STOREFRONTS

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SECTION B2 **PAGE**

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

STOREFRONTS

Specifications

SECTION 08 41 13 ALUMINUM FRAMED STOREFRONTS

Flush Front™

- Series FF450
- Series FF451
- Series FF600
- Series FF601

SERIES	FACE WIDTH	DEPTH	GLAZING INFILL	GLAZING METHOD
FF450	1-3/4" (44.5)	4-1/2" (114.3)	1/4" (6) or 3/8" (10)	Exterior/Interior
FF451	2" (50.8)	4-1/2" (114.3)	1" (25)	
FF600	1-3/4" (44.5)	6" (152.4)	1/4" (6) or 3/8" (10)	
FF601	2" (50.8)	6" (152.4)	1" (25)	

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*) Flush Front™ 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. Infiltration shall not exceed .06 cfm per square foot (.0003m^3/sm^2) of fixed area when tested at 6.24 psf (300 Pa).

Water Infiltration: shall be tested in accordance with ASTM E 331. No water penetration at test pressure of 8 psf (384 Pa) when tested with the high performance subsill.

Structural Performance: shall be tested in accordance with ASTM E 330 and based on:

- Maximum deflection of L/175 of the span
- Allowable stress with a safety factor of 1.65

The system shall perform to this criteria under a windload of (*Specify*) psf.

Testing Procedures -

ASTM 283, E 331, and E 330 - Laboratory performance testing. AAMA 503-08 - Newly installed storefronts. AAMA 511-08 - Installed storefronts after six months.

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

All exposed framing surfaces shall be free of scratches and other serious blemishes. 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).

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 (*Specify*). Overall depth shall be (*Specify*). 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.

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.

CRL U.S. ALUMINUM

STOREFRONTS

Specifications

Thermal Flush Front™
- Series FT451
- Series FT601

SECTION 08 41 13 ALUMINUM FRAMED STOREFRONTS

SERIES	FACE WIDTH	DEPTH	GLAZING INFILL	GLAZING METHOD
FT451	2" (50.8)	4-1/2" (114.3)	1" (25)	Exterior/Interior
FT601		6" (152.4)		

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)* Thermal Flush Front™ 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. Infiltration shall not exceed .06 cfm per square foot (.0003m^3/sm^2) of fixed area when tested at 6.24 psf (300 Pa).

Water Infiltration: shall be tested in accordance with ASTM E 331. No water penetration at test pressure of 8 psf (384 Pa). When tested with the high performance subsill.

Structural Performance: shall be tested in accordance with ASTM E 330 and based on:

- Maximum deflection of L/175 of the span
- Allowable stress with a safety factor of 1.65

The system shall perform to this criteria under a windload of *(Specify)* psf. Structural Integrity - Manufacturer shall provide a Two Year Warranty on thermal framing against failure. Thermal Performance - Series FT451/FT601 shall be tested in accordance with NFRC 100, 200, and AAMA 1503.

The system shall perform to this criteria under a windload of (*Specify*) psf.

Testing Procedures - ASTM 283, E 331, and E 330 - Laboratory performance testing. AAMA 503-08 - Newly installed storefronts. AAMA 511-08 - Installed storefronts after six months.

II. PRODUCTS MATERIALS

Extrusions shall be 6063-T5 alloy and temper (ASTM B221 alloy T5 temper), thermally broken by a two part chemically cured high density polyurethane. To ensure that composite strength remains unaltered during thermal cycling, a mechanical bond between the aluminum and the thermal filling shall be created by mechanically abrading the extrusion thermal cavity prior to filling with the polyurethane polymer. 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

All exposed framing surfaces shall be free of scratches and other serious blemishes. 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).*

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" (50.8). Overall depth shall be *(Specify).* 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.

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

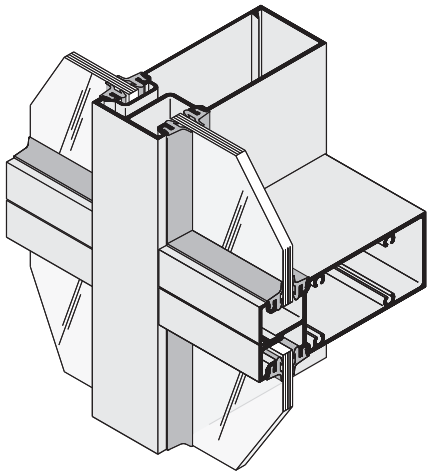
After installation the General Contractor shall adequately protect exposed portions of aluminum surfaces from damage by grinding and polishing compounds, plaster, lime, acid, cement, or other contaminants. The General Contractor shall be responsible for final cleaning.

STOREFRONTS

Technical Data

Flush Front™
- Series FF450
- Series FF451
- Series FT451
- Series FF600
- Series FF601
- Series FT601

Flush Front™ Systems feature screw race joinery and panel type installation, which allows for shop or job site fabrication. Injection molded water deflectors at intermediate horizontals, and a continuous sill gutter with factory pre-punched weep slots, ensure control of any infiltrated water. The plane of the glass may be reversed from exterior to interior or any combination to give these standard systems a custom look. Flush Front™ Series FT451 and FT601 offer improved thermal performance using the Poly-Aluminizer™ thermal break technology as described on page 44-B1. All series may be glazed from the interior or exterior using a top load E.P.D.M. glazing gasket, see page 01-B3. This multi-purpose product was also designed and tested for use as a Window Wall System, and is an ideal choice for fixed horizontal ribbon window applications. Flush Front Systems accommodate most U.S. Aluminum Entrance Doors.



FLUSH FRONT

SERIES	WIDTH	DEPTH	GLAZING INFILLS	APPLICATION
FF450	1-3/4" (44.5)	4-1/2" (114.3)	1/4" (6) or 3/8" (10)	Ground Floor to Mid-Rise Buildings. Ideal for Fixed Horizontal Ribbon Windows.
FF451	2" (50.8)	4-1/2" (114.3)	1" (25)	
FT451 (Thermal)	2" (50.8)	4-1/2" (114.3)	1" (25)	
FF600	1-3/4" (44.5)	6" (152.4)	1/4" (6) or 3/8" (10)	
FF601	2" (50.8)	6" (152.4)	1" (25)	
FT601 (Thermal)	2" (50.8)	6" (152.4)	1" (25)	

GLASS SIZES*	
Series FF450 and FF600 for 1/4" (6) Glass	= Daylight Opening + 5/8" (15.9)
Series FF451, FT451, FF601, and FT601 for 1" (25) Glass	= Daylight Opening + 7/8" (22.2)

* These formulae do not take into account glass tolerances. Consult glass manufacturer before ordering glass.

STOREFRONTS

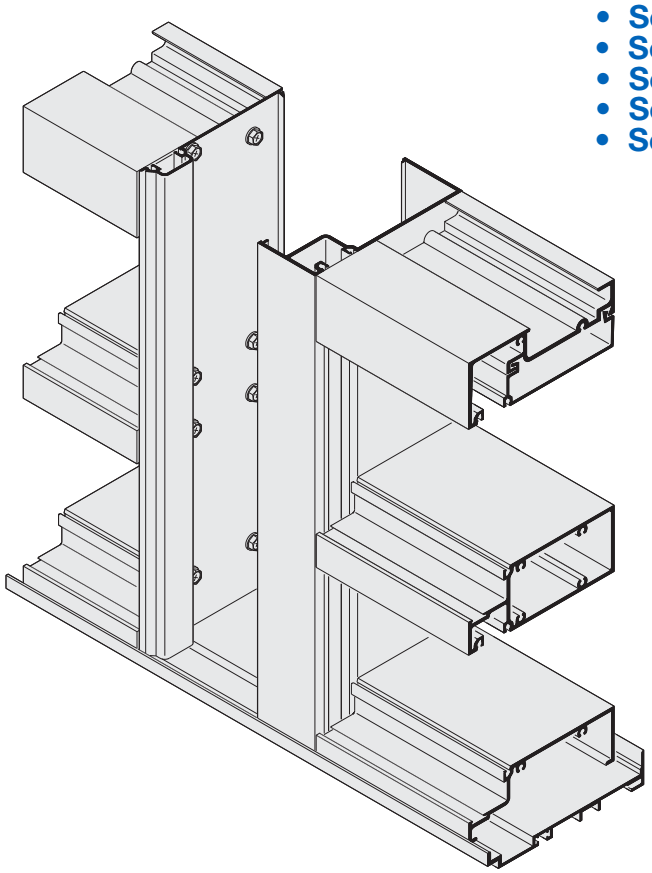
Special Features

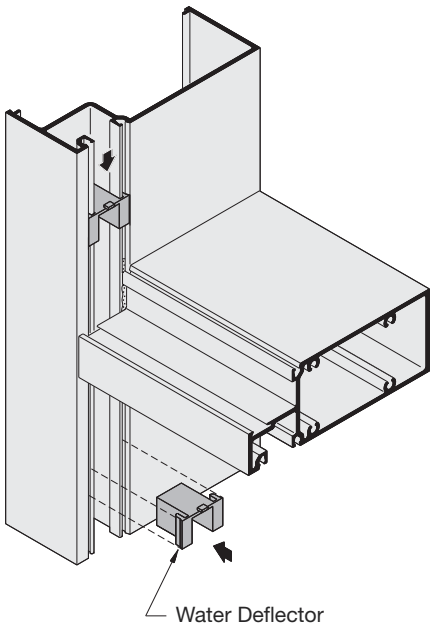
Flush Front™ Systems allow the plane of the glass to be reversed from exterior to interior or any combination to give these standard systems a custom look. Flush Front™ is ideal for use in storefront and punched opening or ribbon window applications. Flush Front™ Systems accommodate most U.S. Aluminum Entrance Doors.

System features screw race joinery with split vertical mullions which allows for framing to be shop fabricated and shipped to the job site partially or totally assembled into panels. The assembled panel units are then snapped together into long runs. Subsills with factory pre-punched weep slots must be used with these systems.

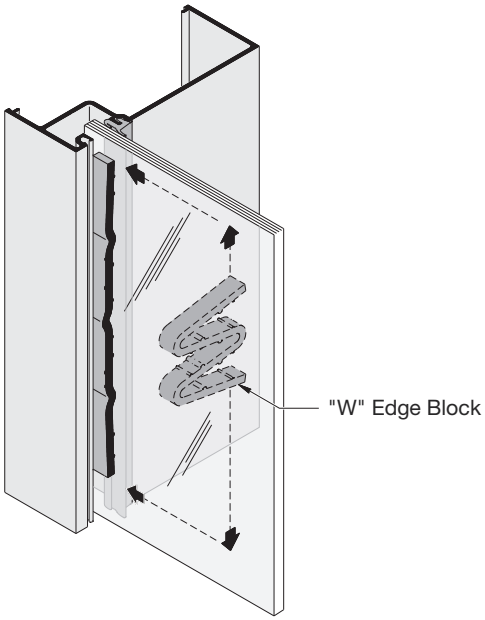
Flush Front™

- Series FF450
- Series FF451
- Series FT451
- Series FF600
- Series FF601
- Series FT601





Apply silicone to two sides of glazing pocket at vertical/horizontal joint and glazing reglets. Slide water deflector, down into position. Seal over top edges of water deflector, leaving a gap on outside edge allowing water to drain into subsill.



Stretch "W" Block and slide it between glass and mullion into deep glazing pocket. Push it all the way until it clears glass and locks into place. These blocks are used to prevent glass from "walking" out of the pocket caused by extreme vibration or minor earthquakes.

STOREFRONTS

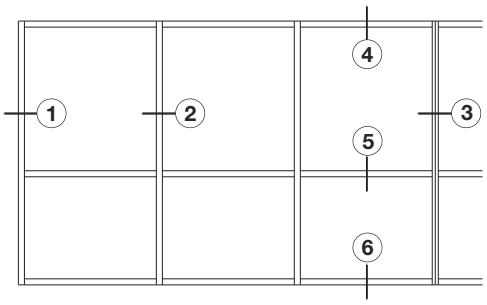
Typical Details

Flush Front™ • Series FF450

B

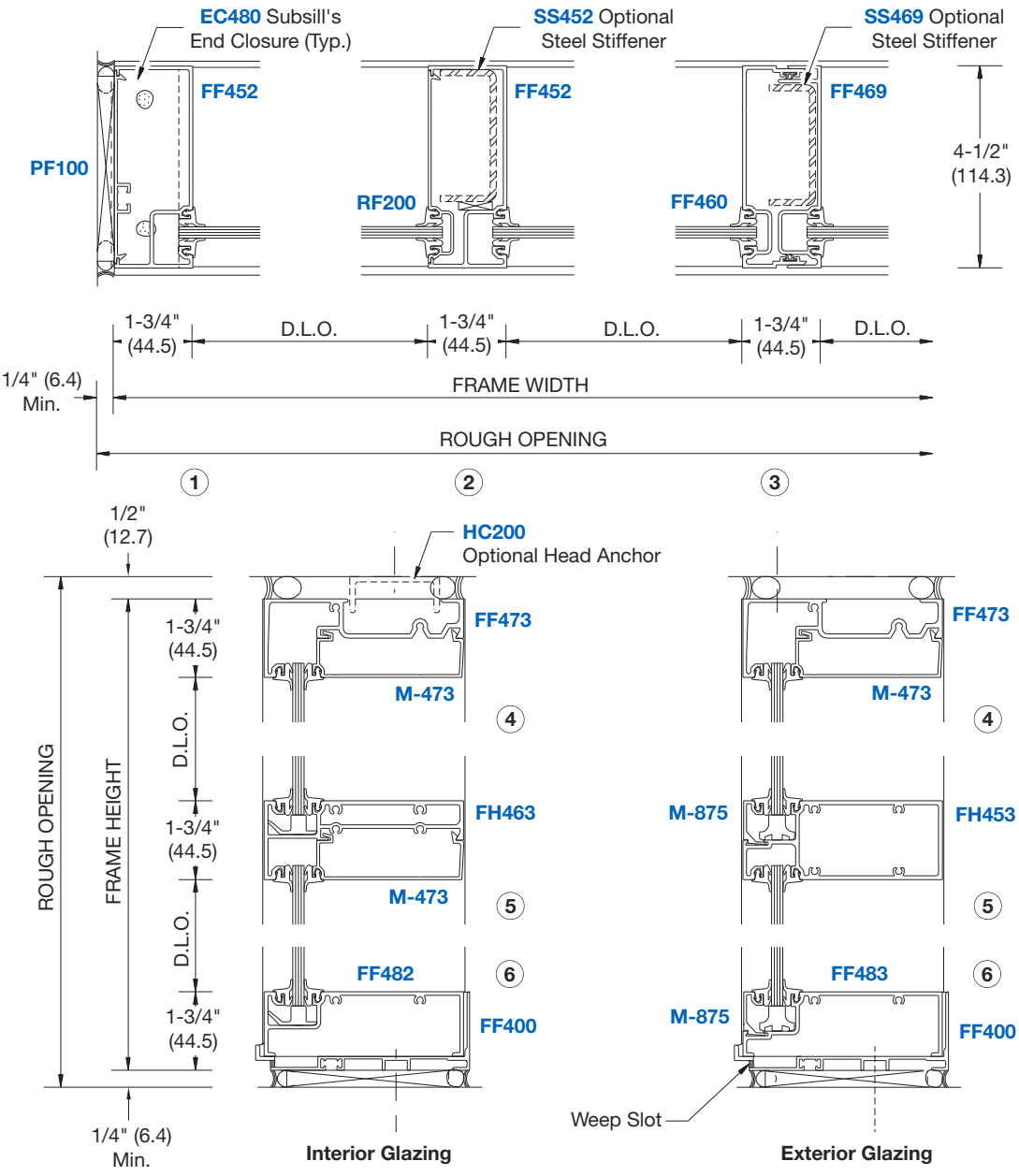
FLUSH OUT FOR 1/4" (6) OR 3/8" (10) GLAZING

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



TYPICAL ELEVATION

NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of 1/4" (6) glass throughout. **NP238** E.P.D.M. Glazing Gaskets for 3/8" (10) glazing.



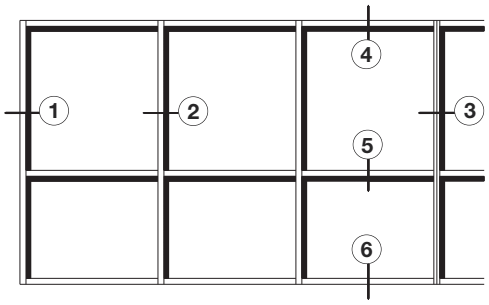
NOT TO SCALE

Typical Details

Flush Front™ • Series FF450

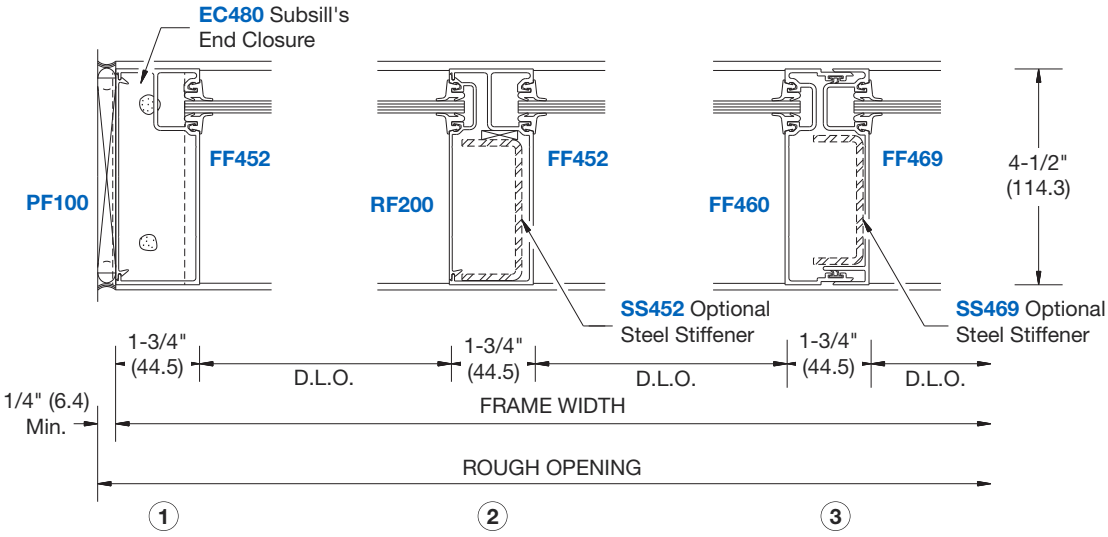
FLUSH IN FOR 1/4" (6) OR 3/8" (10) GLAZING

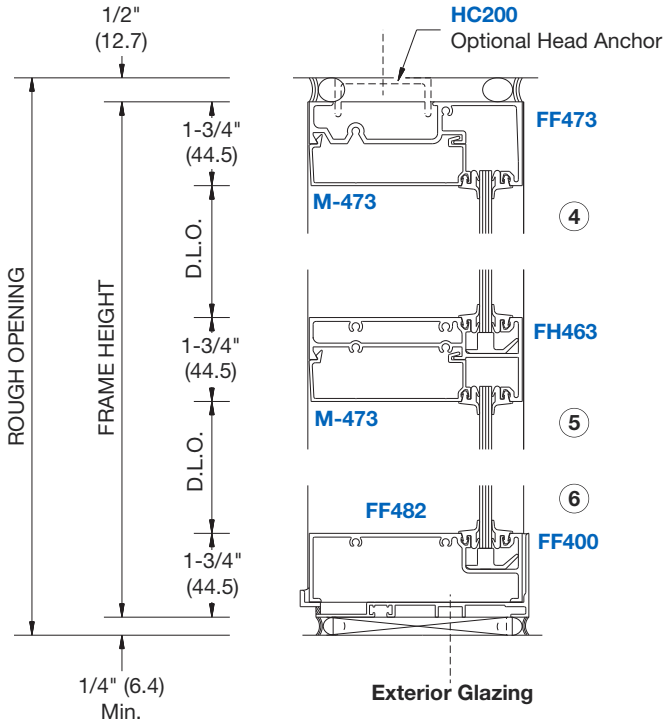
NOTE: Part numbers shown are available in 24' (7.3 m) stock lengths. Visit **usalum.com** for more information.



TYPICAL ELEVATION

NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of 1/4" (6) glass throughout. **NP238** E.P.D.M. Glazing Gaskets for 3/8" (10) glazing.





NOT TO SCALE

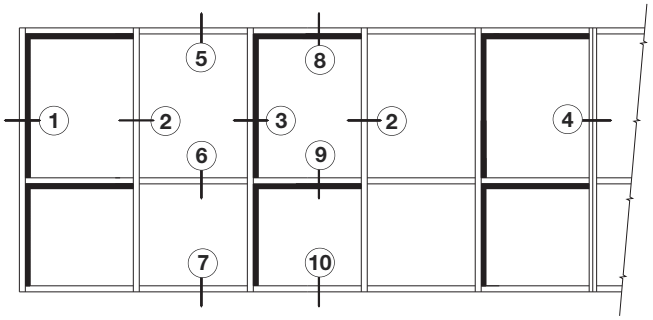
STOREFRONTS

Typical Details

Flush Front™
• Series FF450

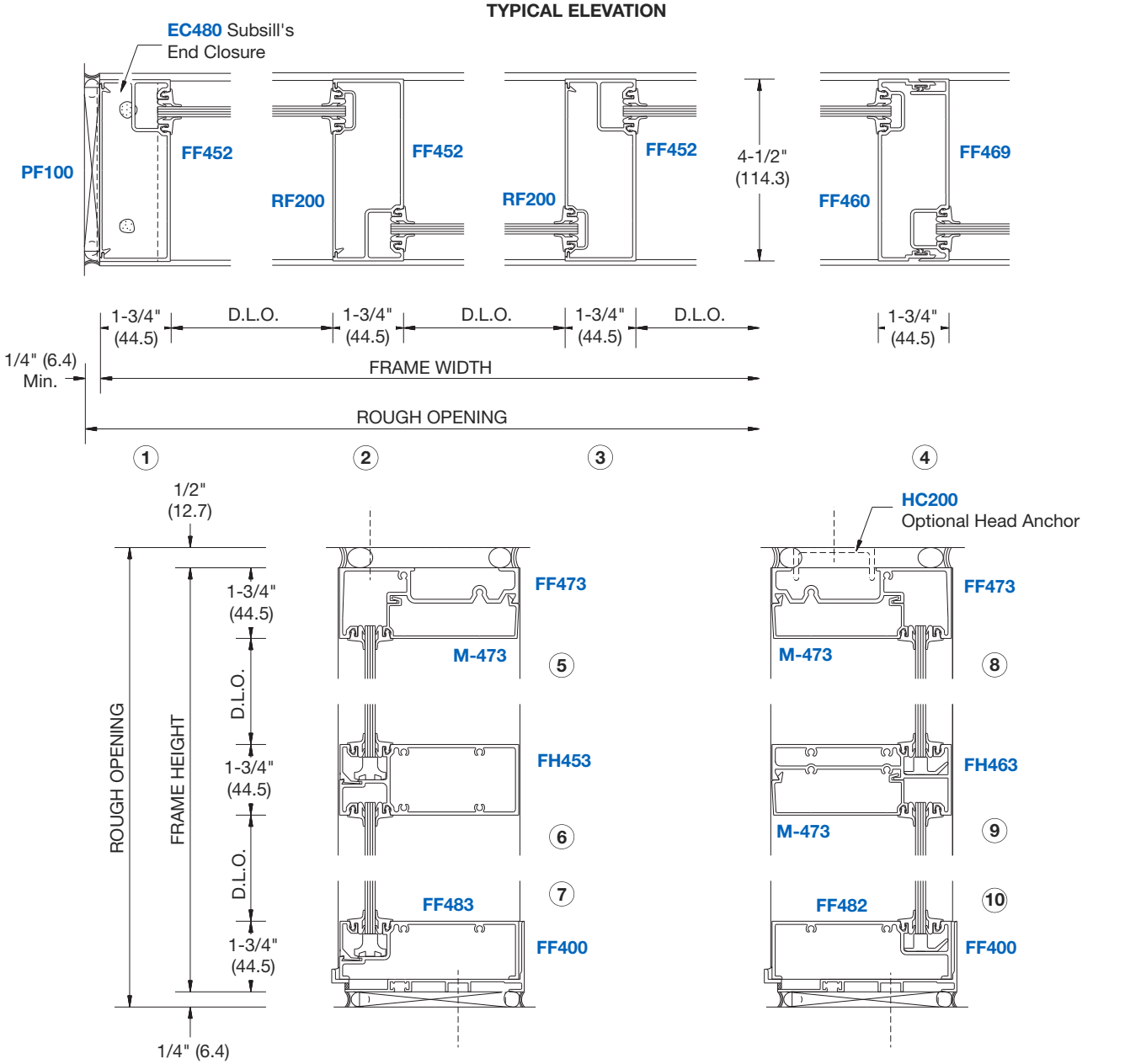
FLUSH IN / FLUSH OUT FOR 1/4" (6) OR 3/8" (10) GLAZING

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



TYPICAL ELEVATION

NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of 1/4" (6) glass throughout. **NP238** E.P.D.M. Glazing Gaskets for 3/8" (10) glazing.



Exterior Glazing

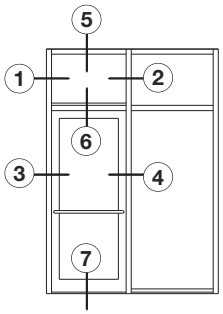
NOT TO SCALE

Typical Details

Flush Front™ • Series FF450

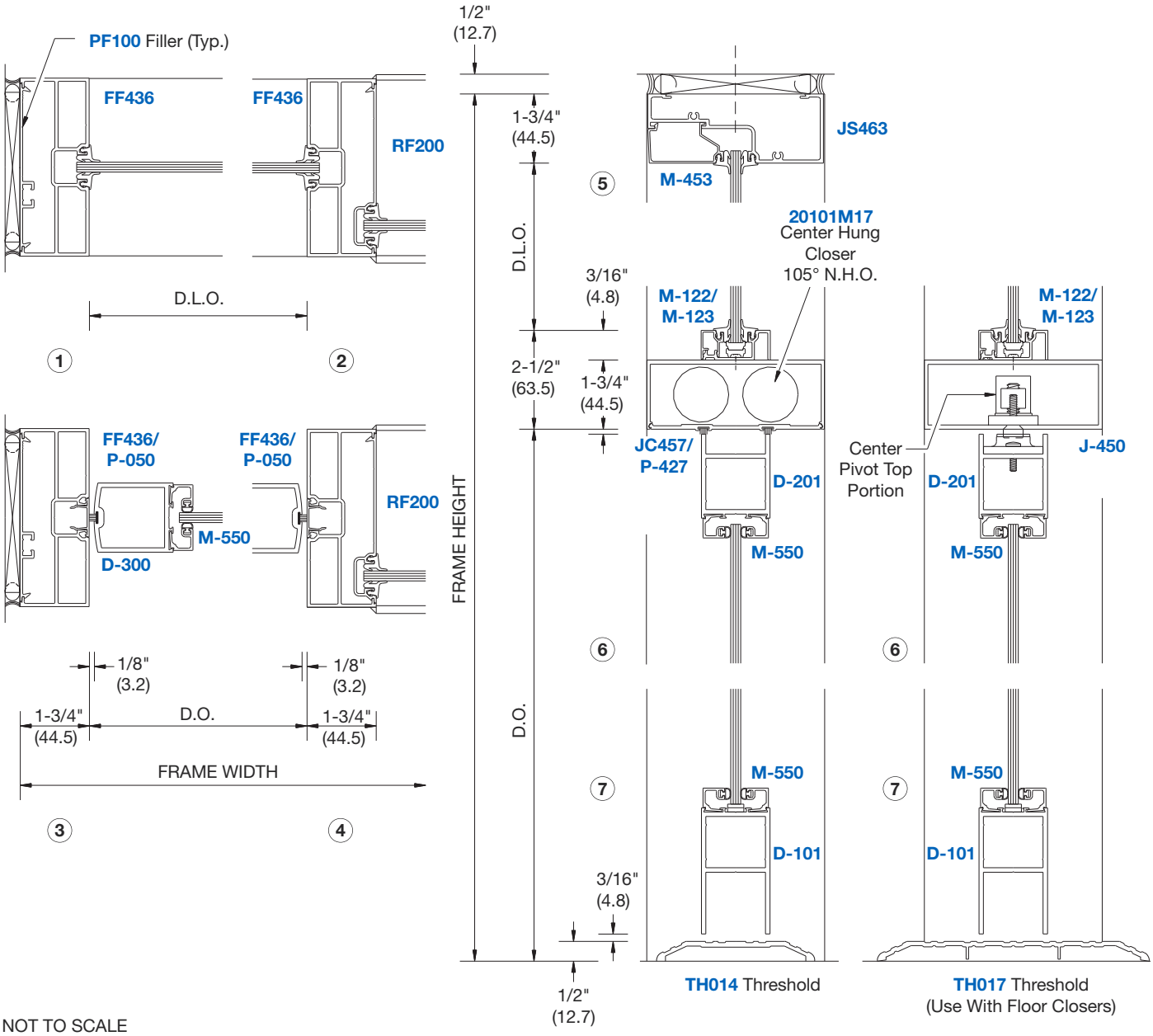
DOOR FRAMING

NOTE: Doors are available in stock to accommodate 36" x 84" (914 x 2134) and 72" x 84" (1829 x 2134) door openings. Visit **usalum.com** for more information.



CENTER HUNG DOOR

NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of 1/4" (6) glass throughout. **NP238** E.P.D.M. Glazing Gaskets for 3/8" (10) glazing.



NOT TO SCALE

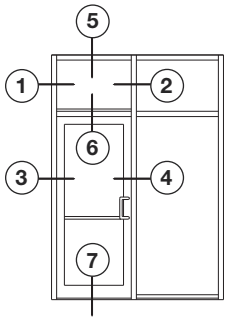
STOREFRONTS

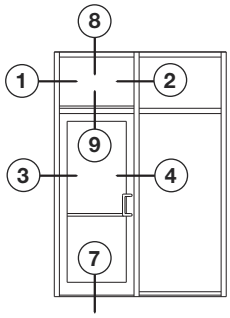
Typical Details

Flush Front™ • Series FF450

DOOR FRAMING

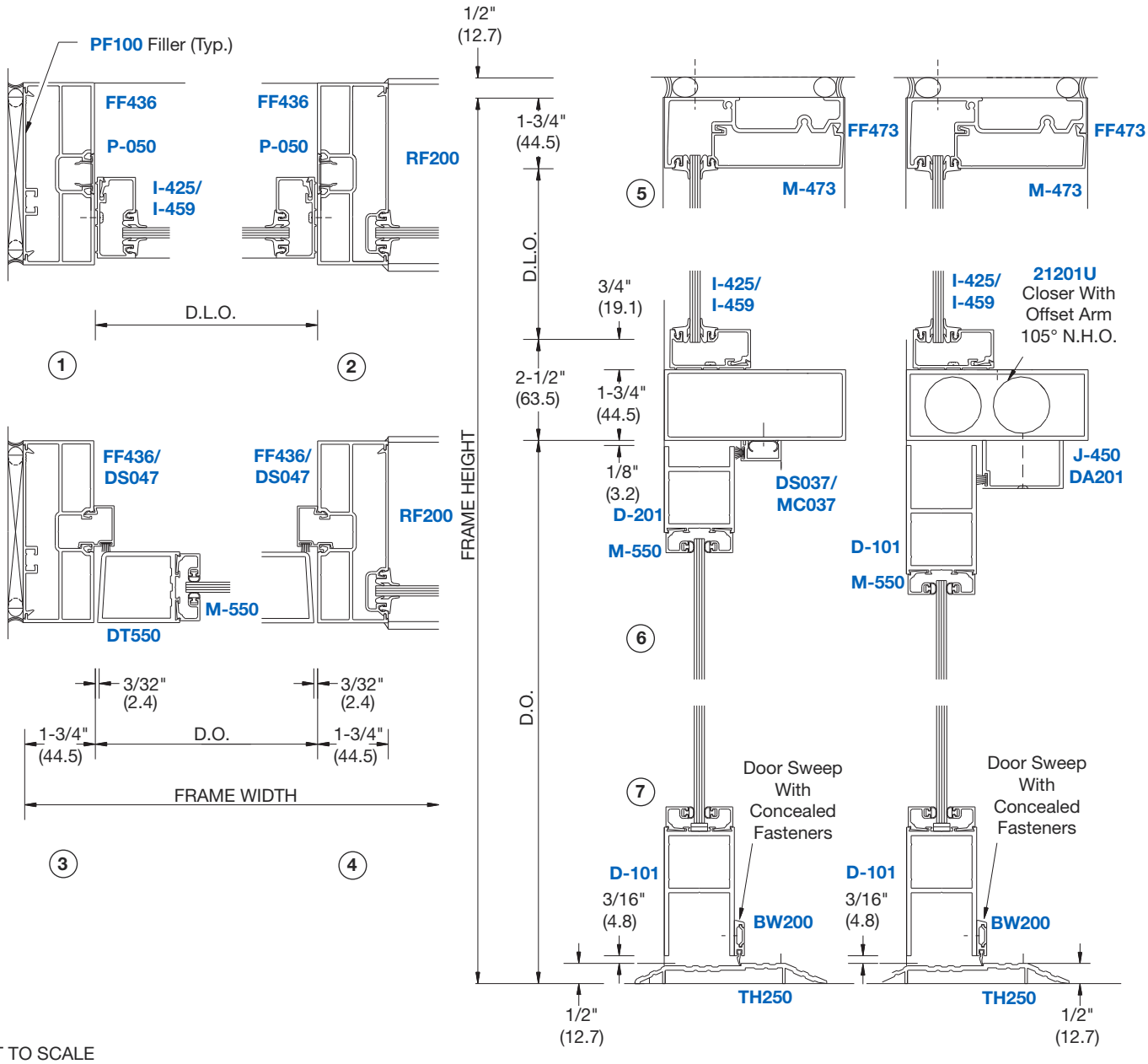
NOTE: Doors are available in stock to accommodate 36" x 84" (914 x 2134) and 72" x 84" (1829 x 2134) door openings. Visit usalum.com for more information.





NOTE: NP225 E.P.D.M. Glazing Gaskets used on both sides of 1/4" (6) glass throughout. NP238 E.P.D.M. Glazing Gaskets for 3/8" (10) glazing.

OFFSET HUNG DOORS



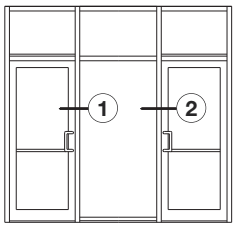
NOT TO SCALE

STOREFRONTS

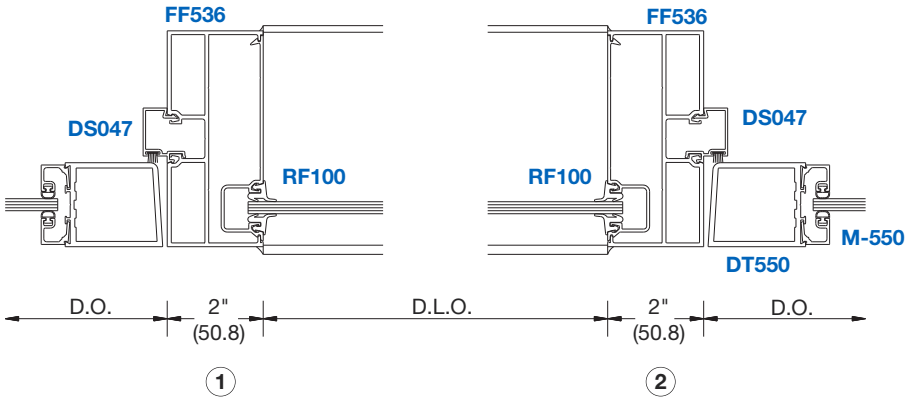
Typical Details

Flush Front™
• Series FF450

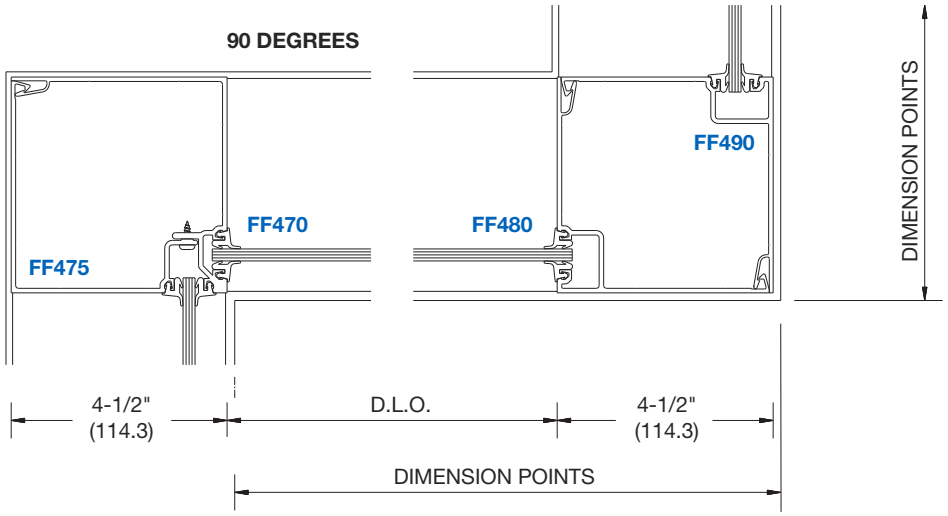
DOOR FRAMING SPECIAL CONDITION

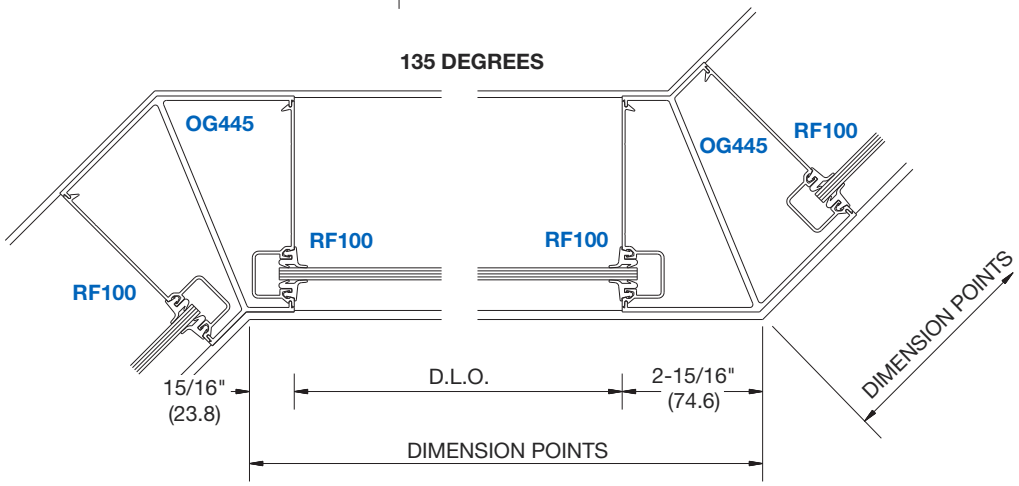


TYPICAL ELEVATION
(2" Wide Door Jambs with **RF100** Fillers are required to install glass between doors)



VERTICAL CORNER CONDITIONS FOR 1/4" (6) GLAZING





NOT TO SCALE

STOREFRONTS

Windload Charts

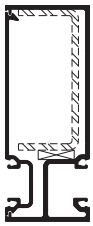
Flush Front™
• Series FF450

VERTICAL MULLIONS FOR 1/4" (6) OR 3/8" (10) GLAZING

Deflection criteria to be in accordance with AAMA TIR-A11 - L/175 or L/240 + 1/4" (6.4 mm) for spans greater than 13'-6" (4.1 m) but less than 40'-0" (12.2 m). Codes and specifications may vary. No single lite of glass shall deflect more than 3/4" (19 mm). Glass is not considered as contributing to resistance of deflection. Aluminum alloy 6063-T6 allowable stress for windload is 15,200 psi. (89 MPa), and steel reinforcing allowable stress for windload is 21,600 psi. (183 MPa).

These charts include unbraced length analysis and are based on at least one horizontal being placed at the midpoint of the span. For other applications, please contact U.S. Aluminum Technical Sales at (800) 262-5151, or visit our web site at **usalum.com**.

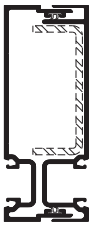
Limitation of vertical mullions for:
CURVES **A** = 15 PSF (718 Pa)
CURVES **B** = 20 PSF (957 Pa)
CURVES **C** = 25 PSF (1197 Pa)
CURVES **D** = 30 PSF (1436 Pa)
CURVES **E** = 40 PSF (1915 Pa)



FF452/RF200
I = 2.899 (120.67 x 10^4)
S = 1.165 (19.09 x 10^3)

SS452 Steel Stiffener
I = .825 (34.34 x 10^4)
S = .562 (9.21 x 10^3)

I_{AL+STL} = 5.292 (220.27 x 10^4)



FF460/FF469
I = 3.632 (151.18 x 10^4)
S = 1.481 (24.27 x 10^3)

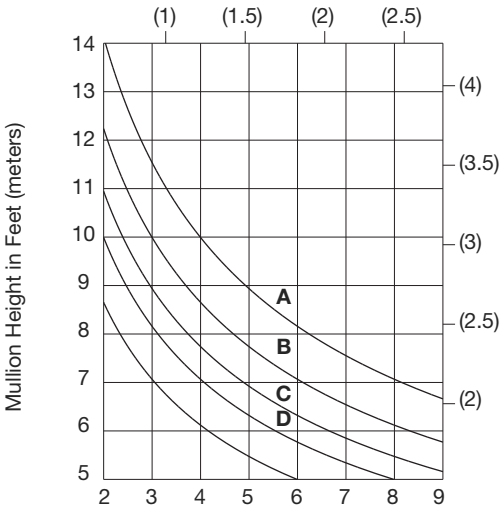
SS469 Steel Stiffener
I = .571 (23.77 x 10^4)
S = .425 (6.96 x 10^3)

I_{AL+STL} = 5.288 (220.10 x 10^4)

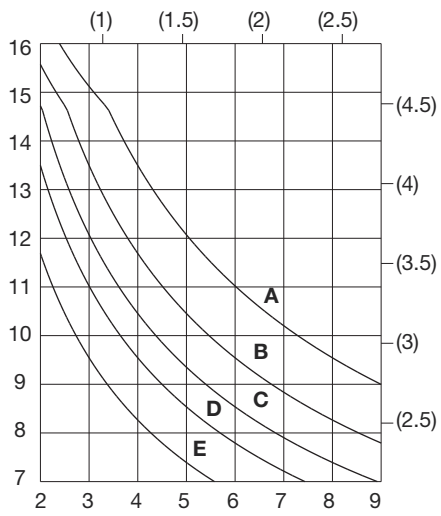
FF436/RF200
I = 3.251 (135.32 x 10^4)
S = .445 (23.68 x 10^3)

3/8" x 3" Steel Bar
I = .844 (35.13 x 10^4)
S = .563 (9.23 x 10^3)

I_{AL+STL} = 5.7 (237.25 x 10^4)



FF452/ RF200



FF452/ RF200 With **SS452**

Mullion Spacing in Feet (meters)

STOREFRONTS

Windload Charts

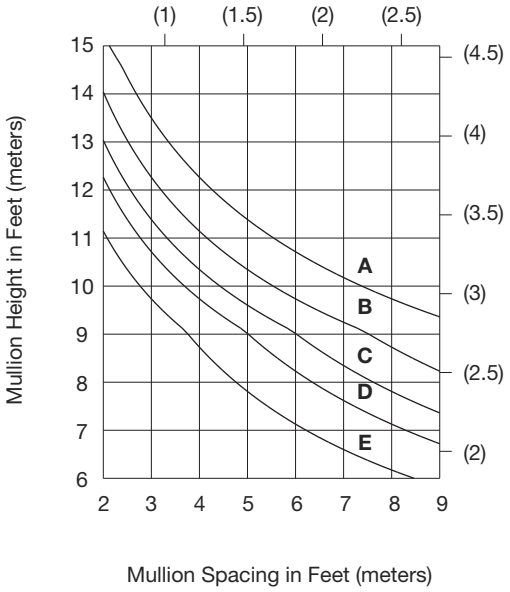
VERTICAL MULLIONS FOR 1/4" (6) OR 3/8" (10) GLAZING

Flush Front™
• Series FF450

Deflection criteria to be in accordance with AAMA TIR-A11 - L/175 or L/240 + 1/4" (6.4 mm) for spans greater than 13'-6" (4.1 m) but less than 40'-0" (12.2 m). Codes and specifications may vary. No single lite of glass shall deflect more than 3/4" (19 mm). Glass is not considered as contributing to resistance of deflection. Aluminum alloy 6063-T6 allowable stress for windload is 15,200 psi. (89 MPa), and steel reinforcing allowable stress for windload is 21,600 psi. (183 MPa).

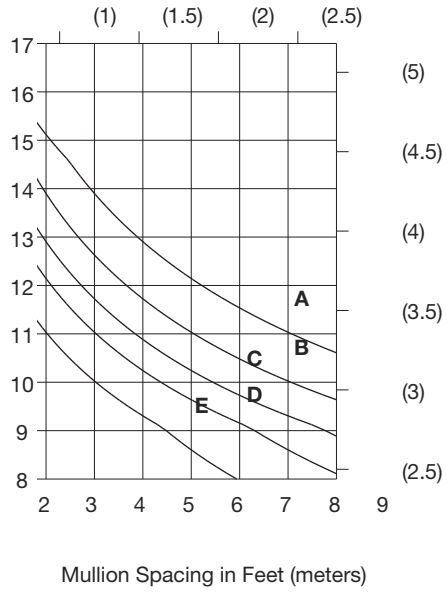
These charts include unbraced length analysis and are based on at least one horizontal being placed at the midpoint of the span. For other applications, please contact U.S. Aluminum Technical Sales at (800) 262-5151, or visit our web site at **usalum.com**.

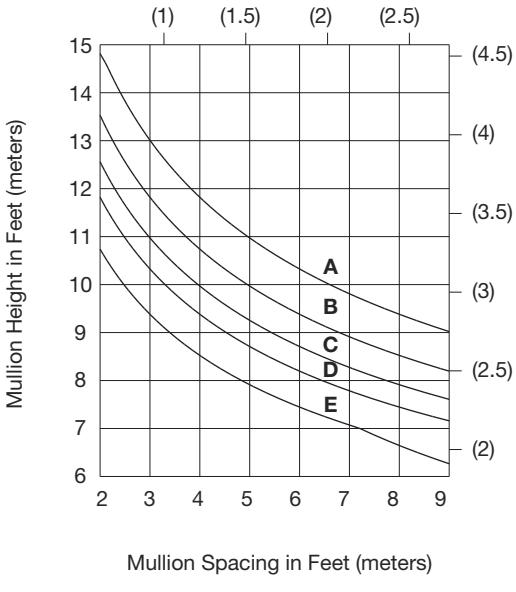
Limitation of vertical mullions for:
CURVES **A** = 15 PSF (718 Pa)
CURVES **B** = 20 PSF (957 Pa)
CURVES **C** = 25 PSF (1197 Pa)
CURVES **D** = 30 PSF (1436 Pa)
CURVES **E** = 40 PSF (1915 Pa)

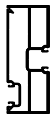


FF460/
FF469

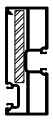
FF436/
FF469
With **SS469**



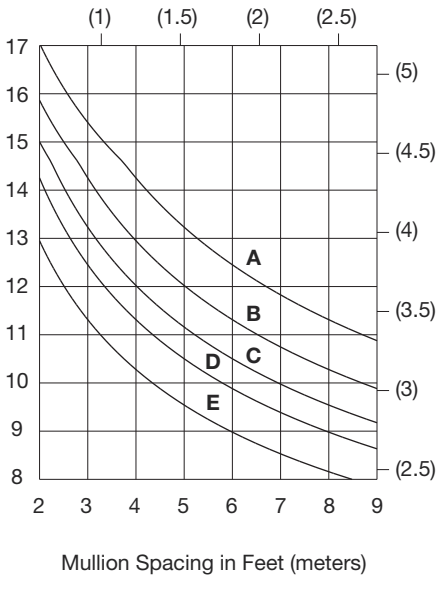




FF436/
RF200



FF436/
RF200
With 3/8" x 3" Steel



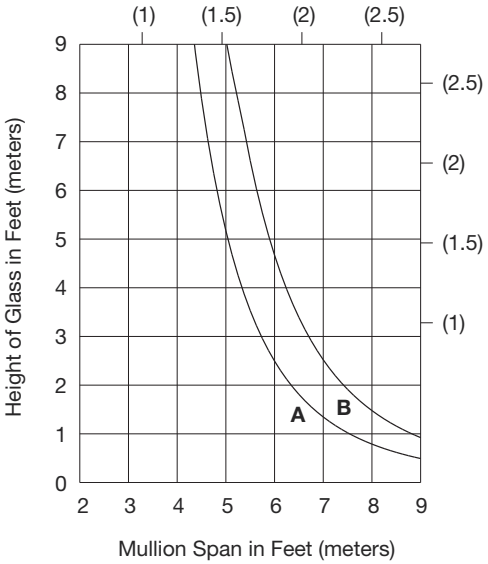
STOREFRONTS

Deadload Charts

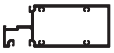
Flush Front™
• Series FF450

INTERMEDIATE HORIZONTAL MULLIONS FOR 1/4" (6) OR 3/8" (10) GLAZING

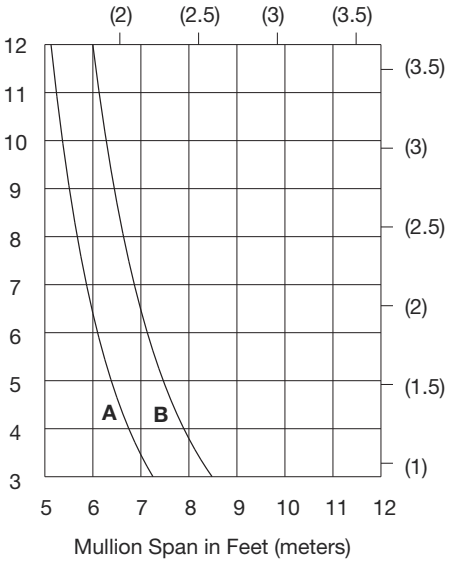
Deadload charts are based on 1/8" (3.2) maximum allowable deflection at the center point of the horizontal mullion and on a glass weight of 3.25 psf (15.87 Kg/m²)
Glass shall rest on two setting blocks located at:
CURVES **A**: 1/4 points
CURVES **B**: 1/8 points or 8" (203.2) from corners, whichever is larger



FH463
Iyy = .208
(8.66 x 10⁴)

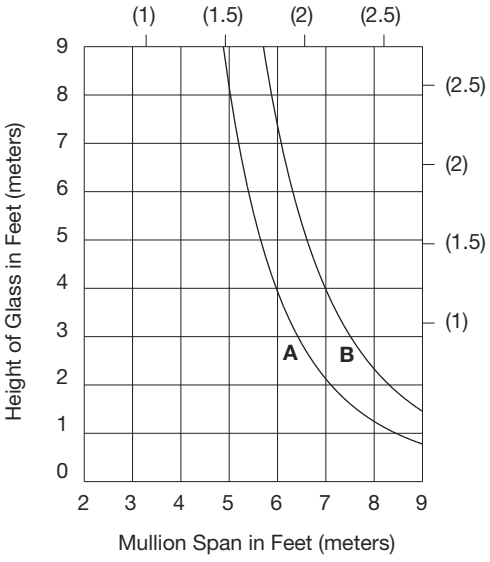


FH453
Iyy = .534
(22.23 x 10⁴)



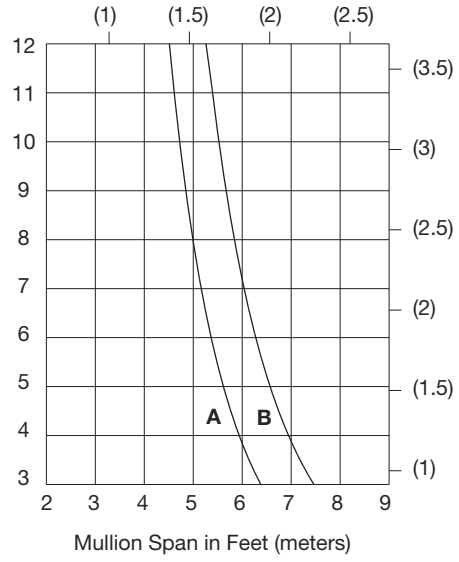
DOOR HEADERS

Deadload charts for door headers are based on 1/16" (1.6) maximum allowable deflection at the center point of the header and on a glass weight of 3.25 psf (15.87 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



JS467
Iyy = .656
(27.30 x 10⁴)

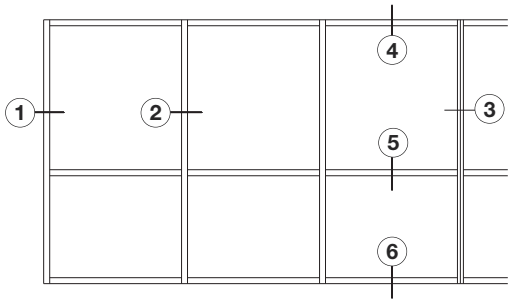
J-450
Iyy = .640
(26.64 x 10⁴)



Typical Details

FLUSH OUT FOR 1" (25) GLAZING

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



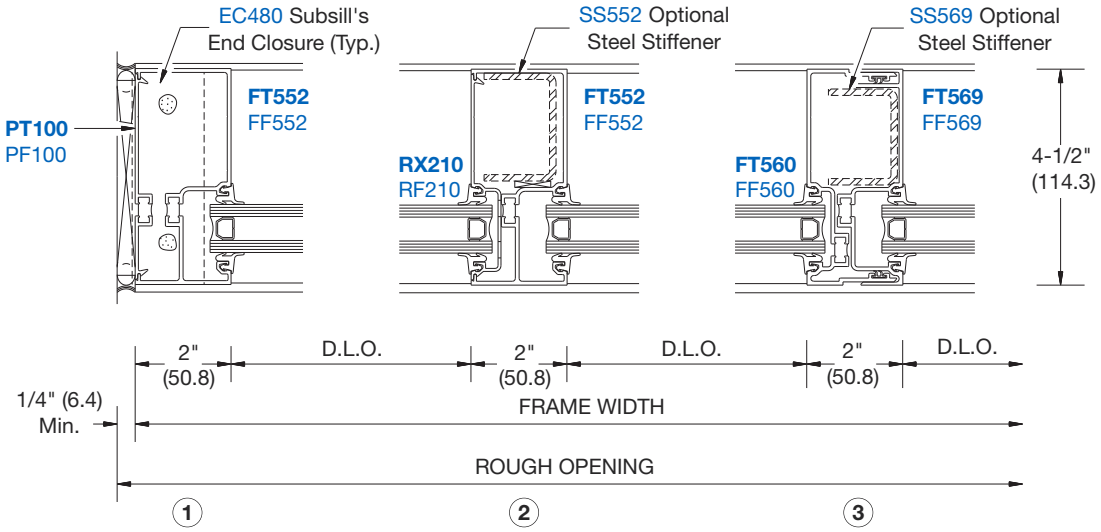
TYPICAL ELEVATION

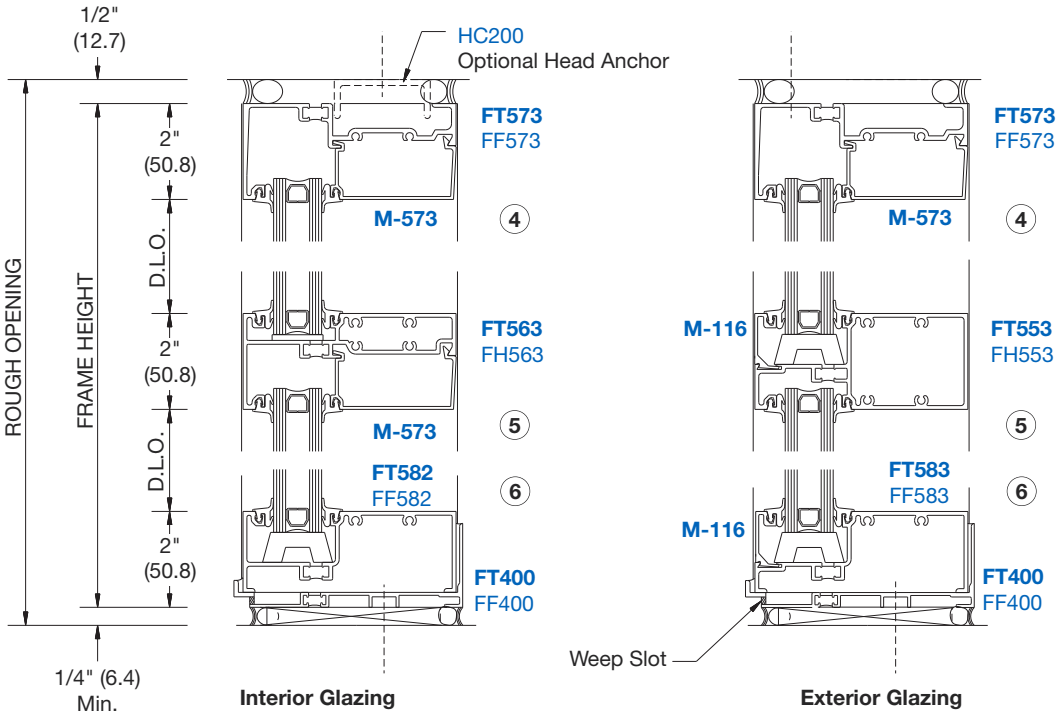
Flush Front™
- **Series FF451**
- **Series FT451**

F	T	4	0	0

Part Number prefix ending in "T" represents THERMALLY BROKEN parts. Thermal parts are in **BOLD** print. Series **FT451** details are typically shown.

NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of glazing throughout.





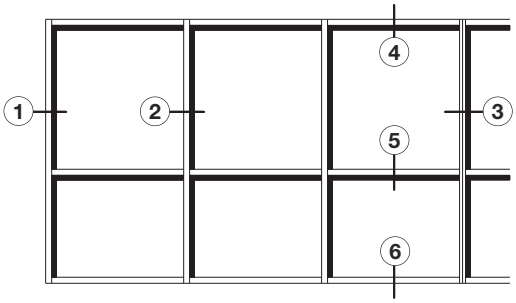
NOT TO SCALE

STOREFRONTS

Typical Details

FLUSH IN FOR 1" (25) GLAZING

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



TYPICAL ELEVATION

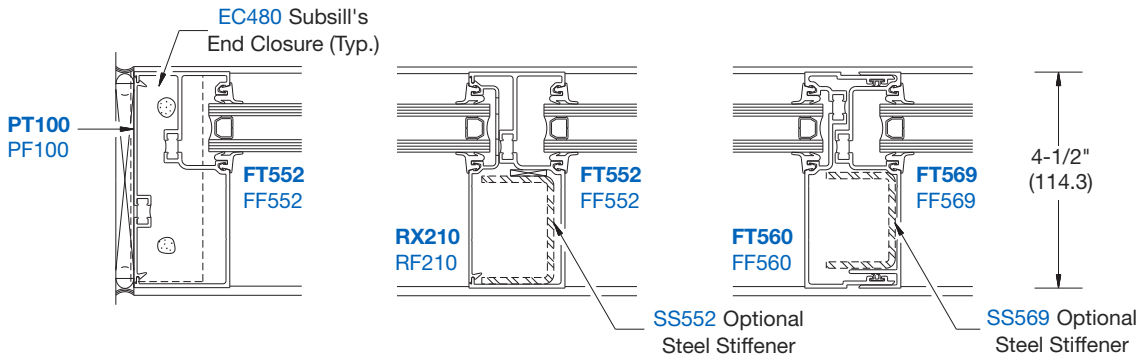
Flush Front™

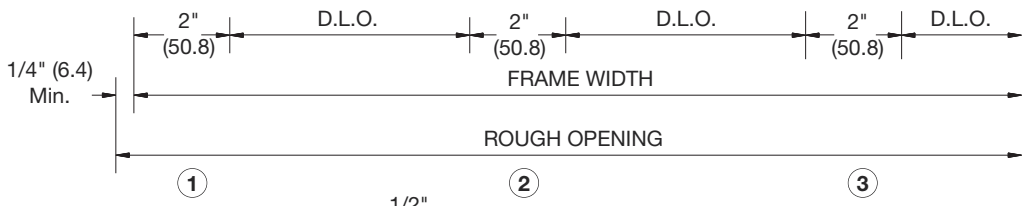
- **Series FF451**
- **Series FT451**

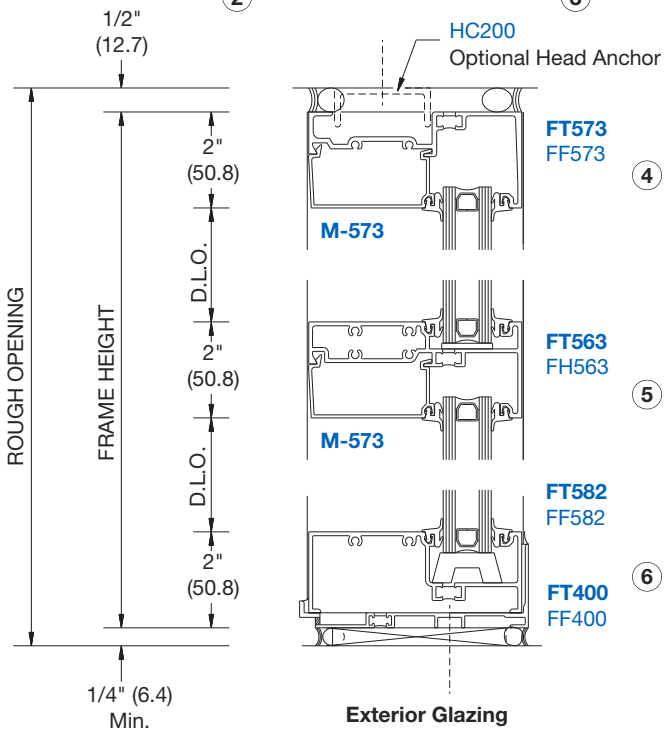
F	T	4	0	0

Part Number prefix ending in "T" represents THERMALLY BROKEN parts. Thermal parts are in **BOLD** print. Series **FT451** details are typically shown.

NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of glazing throughout.







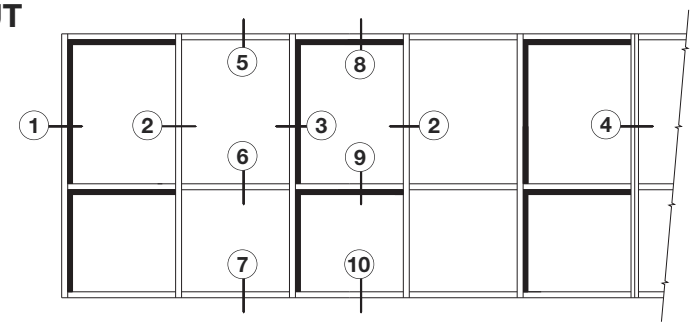
Exterior Glazing

NOT TO SCALE

Typical Details

FLUSH IN / FLUSH OUT FOR 1" (25) GLAZING

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



TYPICAL ELEVATION

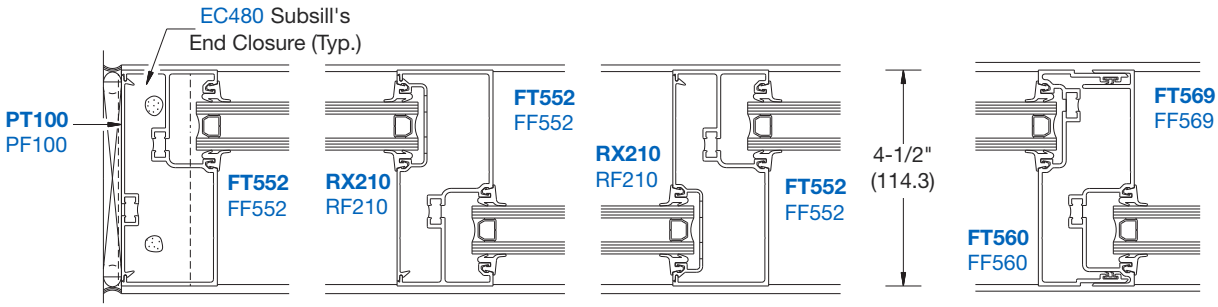
Flush Front™

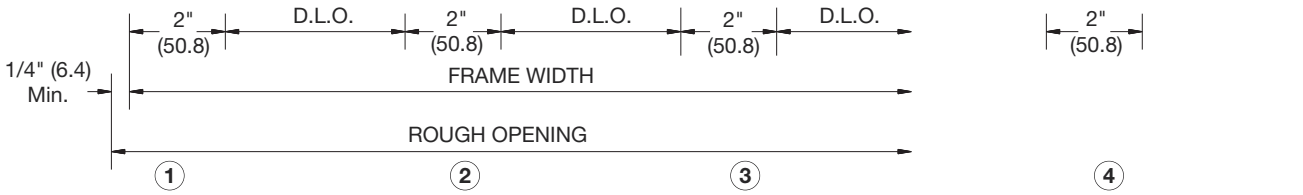
- **Series FF451**
- **Series FT451**

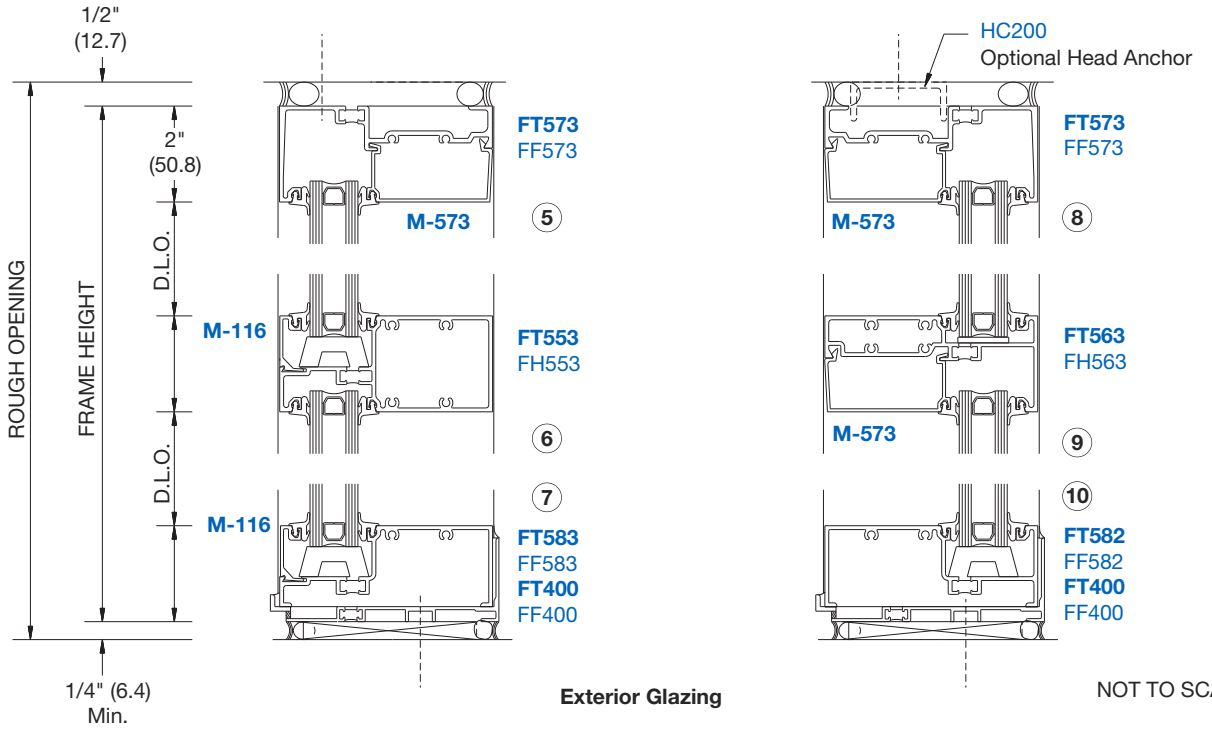
F	T	4	0	0

Part Number prefix ending in "T" represents THERMALLY BROKEN parts. Thermal parts are in **BOLD** print. Series **FT451** details are typically shown.

NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of glazing throughout.







Exterior Glazing

NOT TO SCALE

STOREFRONTS

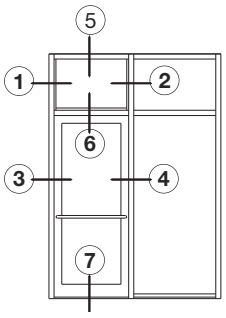
Typical Details

DOOR FRAMING

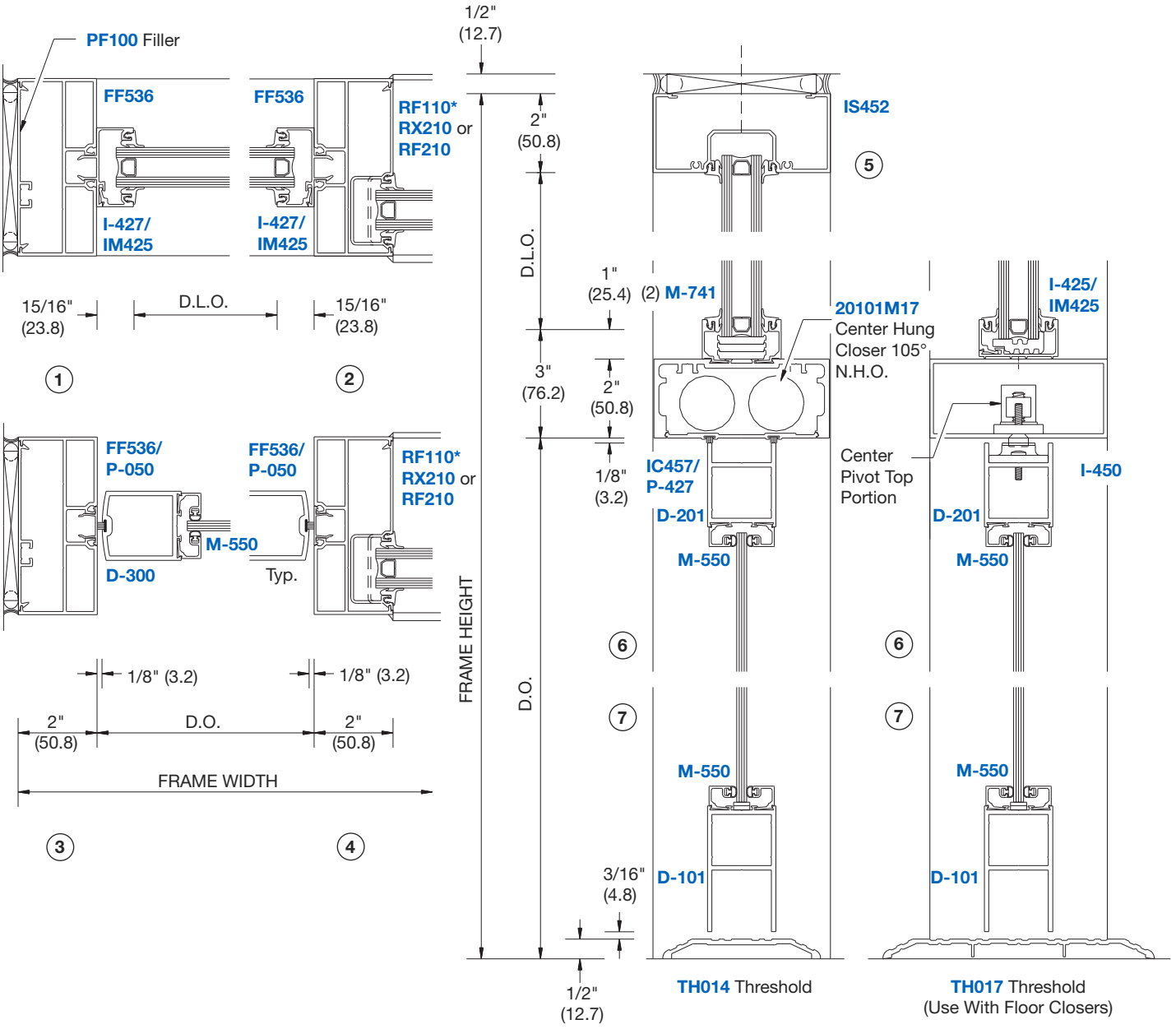
NOTE: Doors are available in stock to accommodate 36" x 84" (914 x 2134) and 72" x 84" (1829 x 2134) door openings. Visit **usalum.com** for more information.

Flush Front™
- Series FF451
- Series FT451

NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of glazing throughout.



CENTER HUNG DOOR



NOT TO SCALE

*NOTE: **RF110** FILLER REQUIRED TO INSTALL GLASS BETWEEN DOORS

CRL U.S. ALUMINUM

STOREFRONTS

Typical Details

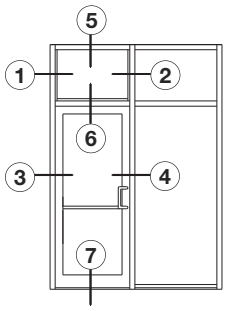
DOOR FRAMING

NOTE: Doors are available in stock to accommodate 36" x 84" (914 x 2134) and 72" x 84" (1829 x 2134) door openings. Visit **usalum.com** for more information.

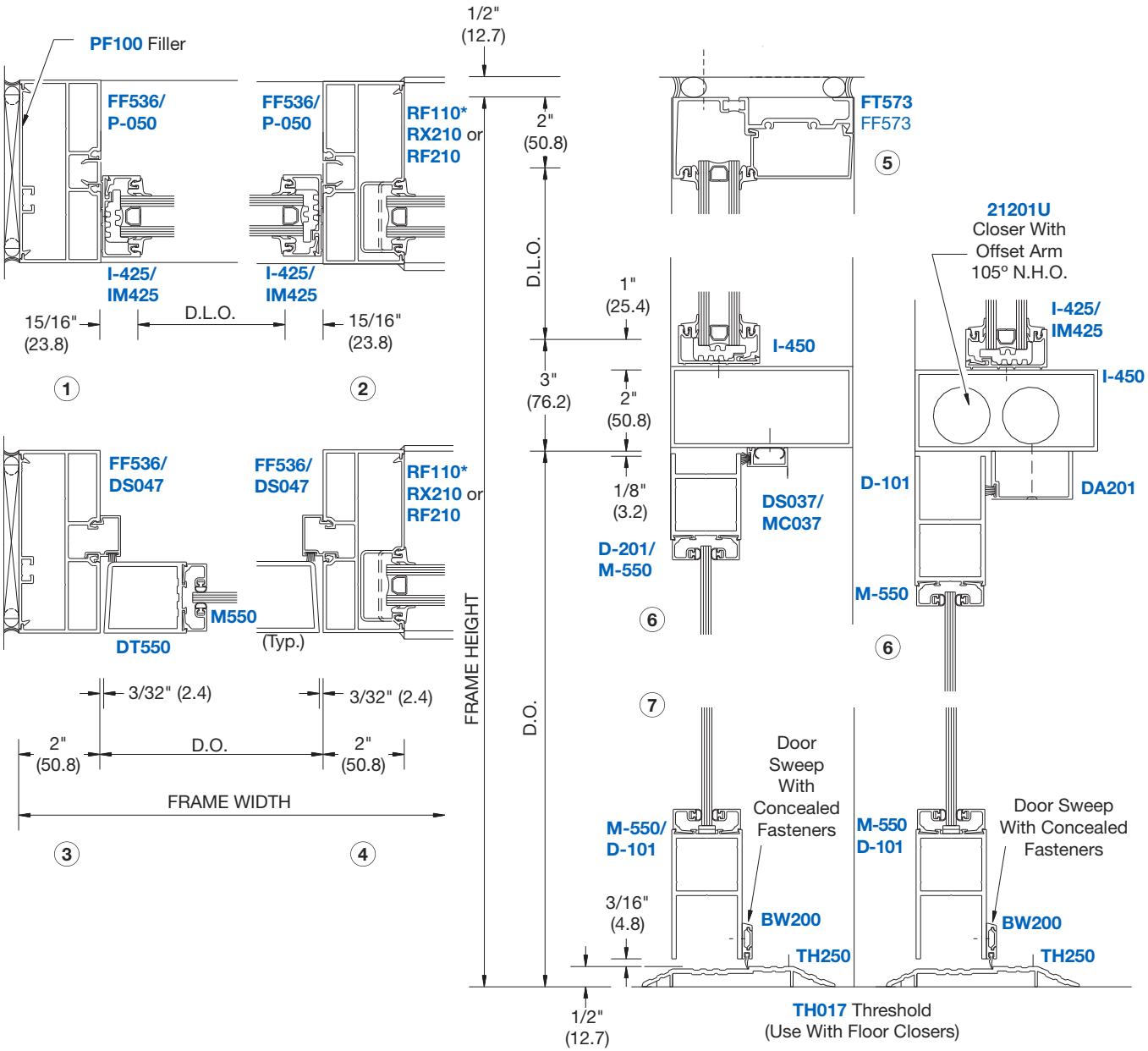
Flush Front™
- Series FF451
- Series FT451

B

NOTE: NP225 E.P.D.M. Glazing Gaskets used on both sides of glazing throughout.



OFFSET HUNG DOOR



NOT TO SCALE

*NOTE: RF110 FILLER REQUIRED TO INSTALL GLASS BETWEEN DOORS

STOREFRONTS

Typical Details

VERTICAL CORNER CONDITIONS FOR 1" (25) GLAZING

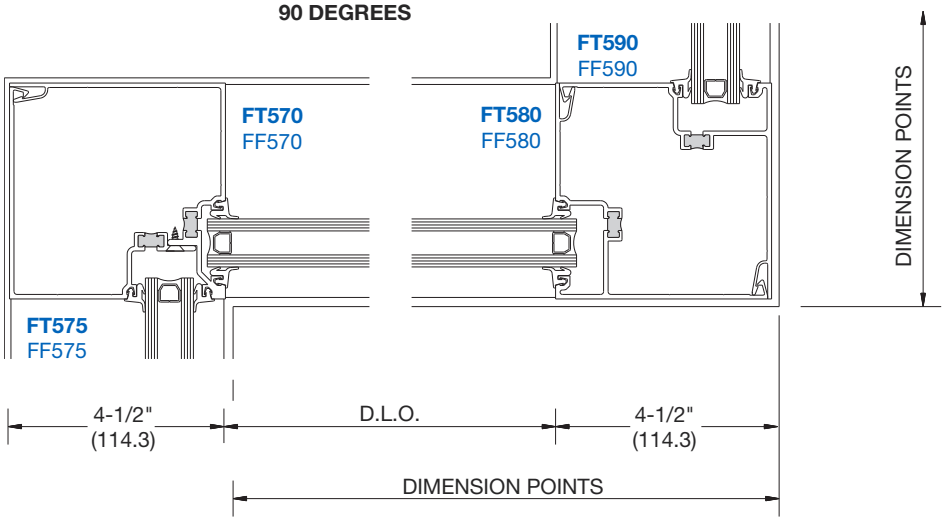
NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of glazing throughout.

Flush Front™
- **Series FF451**
- **Series FT451**

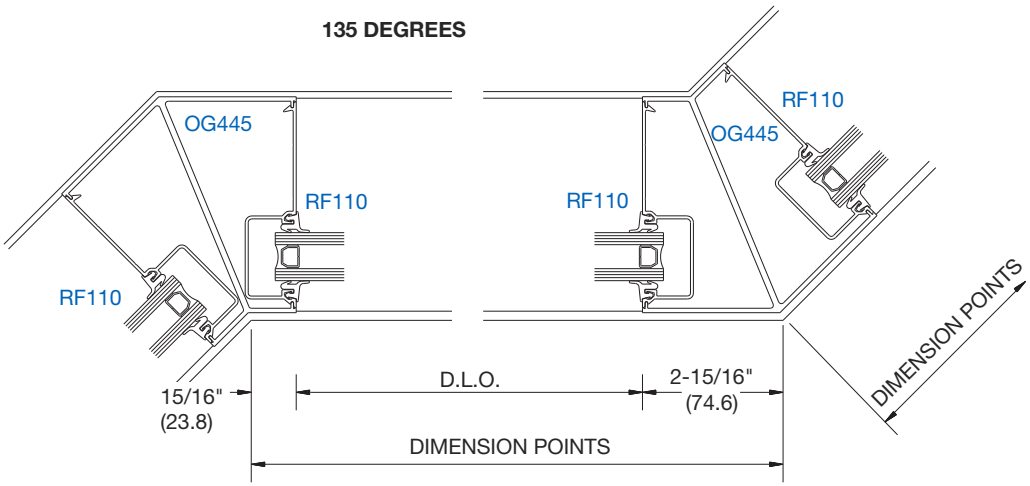
F	T	4	0	0

Part Number prefix ending in "T" represents THERMALLY BROKEN parts. Thermal parts are in **BOLD** print. Series **FT451** details are typically shown.

90 DEGREES



135 DEGREES



NOT TO SCALE

CRL U.S. ALUMINUM

STOREFRONTS

Typical Details

TRANSITION GLAZING

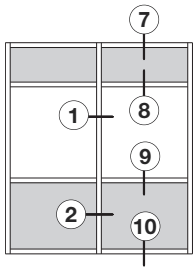
NOTE: Part numbers shown are available in 24' (7.3 m) stock lengths. Visit **usalum.com** for more information.

Flush Front™
- **Series FF451**
- **Series FT451**

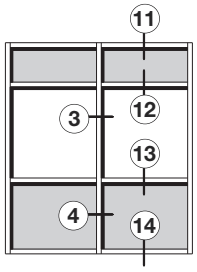
F	T	4	0	0

Part Number prefix ending in "T" represents THERMALLY BROKEN parts. Thermal parts are in **BOLD** print. Series **FT451** details are typically shown.

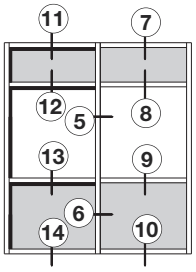
NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of 1/4" (6) glass throughout. **NP238** E.P.D.M. Glazing Gaskets for 3/8" (10) glazing.



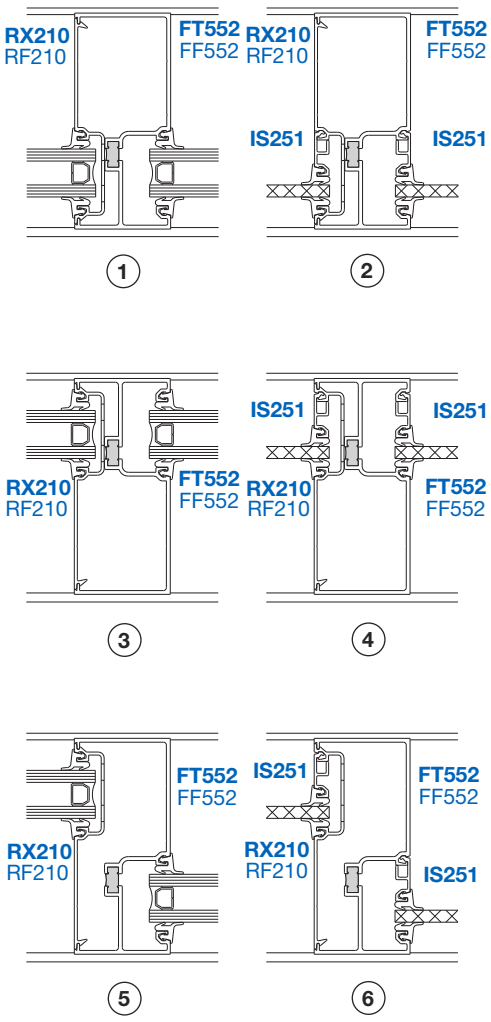
FLUSH OUT

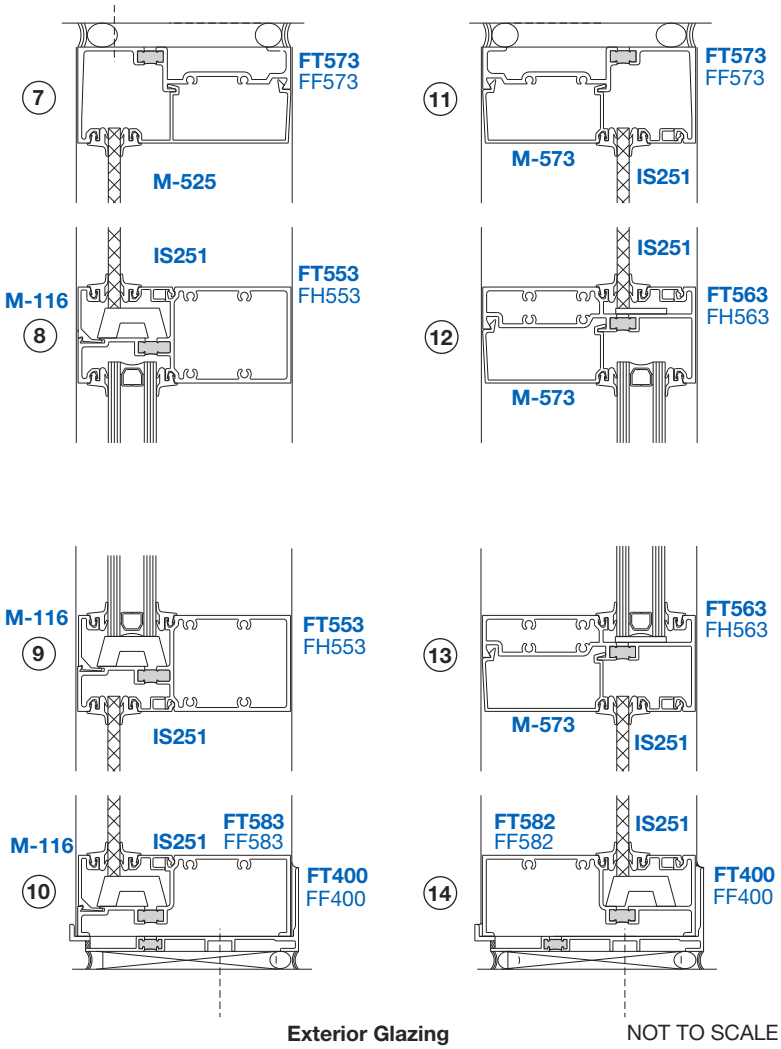


FLUSH IN



FLUSH IN / FLUSH OUT





Exterior Glazing

NOT TO SCALE

STOREFRONTS

Windload Charts

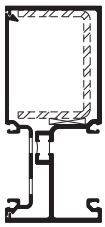
VERTICAL MULLIONS FOR 1" (25) GLAZING

Flush Front™
- **Series FF451**
- **Series FT451**

B

Deflection criteria to be in accordance with AAMA TIR-A11 - L/175 or L/240 + 1/4" (6.4 mm) for spans greater than 13'-6" (4.1 m) but less than 40'-0" (12.2 m). Codes and specifications may vary. No single lite of glass shall deflect more than 3/4" (19 mm). Glass is not considered as contributing to resistance of deflection. Aluminum alloy 6063-T6 allowable stress for windload is 15,200 psi. (89 MPa), and steel reinforcing allowable stress for windload is 21,600 psi. (183 MPa).

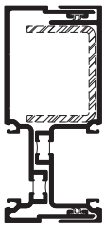
These charts include unbraced length analysis and are based on at least one horizontal being placed at the midpoint of the span. For other applications, please contact U.S. Aluminum Technical Sales at (800) 262-5151, or visit our web site at **usalum.com**.



FT552/RX210 or
FF552/RF210
I = 2.906 (120.96 x 10^4)
S = 1.255 (20.56 x 10^3)

SS552 Steel Stiffener
I = .511 (21.27 x 10^4)
S = .454 (7.44 x 10^3)

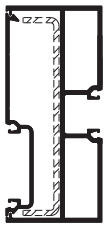
I_{AL+STL} = 4.388 (182.64 x 10^4)



FT560/FT569 or
FF560/FF569
I = 4.047 (168.45 x 10^4)
S = 1.696 (27.79 x 10^3)

SS569 Steel Stiffener
I = .373 (15.53 x 10^4)
S = .373 (6.11 x 10^3)

I_{AL+STL} = 5.129 (213.47 x 10^4)

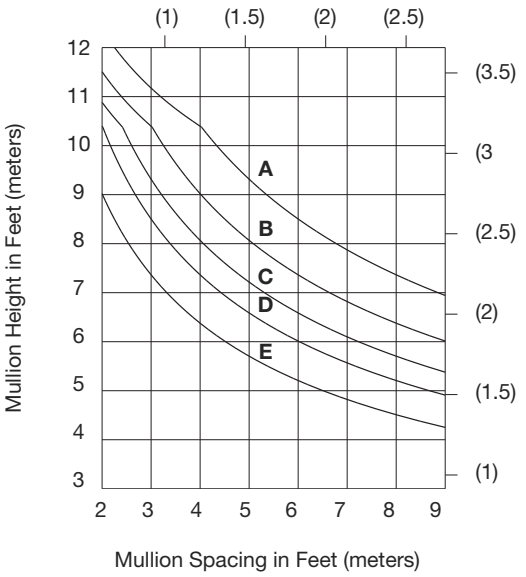


FF536/RX210 or
FF536/RF210
I = 3.429 (142.73 x 10^4)
S = 1.524 (24.97 x 10^3)

SS045 Steel Stiffener
I = 1.122 (46.70 x 10^4)
S = .544 (8.92 x 10^3)

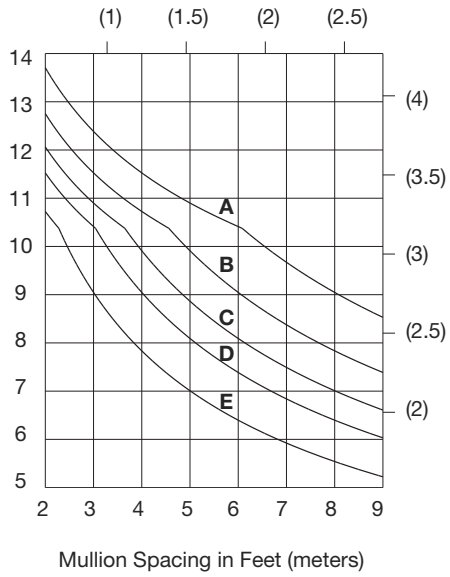
I_{AL+STL} = 6.683 (278.16 x 10^4)

Limitation of vertical mullions for:
CURVES **A** = 15 PSF (718 Pa)
CURVES **B** = 20 PSF (957 Pa)
CURVES **C** = 25 PSF (1197 Pa)
CURVES **D** = 30 PSF (1436 Pa)
CURVES **E** = 40 PSF (1915 Pa)



FT552/RX210
FF552/RF210

FT552/RX210
FF552/RF210
With **SS552**



STOREFRONTS

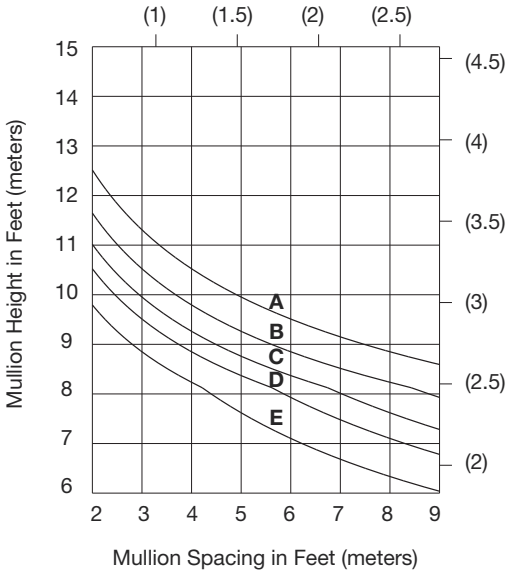
Windload Charts

VERTICAL MULLIONS FOR 1" (25) GLAZING

Flush Front™
- **Series FF451**
- **Series FT451**

Deflection criteria to be in accordance with AAMA TIR-A11 - L/175 or L/240 + 1/4" (6.4 mm) for spans greater than 13'-6" (4.1 m) but less than 40'-0" (12.2 m). Codes and specifications may vary. No single lite of glass shall deflect more than 3/4" (19 mm). Glass is not considered as contributing to resistance of deflection. Aluminum alloy 6063-T6 allowable stress for windload is 15,200 psi. (89 MPa), and steel reinforcing allowable stress for windload is 21,600 psi. (183 MPa).

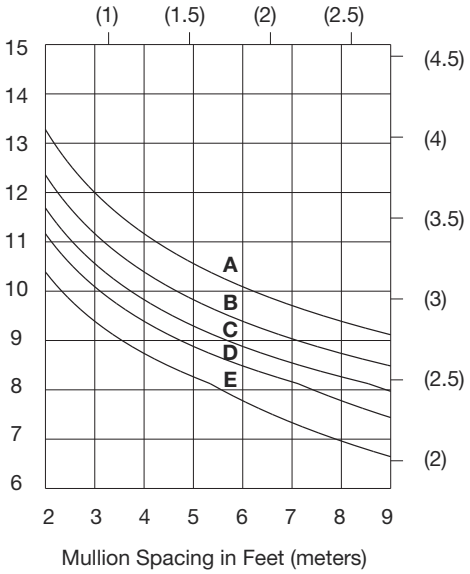
These charts include unbraced length analysis and are based on at least one horizontal being placed at the midpoint of the span. For other applications, please contact U.S. Aluminum Technical Sales at (800) 262-5151, or visit our web site at **usalum.com**.

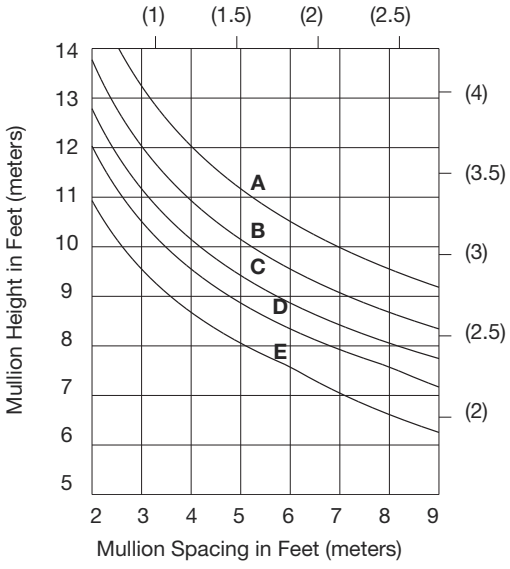


FT560/FT569
FF560/FF569

FT560/FT569
FF560/FF569
With **SS569**

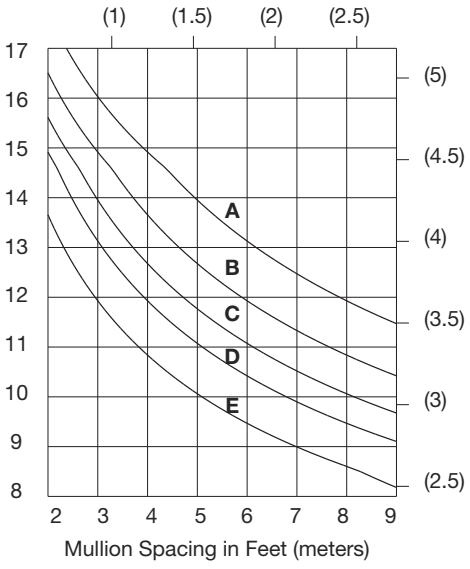
Limitation of vertical mullions for:
CURVES **A** = 15 PSF (718 Pa)
CURVES **B** = 20 PSF (957 Pa)
CURVES **C** = 25 PSF (1197 Pa)
CURVES **D** = 30 PSF (1436 Pa)
CURVES **E** = 40 PSF (1915 Pa)





FF536/RX210
FF536/RF210

FF536/RX210
FF536/RF210
With **SS045**



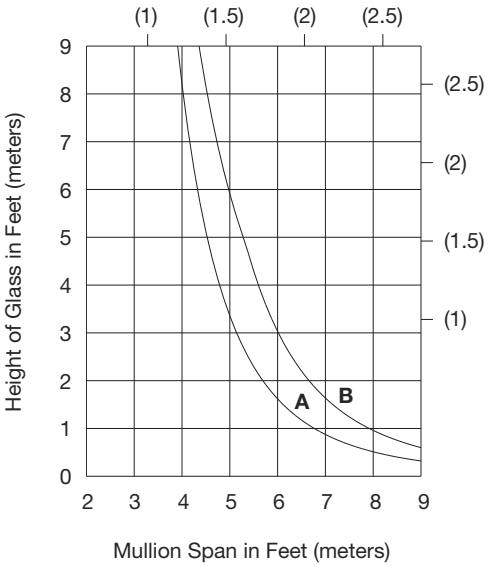
STOREFRONTS

Deadload Charts

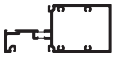
Flush Front™
- **Series FF451**
- **Series FT451**

INTERMEDIATE HORIZONTAL MULLIONS FOR 1" (25) GLAZING

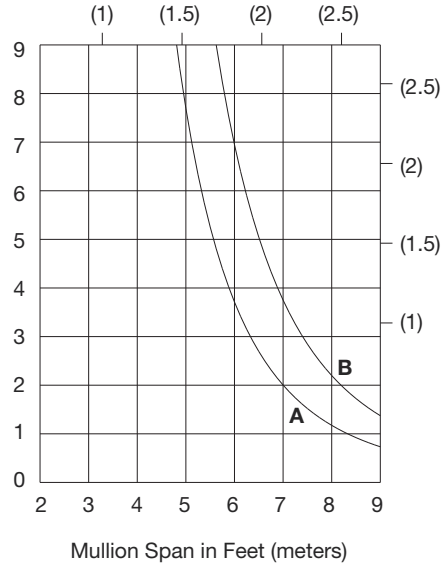
Deadload charts are based on 1/8" (3.2) maximum allowable deflection at the center point of the horizontal mullions and on a glass weight of 6.5 psf (31.74 Kg/m^2)
Glass shall rest on two setting blocks located at:
CURVES **A**: 1/4 points
CURVES **B**: 1/8 points or 8" (203.2) from corners, whichever is larger



FT563
FH563
Iyy = .270
(11.24 x 10^4)

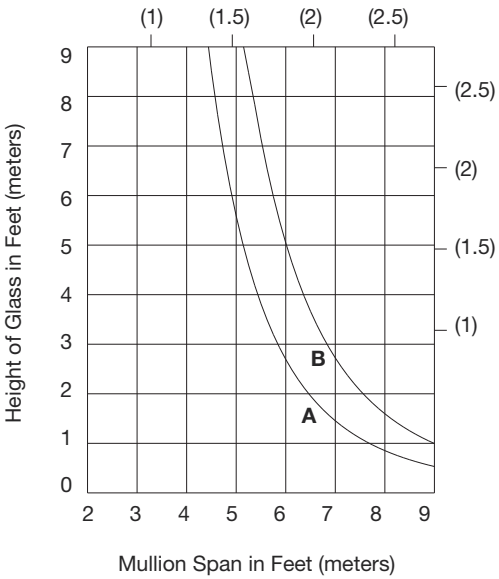


FT553
FH553
Iyy = .619
(25.76 x 10^4)



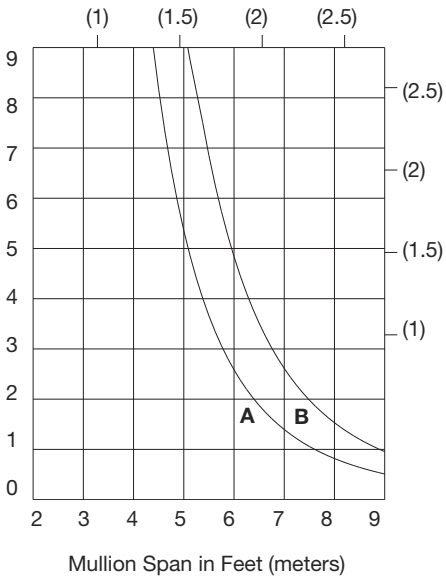
DOOR HEADERS

Deadload charts for door headers are based on 1/16" (1.6) maximum allowable deflection at the center point of the header and on a glass weight of 6.5 psf (31.74 Kg/m^2)
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



IS467
Iyy = .899
(37.42 x 10^4)

I-450
Iyy = .862
(35.88 x 10^4)

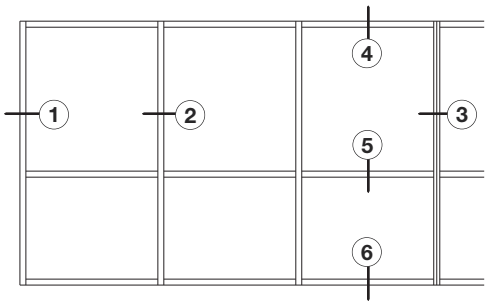


Typical Details

Flush Front™ • Series FF600

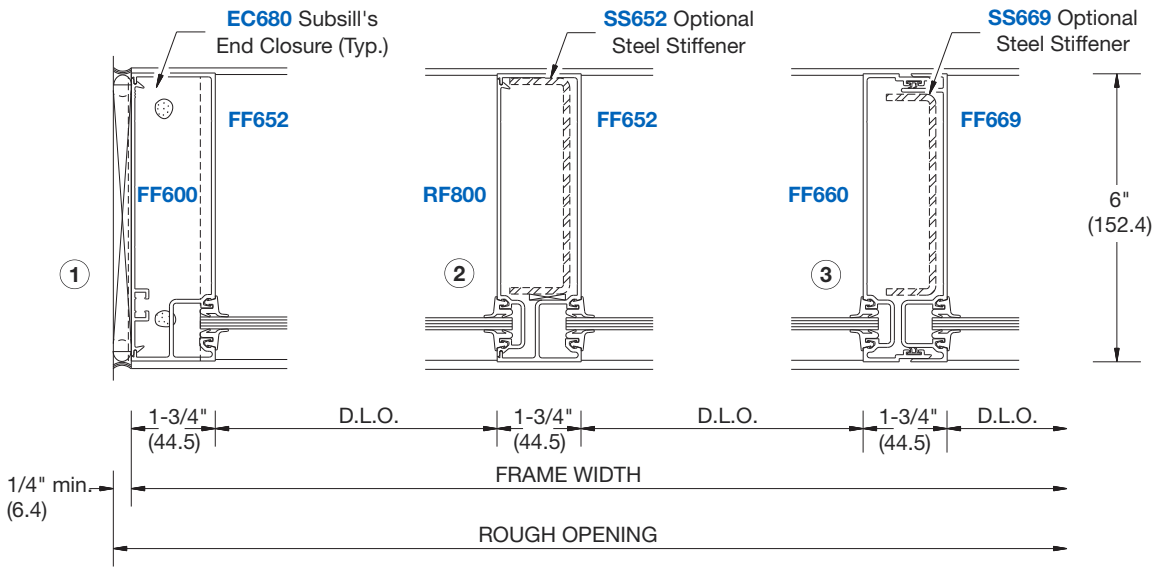
FLUSH OUT FOR 1/4" (6) OR 3/8" (10) GLAZING

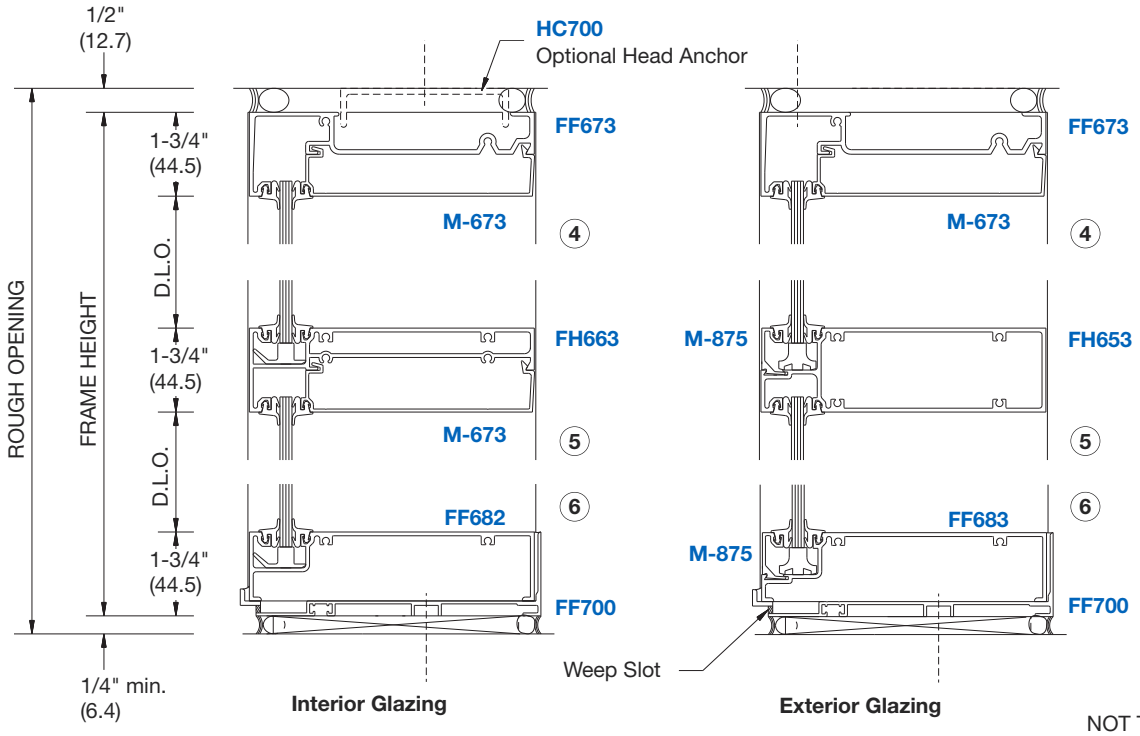
NOTE: Part numbers shown are available in 24' (7.3 m) stock lengths. Visit **usalum.com** for more information.



TYPICAL ELEVATION

NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of 1/4" (6) glass throughout.
NP238 E.P.D.M. Glazing Gaskets for 3/8" (10) glazing.





NOT TO SCALE

STOREFRONTS

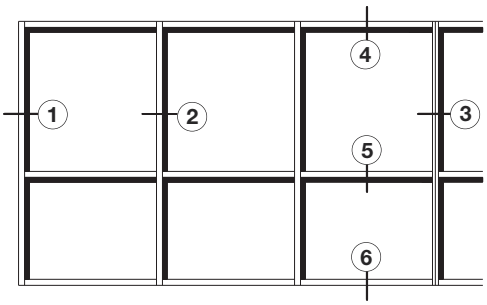
Typical Details

Flush Front™ • Series FF600

B

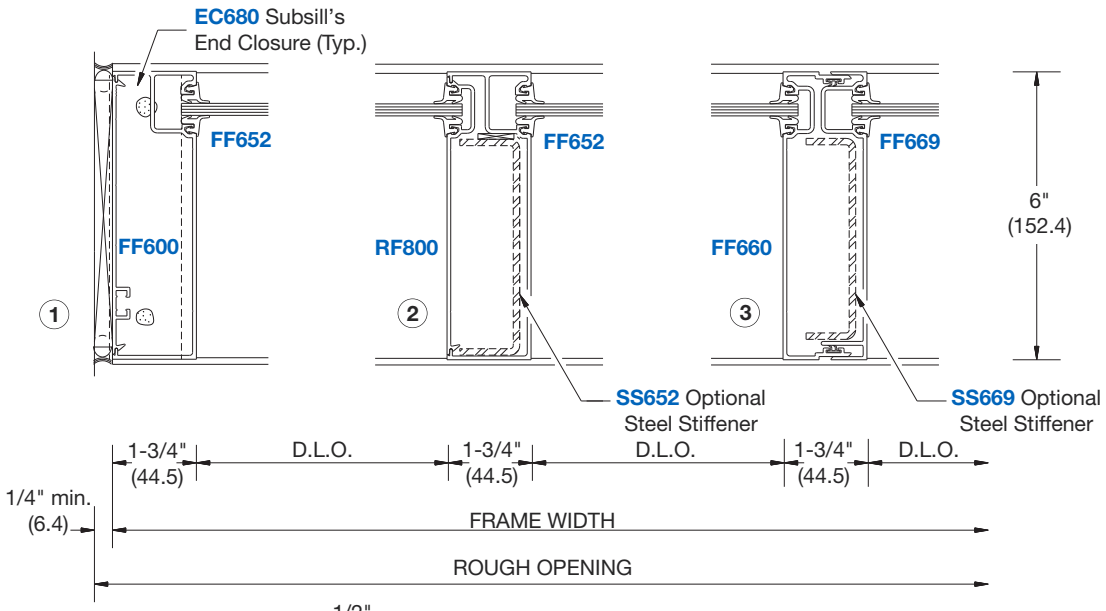
FLUSH IN FOR 1/4" (6) OR 3/8" (10) GLAZING

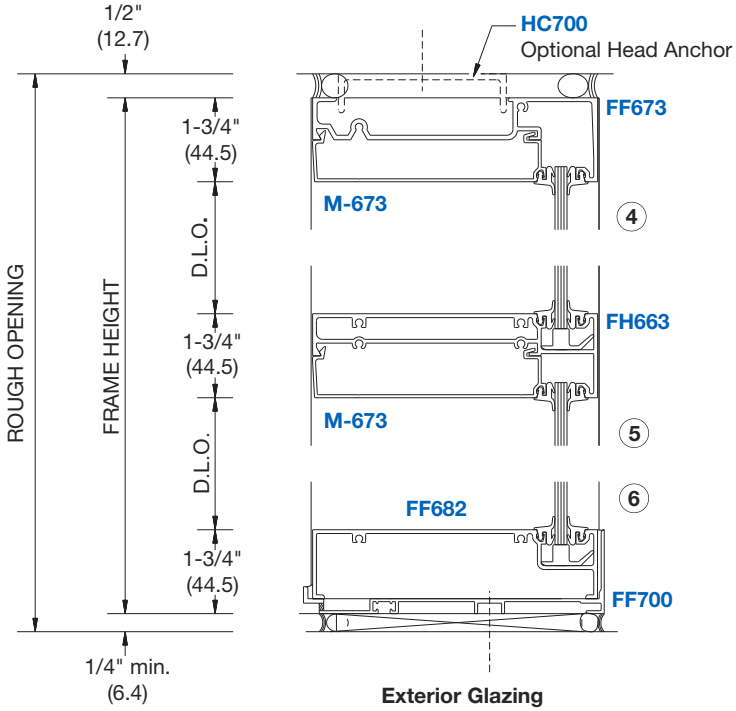
NOTE: Part numbers shown are available in 24' (7.3 m) stock lengths. Visit **usalum.com** for more information.



TYPICAL ELEVATION

NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of 1/4" (6) glass throughout. **NP238** E.P.D.M. Glazing Gaskets for 3/8" (10) glazing.





NOT TO SCALE

CRL U.S. ALUMINUM

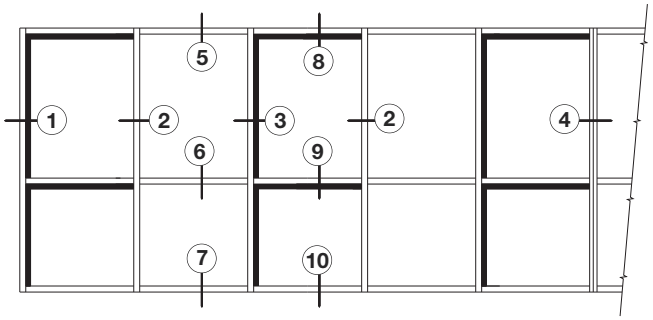
STOREFRONTS

Typical Details

Flush Front™
• Series FF600

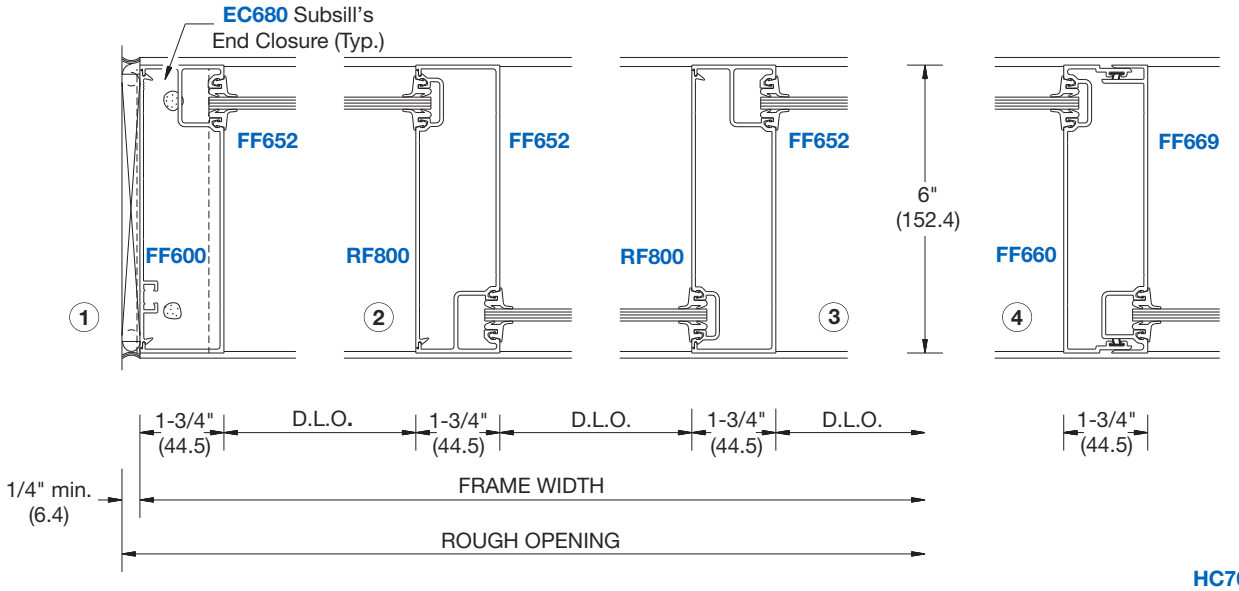
FLUSH IN / FLUSH OUT FOR 1/4" (6) OR 3/8" (10) GLAZING

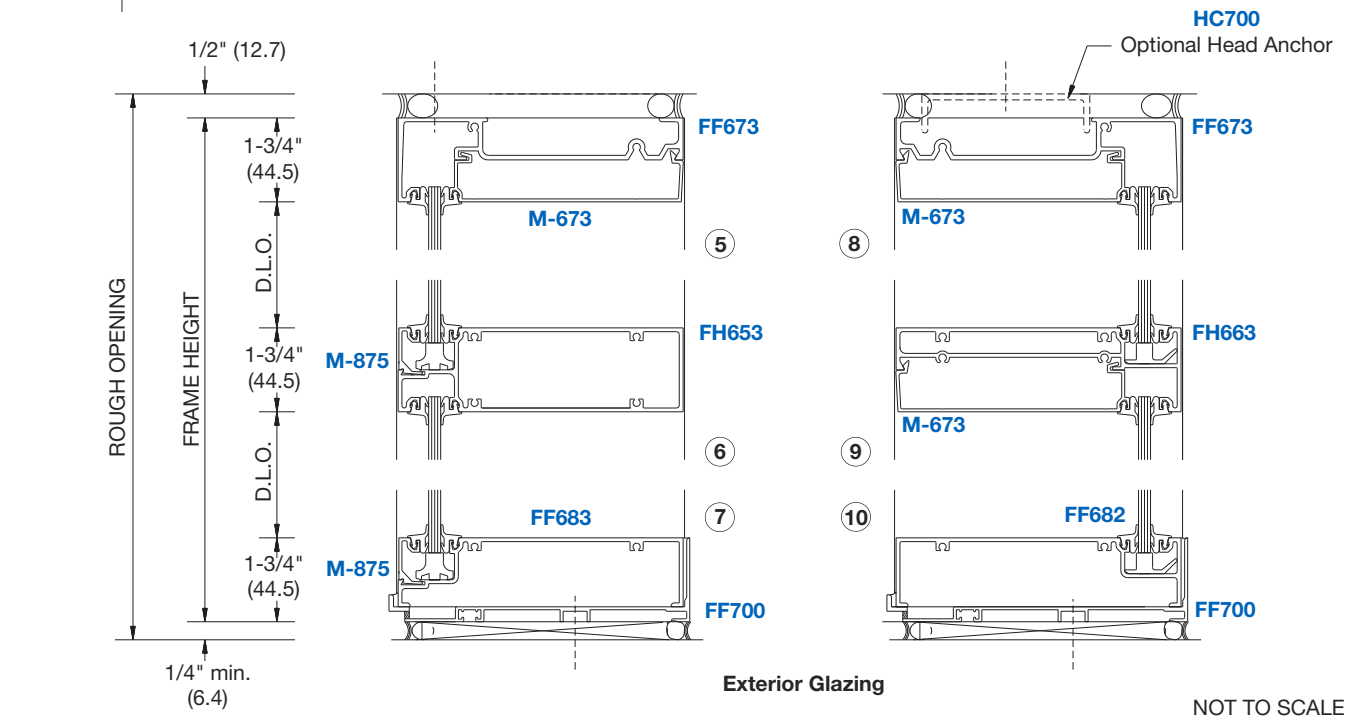
NOTE: Part numbers shown are available in 24' (7.3 m) stock lengths. Visit **usalum.com** for more information.



TYPICAL ELEVATION

NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of 1/4" (6) glass throughout. **NP238** E.P.D.M. Glazing Gaskets for 3/8" (10) glazing.





Exterior Glazing

NOT TO SCALE

STOREFRONTS

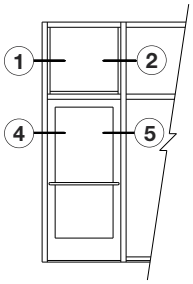
Typical Details

Flush Front™
• Series FF600

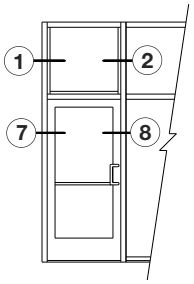
DOOR FRAMING

NOTE: Doors are available in stock to accommodate 36" x 84" (914 x 2134) and 72" x 84" (1829 x 2134) door openings. Visit usalum.com for more information.

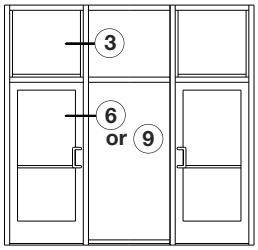
NOTE: NP225 E.P.D.M. Glazing Gaskets used on both sides of 1/4" (6) glass throughout. NP238 E.P.D.M. Glazing Gaskets for 3/8" (10) glazing.



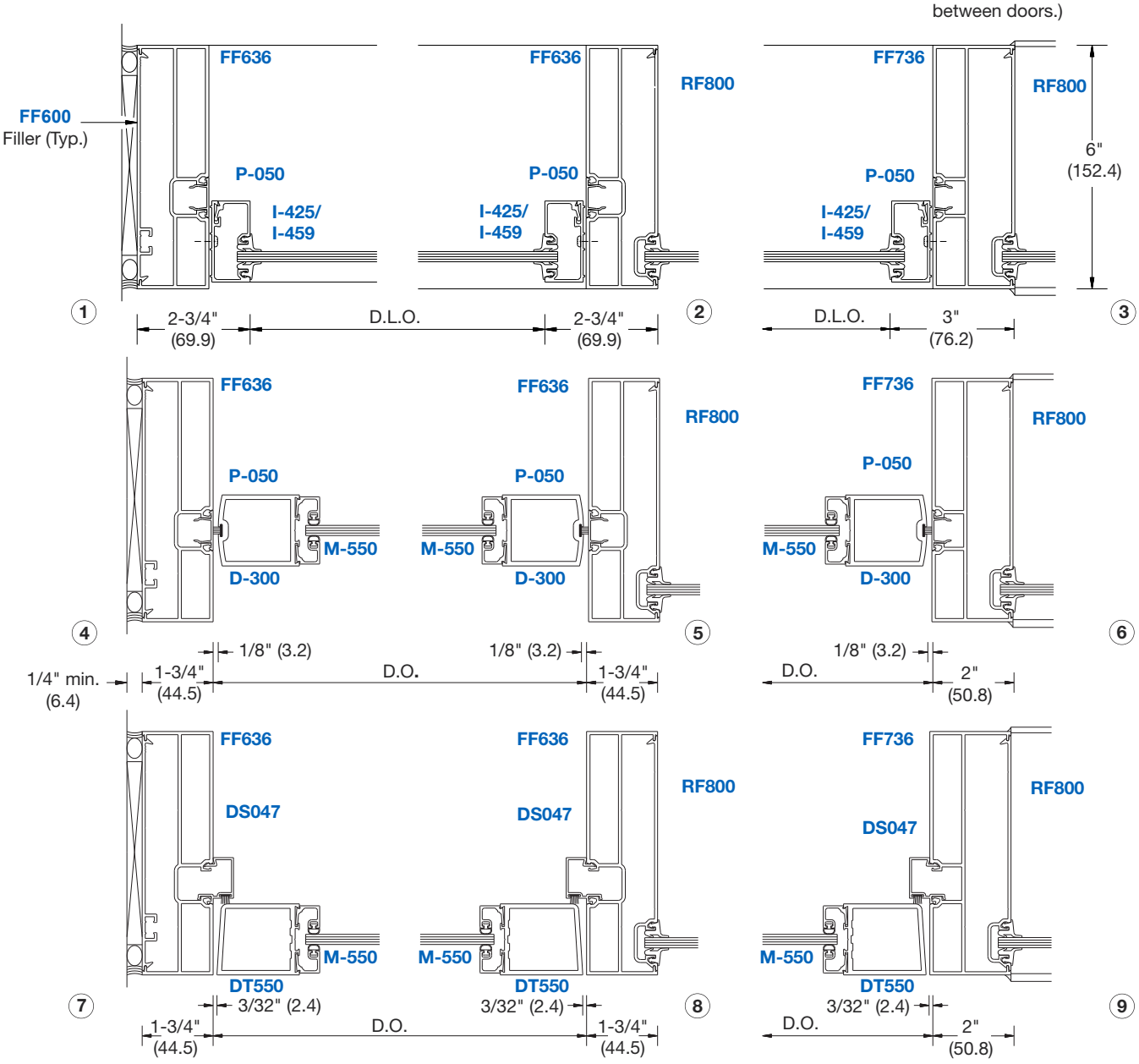
CENTER HUNG DOOR



OFFSET HUNG DOOR



SPECIAL JAMB CONDITION
(2" Wide Door Jambs with RF700 fillers are required to install glass between doors.)



NOT TO SCALE

CRL U.S. ALUMINUM

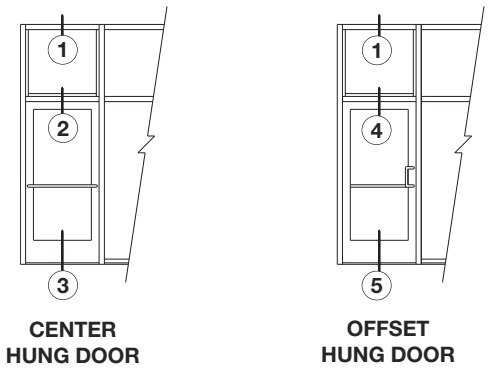
STOREFRONTS

Typical Details

Flush Front™ • Series FF600

DOOR FRAMING

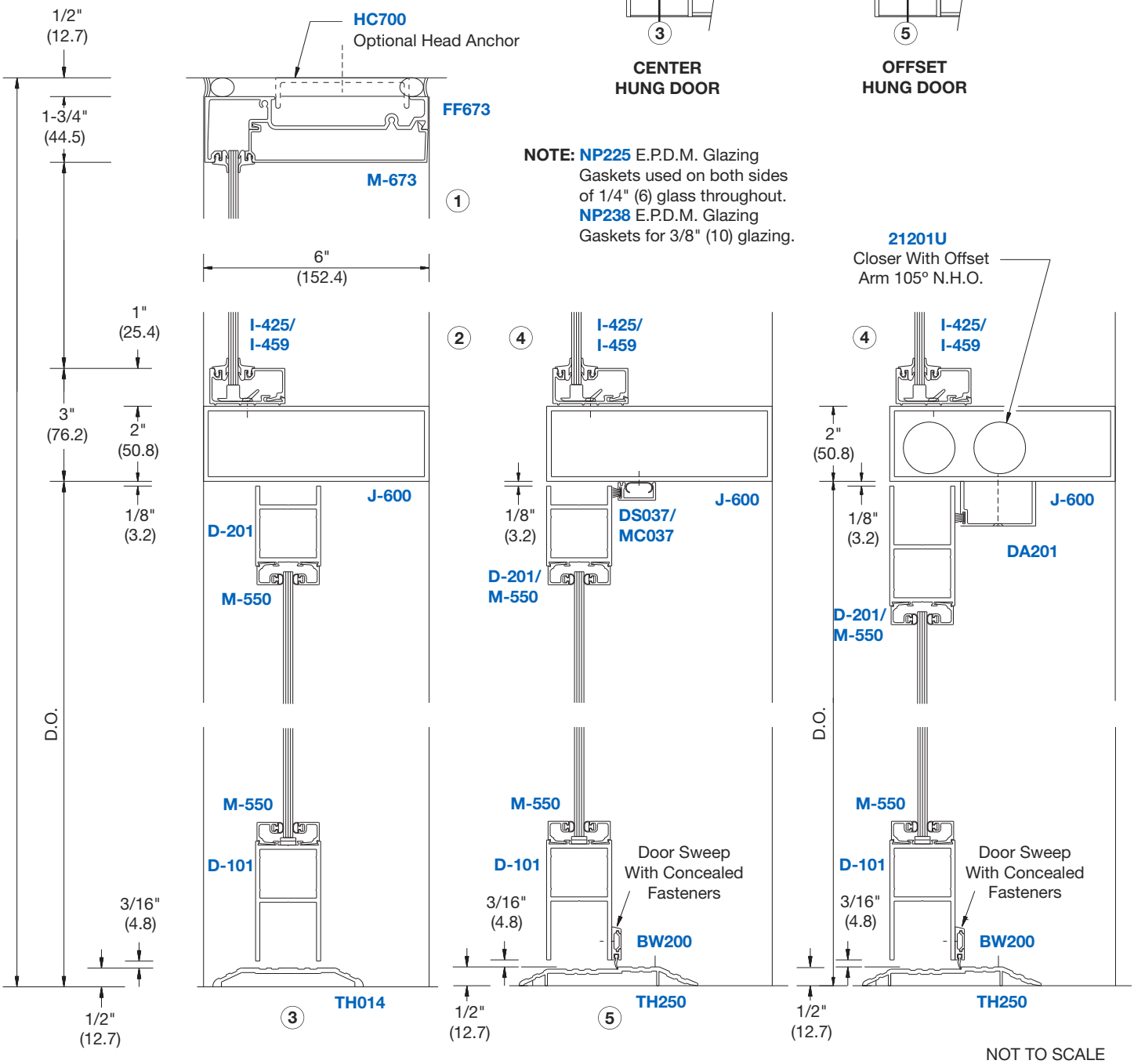
NOTE: Doors are available in stock to accommodate 36" x 84" (914 x 2134) and 72" x 84" (1829 x 2134) door openings. Visit **usalum.com** for more information.



CENTER HUNG DOOR

OFFSET HUNG DOOR

NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of 1/4" (6) glass throughout. **NP238** E.P.D.M. Glazing Gaskets for 3/8" (10) glazing.



NOT TO SCALE

STOREFRONTS

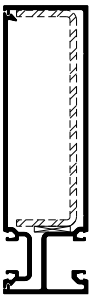
Windload Charts

Flush Front™
• Series FF600

VERTICAL MULLIONS FOR 1/4" (6) OR 3/8" (10) GLAZING

Deflection criteria to be in accordance with AAMA TIR-A11 - L/175 or L/240 + 1/4" (6.4 mm) for spans greater than 13'-6" (4.1 m) but less than 40'-0" (12.2 m). Codes and specifications may vary. No single lite of glass shall deflect more than 3/4" (19 mm). Glass is not considered as contributing to resistance of deflection. Aluminum alloy 6063-T6 allowable stress for windload is 15,200 psi. (89 MPa), and steel reinforcing allowable stress for windload is 21,600 psi. (183 MPa).

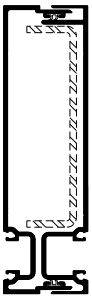
These charts include unbraced length analysis and are based on at least one horizontal being placed at mid height of the span. For other applications, please contact U.S. Aluminum Technical Sales at (800) 262-5151, or visit our web site at **usalum.com**.



FF652/RF800
I = 6.139 (255.52 x 10^4)
S = 1.843 (30.20 x 10^3)

SS652 *Steel Stiffener*
I = 2.334 (97.15 x 10^4)
S = 1.037 (17 x 10^3)

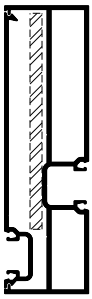
IAL+STL = 12.908 (537.26 x 10^4)



FF660/FF669
I = 7.513 (312.71 x 10^4)
S = 2.298 (36.35 x 10^3)

SS669 *Steel Stiffener*
I = 1.714 (71.34 x 10^4)
S = .819 (13.42 x 10^3)

IAL+STL = 12.484 (519.61 x 10^4)

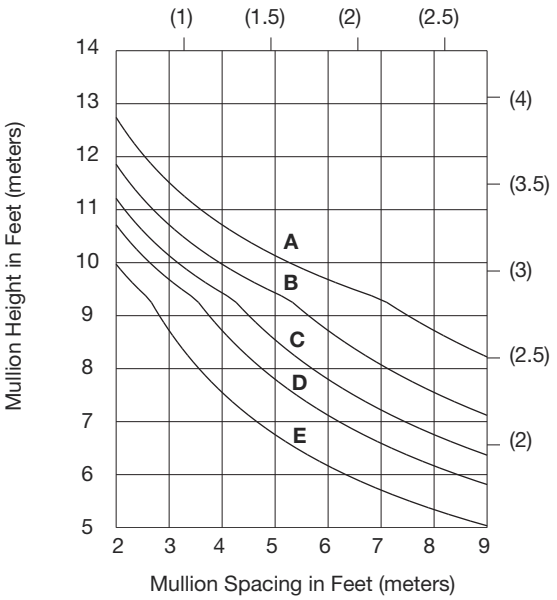


FF636/RF800
I = 7.015 (291.99 x 10^4)
S = 2.307 (37.80 x 10^3)

1/4" x 4-1/2" *Steel Bar*
I = 1.898 (79 x 10^4)
S = .893 (14.63 x 10^3)

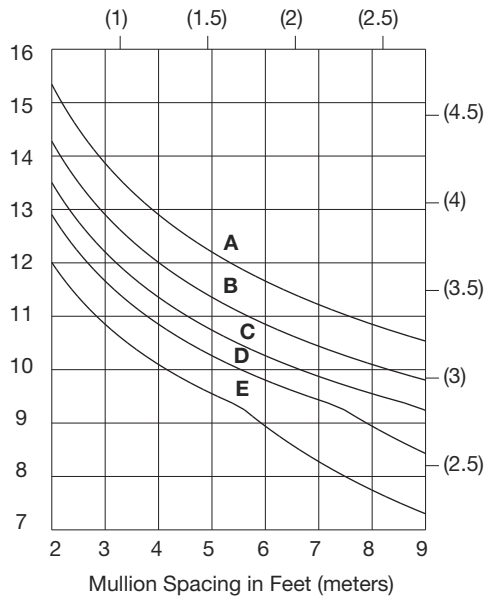
IAL+STL = 12.519 (321.08 x 10^4)

Limitation of vertical mullions for:
CURVES **A** = 15 PSF (718 Pa)
CURVES **B** = 20 PSF (957 Pa)
CURVES **C** = 25 PSF (1197 Pa)
CURVES **D** = 30 PSF (1436 Pa)
CURVES **E** = 40 PSF (1915 Pa)



FF652/ RF800

FF652/ RF800 With **SS652**



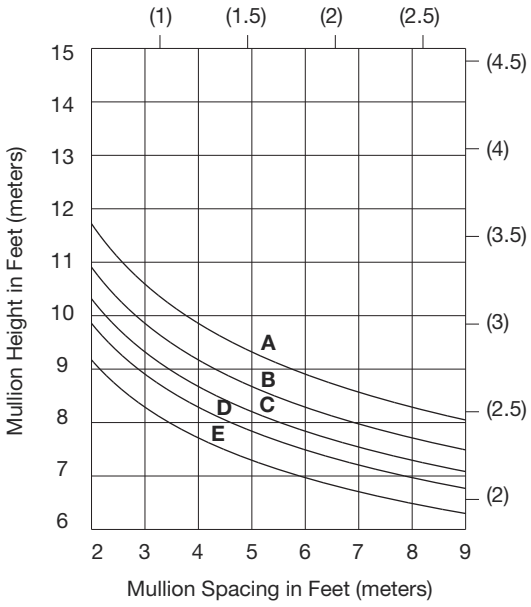
Windload Charts

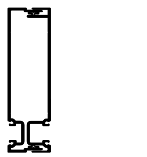
Flush Front™ • Series FF600

VERTICAL MULLIONS FOR 1/4" (6) OR 3/8" (10) GLAZING

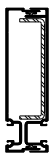
Deflection criteria to be in accordance with AAMA TIR-A11 - L/175 or L/240 + 1/4" (6.4 mm) for spans greater than 13'-6" (4.1 m) but less than 40'-0" (12.2 m). Codes and specifications may vary. No single lite of glass shall deflect more than 3/4" (19 mm). Glass is not considered as contributing to resistance of deflection. Aluminum alloy 6063-T6 allowable stress for windload is 15,200 psi. (89 MPa), and steel reinforcing allowable stress for windload is 21,600 psi. (183 MPa).

These charts include unbraced length analysis and are based on at least one horizontal being placed at the midpoint of the span. For other applications, please contact U.S. Aluminum Technical Sales at (800) 262-5151, or visit our web site at **usalum.com**.



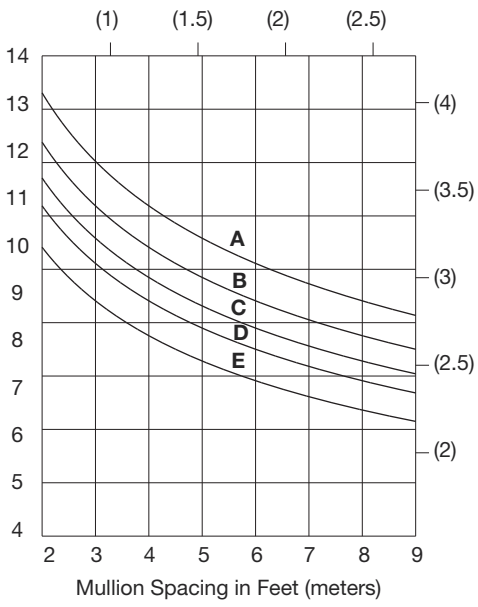


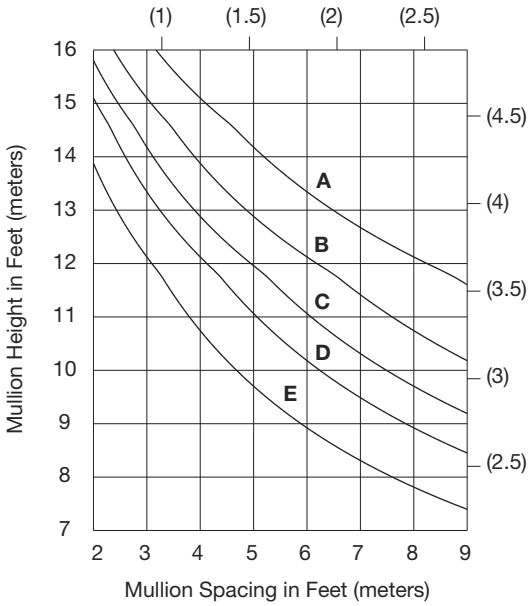
FF660/ FF669

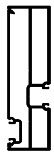


FF660/ FF669 With **SS669**

Limitation of vertical mullions for:
CURVES **A** = 15 PSF (718 Pa)
CURVES **B** = 20 PSF (957 Pa)
CURVES **C** = 25 PSF (1197 Pa)
CURVES **D** = 30 PSF (1436 Pa)
CURVES **E** = 40 PSF (1915 Pa)

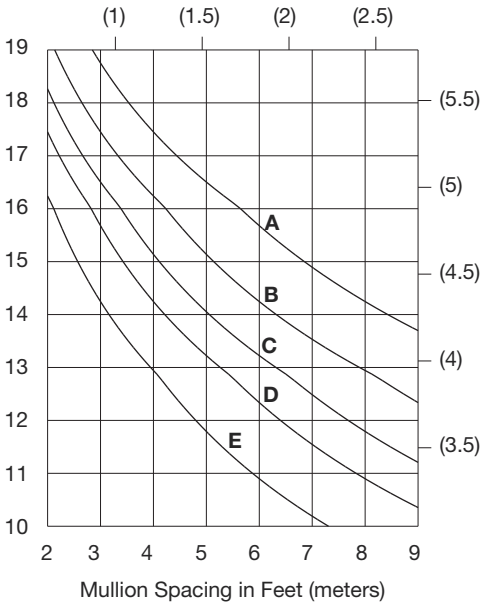






FF636/ RF800

FF636/ RF800 With 1/4" x 4-1/2" Steel



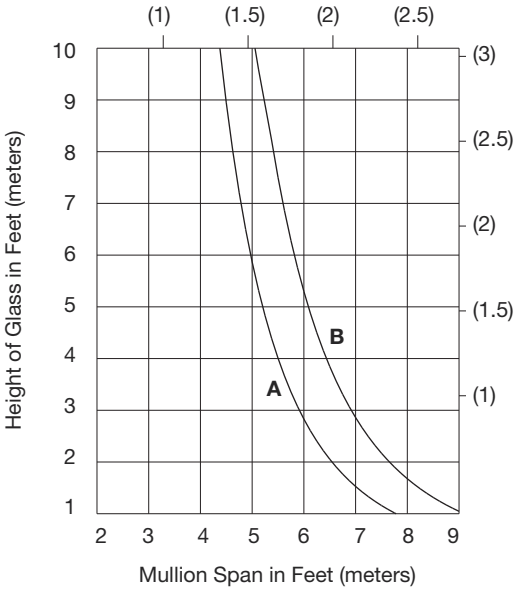
STOREFRONTS

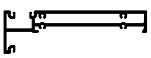
Deadload Charts

Flush Front™
• Series FF600

INTERMEDIATE HORIZONTAL MULLIONS FOR 1/4" (6) OR 3/8" (10) GLAZING

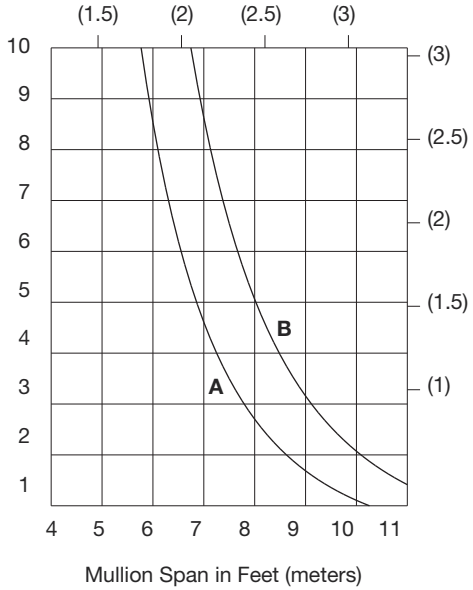
Deadload charts are based on 1/8" (3.2) maximum allowable deflection at the center point of the horizontal mullion and on a glass weight of 3.25 psf (15.87 Kg/m²)
Glass shall rest on two setting blocks located at:
CURVES **A**: 1/4 points
CURVES **B**: 1/8 points or 8" (203.2) from corners, whichever is larger





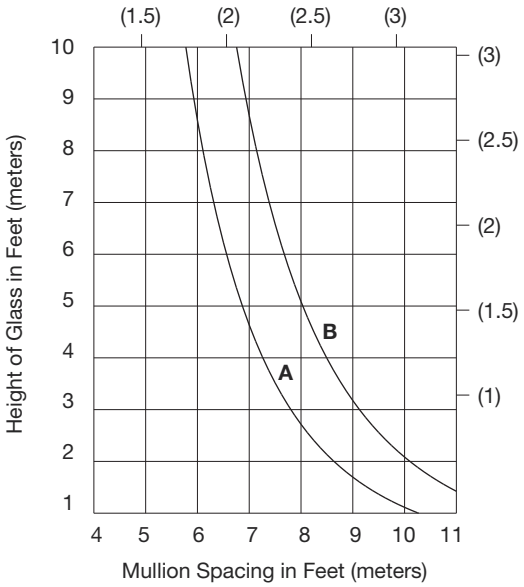
FH663
Iyy = .236
(9.82 x 10⁴)

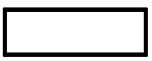
FH653
Iyy = .712
(29.64 x 10⁴)



DOOR HEADERS

Deadload charts for door headers are based on 1/16" (1.6) maximum allowable deflection at the center point of the header and on a glass weight of 3.25 psf (15.87 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



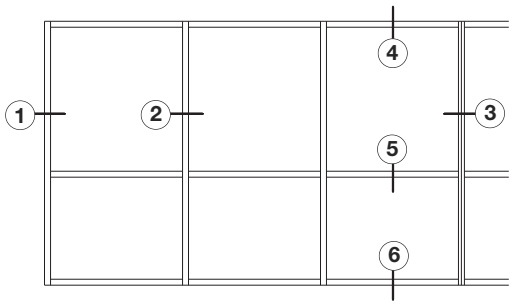


J-600
Iyy = 1.432 (59.60 x 10⁴)

Typical Details

FLUSH OUT FOR 1" (25) GLAZING

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



TYPICAL ELEVATION

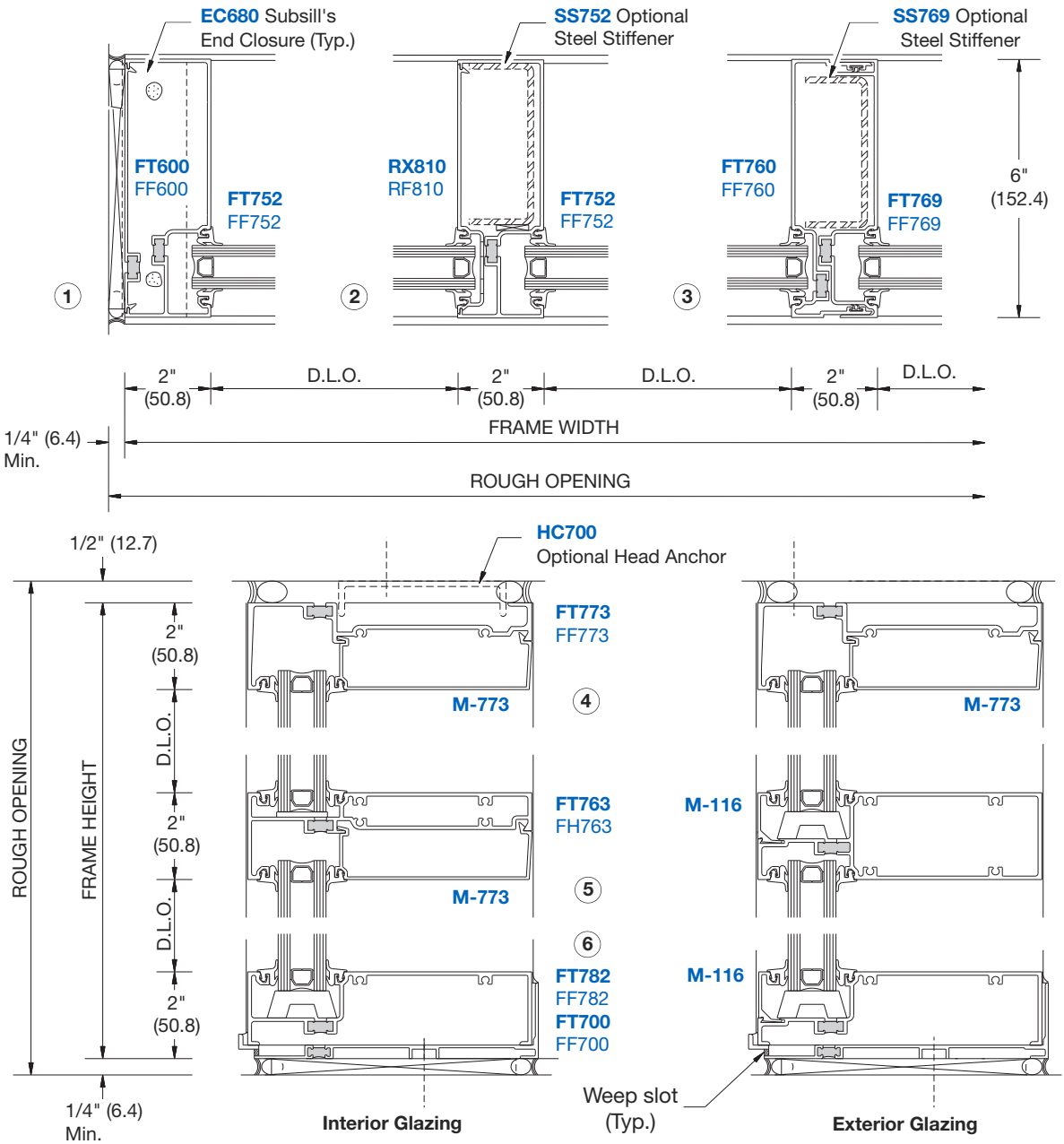
Flush Front™

- **Series FF601**
- **Series FT601**

F	T	6	0	0

Part Number prefix ending in "T" represents THERMALLY BROKEN parts. Thermal parts are in **BOLD** print. Series **FT601** details are typically shown.

NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of glazing throughout.



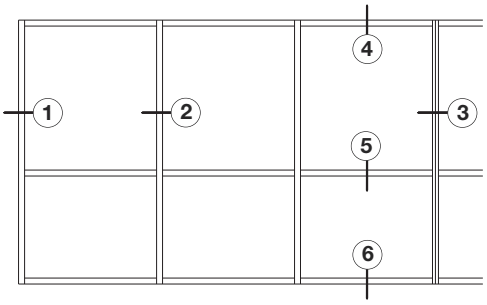
NOT TO SCALE

STOREFRONTS

Typical Details

FLUSH IN FOR 1" (25) GLAZING

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



TYPICAL ELEVATION

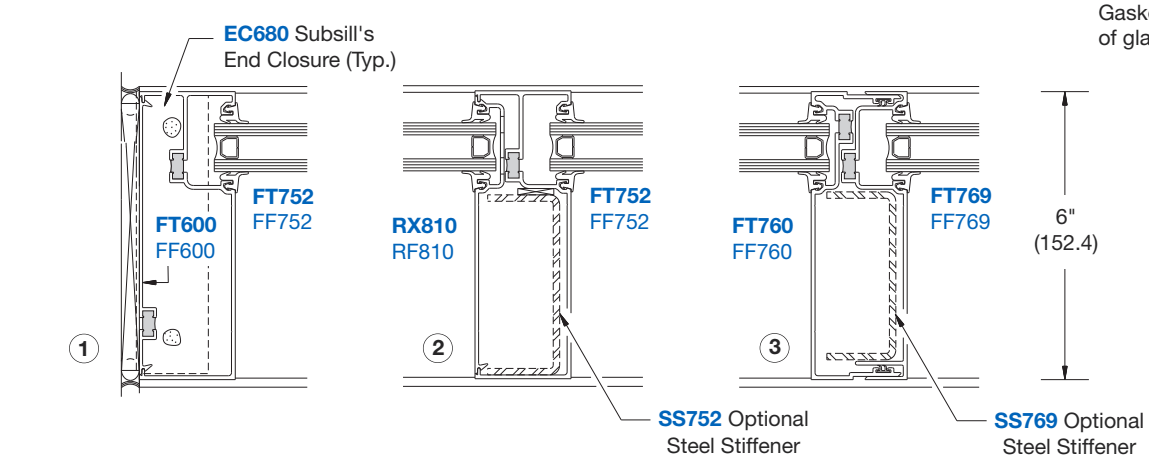
Flush Front™

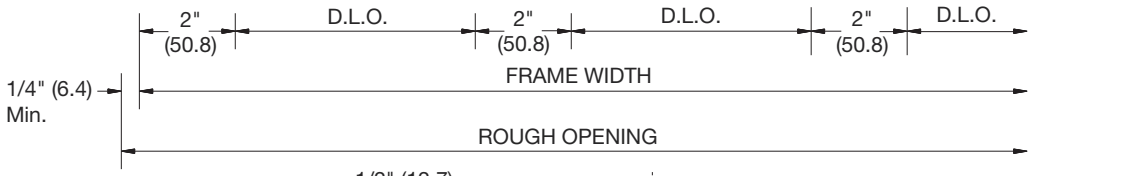
- **Series FF601**
- **Series FT601**

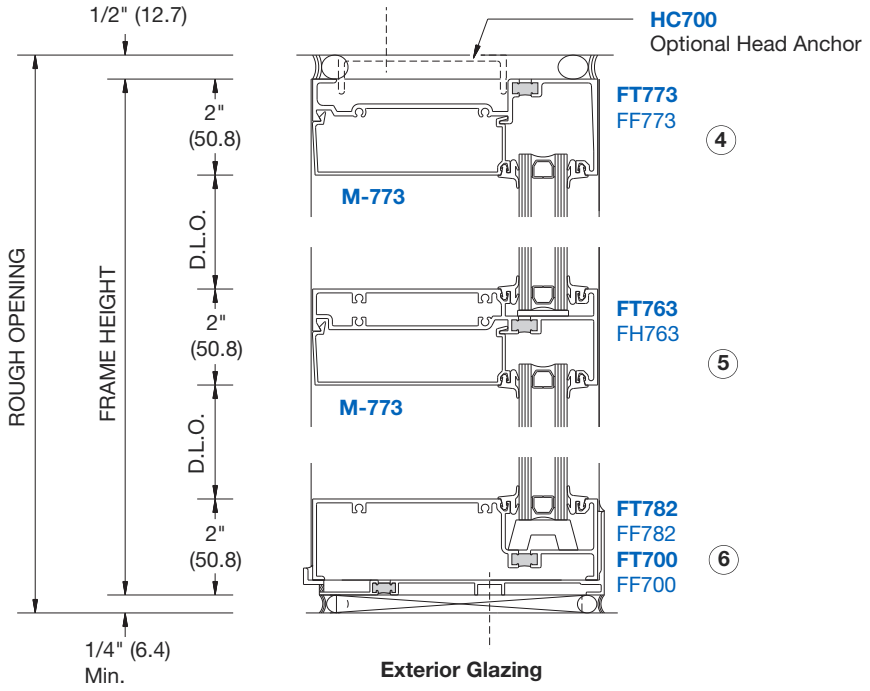
F	T	6	0	0

Part Number prefix ending in "T" represents THERMALLY BROKEN parts. Thermal parts are in **BOLD** print. Series **FT601** details are typically shown.

NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of glazing throughout.





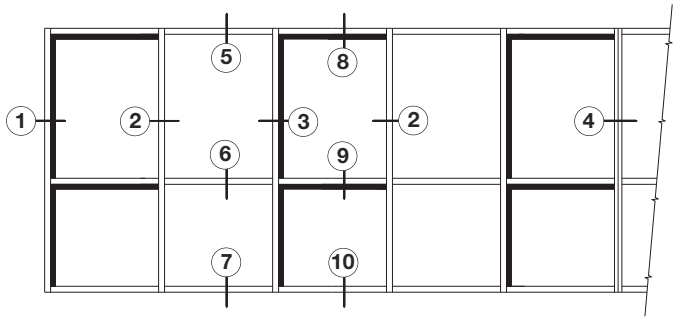


NOT TO SCALE

Typical Details

FLUSH IN / FLUSH OUT FOR 1" (25) GLAZING

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



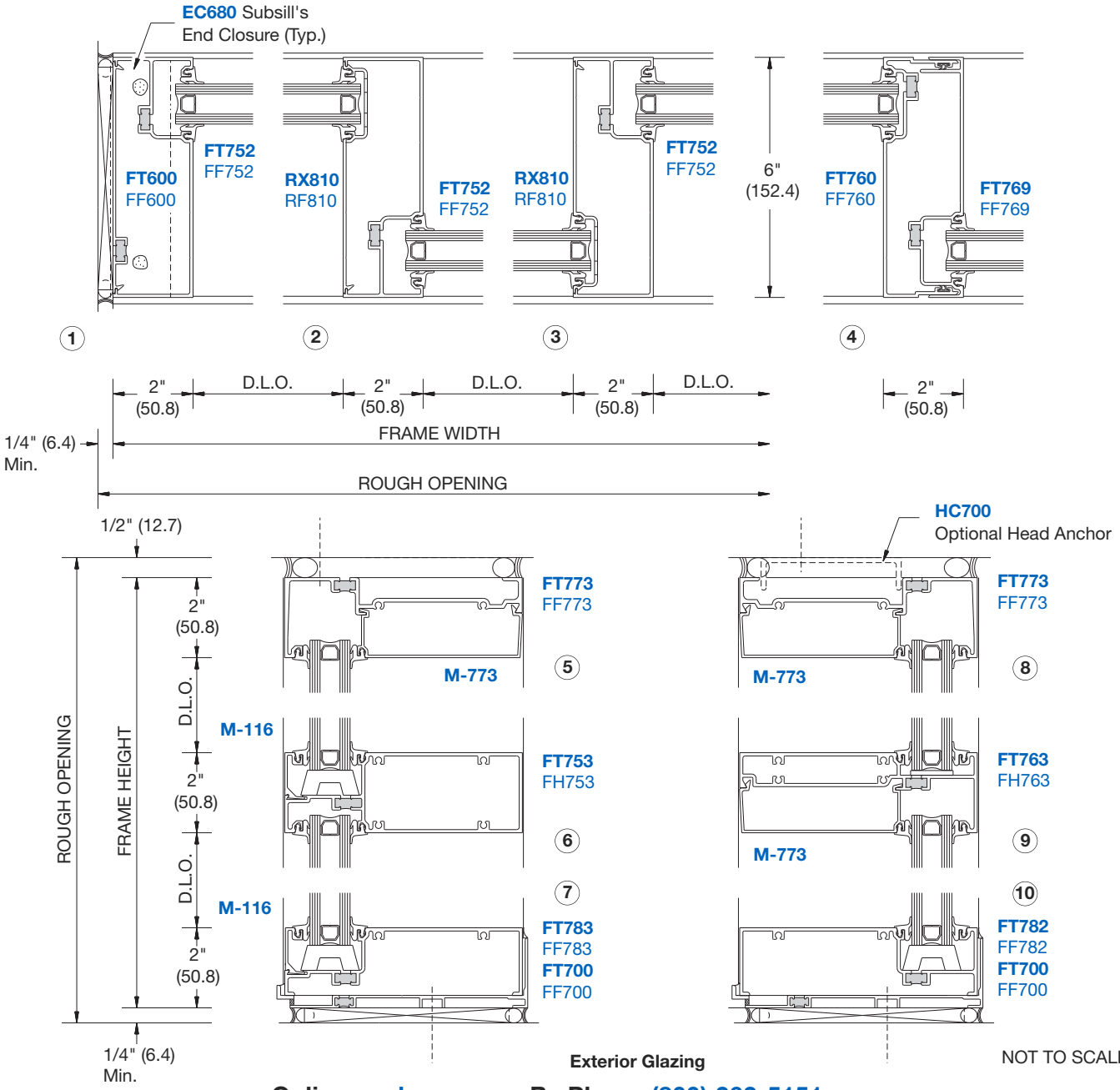
TYPICAL ELEVATION

Flush Front™
- **Series FF601**
- **Series FT601**

F	T	6	0	0

Part Number prefix ending in "T" represents THERMALLY BROKEN parts. Thermal parts are in **BOLD** print. Series **FT601** details are typically shown.

NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of glazing throughout.



Exterior Glazing

NOT TO SCALE

STOREFRONTS

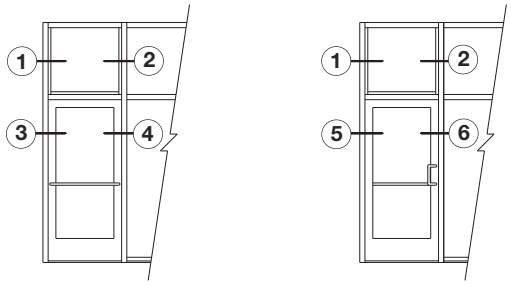
Typical Details

Flush Front™
- Series FF601
- Series FT601

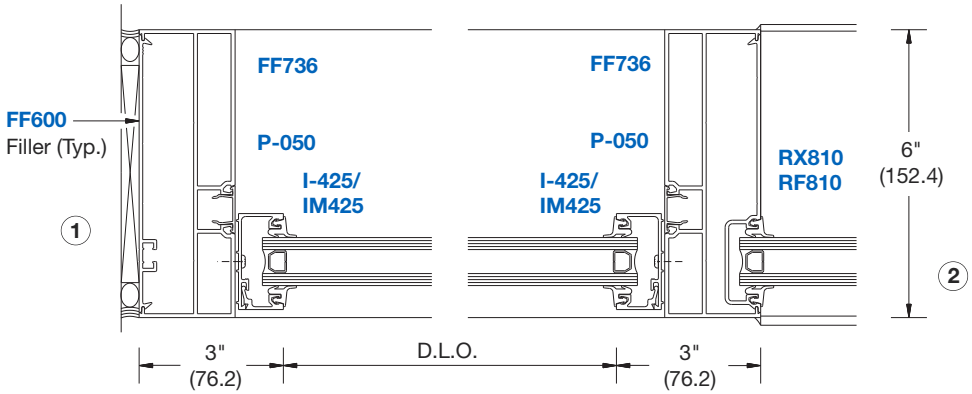
DOOR FRAMING

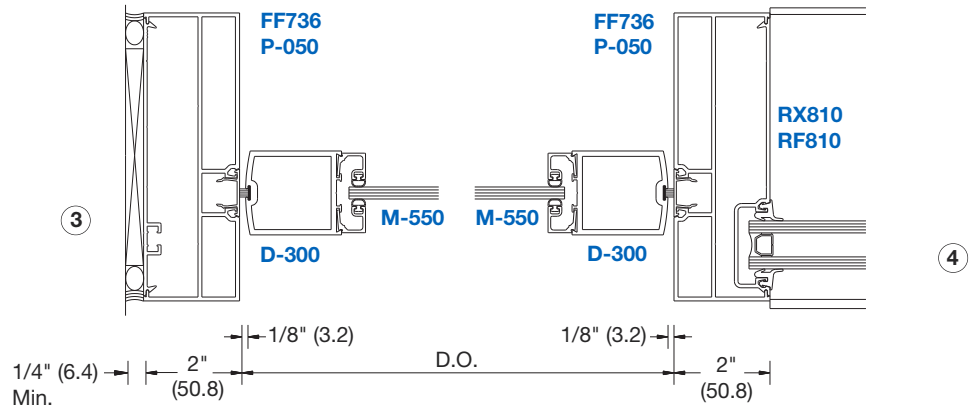
NOTE: Doors are available in stock to accommodate 36" x 84" (914 x 2134) and 72" x 84" (1829 x 2134) door openings. Visit **usalum.com** for more information.

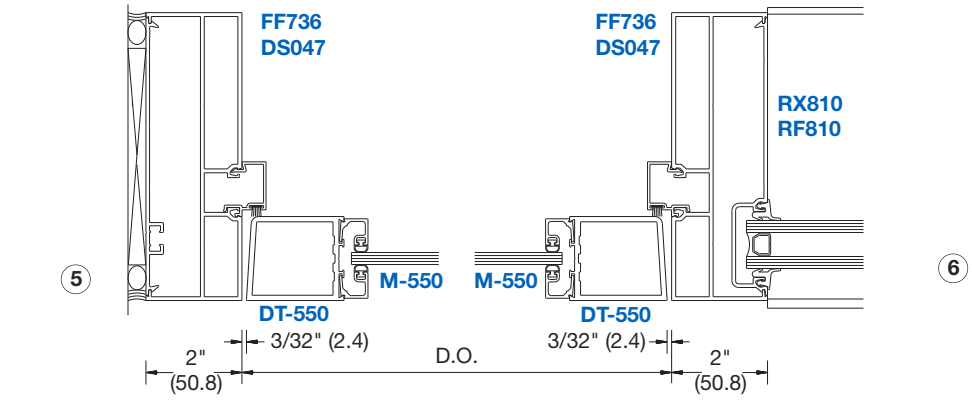
NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of glazing throughout.



CENTER HUNG DOOR | **OFFSET HUNG DOOR**







NOT TO SCALE

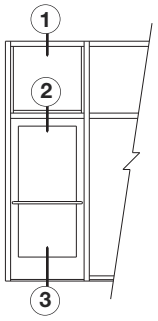
Typical Details

Flush Front™
- Series FF601
- Series FT601

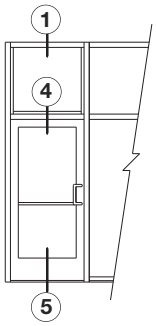
DOOR FRAMING

NOTE: Doors are available in stock to accommodate 36" x 84" (914 x 2134) and 72" x 84" (1829 x 2134) door openings. Visit **usalum.com** for more information.

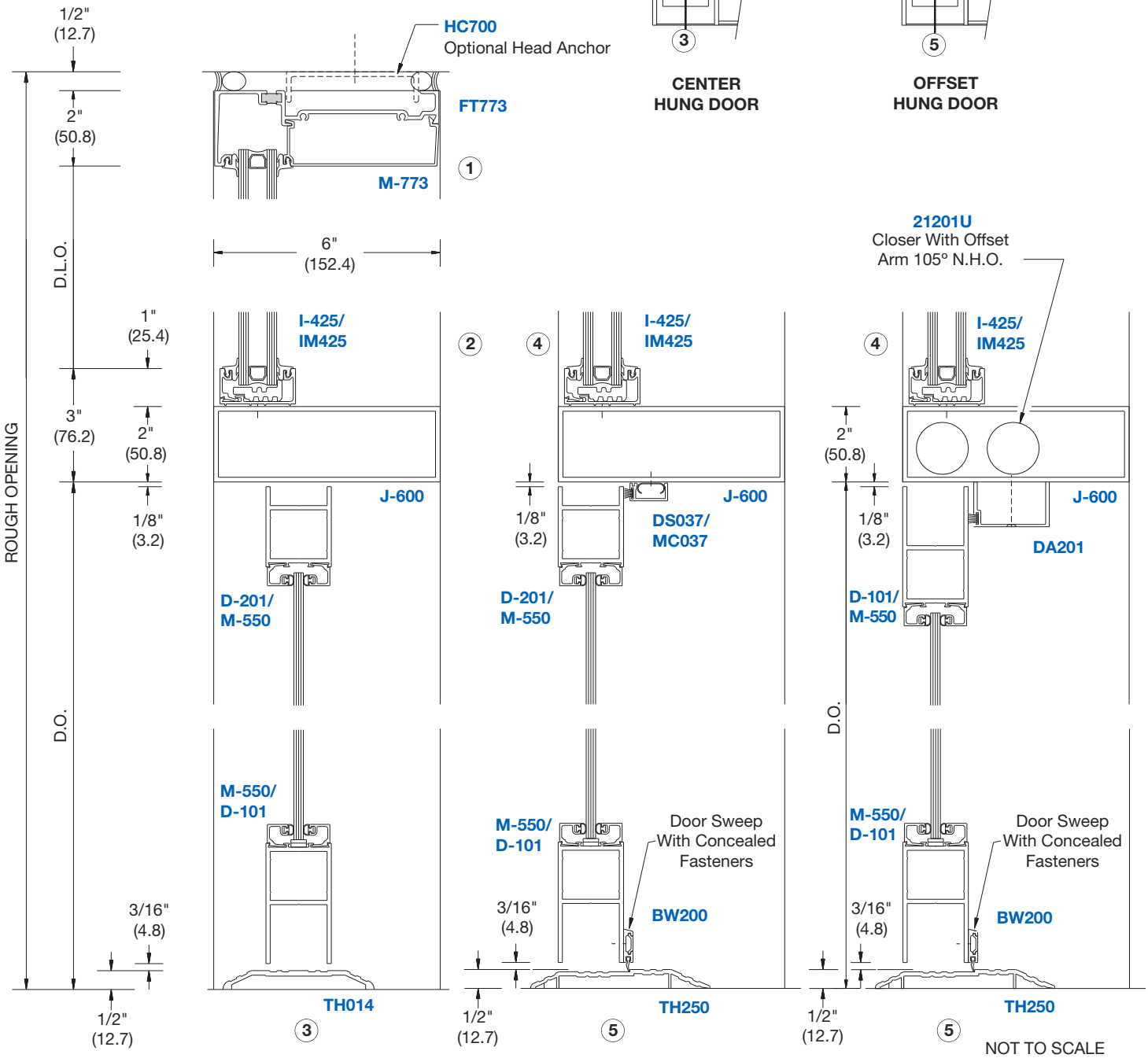
NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of glazing throughout.



CENTER HUNG DOOR



OFFSET HUNG DOOR



NOT TO SCALE

STOREFRONTS

Typical Details

VERTICAL CORNER CONDITIONS FOR 1" (25) GLAZING

Flush Front™
- **Series FF601**
- **Series FT601**

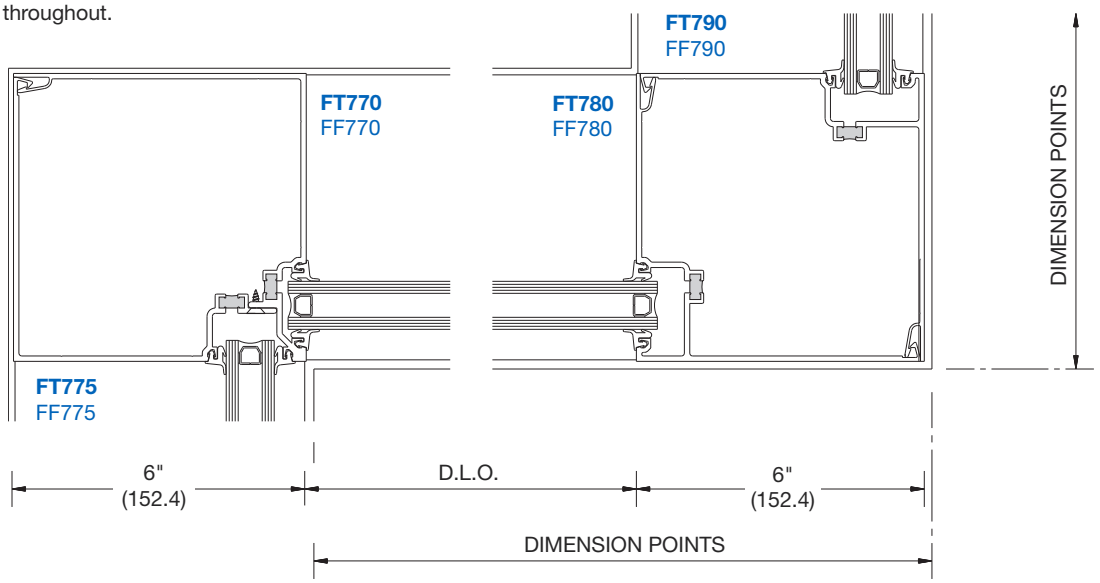
F	T	6	0	0

Part Number prefix ending in "T" represents THERMALLY BROKEN parts. Thermal parts are in **BOLD** print. Series **FT601** details are typically shown.

NOTE: Use also for Series FF600 with **IS251** Adapter for 1/4" glass

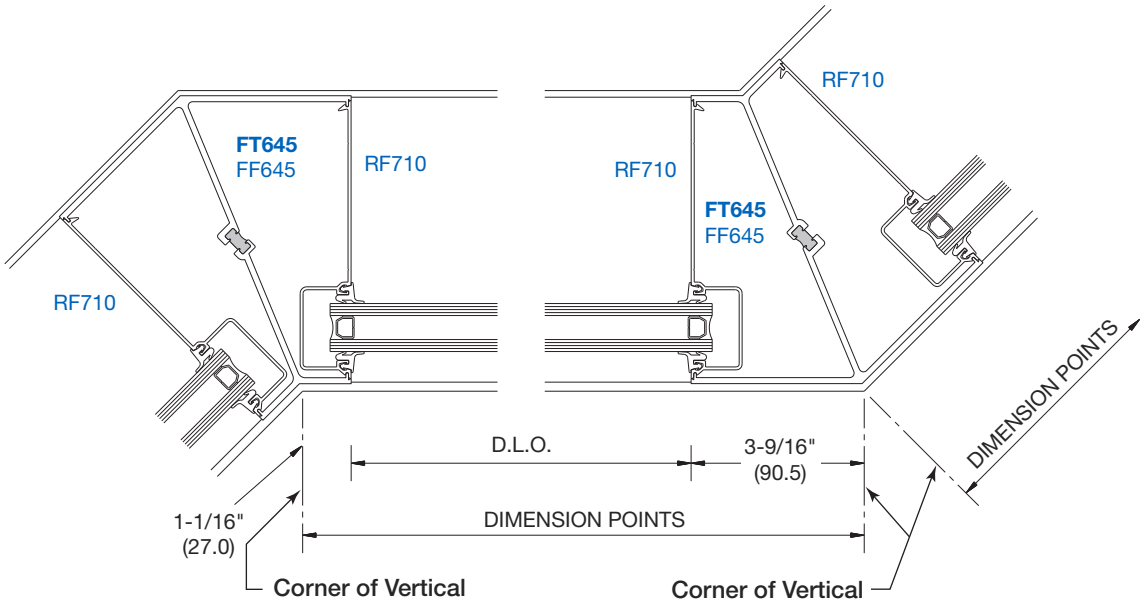
NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of glazing throughout.

90 DEGREE CORNERS



NOTE: Use also for Series FF600 with **RF700** Fillers for 1/4" glass

135 DEGREE CORNERS

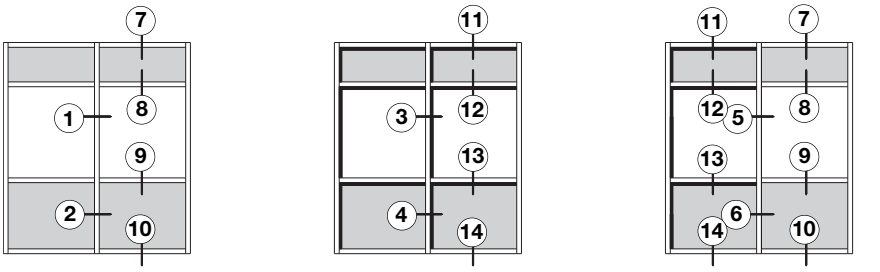


NOT TO SCALE

Typical Details

TRANSITION GLAZING FOR 1" (25) AND 1/4" (6) GLAZING

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



FLUSH-OUT **FLUSH-IN** **FLUSH-IN / FLUSH-OUT**

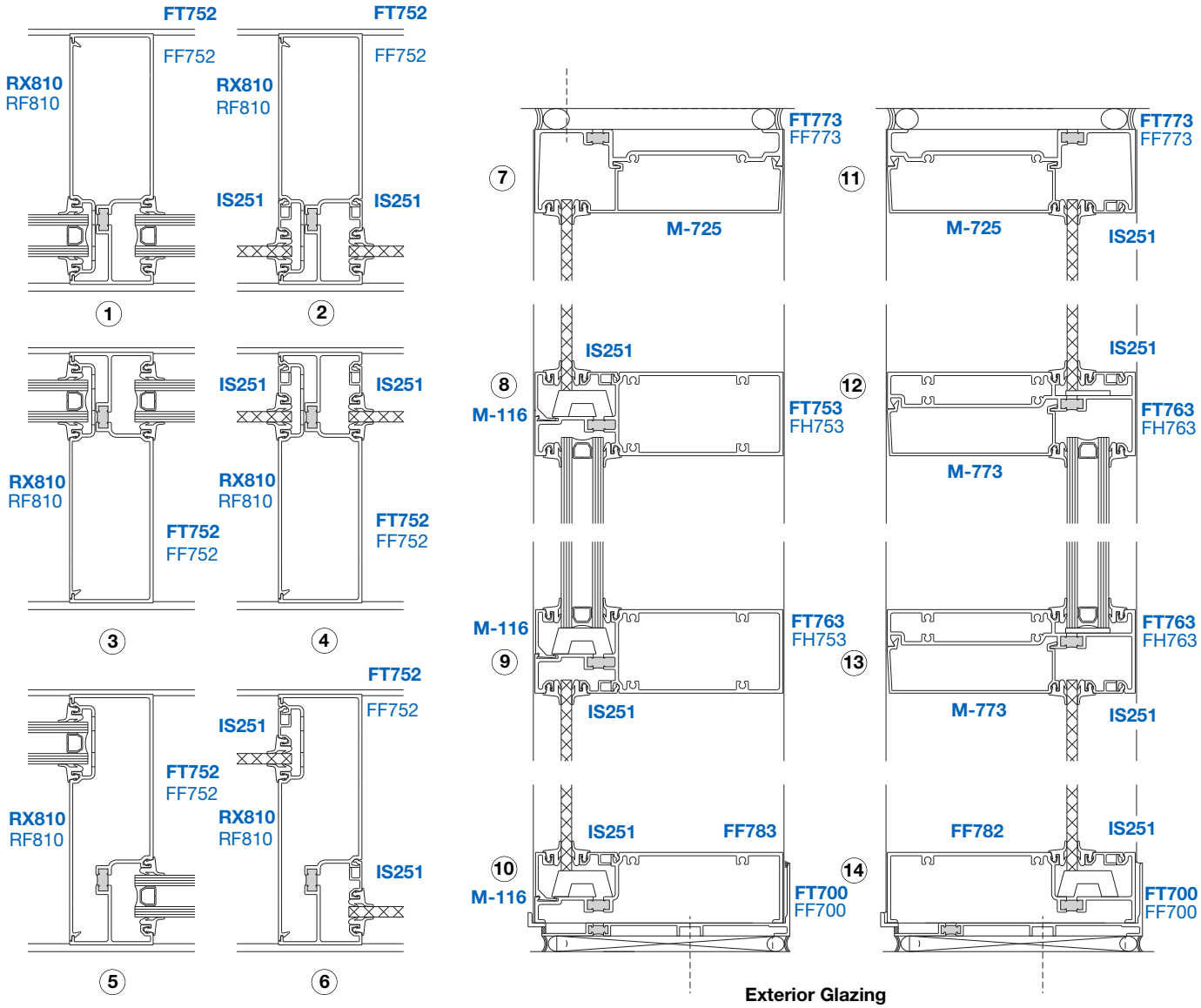
Flush Front™

- **Series FF601**
- **Series FT601**

F	T	6	0	0

Part Number prefix ending in "T" represents THERMALLY BROKEN parts. Thermal parts are in **BOLD** print. Series **FT601** details are typically shown.

NOTE: **NP225** E.P.D.M. Glazing Gaskets used on both sides of glazing throughout.



NOT TO SCALE

STOREFRONTS

Windload Charts

VERTICAL MULLIONS FOR 1" (25) GLAZING

Flush Front™
- **Series FF601**
- **Series FT601**

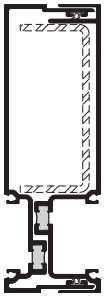
Deflection criteria to be in accordance with AAMA TIR-A11 - L/175 or L/240 + 1/4" (6.4 mm) for spans greater than 13'-6" (4.1 m) but less than 40'-0" (12.2 m). Codes and specifications may vary. No single lite of glass shall deflect more than 3/4" (19 mm). Glass is not considered as contributing to resistance of deflection. Aluminum alloy 6063-T6 allowable stress for windload is 15,200 psi. (89 MPa), and steel reinforcing allowable stress for windload is 21,600 psi. (183 MPa).

These charts include unbraced length analysis and are based on at least one horizontal being placed at the midpoint of the span. For other applications, please contact U.S. Aluminum Technical Sales at (800) 262-5151, or visit our web site at **usalum.com**.

FT752/RX810 or
FF752/RF810
I = 6.024 (250.74 x 10^4)
S = 1.888 (30.93 x 10^3)

SS752 Steel Stiffener
I = 1.711 (71.22 x 10^4)
S = .923 (15.13 x 10^3)

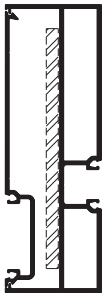
I_{AL+STL} = 10.986 (457.28 x 10^4)



FT760/FT769 or
FF760/FF769
I = 8.346 (347.39 x 10^4)
S = 2.587 (42.39 x 10^3)

SS769 Steel Stiffener
I = 1.403 (58.4 x 10^4)
S = .802 (13.14 x 10^3)

I_{AL+STL} = 12.415 (516.74 x 10^4)

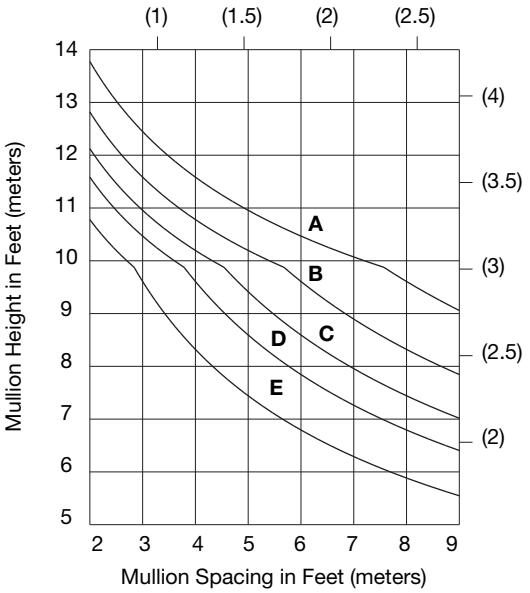


FF736/RX810 or
FF736/RF810
I = 7.175 (298.65 x 10^4)
S = 2.364 (38.74 x 10^3)

1/4" x 5" Steel Bar
I = 2.604 (108.39 x 10^4)
S = 1.302 (21.34 x 10^3)

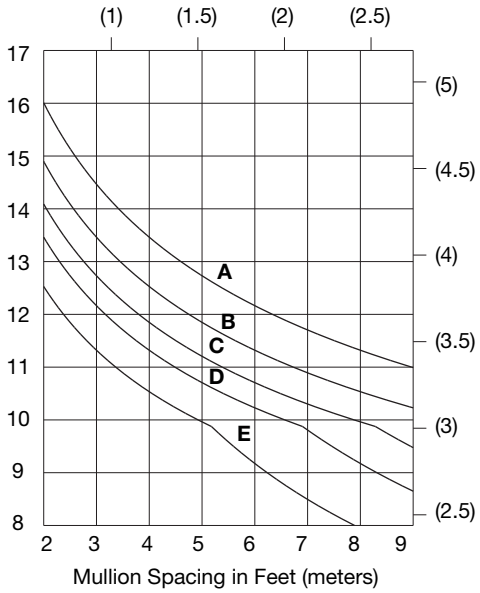
I_{AL+STL} = 14.727 (612.97 x 10^4)

Limitation of vertical mullions for:
CURVES **A** = 15 PSF (718 Pa)
CURVES **B** = 20 PSF (957 Pa)
CURVES **C** = 25 PSF (1197 Pa)
CURVES **D** = 30 PSF (1436 Pa)
CURVES **E** = 40 PSF (1915 Pa)



FT752/RX810
FF752/RF810

FT752/RX810
FF752/RF810
With **SS752**



STOREFRONTS

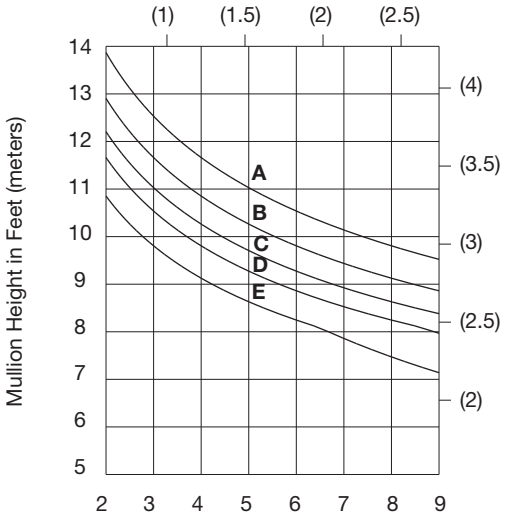
Windload Charts

VERTICAL MULLIONS FOR 1" (25) GLAZING

Flush Front™
- **Series FF601**
- **Series FT601**

Deflection criteria to be in accordance with AAMA TIR-A11 - L/175 or L/240 + 1/4" (6.4 mm) for spans greater than 13'-6" (4.1 m) but less than 40'-0" (12.2 m). Codes and specifications may vary. No single lite of glass shall deflect more than 3/4" (19 mm). Glass is not considered as contributing to resistance of deflection. Aluminum alloy 6063-T6 allowable stress for windload is 15,200 psi. (89 MPa), and steel reinforcing allowable stress for windload is 21,600 psi. (183 MPa).

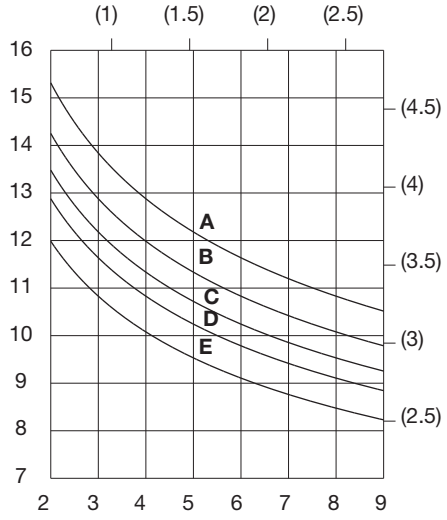
These charts include unbraced length analysis and are based on at least one horizontal being placed at the midpoint of the span. For other applications, please contact U.S. Aluminum Technical Sales at (800) 262-5151, or visit our web site at **usalum.com**.

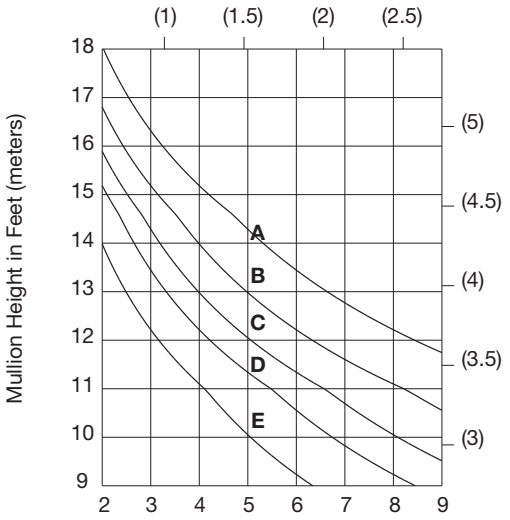


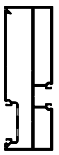
FT760/FT769
FF760/FF769

FT760/FT769
FF760/FF769
With **SS769**

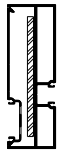
Limitation of vertical mullions for:
CURVES **A** = 15 PSF (718 Pa)
CURVES **B** = 20 PSF (957 Pa)
CURVES **C** = 25 PSF (1197 Pa)
CURVES **D** = 30 PSF (1436 Pa)
CURVES **E** = 40 PSF (1915 Pa)



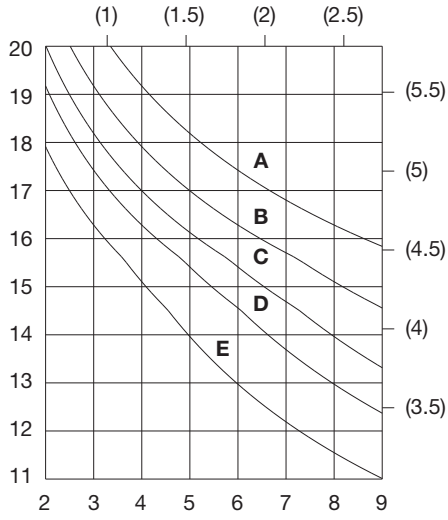




FF736/RX810
FF736/RF810



FF736/RX810
FF736/RF810
With 1/4" x 5"
Steel Bar



STOREFRONTS

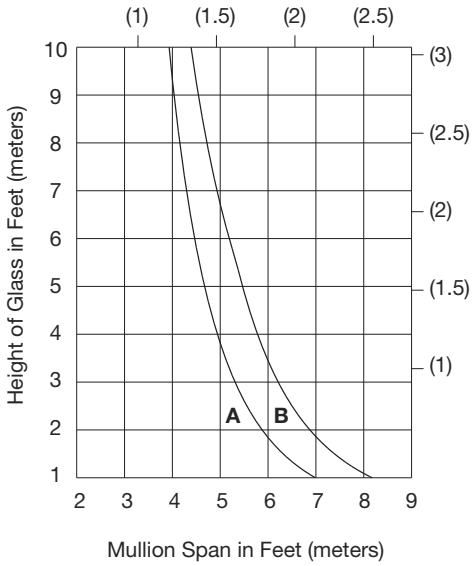
Deadload Charts

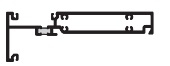
Flush Front™
- **Series FF601**
- **Series FT601**

INTERMEDIATE HORIZONTAL MULLIONS FOR 1" (25) GLAZING

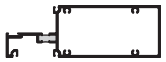
Deadload charts are based on 1/8" (3.2) maximum allowable deflection at the center point of the horizontal mullion and on a glass weight of 6.5 psf (31.74 Kg/m²)
Glass shall rest on two setting blocks located at:

CURVES **A:** 1/4 points
CURVES **B**: 1/8 points or 8" (203.2) from corners, whichever is larger

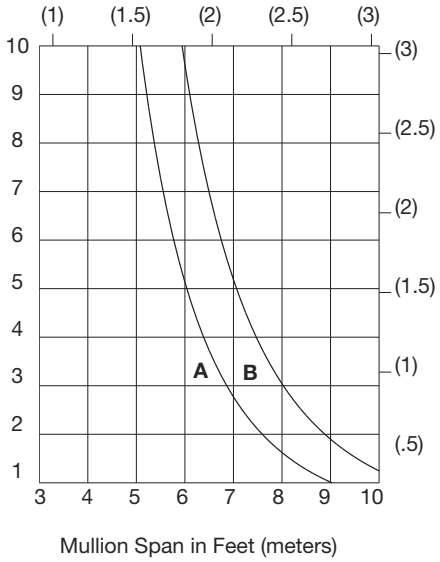




FT763
FH763
I_{yy} = .307
(12.78 x 10^4)



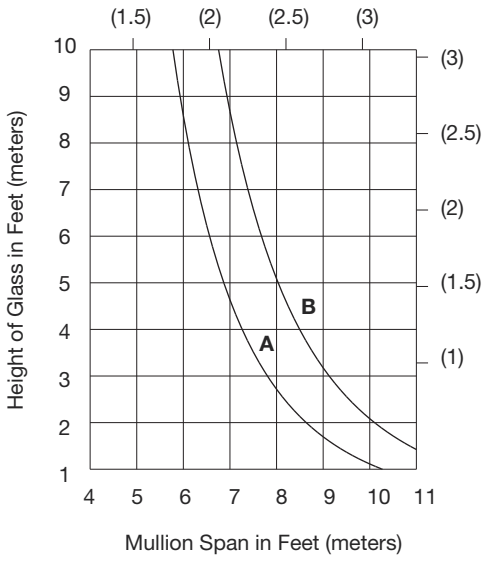
FT753
FH753
I_{yy} = .856
(35.63 x 10^4)

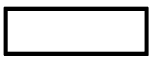


DOOR HEADERS

Deadload charts for door headers are based on 1/16" (1.6) maximum allowable deflection at the center point of the header and on 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





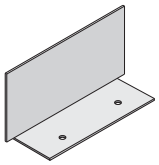
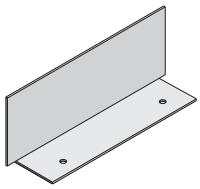
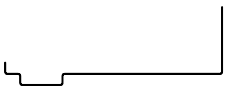
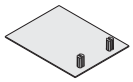
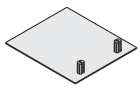
J-600
I_{yy} = 1.432
(59.60 x 10^4)

CRL U.S. ALUMINUM

STOREFRONTS

Accessories

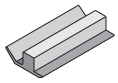
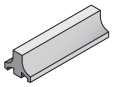
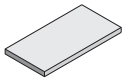
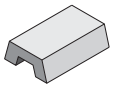
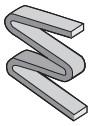
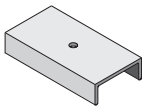
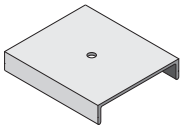
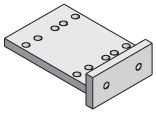
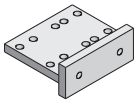
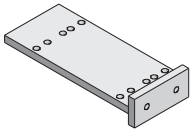
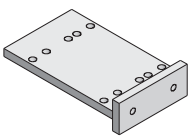
Flush Front™
- Series FF450
- Series FF451
- Series FT451
- Series FF600
- Series FF601
- Series FT601

PART NO.	DETAIL	DESCRIPTION	PKG. QTY.	WHERE USED					
				FF450	FF451	FT451	FF600	FF601	FT601
EC450		End Dam	20	●	●	●			
EC680		End Dam	20				●	●	●
SV400		Splice Sleeve	10	●	●	●			
SV700		Splice Sleeve	10				●	●	●
CP450		Closure Plate for Verticals	20	●			●		
CP550		Closure Plate for Verticals	20		●	●		●	●
WD160		Water Deflector for Shallow Pocket	50	●			●		
WD150		Water Deflector for Deep Pocket	50	●			●		
WD210		Water Deflector for Shallow Pocket	50		●	●		●	●
WD200		Water Deflector for Deep Pocket	50		●	●		●	●

STOREFRONTS

Accessories

Flush Front™
- Series FF450
- Series FF451
- Series FT451
- Series FF600
- Series FF601
- Series FT601

PART NO.	DETAIL	DESCRIPTION	PKG. QTY.	WHERE USED					
				FF450	FF451	FT451	FF600	FF601	FT601
SB141		Setting Block for Interior Glazing	100	●			●		
SB140		Setting Block for Exterior Glazing	100	●			●		
SB240		Setting Block for Interior Glazing	100		●	●		●	●
SB200		Setting Block for Exterior Glazing	100		●	●		●	●
WB452		"W" Edge Block	50	●	●	●	●	●	●
HC200		Optional Head Anchor	30	●	●	●			
HC700		Optional Head Anchor	30				●	●	●
DJ452		Drill Jig	1	●					
DJ552		Drill Jig	1		●	●			
DJ652		Drill Jig	1				●		
DJ752		Drill Jig	1					●	●

CRL U.S. ALUMINUM

STOREFRONTS

Accessories

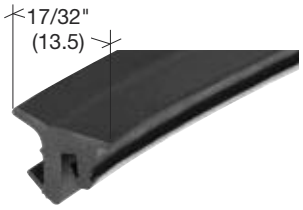
Glazing Gaskets

GLAZING GASKET CHART FOR STOREFRONT PRODUCTS

SYSTEM SERIES	GLASS THICKNESS	OUTSIDE GLAZING		INSIDE GLAZING		POCKET WIDTH	ADAPTOR
		EXTERIOR	INTERIOR	EXTERIOR	INTERIOR		
400/400-S 450/450-S FF450 FF600	3/16" (5)	NP218	NP225	NP225	NP218	5/8" (15.9)	
	1/4" (6)	NP225	NP225	NP225	NP225		
	5/16" (8)	NP225	NP238	NP238	NP225		
	3/8" (10)	NP238	NP238	NP238	NP238		
451/451-S IT451 FF451 FT451 FF601 FT601	1/4" (6)	NP225	NP225	NP225	NP225	5/8" (15.9)	IS251
	5/16" (8)	NP225	NP238	NP238	NP225		
	7/16" (11)	NP218	NP225	NP225	NP218	7/8" (22.2)	IS050
	1/2" (12)	NP225	NP225	NP225	NP225		
	9/16" (14)	NP225	NP238	NP238	NP225		
	5/8" (16)	NP238	NP238	NP238	NP238		
	7/8" (22)	NP218	NP218	NP218	NP218	1-3/8" (34.9)	
	15/16" (24)	NP218	NP225	NP225	NP218		
	1" (25)	NP225	NP225	NP225	NP225		
	1-1/16" (27)	NP225	NP238	NP238	NP225		
	1-1/8" (29)	NP238	NP238	NP238	NP238		

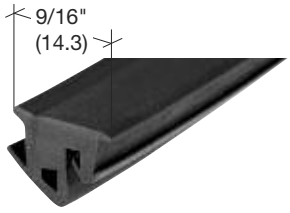
PART NO.	COLOR	TYPE	ROLL LENGTH
NP225	Black	Interior/ Exterior	500' (152.4 m)

Minimum order: 1 roll.



PART NO.	COLOR	TYPE	ROLL LENGTH
NP238	Black	Interior/ Exterior	500' (152.4 m)

Minimum order: 1 roll.

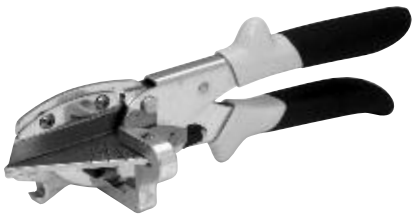


PART NO.	COLOR	TYPE	ROLL LENGTH
NP218	Black	Exterior Heavy Gasket	250' (76.2 m)

Minimum order: 1 roll.

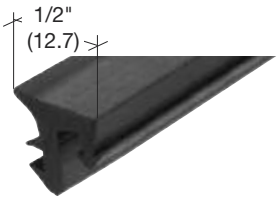
Adjustable Multi-Cutter Tool

- Makes Precise Straight or Miter Cuts in Gaskets
- Adjustable Guide Block



PART NO.	DESCRIPTION
MC80N	Multi-Cutter
MC80RB	Pack of 5 Blades

Minimum order: 1 each or 1 pack.



PART NO.	COLOR	TYPE	ROLL LENGTH
NP299	Black	Universal Storefront Gasket	500' (152.4 m)

Minimum order: 1 roll.

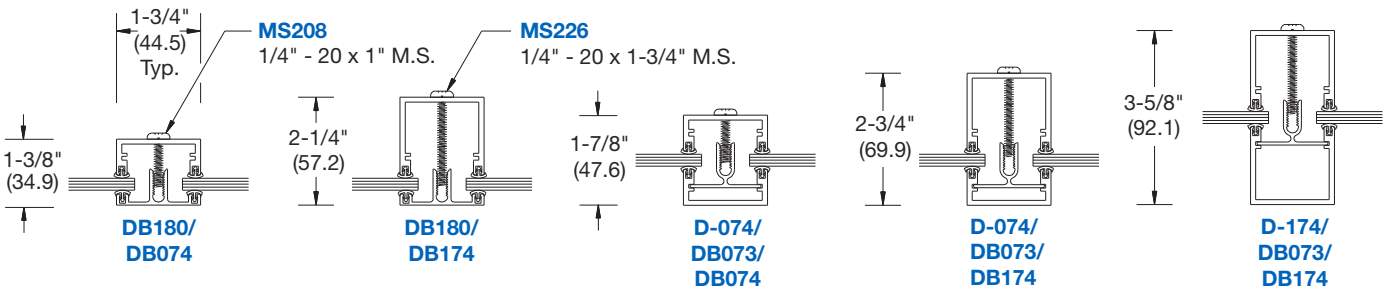
STOREFRONTS

Typical Details

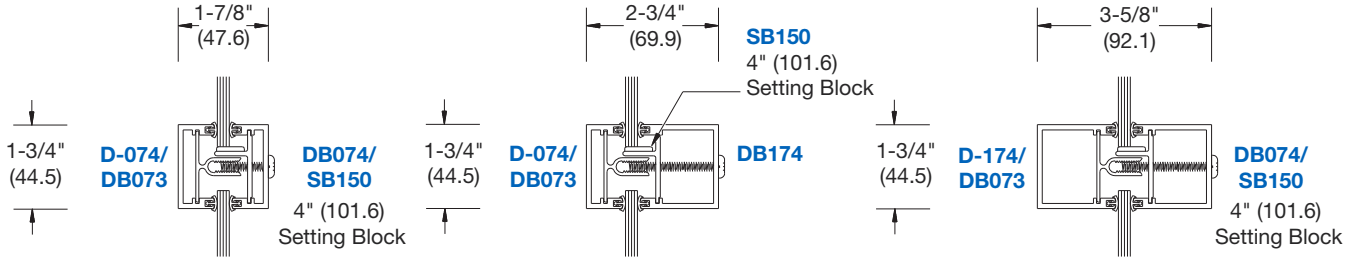
DIVISION BARS

SHOWN WITH 1/4" (6) GLAZING TYPICAL

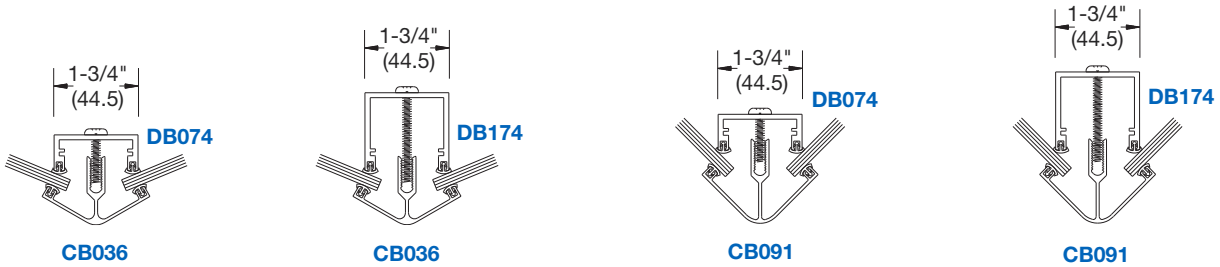
VERTICAL MEMBERS



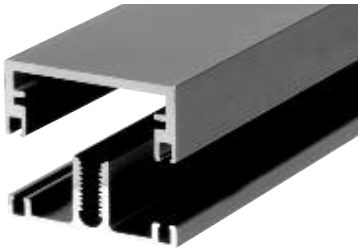
HORIZONTAL MEMBERS



CORNER MEMBERS



Miscellaneous Framing



NOTE: All stocks lengths on this page are available in clear anodized or bronze anodized finishes, and are 24' (7.3 m) in length unless noted otherwise. Visit **usalum.com** for more information.

NOT TO SCALE

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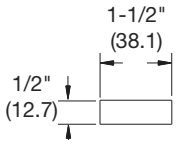
STOREFRONTS

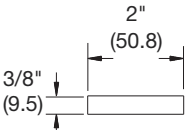
Typical Details

Miscellaneous Framing

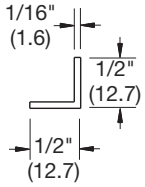
BARS AND ANGLES



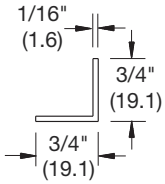
B-150



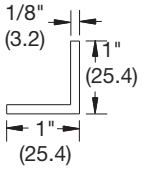
B-237



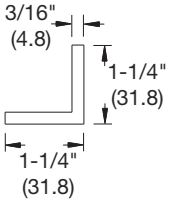
A-050



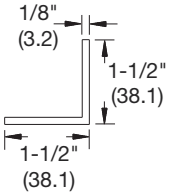
AL075



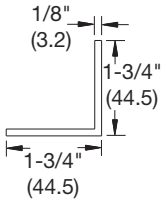
A-100



A-125

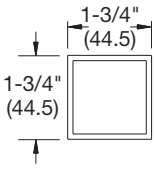


A-150

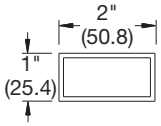


A-175

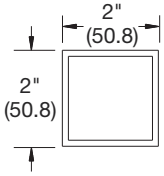
TUBES



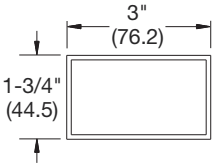
J-175



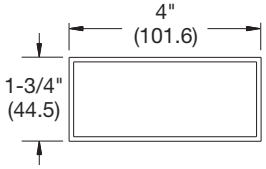
J-200



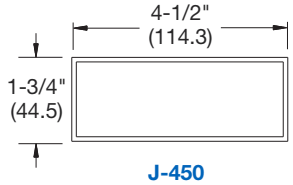
J-220



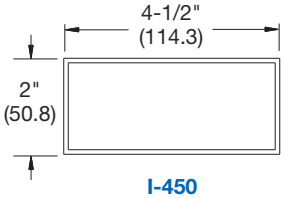
J-300



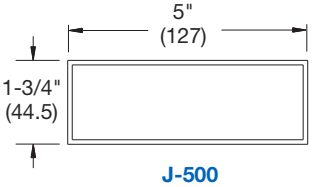
J-400
24' (7.3 m)



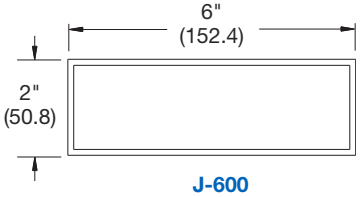
J-450
24' (7.3 m)



I-450
24' (7.3 m)

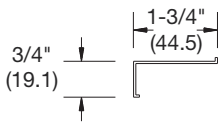


J-500
24' (7.3 m)

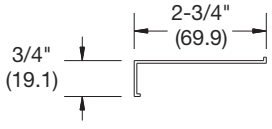


J-600
24' (7.3 m)

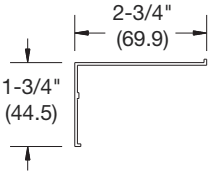
SILL COVERS AND JAMB MOLDINGS



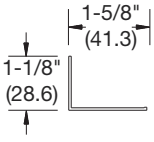
SC100



SC200



SC400



SJ300

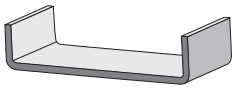
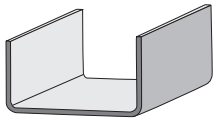
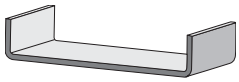
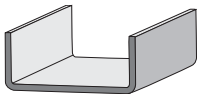
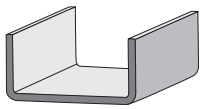
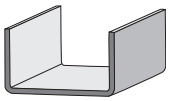
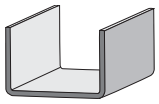
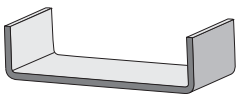
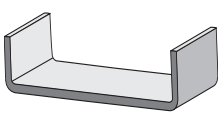
NOTE: All stock lengths on this page are available in clear anodized or bronze anodized finishes, and are 21' (6.4 m) in length unless noted otherwise. Visit **usalum.com** for more information.

NOT TO SCALE

STOREFRONTS

Accessories

STEEL STIFFENERS*
PRIMED HOT ROLLED COMMERCIAL QUALITY, ASTM A-559

PART NO.	DETAIL	DESCRIPTION	STOCK LENGTH
SS040		3-5/8" (92) x 3/4" (19) x 12 GA. Use with Series 400 and 400-S	16' (4.8 m)
SS964		3-1/2" (88.9) x 1-11/16" (42.8) x 7 GA. Use with Series 400 and 400-S	16' (4.8 m)
SS045		4-1/8" (104.7) x 3/4" (19) x 12 GA. Use with Series 450 and 451	16' (4.8 m)
SS452		2-15/16" (74.6) x 1-1/4" (31.7) x 10 GA. Use with Flush Front FF452	16' (4.8 m)
SS469		2-11/32" (59.5) x 1-1/32" (26.2) x 10 GA. Use with Flush Front FF460/FF469	16' (4.8 m)
SS552		2-1/4" (57) x 1-3/16" (30.2) x 10 GA. Use with Flush Front FF552/FT552	16' (4.8 m)
SS569		2" (50.8) x 1-7/16" (36.5) x 10 GA. Use with Flush Front FF560/FF569/FT560/FT569	16' (4.8 m)
SS652		4-1/2" (114.3) x 1-1/4" (31.7) x 10 GA. Fits FF652	16' (4.8 m)
SS769		3-1/2" (88.9) x 1-7/16" (36.5) x 10 GA. Fits FF769 and FT769	16' (4.8 m)

Steel Stiffeners and Drill Jigs

DRILL JIGS

PART NO.	TO PREPARE	FOR	SYSTEM	PKG. QTY.
DJ050	Verticals	Screw Spline	Center Glaze Series 400 and Series 450	1
DJ025	Verticals	Shear Block	Center Glaze Series 400-S and Series 450-S	1
DJ125	Verticals	Screw Spline and Shear Block	Center Glaze Series 451 and Series 451-S	1
DJ125	Verticals	Screw Spline	Center Glaze Series IT451	1
DJ150	Verticals	Shear Block		1
DJ452	Verticals	Screw Spline	Flush Front Series FF450	1
DJ552	Verticals	Screw Spline	Flush Front Series FF451 Series FT451	1
DJ652	Verticals	Horiz.	Flush Front Series FF600	1
DJ752	Verticals	Horiz.	Flush Front Series FF601 Series FT601	1
DJ210	Verticals	AP463 and AP563	OS-2 Series OS450/450-SG and Series OS451/451-SG	1
DJ650	Verticals	AP664 and AP764	OS-2 Series OS600/600-SG and Series OS601/601-SG	1
DJ525	Verticals	AP555	BG Systems Series BG450 Series BG525 Series BT525	1

*Steel Stiffeners shown are the more popular models. For additional information on Stiffeners, contact U.S. Aluminum Technical Sales at (800) 262-5151.