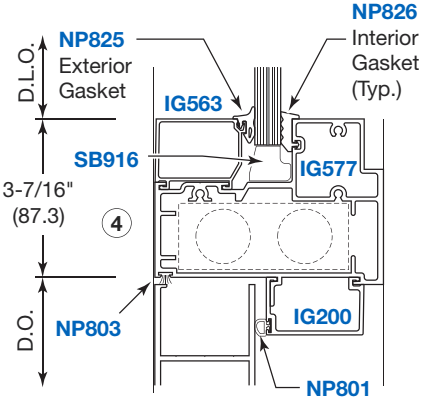
Air/Water Resistant Threshold







For Overhead Concealed Closer



For Overhead Concealed Closer With Transom

NOTE:
Water Resistant Thresholds are required unless entrance is located under a soffit overhang depth that is greater than the door frame height. Check local codes for compliance. Ramps are required when using **TH800** Threshold in order to comply with A.D.A. requirements.

NOTE: Part numbers shown are available in 24' (7.3 m) stock lengths. Visit **usalum.com** for more information.

NOT TO SCALE

STORM FRONT™

Windload Charts

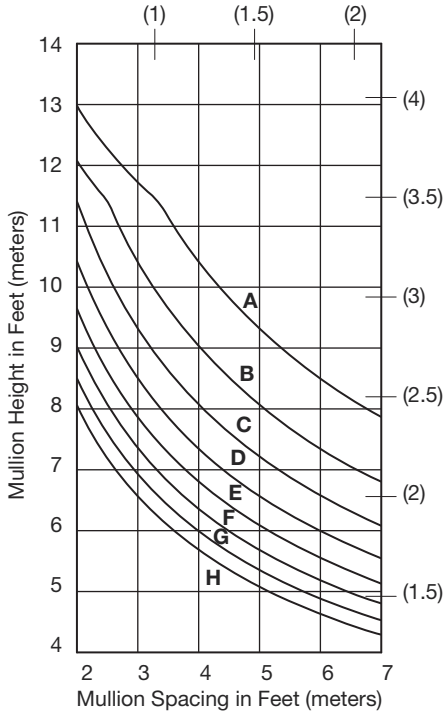
Hurricane Resistant Storefronts • Series IG500

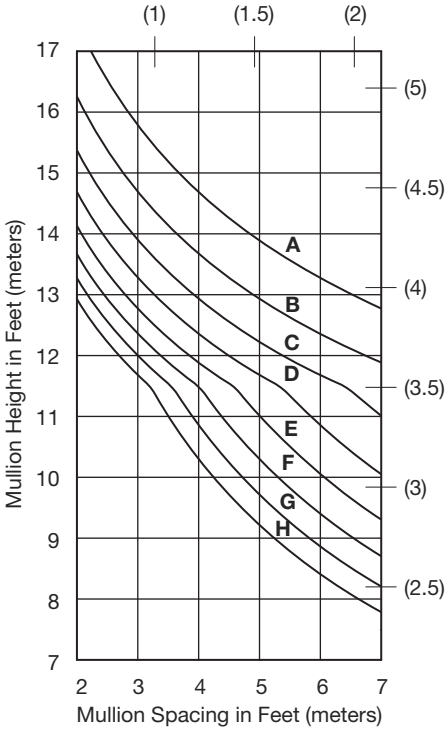
VERTICAL MULLIONS FOR 9/16" (14) GLASS

Mullions designed for L/175 deflection ratio 3/4" (19.1) max. and for the following allowable working stresses:

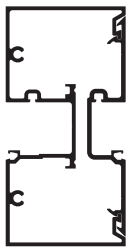
Aluminum alloy 6063-T5: allowable stress for windload 9,500 psi (89 MPa)
Steel reinforcement allowable stress for windload 36,000 psi (183 MPa)

Curves represent the limit values and are based on criteria for simple beam, uniformly loaded, using the distribution of wind forces on the wall with rectangular loading. Glass is not considered as contributing to resistance of deflection.



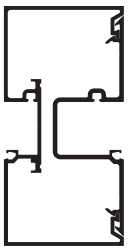


IG526/IG524
(Standard)



IG526/IG524 Mullion and Filler
Ixx = 5.215 (217.06 x 10^4)
Sxx = 2.083 (34.13 x 10^3)

IG525/IG534



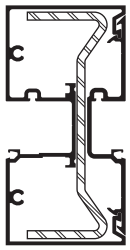
IG525/IG534 Mullion and Filler
Ixx = 4.983 (207.41 x 10^4)
Sxx = 1.988 (32.58 x 10^3)

Deflection: L/175 3/4" (19.1) MAX.

Limitations of vertical mullions for:

Curves **A** = 30 PSF (1436 Pa)
Curves **B** = 40 PSF (1915 Pa)
Curves **C** = 50 PSF (2393 Pa)
Curves **D** = 60 PSF (2872 Pa)
Curves **E** = 70 PSF (3351 Pa)
Curves **F** = 80 PSF (3829 Pa)
Curves **G** = 90 PSF (4308 Pa)
Curves **H** = 100 PSF (4787 Pa)

IG526/IG524/SS852
(Standard)

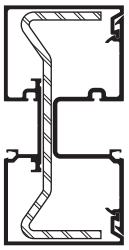


IG526/IG524 Mullion and Filler
Ixx = 5.215 (217.06 x 10^4)
Sxx = 2.083 (34.13 x 10^3)

SS852 Steel Reinforcement
Ixx = 3.979 (165.62 x 10^4)
Sxx = 1.686 (27.63 x 10^3)

Aluminum + Steel
Ixx = 16.754 (697.34 x 10^4)

IG525/IG534/SS852



IG525/IG534 Mullion and Filler
Ixx = 4.983 (207.41 x 10^4)
Sxx = 1.988 (32.58 x 10^3)

SS852 Steel Reinforcement
Ixx = 3.979 (165.62 x 10^4)
Sxx = 1.686 (27.63 x 10^3)

Aluminum + Steel
Ixx = 16.522 (687.70 x 10^4)

STORM FRONT™

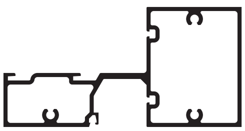
U.S. ALUMINUM

Deadload Charts

Hurricane Resistant Storefronts

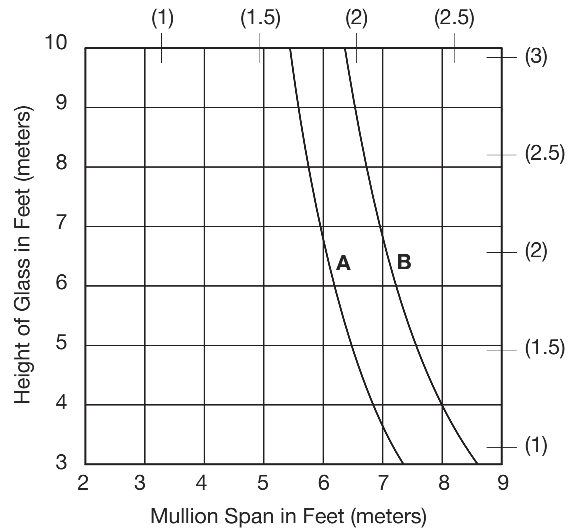
• Series IG500

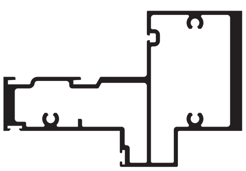
HORIZONTAL MULLIONS FOR 9/16" (14) GLASS



IG562
Iyy = 1.127
Syy = 0.739

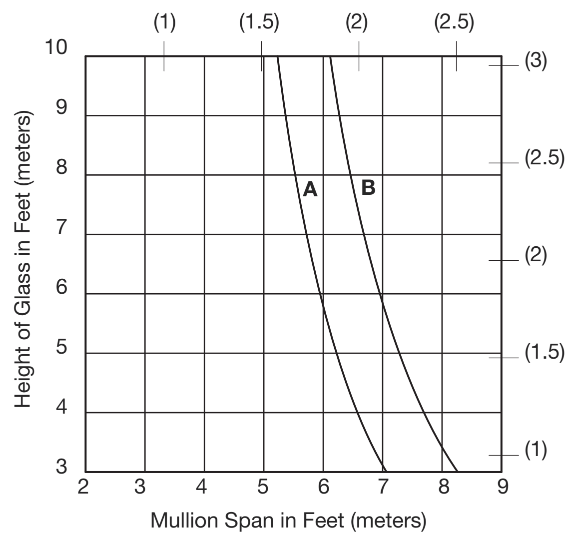
INTERMEDIATE HORIZONTAL
Deadload charts are based on 1/8" (3.2) maximum allowable deflection at the center point of the horizontal mullion and with a glass weight of 6.5 psf (31.74 Kg/m²)
Glass shall rest on two setting blocks located at:
CURVES **A**: 1/4 points.
CURVES **B**: 1/8 points or 8" (203.2) from corners, whichever is larger.

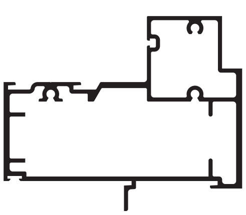




IG567
Iyy = 1.924
Syy = 1.152

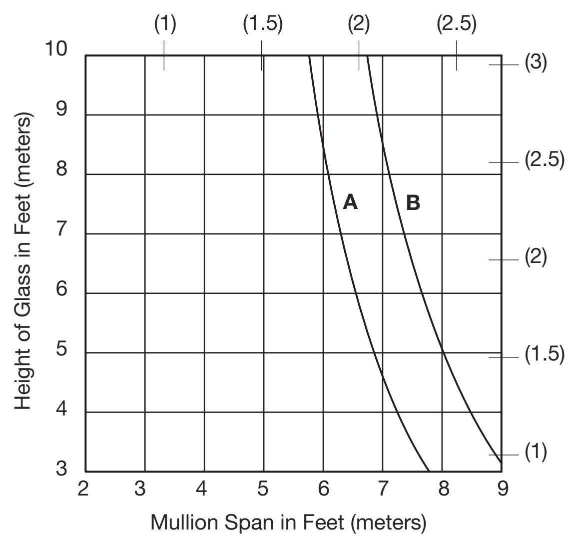
DOOR HEADER
Deadload charts are based on 1/16" (1.6) maximum allowable deflection at the center point of the horizontal mullion and with a glass weight of 6.5 psf (31.74 Kg/m²)
Glass shall rest on two setting blocks located at:
CURVES **A**: 1/4 points.
CURVES **B**: 1/8 points or 8" (203.2) from corners, whichever is larger.





IG577
Iyy = 2.837
Syy = 1.395

DOOR HEADER
Deadload charts are based on 1/16" (1.6) maximum allowable deflection at the center point of the horizontal mullion and with a glass weight of 6.5 psf (31.74 Kg/m²)
Glass shall rest on two setting blocks located at:
CURVES **A**: 1/4 points.
CURVES **B**: 1/8 points or 8" (203.2) from corners, whichever is larger.



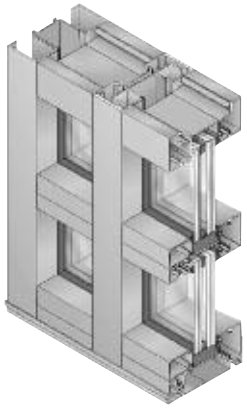
STORM FRONT™

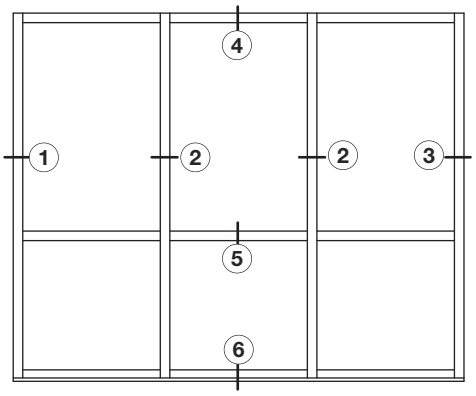
Typical Details

Hurricane Resistant Storefronts
• Series IG600

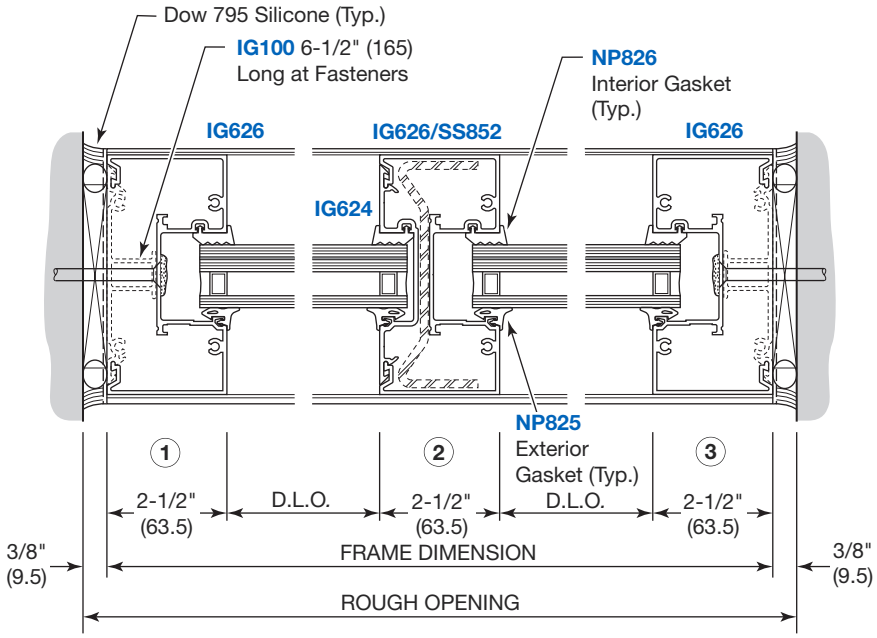
FOR 1-5/16" (33) GLASS

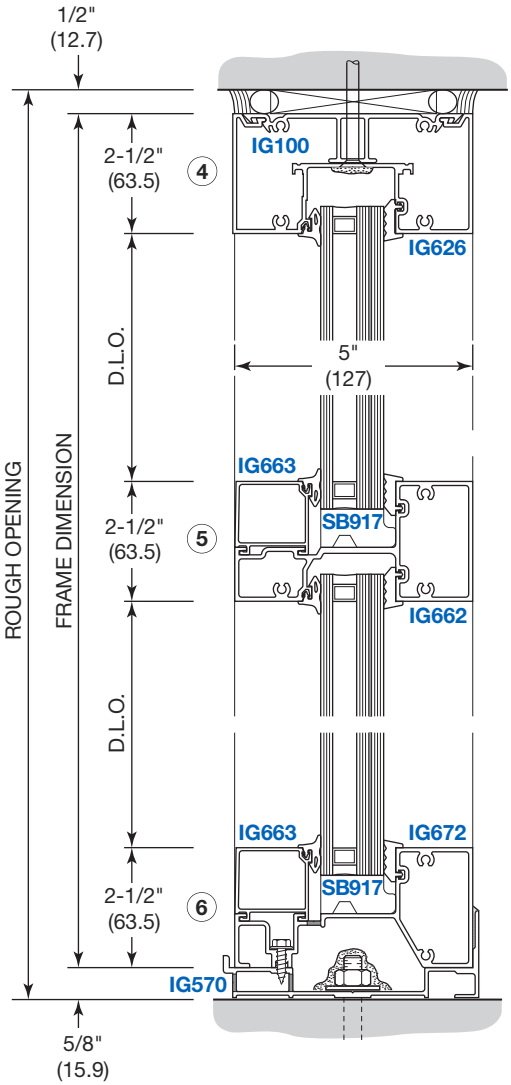
- Glass Size Maximum: 50 Square Feet (4.65 Square Meters)
- Maximum Frame Height is 10 Feet (3.05 m)





TYPICAL ELEVATION





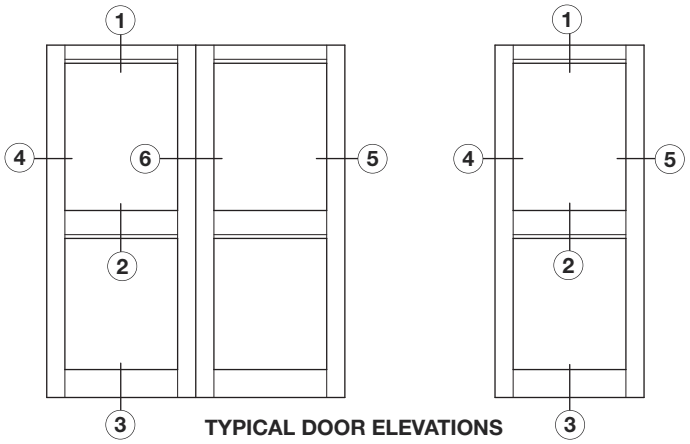
NOT TO SCALE

STORM FRONT™

Typical Details

FOR 1-5/16" (33) GLASS

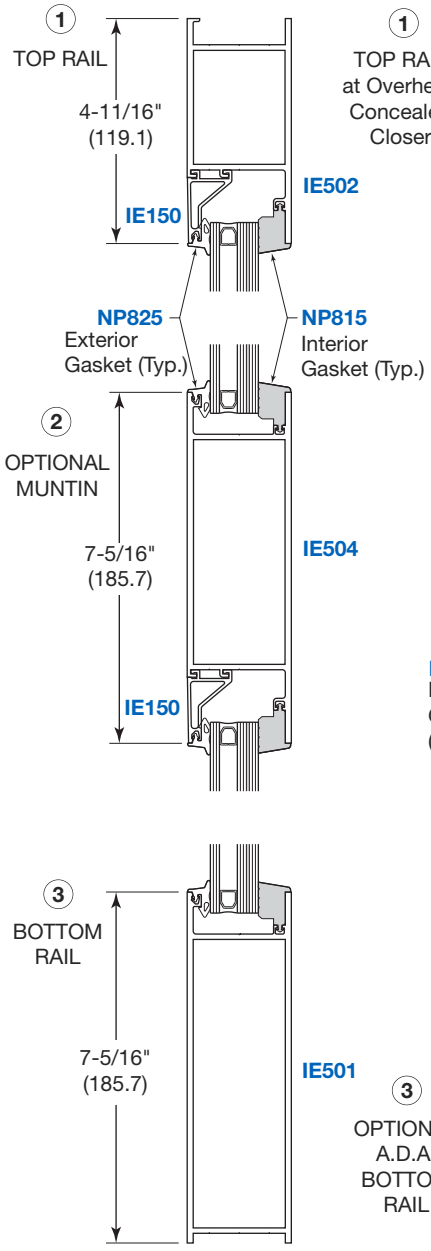
Hurricane Resistant Storefronts
• Series IG600

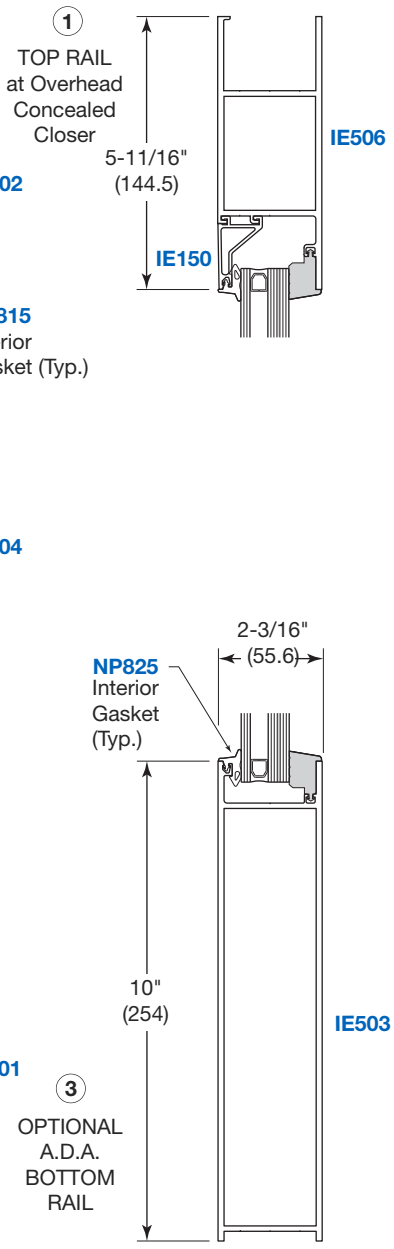


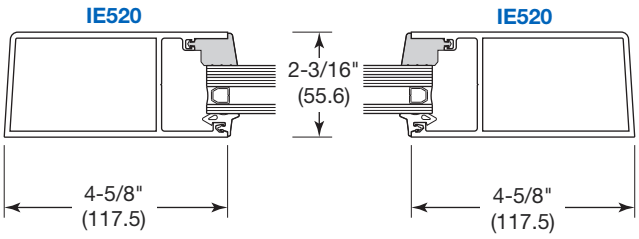
TYPICAL DOOR ELEVATIONS

Door Size Maximum:
Single Door - 44" X 96"
(1.1 x 2.4 m)
Double Door - 88" X 96"
(2.2 x 2.4 m)

NOTE: Doors are designed to withstand a pressure of +/- 65 psf (3112 Pa) without steel reinforcement.

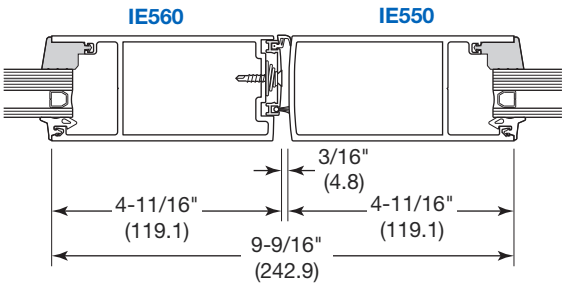






4 JAMB STILE

5 JAMB STILE



6 MEETING STILES

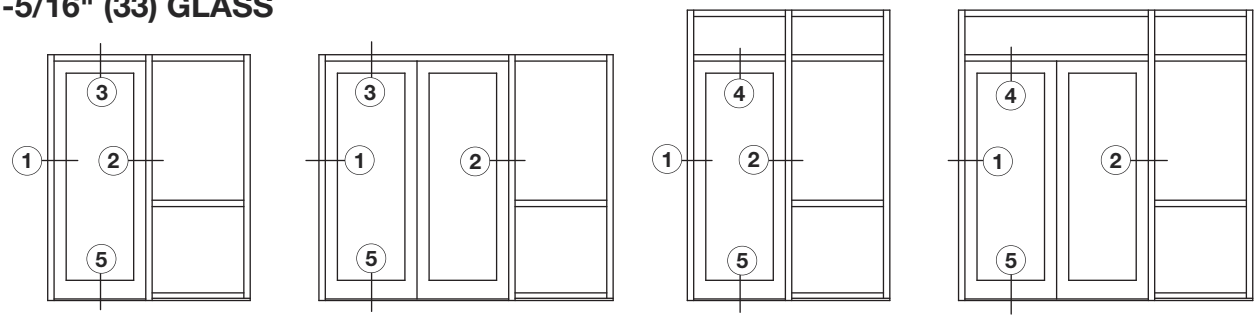
NOT TO SCALE

STORM FRONT™

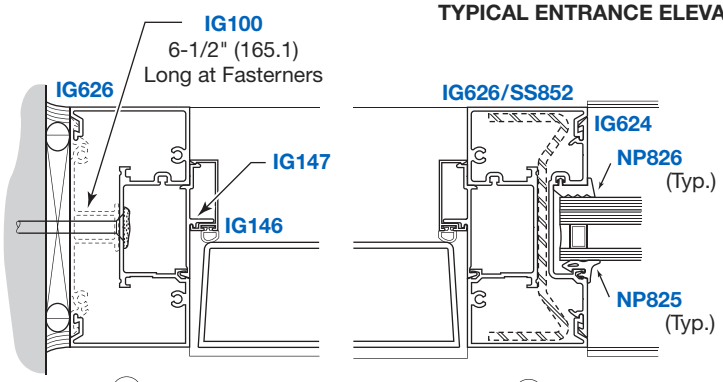
Typical Details

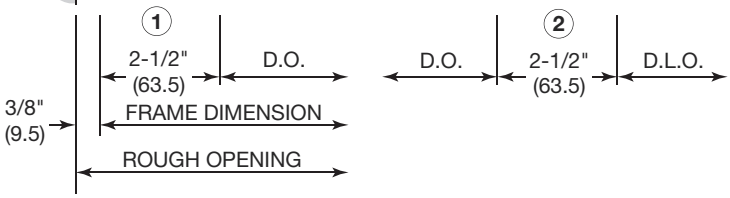
FOR 1-5/16" (33) GLASS

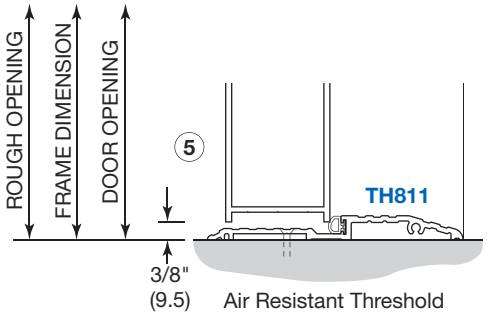
Hurricane Resistant Storefronts
• Series IG600

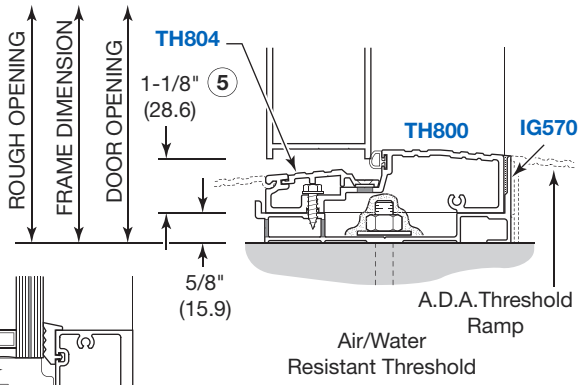


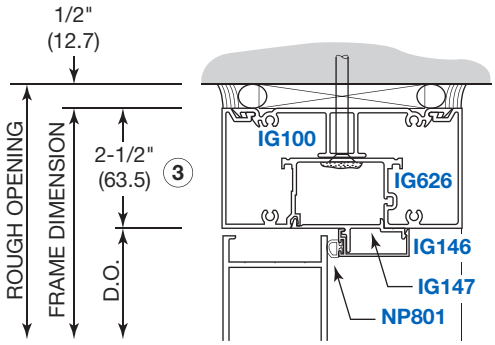
TYPICAL ENTRANCE ELEVATIONS

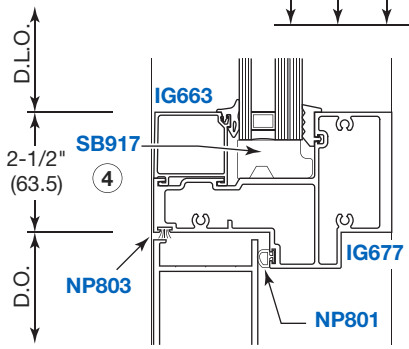


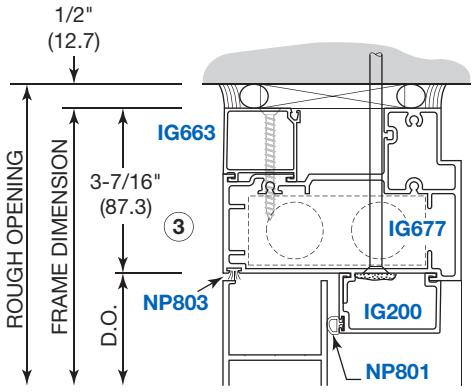




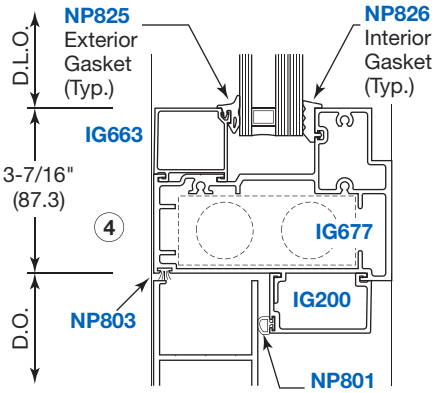








For Overhead Concealed Closer



For Overhead Concealed Closer With Transom

NOTE:
Water Resistant Thresholds are required unless entrance is located under a soffit overhang depth that is greater than the door frame height. Check local codes for compliance. Ramps are required when using **TH800** Threshold in order to comply with A.D.A. requirements.

NOTE: Part numbers shown are available in 24' (7.3 m) stock lengths. Visit **usalum.com** for more information.

NOT TO SCALE

STORM FRONT™

Windload Charts

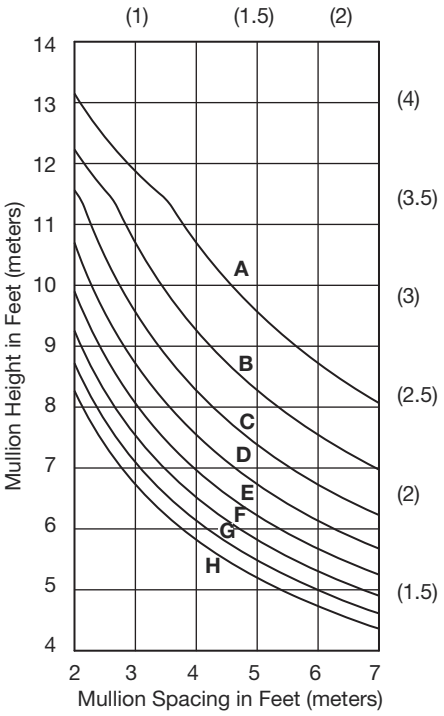
Hurricane Resistant Storefronts • Series IG600

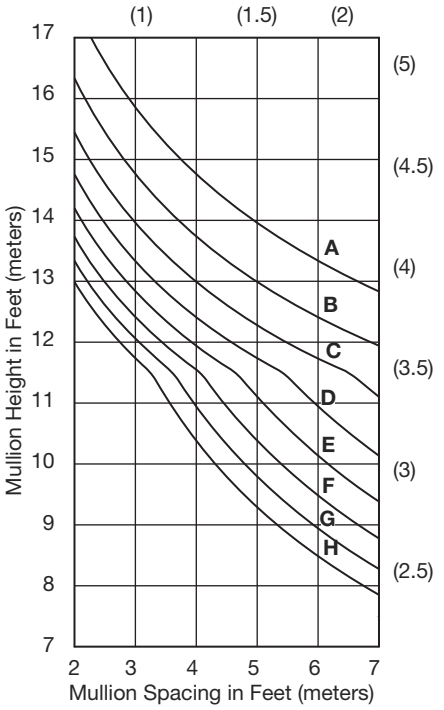
VERTICAL MULLIONS FOR 1-5/16" (33) GLASS

Mullions designed for L/175 deflection ratio 3/4" (19.1) max. and for the following allowable working stresses:

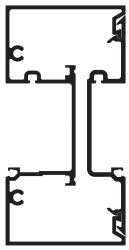
Aluminum alloy 6063-T5: allowable stress for windload 9,500 psi (89 MPa)
Steel reinforcement allowable stress for windload 36,000 psi (183 MPa)

Curves represent the limit values and are based on criteria for simple beam, uniformly loaded, using the distribution of wind forces on the wall with rectangular loading. Glass is not considered as contributing to resistance of deflection.



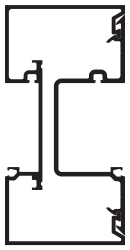


IG626/IG624
(Standard)



IG626/IG624 Mullion and Filler
Ixx = 5.536 (230.42 x 10^4)
Sxx = 2.201 (36.07 x 10^3)

IG625/IG634



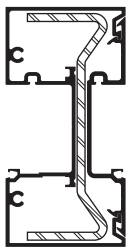
IG625/IG634 Mullion and Filler
Ixx = 5.325 (221.65 x 10^4)
Sxx = 2.130 (34.91 x 10^3)

Deflection: L/175 3/4" (19.1) MAX.

Limitations of vertical mullions for:

Curves **A** = 30 PSF (1436 Pa)
Curves **B** = 40 PSF (1915 Pa)
Curves **C** = 50 PSF (2393 Pa)
Curves **D** = 60 PSF (2872 Pa)
Curves **E** = 70 PSF (3351 Pa)
Curves **F** = 80 PSF (3829 Pa)
Curves **G** = 90 PSF (4308 Pa)
Curves **H** = 100 PSF (4787 Pa)

IG626/IG624/SS852
(Standard)

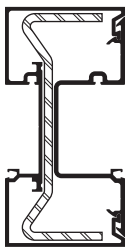


IG626/IG624 Mullion and Filler
Ixx = 5.536 (230.42 x 10^4)
Sxx = 2.201 (36.07 x 10^3)

SS852 Steel Reinforcement
Ixx = 3.979 (165.62 x 10^4)
Sxx = 1.686 (27.63 x 10^3)

Aluminum + Steel
Ixx = 17.075 (710.71 x 10^4)

IG625/IG634/SS852



IG625/IG634 Mullion and Filler
Ixx = 5.325 (221.65 x 10^4)
Sxx = 2.130 (34.91 x 10^3)

SS852 Steel Reinforcement
Ixx = 3.979 (165.62 x 10^4)
Sxx = 1.686 (27.63 x 10^3)

Aluminum + Steel
Ixx = 16.864 (701.94 x 10^4)

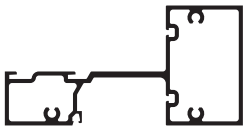
NOT TO SCALE

STORM FRONT™

Deadload Charts

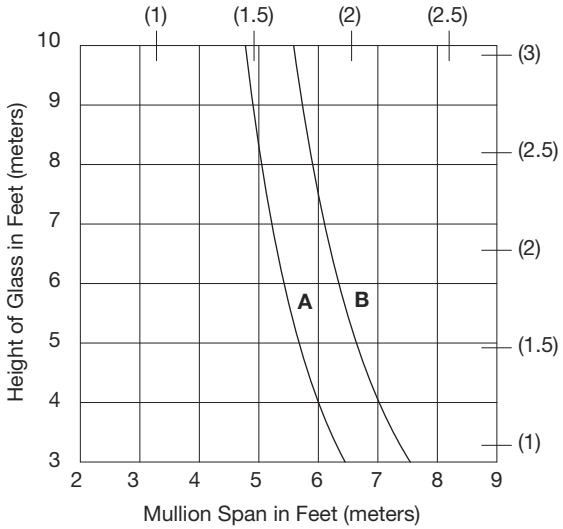
Hurricane Resistant Storefronts • Series IG600

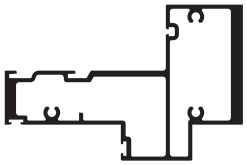
HORIZONTAL MULLIONS FOR 1-5/16" (33) GLASS



IG662
Iyy = 1.006
Syy = 0.661

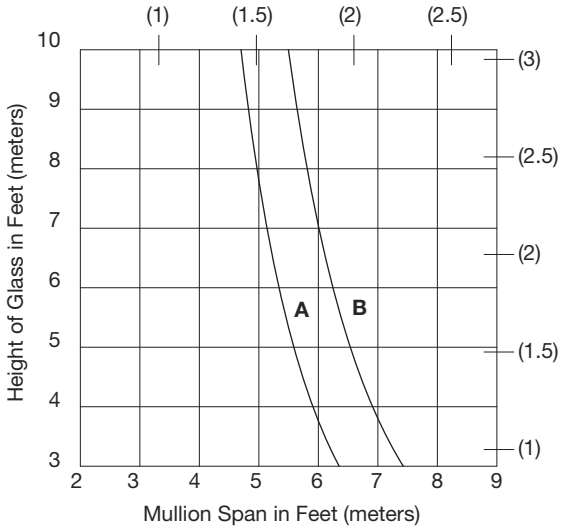
INTERMEDIATE HORIZONTAL
Deadload charts are based on 1/8" (3.2) maximum allowable deflection at the center point of the horizontal mullion and with a glass weight of 9.75 psf (47.61 Kg/m²)
Glass shall rest on two setting blocks located at:
CURVES **A**: 1/4 points.
CURVES **B**: 1/8 points or 8" (203.2) from corners, whichever is larger.

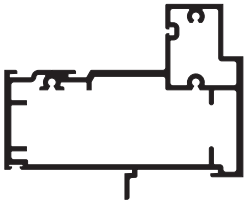




IG667
Iyy = 1.897
Syy = 1.118

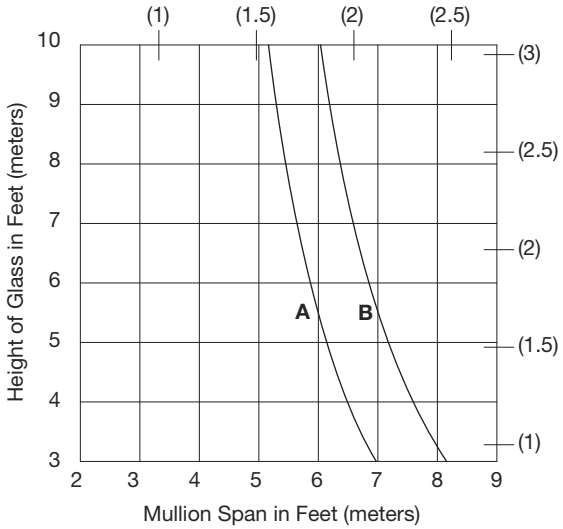
DOOR HEADER
Deadload charts are based on 1/16" (1.6) maximum allowable deflection at the center point of the horizontal mullion and with a glass weight of 9.75 psf (47.61 Kg/m²)
Glass shall rest on two setting blocks located at:
CURVES **A**: 1/4 points.
CURVES **B**: 1/8 points or 8" (203.2) from corners, whichever is larger.





IG677
Iyy = 2.732
Syy = 1.335

DOOR HEADER
Deadload charts are based on 1/16" (1.6) maximum allowable deflection at the center point of the horizontal mullion and with a glass weight of 9.75 psf (47.61 Kg/m²)
Glass shall rest on two setting blocks located at:
CURVES **A**: 1/4 points.
CURVES **B**: 1/8 points or 8" (203.2) from corners, whichever is larger.

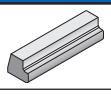
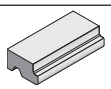
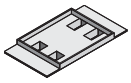
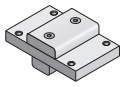
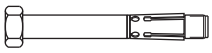


STORM FRONT™

Accessories

Hurricane Resistant Storefronts

- Series IG500
- Series IG600
- Series IT600

PART NO.	DETAIL	DESCRIPTION	PKG. QTY.	WHERE USED		
				SERIES IG500	SERIES IG600	SERIES IT600
SB916		Setting Block for 9/16" (14) Glass	100	●		
SB917		Setting Block for 1-5/16" (33) Glass	100		●	
SB117		Setting Block for 1-5/16" (33) Glass	100			●
CP801		End Cap for Vertical Mullions	50	●	●	
WD801		Water Deflector for IG524	50	●		
WD802		Water Deflector for IG526	50	●		
WD911		Water Deflector for IG624 and BT804	50		●	●
WD912		Water Deflector for IG626 and BT815	50		●	●
WD913		Water Deflector for BT805	50			●
EC801		End Caps for Jambs at Subsill	20	●	●	●
SV102		Splice Sleeve for Subsill	10	●	●	●
DJ801		Drill Jig for Horizontals	1	●	●	●
ST286		Assembly Screw #12 x 2" (51) HWH SMS	100			●
ST268		Sill to Subsill Attachment #12 x 3/4" (19) HWH SMS	100	●	●	●
ST266		Reinforcement to Vertical Attachment #12 x 1" (25) HWH SMS	100	●	●	●
ST173		End Dam Attachment #8 x 1/2" (12.7) FH SMS	100			●
ST206		Splice Sleeve Attachment #8 x 1/2" (12.7) PH SMS	100			●
MF302		Perimeter Anchor for Concrete 3/8"-16 x 3" (76)	50	●	●	