Trifab® VersaGlaze® 451/451T Framing System

Features

- Trifab® VersaGlaze® 451/451T is 4-1/2" (114.3) deep with a 2" (50.8) sightline
- Front, Center, Back or Multi-Plane glass applications
- Flush glazed from either the inside or outside
- Screw Spline, Shear Block, Stick or Continuous Head and Sill fabrication
- Screw Spline Pre-Glazed option
- SSG / Weatherseal option
- IsoLock® lanced and debridged thermal break option with Trifab® VersaGlaze® 451T
- Infill options up to 1-1/8" (28.6) thickness
- Permanodic® anodized finishes in seven choices
- Painted finishes in standard and custom choices

Optional Features

- Acoustical rating per AAMA 1801 and ASTM E 1425
- Project specific U-factors (See Thermal Charts)
- Integrates with Versoleil® SunShade Outrigger System and Horizontal Single Blade System
- Profit$Maker® Plus die sets available

Product Applications

- Storefront, Ribbon Window, Punched Openings or Pre-Glazed
- Single-span
- Integrated entrance framing allowing Kawneer standard entrances or other specialty entrances to be incorporated
- Kawneer windows or GLASSvent® Windows for Storefront Framing are easily incorporated

For specific product applications,
consult your Kawneer representative.

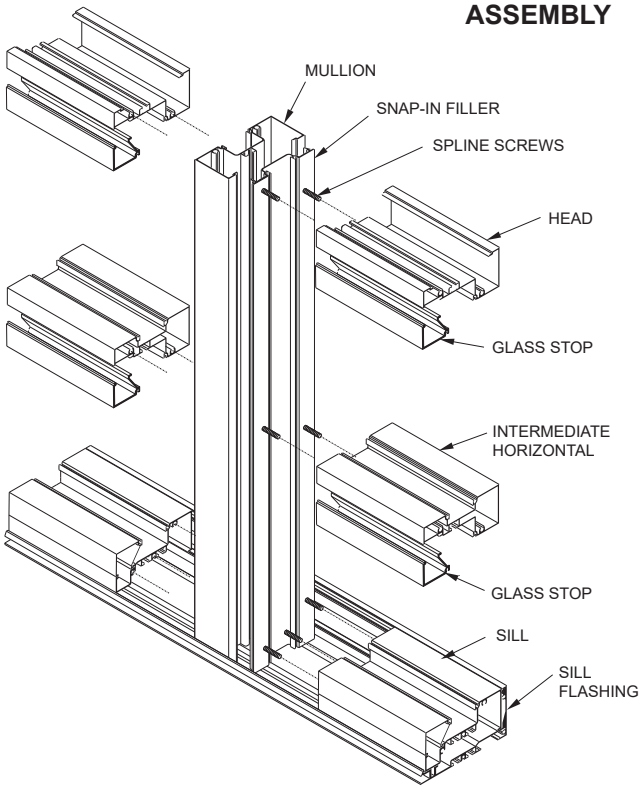
Metric (SI) conversion figures are included throughout these details for reference. Numbers in parentheses ( ) are millimeters unless otherwise noted.

The following metric (SI) units are found in these details:

m – meter
cm – centimeter
mm – millimeter
s – second
Pa – pascal
MPa – megapascal

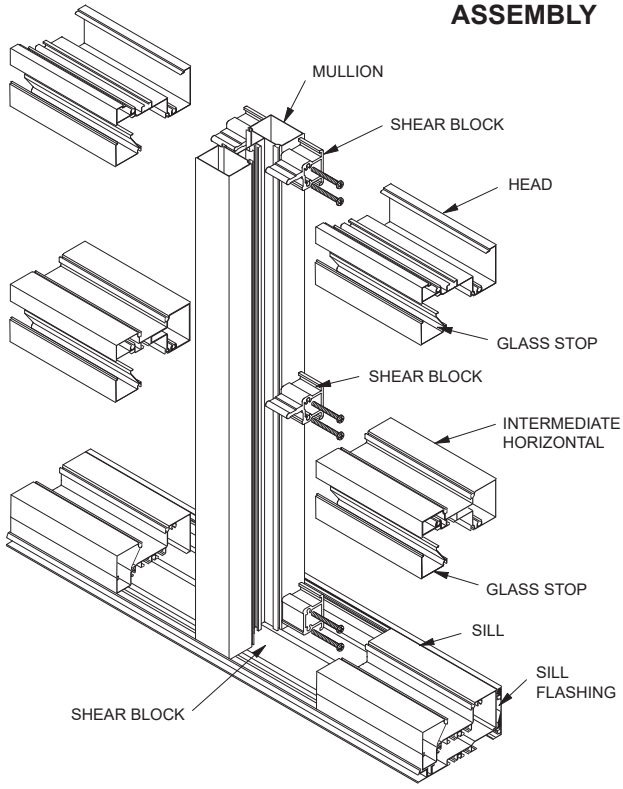
The split vertical in the **Screw Spline** system allows a frame to be installed from unitized assemblies. Screws are driven through the back of the verticals into splines extruded in the horizontal framing members. The Individual units are then snapped together to form a complete frame.

SCREW SPLINE ASSEMBLY

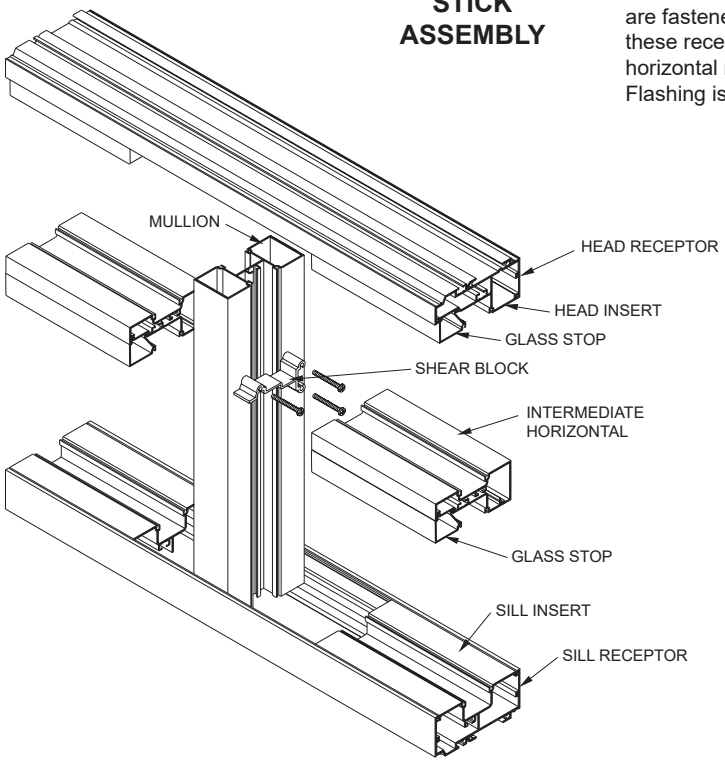


The **Shear Block** system of fabrication allows a frame to be pre-assembled as a single unit. Horizontals are attached to the verticals with shear blocks.

SHEAR BLOCK ASSEMBLY



STICK ASSEMBLY



The **Stick** system allows on-site construction. Head and sill receptors are fastened to the surround. Vertical mullions are then installed in these receptors and are held in place by snap-in inserts. Intermediate horizontal members are attached to the verticals with shear blocks. Flashing is not required.

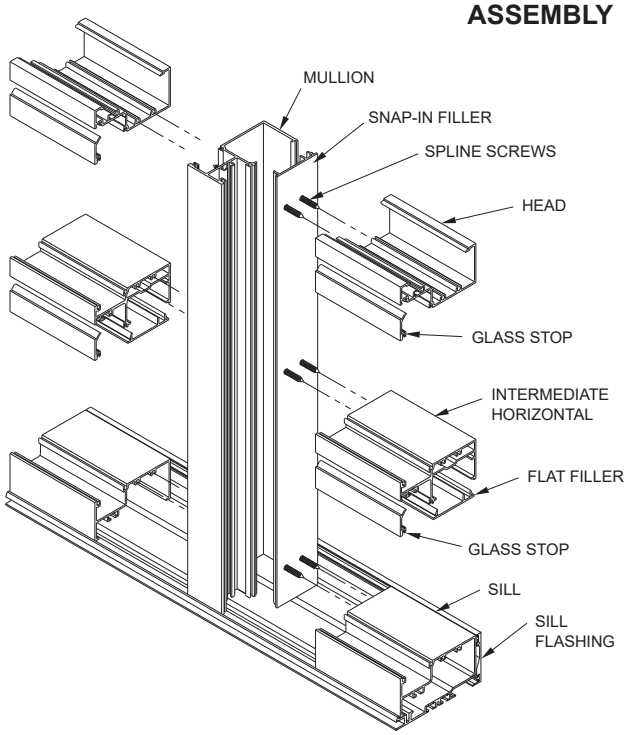
NOTE:
If the end reaction of the mullion (mullion spacing (ft.) times height (ft.) times specified wind load (psf) divided by two) is more than 500 lbs., the optional mullion anchors must be used. (See page 18)

Trifab® VersaGlaze® 451/451T Framing System

PICTORIAL VIEW (FRONT)

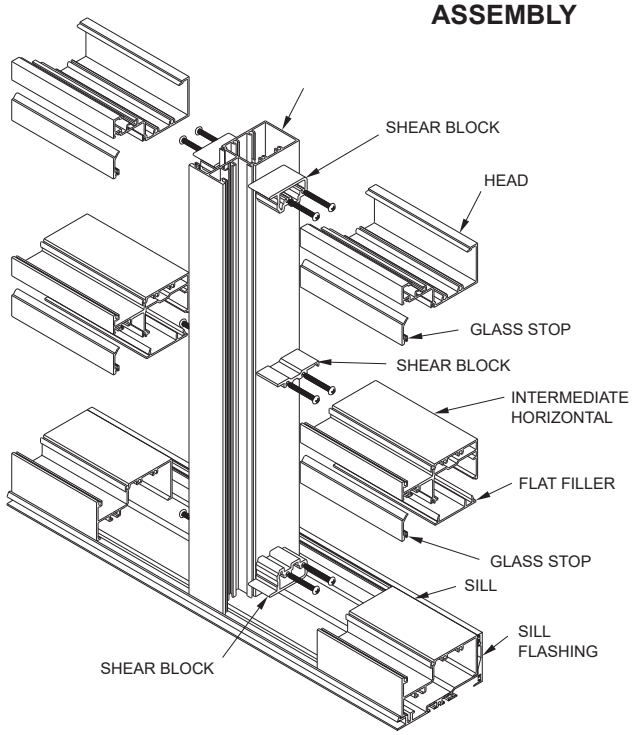
The split vertical in the **Screw Spline** system allows a frame to be installed from unitized assemblies. Screws are driven through the back of the verticals into splines extruded in the horizontal framing members. The Individual units are then snapped together to form a complete frame.

SCREW SPLINE ASSEMBLY

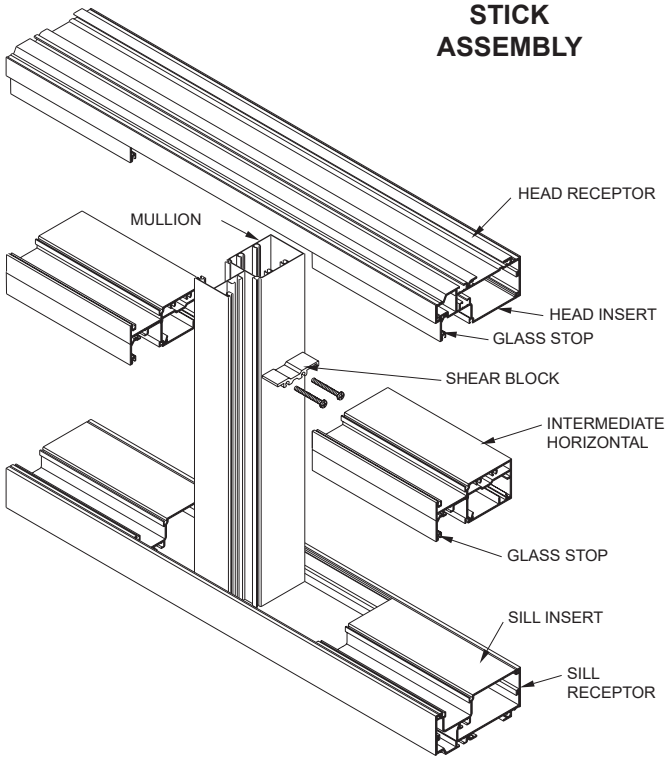


The **Shear Block** system of fabrication allows a frame to be pre-assembled as a single unit. Horizontals are attached to the verticals with shear blocks.

SHEAR BLOCK ASSEMBLY



STICK ASSEMBLY



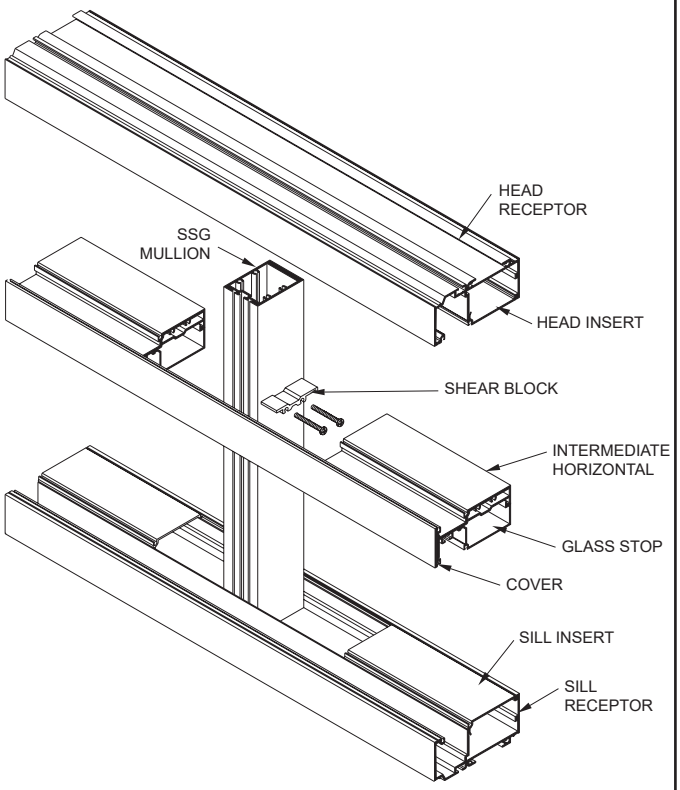
The **Stick** system allows on-site construction. Head and sill receptors are fastened to the surround. Vertical mullions are then installed in these receptors and are held in place by snap-in inserts. Intermediate horizontal members are attached to the verticals with shear blocks. Flashing is not required.

NOTE:
If the end reaction of the mullion (mullion spacing (ft.) times height (ft.) times specified wind load (psf) divided by two) is more than 500 lbs., the optional mullion anchors must be used. (See page 40)

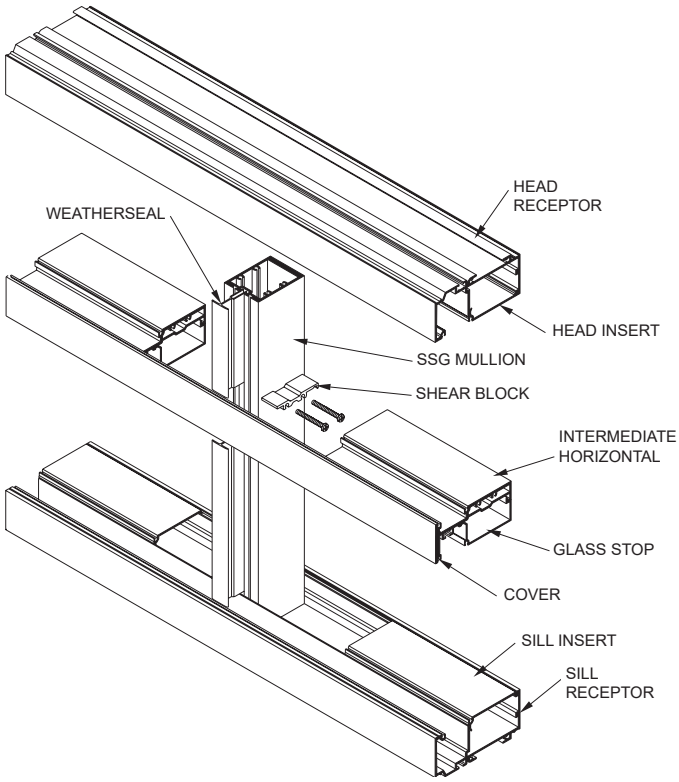
Trifab® VersaGlaze® 451/451T Framing System

The **Stick** system allows on-site construction. Head and sill receptors are fastened to the surround. Vertical mullions are then installed in these receptors and are held in place by snap-in inserts. Intermediate horizontal members are attached to the verticals with shear blocks. Flashing is not required.

STICK ASSEMBLY (SSG)



STICK ASSEMBLY (WEATHERSEAL)



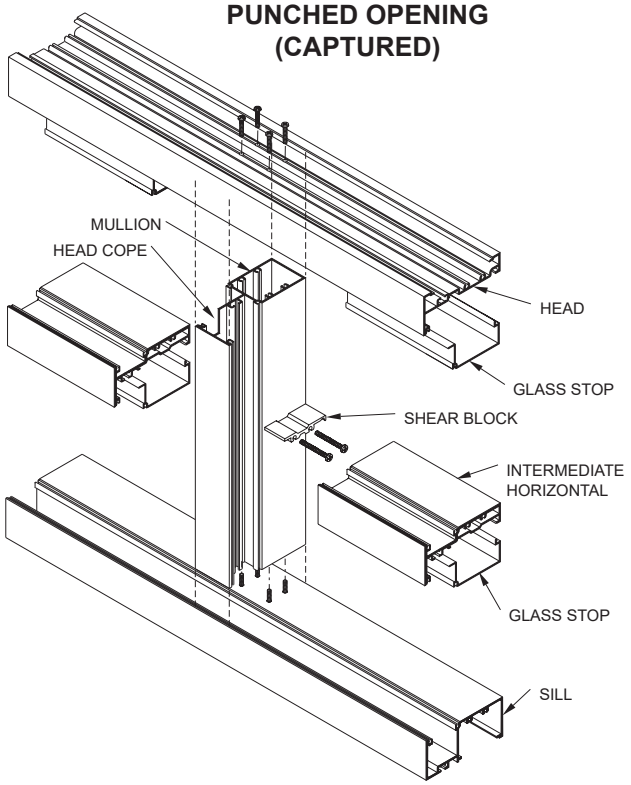
NOTE:
If the end reaction of the mullion (mullion spacing (ft.) times height (ft.) times specified wind load (psf) divided by two) is more than 500 lbs., the optional mullion anchors must be used. (See page 40)

Trifab® VersaGlaze® 451/451T Framing System

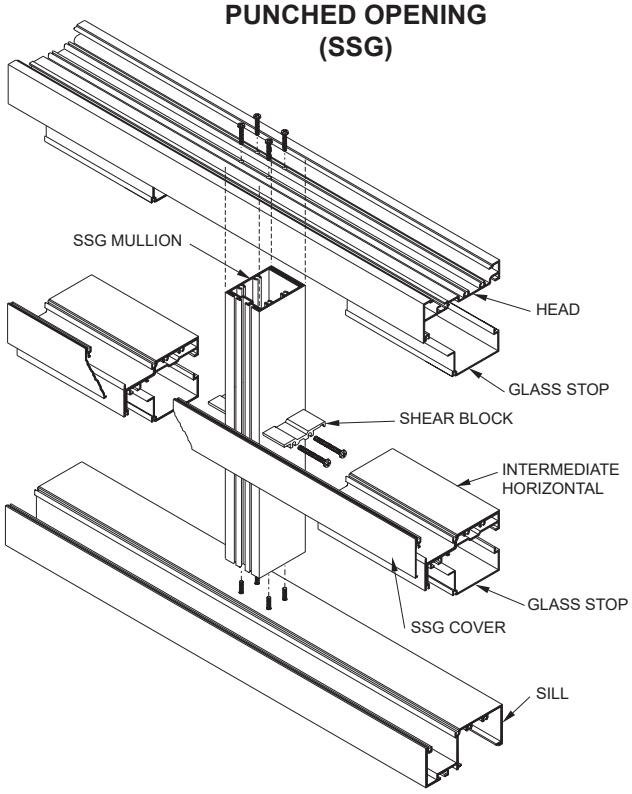
PICTORIAL VIEW (FRONT)

The **CONTINUOUS HEAD AND SILL** punched opening fabrication allows a frame to be pre-assembled and installed as a single unit. Screws are driven through the back of the head and sill members into splines extruded in the vertical framing members. Intermediate horizontals are attached to the verticals with shear blocks.

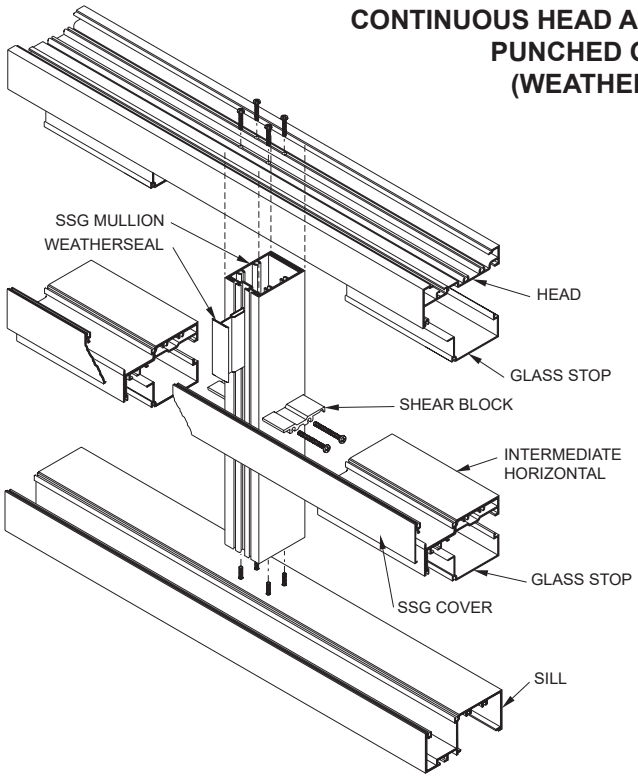
CONTINUOUS HEAD AND SILL ASSEMBLY PUNCHED OPENING (CAPTURED)



CONTINUOUS HEAD AND SILL ASSEMBLY PUNCHED OPENING (SSG)



CONTINUOUS HEAD AND SILL ASSEMBLY PUNCHED OPENING (WEATHERSEAL)



The **Punched Opening** fabrication allows a frame to be pre-punched and installed as a single unit. screws are driven through the back of the head and sill members into splines extruded in the vertical framing members. Intermediate horizontals are attached to the verticals with shear blocks.

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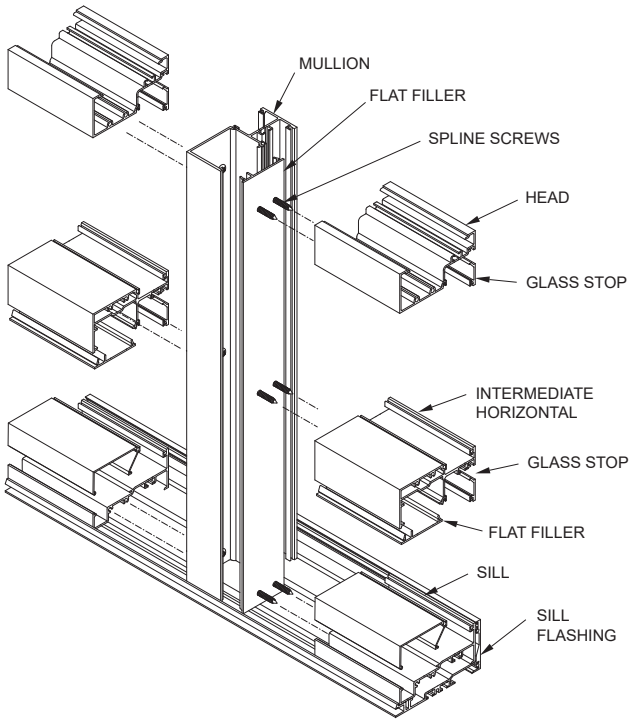
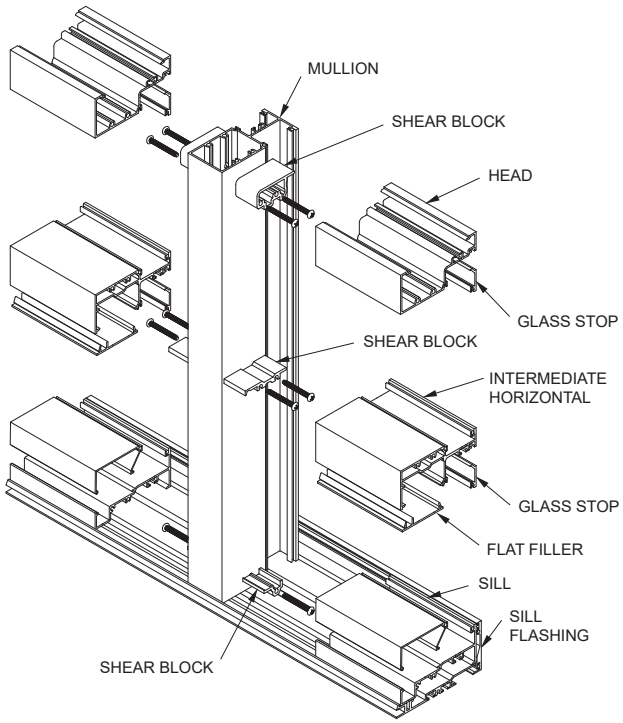
The split vertical in the **Screw Spline** system allows a frame to be installed from unitized assemblies. Screws are driven through the back of the verticals into splines extruded in the horizontal framing members. The Individual units are then snapped together to form a complete frame.

SCREW SPLINE ASSEMBLY

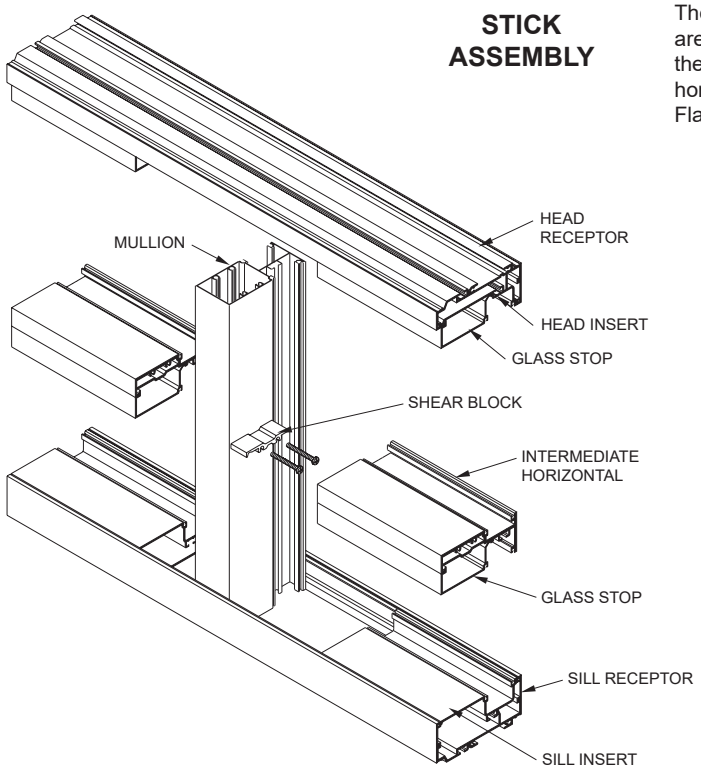


The **Shear Block** system of fabrication allows a frame to be pre-assembled as a single unit. Horizontals are attached to the verticals with shear blocks.

SHEAR BLOCK ASSEMBLY



STICK ASSEMBLY

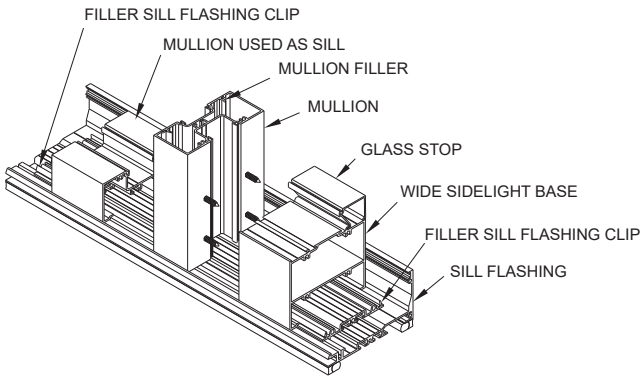


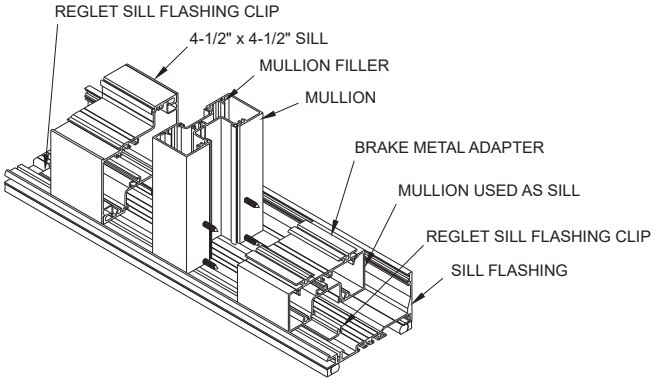
The **Stick** system allows on-site construction. Head and sill receptors are fastened to the surround. Vertical mullions are then installed in these receptors and are held in place by snap-in inserts. Intermediate horizontal members are attached to the verticals with shear blocks. Flashing is not required.

NOTE:
If the end reaction of the mullion (mullion spacing (ft.) times height (ft.) times specified wind load (psf) divided by two) is more than 500 lbs., the optional mullion anchors must be used. (See page 51)

SCREW SPLINE ASSEMBLY

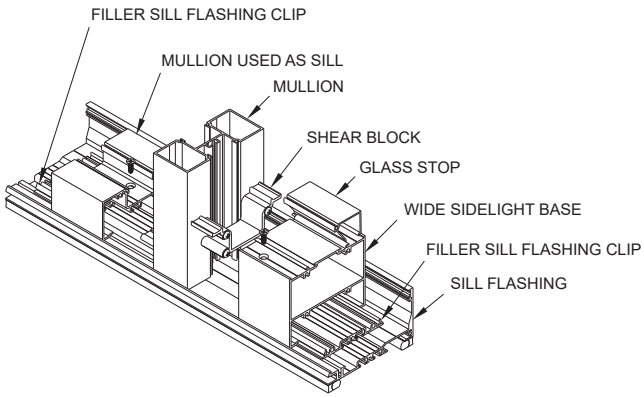
The split vertical in the **Screw Spline** system allows a frame to be installed from unitized assemblies. Screws are driven through the back of the verticals into splines extruded in the horizontal framing members. The Individual units are then snapped together to form a complete frame.

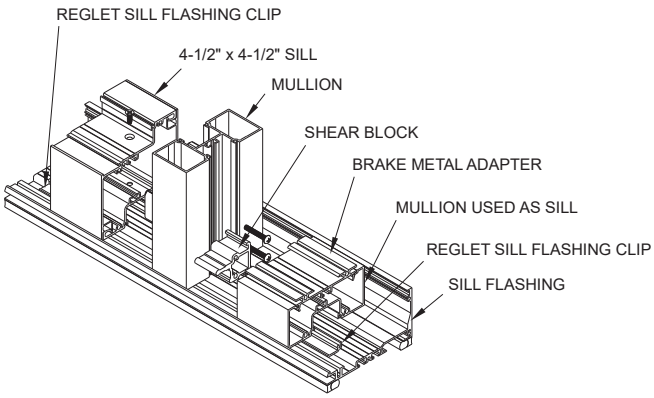




SHEAR BLOCK ASSEMBLY

The **Shear Block** system of fabrication allows a frame to be pre-assembled as a single unit. Horizontals are attached to the verticals with shear blocks.

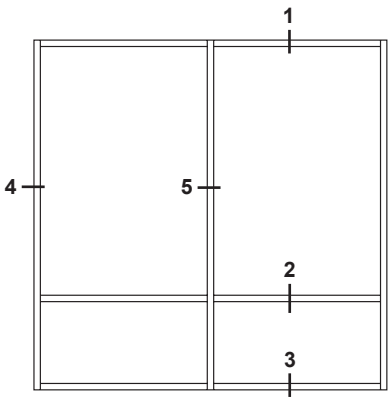




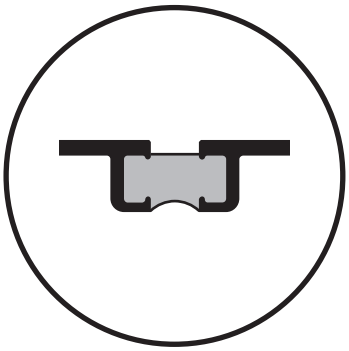
Trifab® VersaGlaze® 451/451T Framing System

BASIC FRAMING DETAILS (CENTER - Outside Glazed - Stops Up)

Additional information and CAD details are available at www.kawneer.com

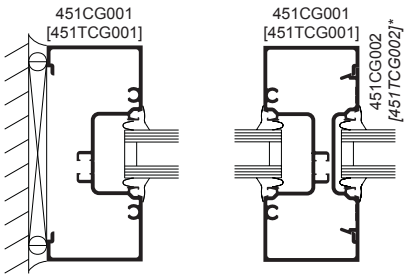


ELEVATION IS NUMBER KEYED TO DETAILS

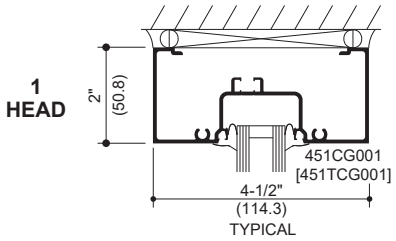


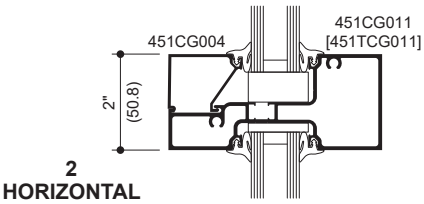
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

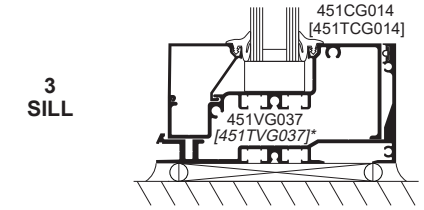
SCREW SPLINE



4 JAMB — 5 VERTICAL

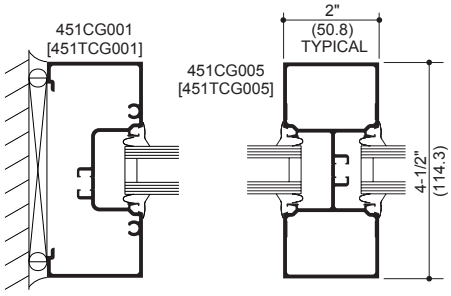




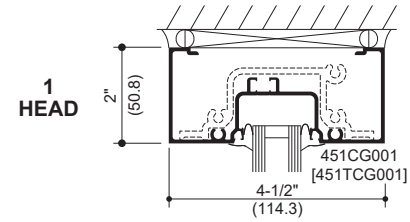


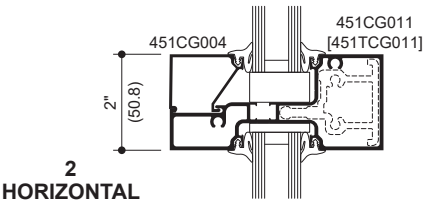
*HP Sill Flashing shown with optional gasket.

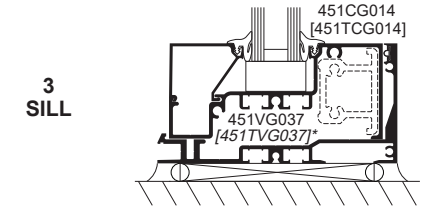
SHEAR BLOCK



4 JAMB — 5 VERTICAL

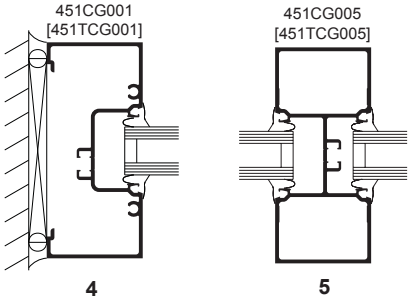




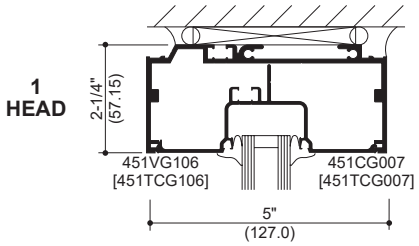


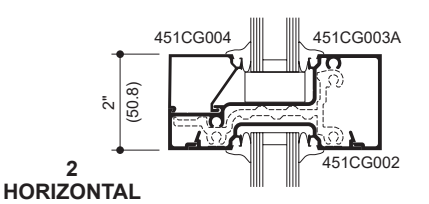
*HP Sill Flashing shown with optional gasket.

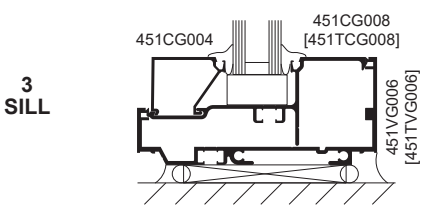
STICK



4 JAMB — 5 VERTICAL



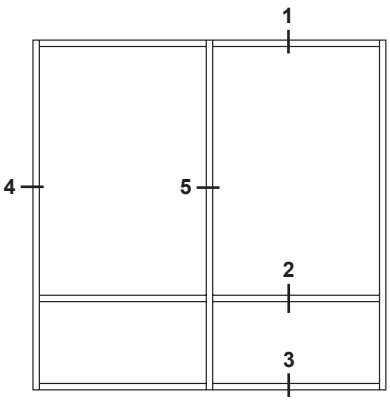




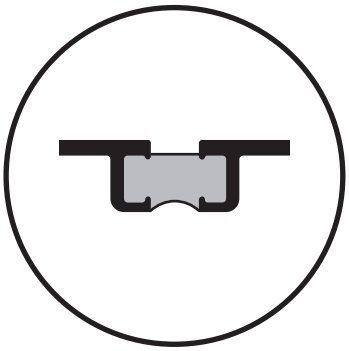
Trifab® VersaGlaze® 451/451T Framing System

BASIC FRAMING DETAILS (CENTER - Inside Glazed - Stops Down)

Additional information and CAD details are available at www.kawneer.com

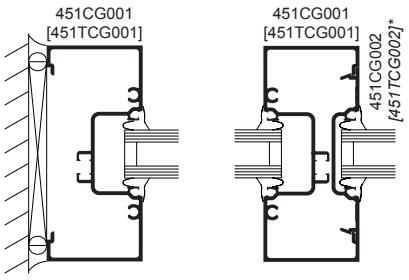


ELEVATION IS NUMBER KEYED TO DETAILS



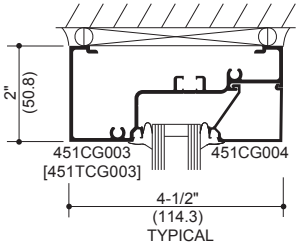
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

SCREW SPLINE

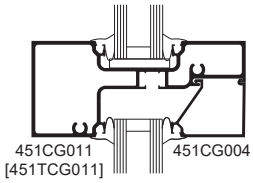


4 JAMB — 5 VERTICAL

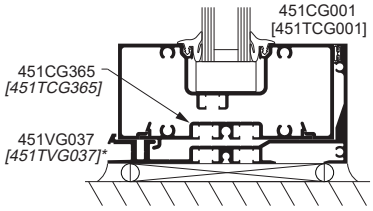
1 HEAD



2 HORIZONTAL

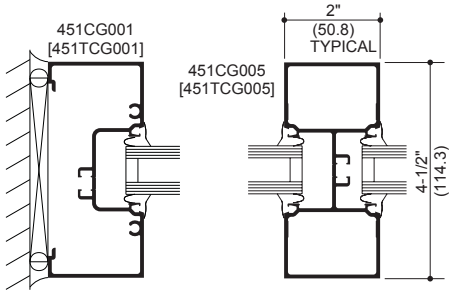


3 SILL



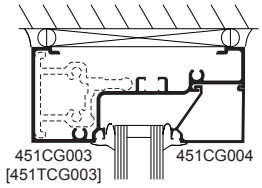
* HP Sill Flashing shown with optional gasket.

SHEAR BLOCK

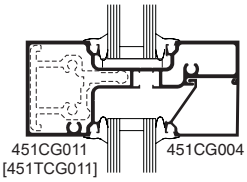


4 JAMB — 5 VERTICAL

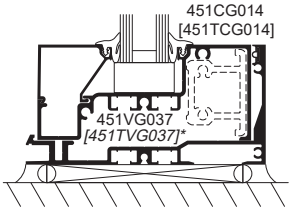
1 HEAD



2 HORIZONTAL

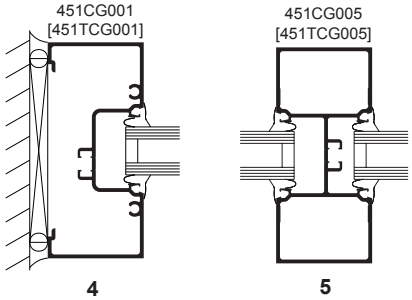


3 SILL



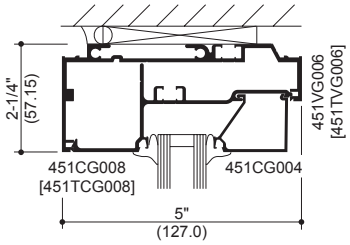
* HP Sill Flashing shown with optional gasket.

STICK

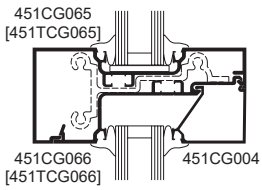


4 JAMB — 5 VERTICAL

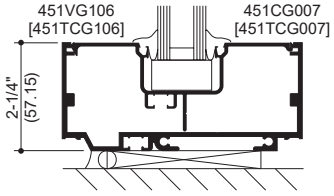
1 HEAD



2 HORIZONTAL



3 SILL

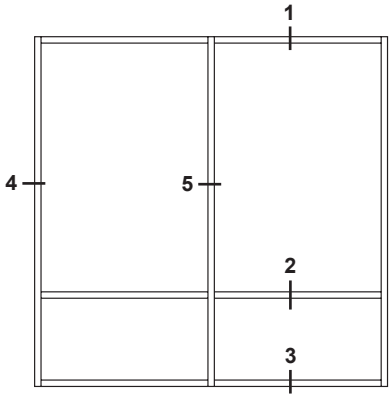


KAWNEER

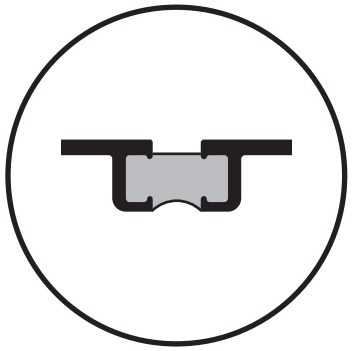
Trifab® VersaGlaze® 451/451T Framing System

BASIC FRAMING DETAILS (CENTER - Outside Glazed - Stops Down)

Additional information and CAD details are available at www.kawneer.com

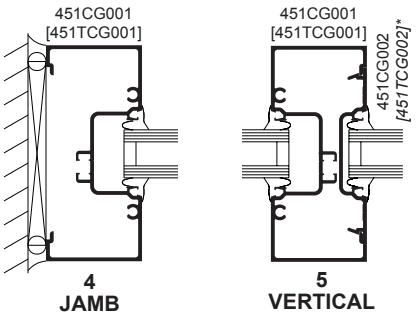


ELEVATION IS NUMBER KEYED TO DETAILS

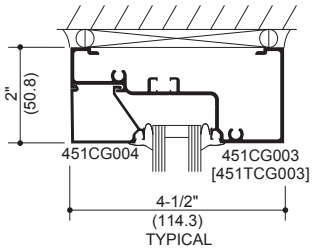


NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

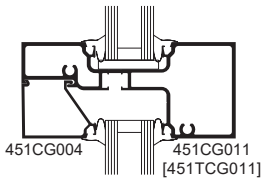
SCREW SPLINE



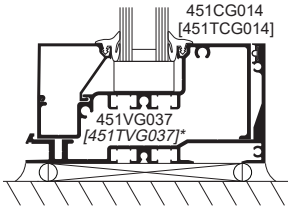
1 HEAD



2 HORIZONTAL

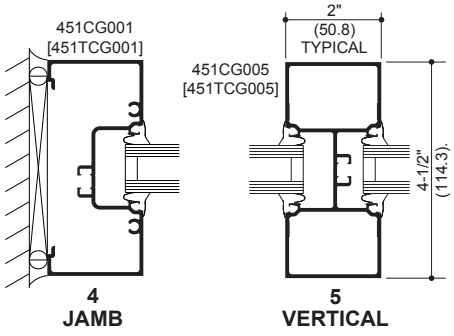


3 SILL

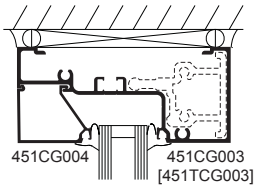


* HP Sill Flashing shown with optional gasket.

SHEAR BLOCK



1 HEAD



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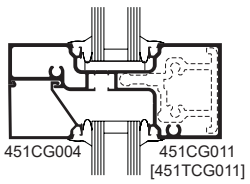
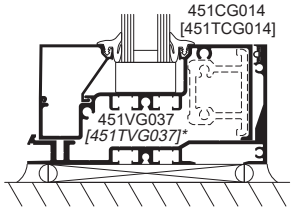
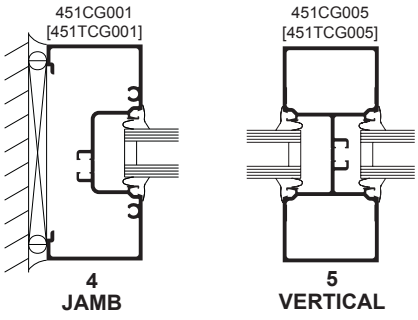


3 SILL

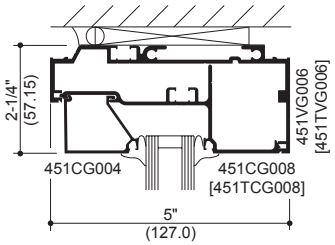


* HP Sill Flashing shown with optional gasket.

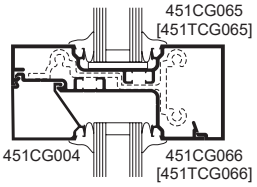
STICK



1 HEAD



2 HORIZONTAL



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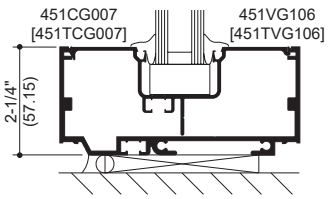

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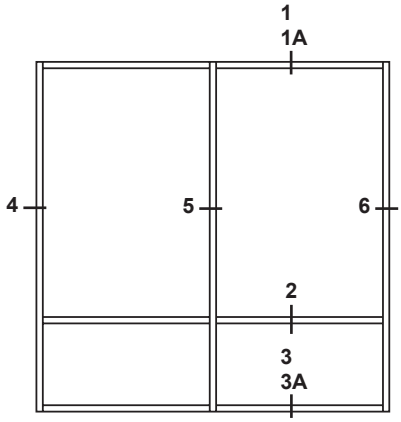
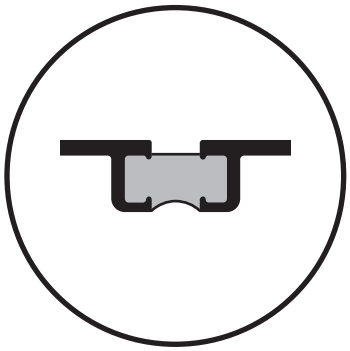
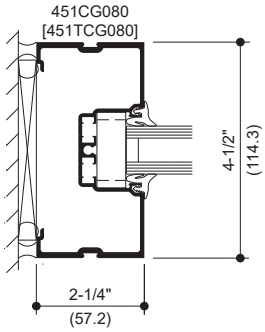


ELEVATION IS NUMBER KEYED TO DETAILS

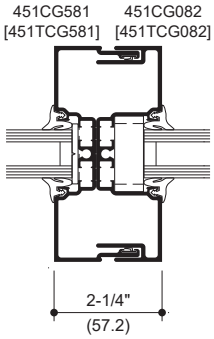


NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

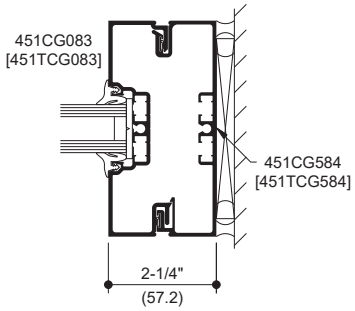
SCREW SPLINE



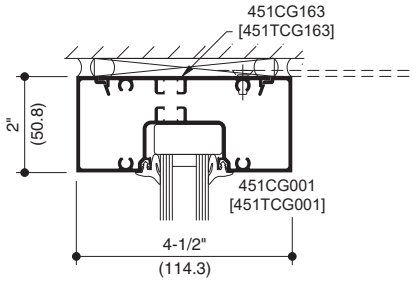
4 JAMB



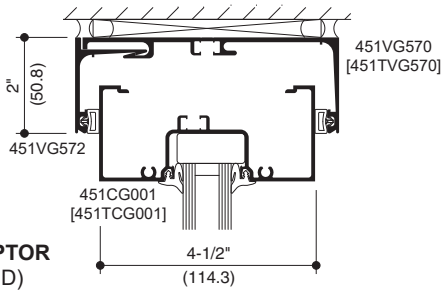
5 VERTICAL



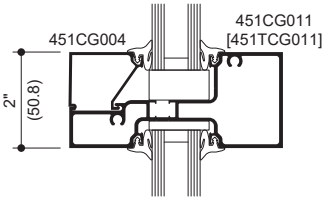
6 JAMB



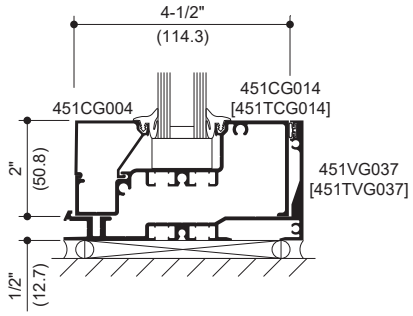
1 HEAD



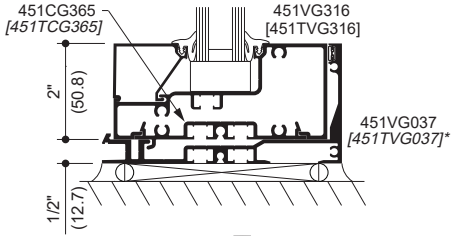
1A STANDARD HEAD COMPENSATING RECEPTOR (EXTERIOR INSTALLED)



2 HORIZONTAL



3 SILL



3A SILL

Trifab® VersaGlaze® 451/451T Framing System

PRE-GLAZED FRAMING DETAILS (CENTER - Inside Glazed - Stops Down)

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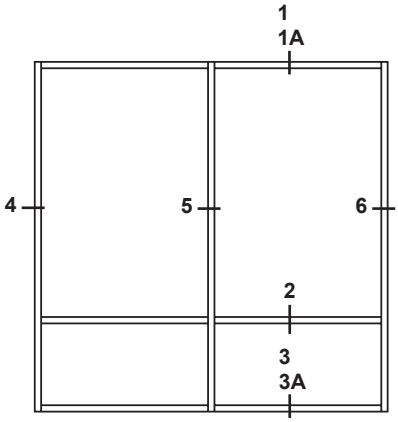
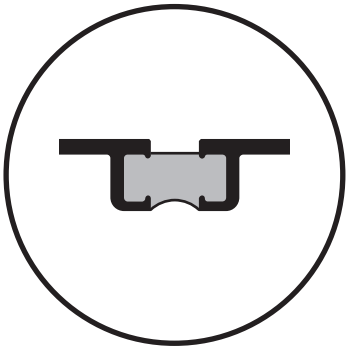
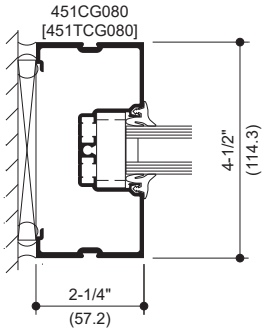


ELEVATION IS NUMBER KEYED TO DETAILS

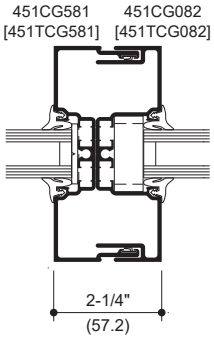


NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

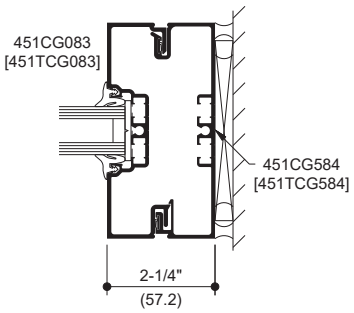
SCREW SPLINE



4 JAMB

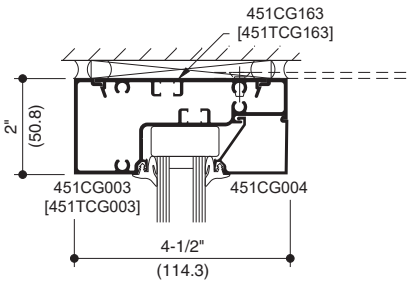


5 VERTICAL

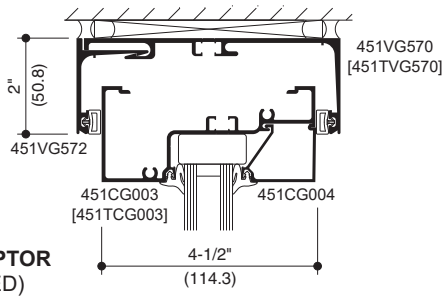


6 JAMB

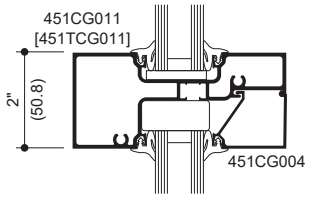
1 HEAD



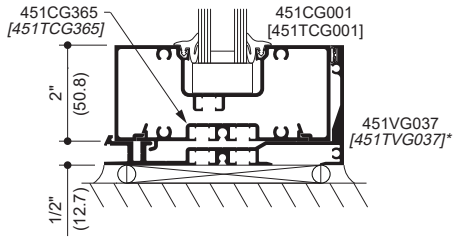
1A STANDARD HEAD COMPENSATING RECEPTOR (EXTERIOR INSTALLED)



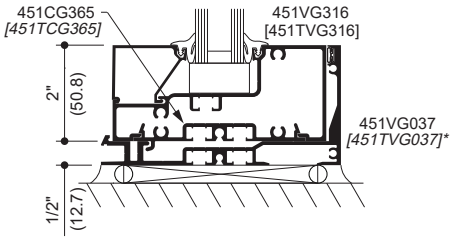
2 HORIZONTAL



3 SILL



3A SILL



* HP Sill Flashing shown with optional gasket.

Trifab® VersaGlaze® 451/451T Framing System

PRE-GLAZED FRAMING DETAILS (CENTER - Outside Glazed - Stops Down)

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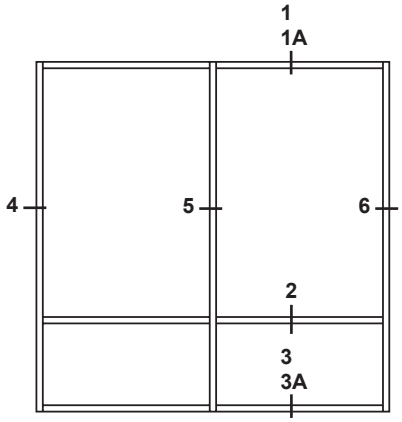
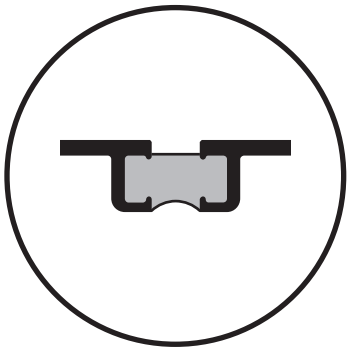
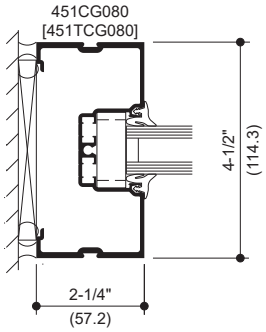


ELEVATION IS NUMBER KEYED TO DETAILS

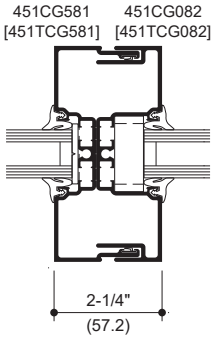


NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

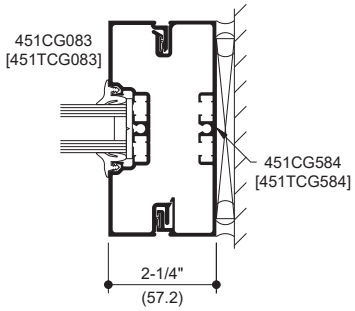
SCREW SPLINE



4 JAMB

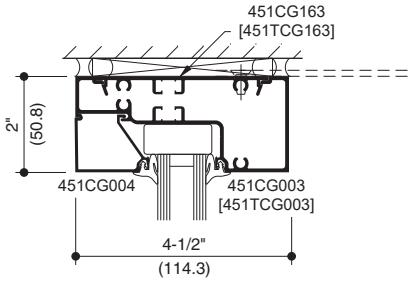


5 VERTICAL

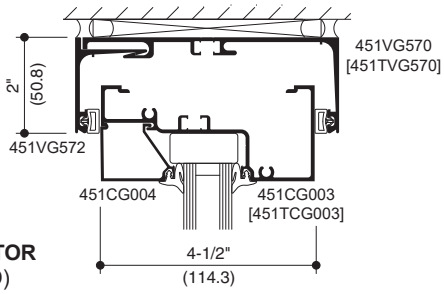


6 JAMB

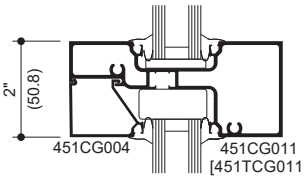
1 HEAD



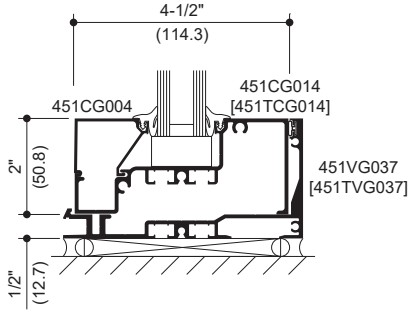
1A STANDARD HEAD COMPENSATING RECEPTOR (EXTERIOR INSTALLED)



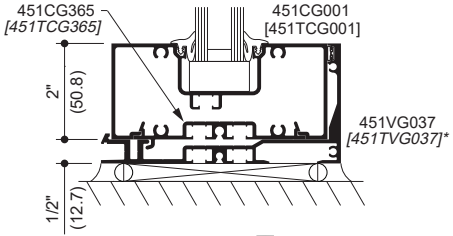
2 HORIZONTAL



3 SILL



3A SILL



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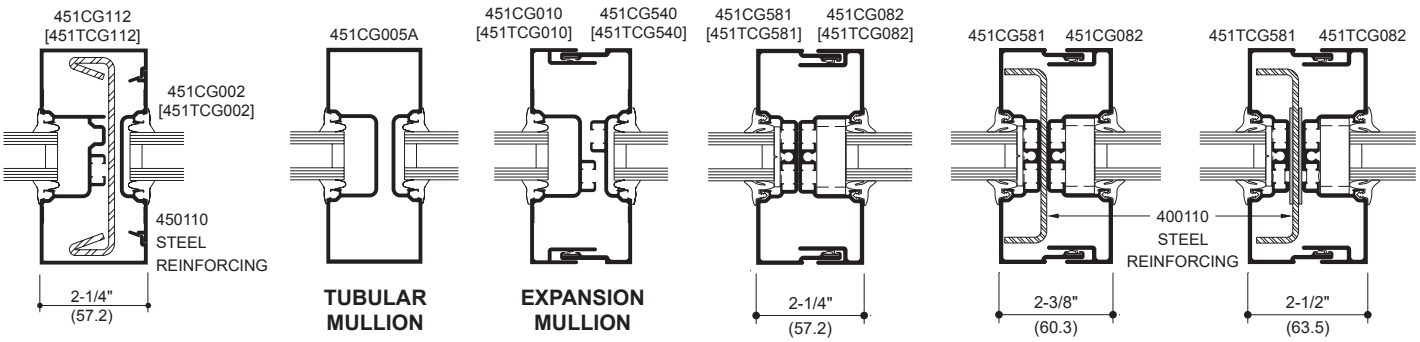
PRE-GLAZED EXPANSION MULLIONS



SPLIT MULLION W/ STEEL

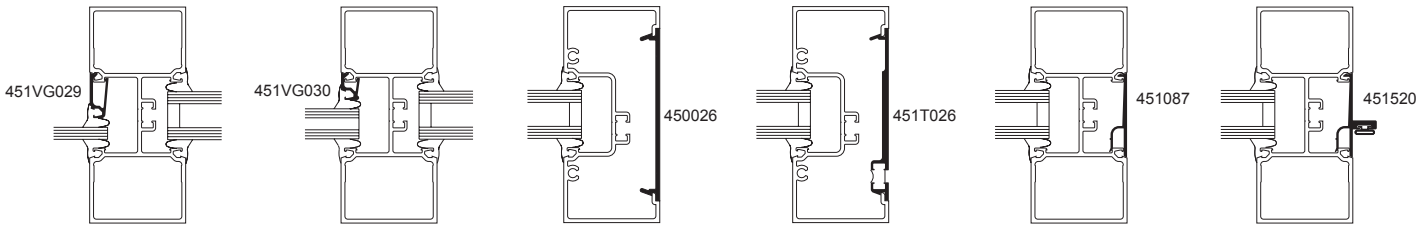
TUBULAR MULLION

EXPANSION MULLION

451/451T

451 W/ STEEL

451T W/ STEEL



1/4" (6.4) INFILL SNAP-IN ADAPTOR

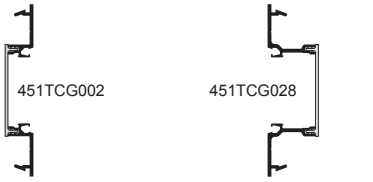
5/8" (15.9) INFILL SNAP-IN ADAPTOR

SNAP-IN FLAT FILLER

THERMAL FLAT FILLER

SNAP-IN FLAT POCKET FILLER

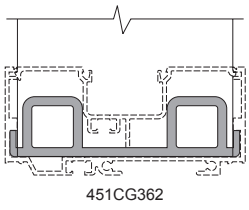
SNAP-IN DOOR STOP



SHALLOW POCKET

DEEP POCKET

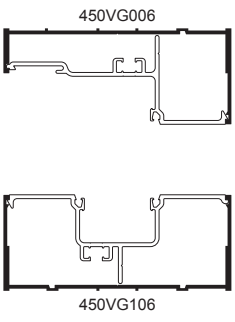
THERMAL POCKET FILLERS



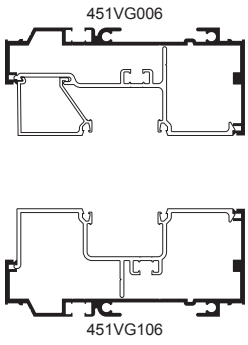
MULLION ANCHOR

NOTE:
If the end reaction of the mullion (mullion spacing (ft.) times height (ft) times specified wind load (psf), divided by two) is more than 500 LBS., the optional mullion anchor must be used. Consult Application Engineering.

NOTE:
Mullion Anchor not used with Lightweight Receptor.

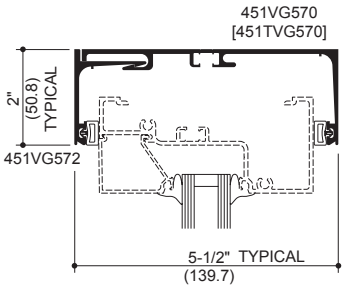


OPTIONAL LIGHTWEIGHT CAN RECEPTORS

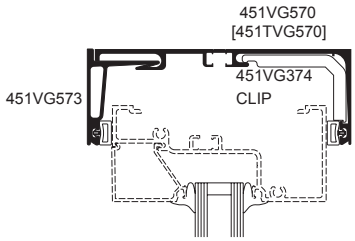


OPTIONAL UNEQUAL LEG CAN RECEPTORS

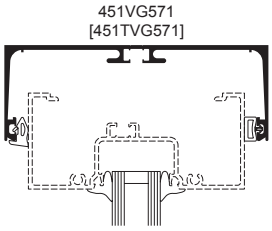
Additional information and CAD details are available at www.kawneer.com



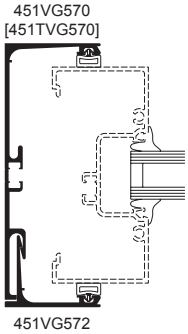
STANDARD HEAD COMPENSATING RECEPTOR
(EXTERIOR INSTALLED)



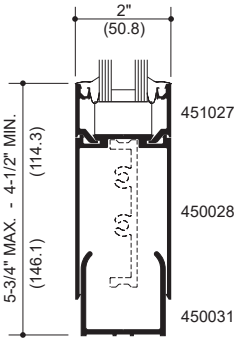
HEAVY WEIGHT HEAD COMPENSATING RECEPTOR
(EXTERIOR INSTALLED)



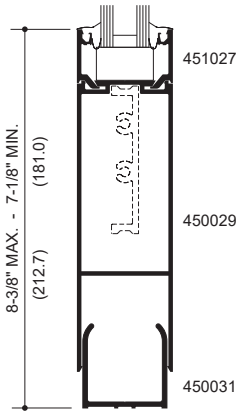
ONE PIECE HEAD COMPENSATING RECEPTOR



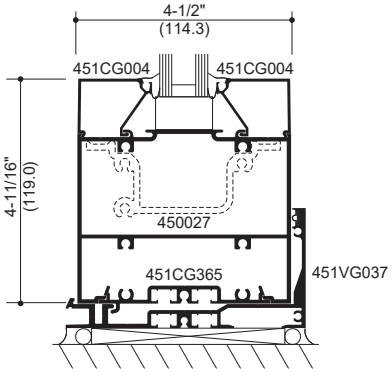
JAMB COMPENSATING RECEPTOR
(EXTERIOR INSTALLED)



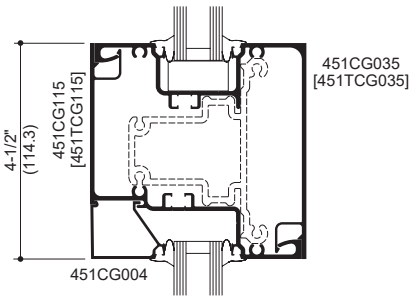
***NARROW SIDELITE BASE**



***NARROW SIDELITE BASE**



SIDELITE BASE



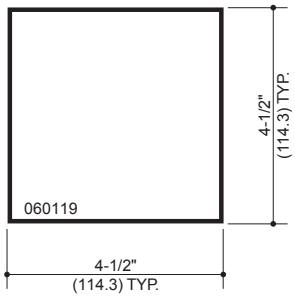
4-1/2" (114.3) x 4-1/2" (114.3) HORIZONTAL

SIDELITE BASES ARE NON-THERMAL APPLICATIONS

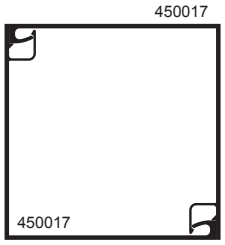
*NARROW SIDELITE BASES REQUIRE THE USE OF NON-THERMAL 2-PIECE VERTICALS ONLY.

NOTE: SIDELITE BASES SHOWN ARE FOR USE WITH SCREW SPLINE AND SHEAR BLOCK SYSTEMS ONLY.

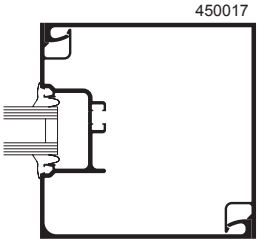
Additional information and CAD details are available at www.kawneer.com



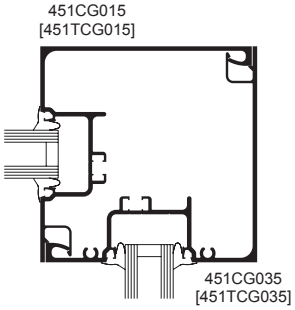
4-1/2" X 4-1/2" TUBE



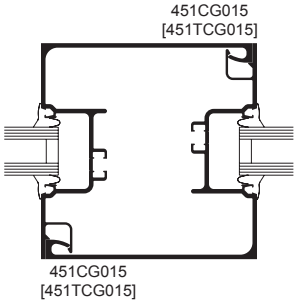
TWO PIECE NO POCKET CORNER



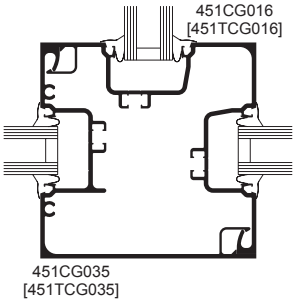
ONE POCKET CORNER



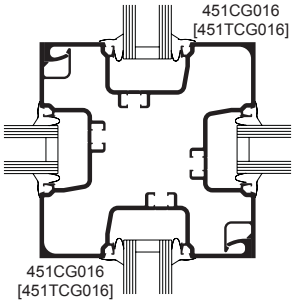
TWO POCKET 90° CORNER



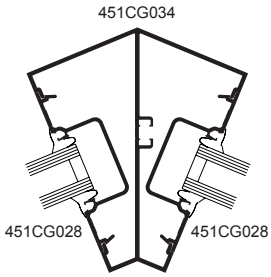
TWO POCKET CORNER POST



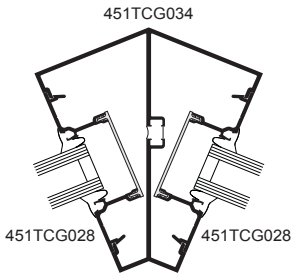
THREE POCKET 90° CORNER



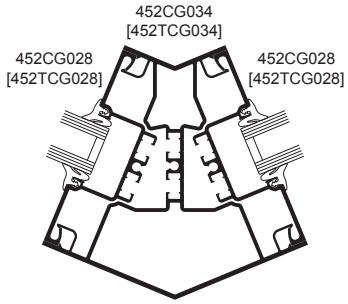
FOUR POCKET 90° CORNER



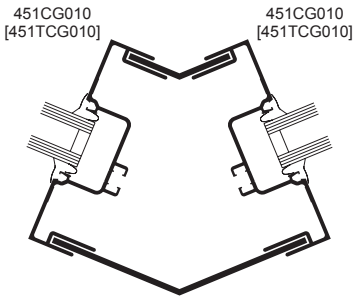
135° CORNER (NON-THERMAL)



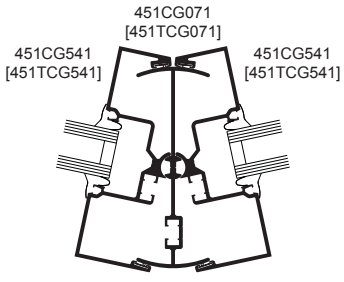
135° CORNER (THERMAL)



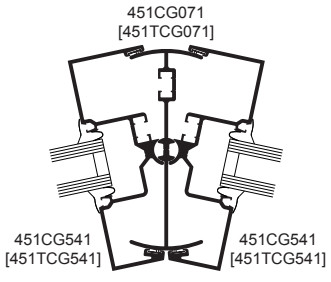
135° CORNER



VARIABLE DEGREE BRAKE METAL CORNER

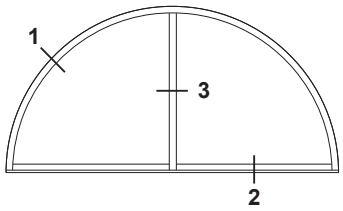


155° TO 180° PIVOT MULLION (OUTSIDE CORNER)



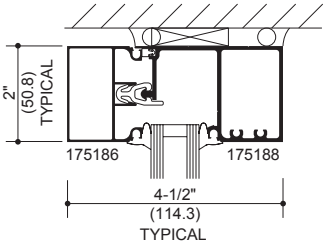
155° TO 180° PIVOT MULLION (INSIDE CORNER)

Additional information and CAD details are available at www.kawneer.com



CURVING DETAILS
(Center Plane Only)

1



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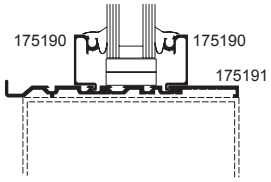

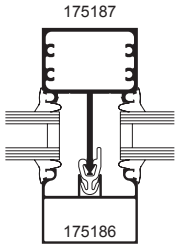

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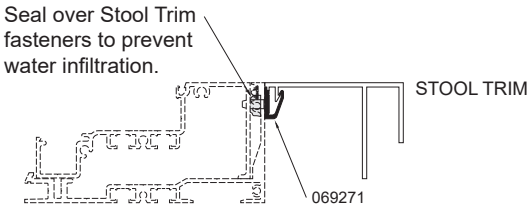
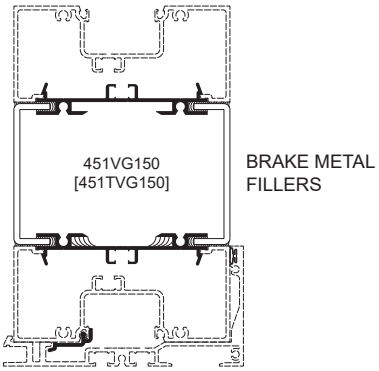
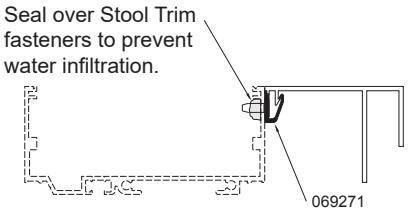


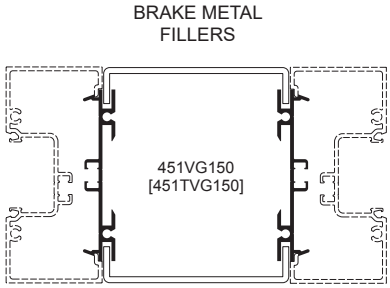
STOOL TRIM CLIP
WITH HIGH PERFORMANCE
FLASHING



BRAKE METAL
ADAPTOR AT HORIZONTAL



STOOL TRIM CLIP
FOR STICK ASSEMBLY



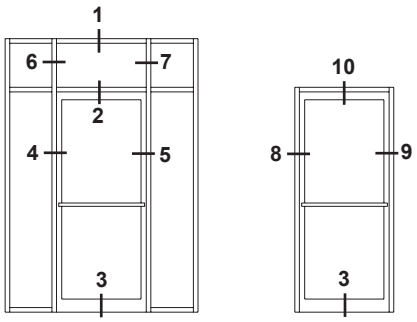
BRAKE METAL
ADAPTOR AT VERTICAL

Additional information and CAD details are available at www.kawneer.com

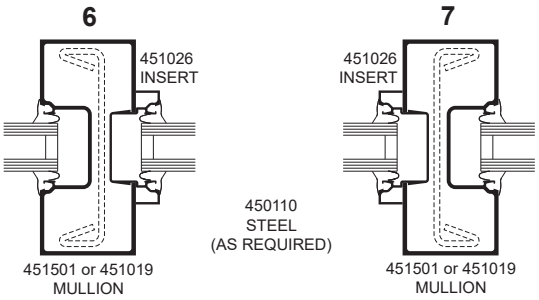
Trifab® VersaGlaze® 451 FRAMING INCORPORATING KAWNEER® "190" DOORS.

DOOR FRAMING NON-THERMAL ONLY

NOTE: OTHER TYPES OF KAWNEER DOORS MAY BE USED WITH THIS FRAMING SYSTEM. SEE ENTRANCE DETAILS FOR ADDITIONAL INFORMATION.

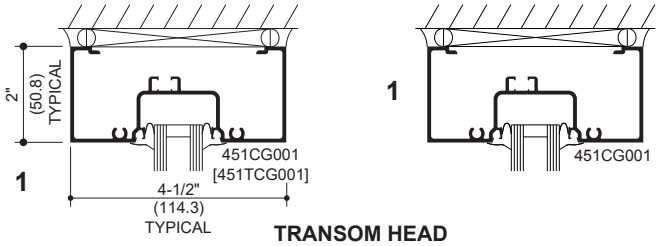


ELEVATIONS ARE NUMBER KEYED TO DETAILS

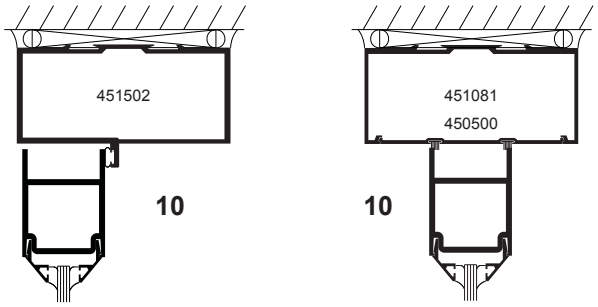


TRANSOM JAMBS

Transom area for both double or single acting doors with glass surround. Jambs above transom bar are routed out to accept glass holding insert with or without steel reinforcing.

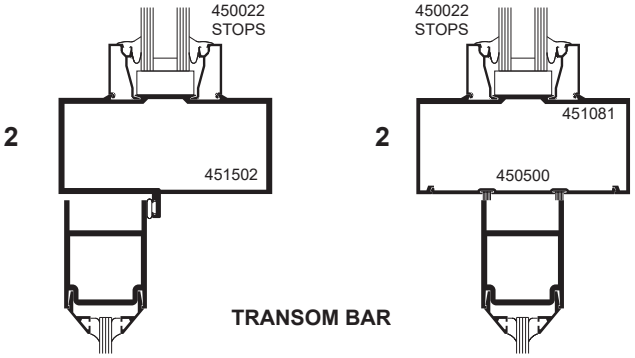


TRANSOM HEAD

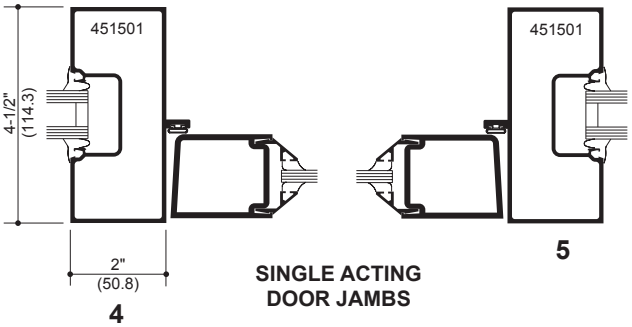


SINGLE ACTING HEADER

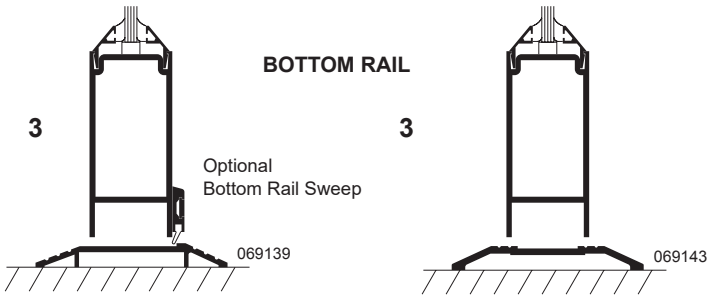
DOUBLE ACTING HEADER



TRANSOM BAR



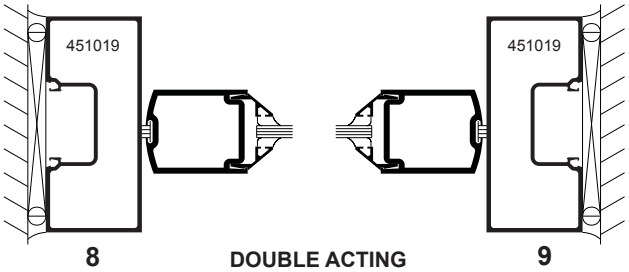
SINGLE ACTING DOOR JAMBS



BOTTOM RAIL

SINGLE ACTING

DOUBLE ACTING



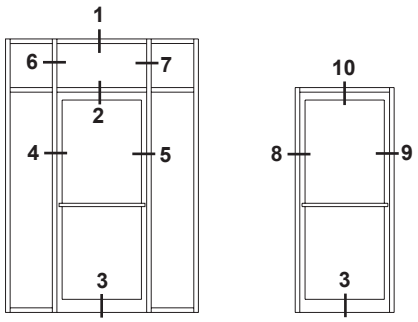
DOUBLE ACTING DOOR JAMBS

Additional information and CAD details are available at www.kawneer.com

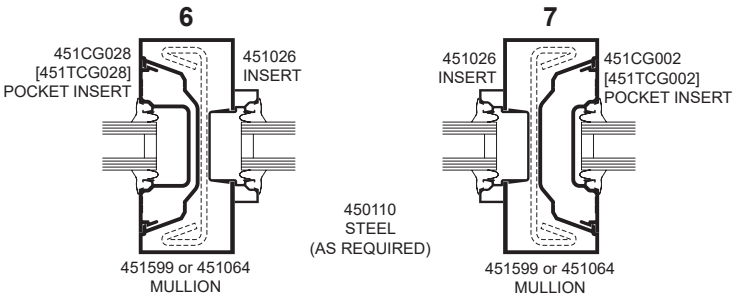
Trifab® VersaGlaze® 451 FRAMING INCORPORATING KAWNEER® "190" DOORS.

DOOR FRAMING NON-THERMAL ONLY

NOTE: OTHER TYPES OF KAWNEER DOORS MAY BE USED WITH THIS FRAMING SYSTEM. SEE ENTRANCE DETAILS FOR ADDITIONAL INFORMATION.

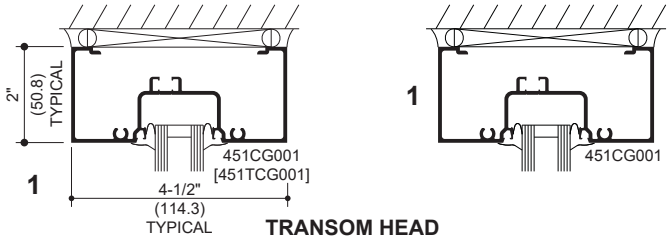


ELEVATIONS ARE NUMBER KEYED TO DETAILS

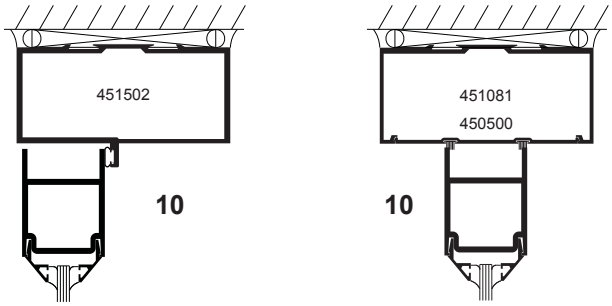


TRANSOM JAMBS

Transom area for both double or single acting doors with glass surround. Jambs above transom bar are routed out to accept glass holding insert with or without steel reinforcing.

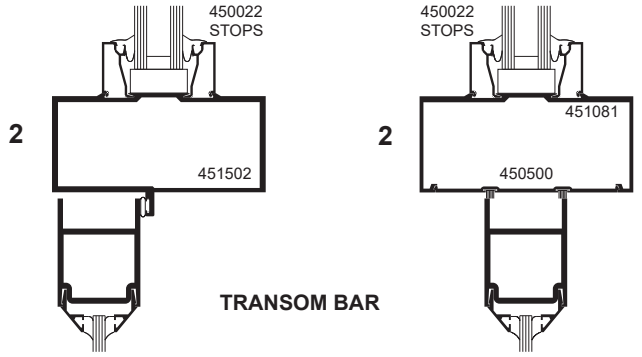


TRANSOM HEAD

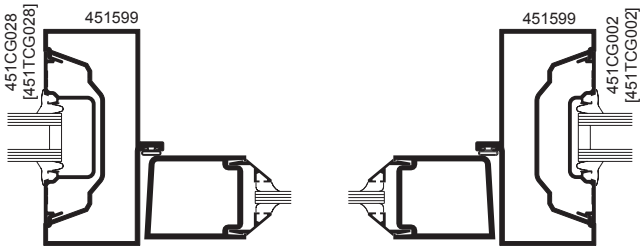


SINGLE ACTING HEADER

DOUBLE ACTING HEADER

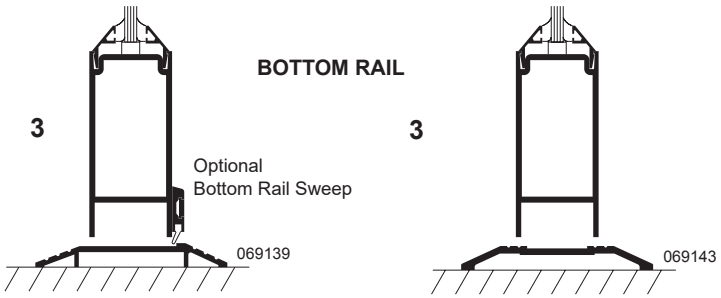


TRANSOM BAR



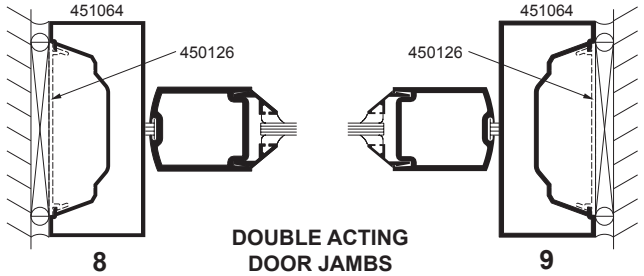
SINGLE ACTING DOOR JAMBS

NOTE: Sidelite mullions must be oriented to provide at least one (1) deep vertical pocket per lite to facilitate glazing.



SINGLE ACTING

DOUBLE ACTING



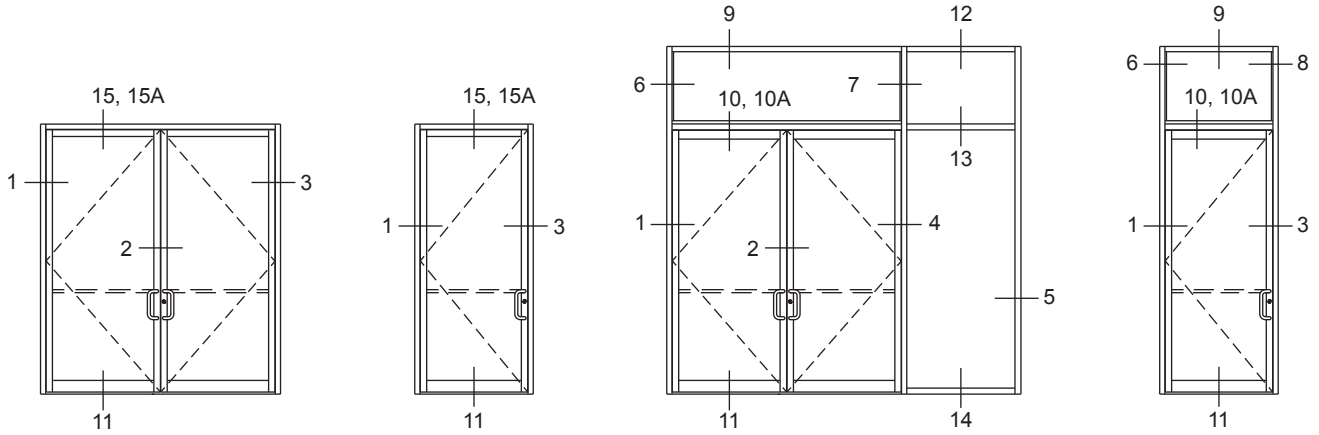
DOUBLE ACTING DOOR JAMBS

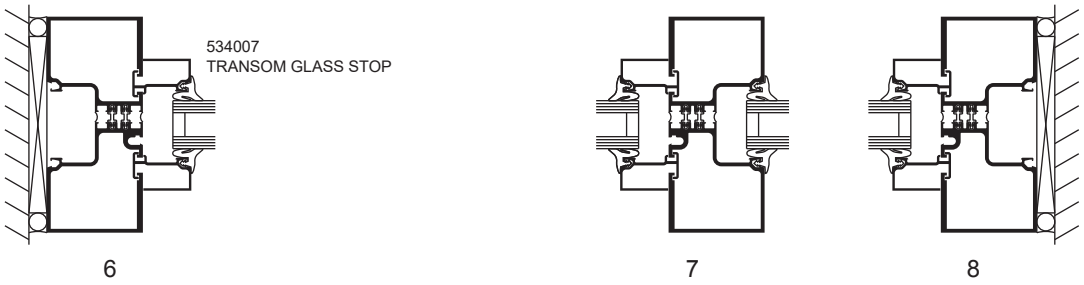
Additional information and CAD details are available at www.kawneer.com

NOTE:

1. SERIES 250T NARROW STILE DOORS ARE DETAILED, MEDIUM STILE 350T DOORS AND WIDE STILE 500T DOORS ALSO MAY BE USED.

2. TRIFAB® VERSAGLAZE® 451T CENTER, 2" x 4-1/2" (50.8 x 114.3) FRAMING IS DETAILED WITH THE DOORS FOR REFERENCE. OTHER KAWNEER FRAMING SERIES OR CURTAIN WALL SYSTEMS MAY BE USED.





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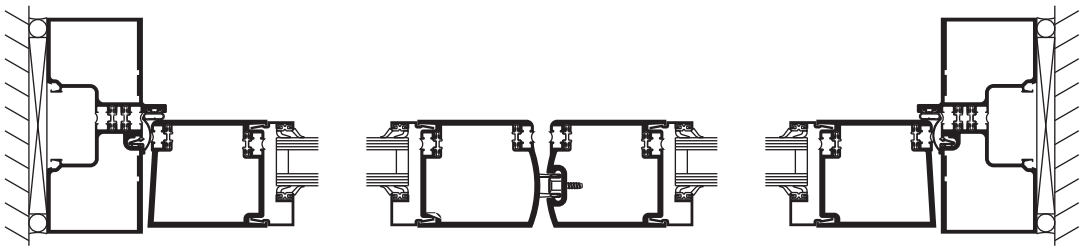
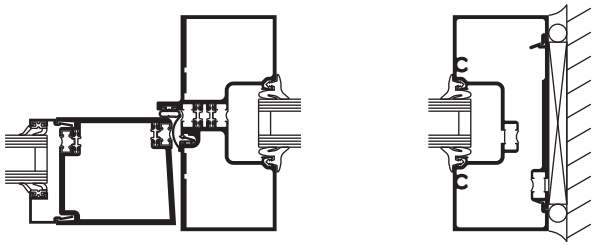


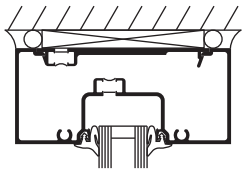
1 2 3

SINGLE ACTING DOORS



4 5

Additional information and CAD details are available at www.kawneer.com



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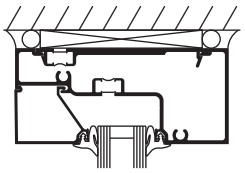
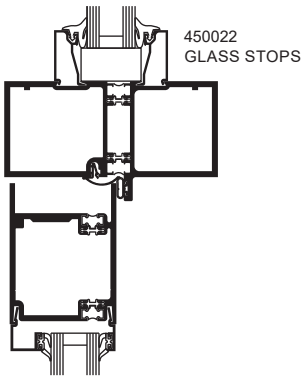


12

SINGLE ACTING DOORS



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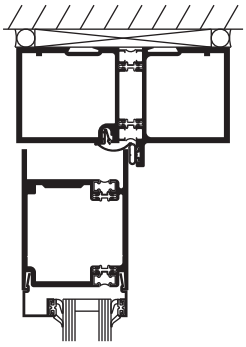

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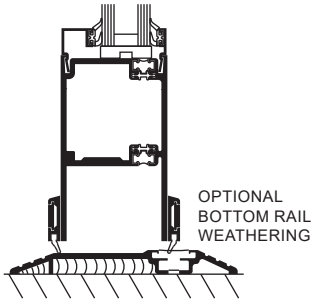
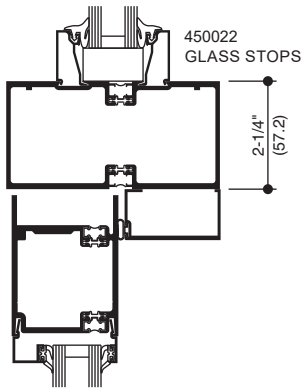


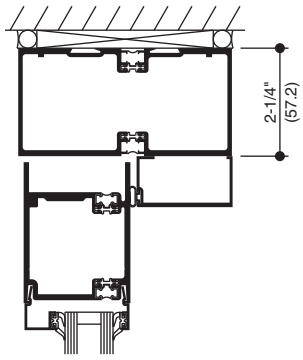
11

SURFACE OVERHEAD CLOSER

COC WITH SINGLE ACTING OFFSET ARM



10A



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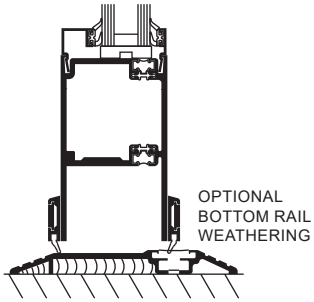
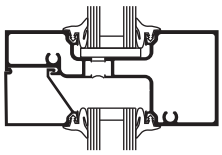


11

CONSEALED OVERHEAD CLOSER



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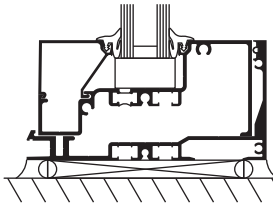
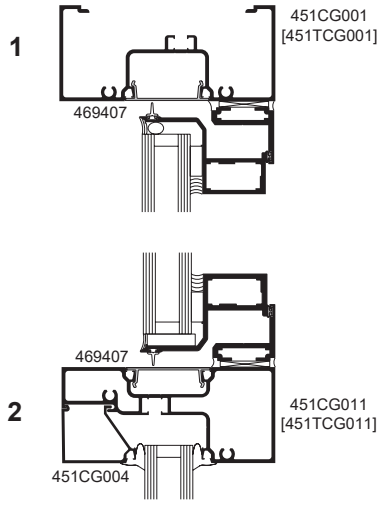
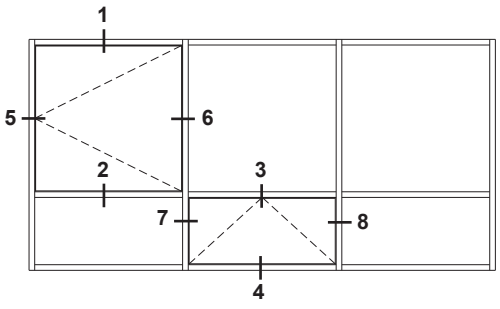


14

Additional information and CAD details are available at www.kawneer.com

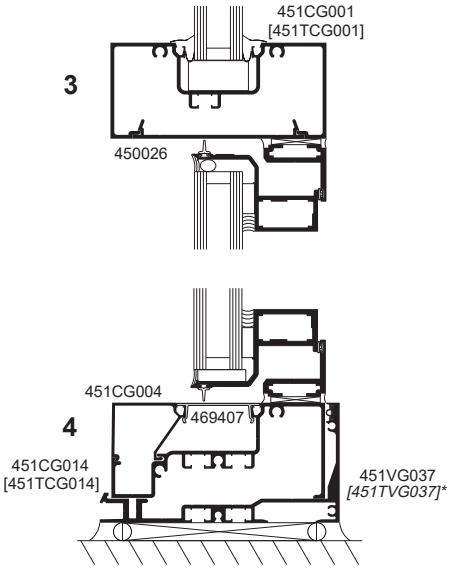
OUTSWING CASEMENT VERTICAL SECTION



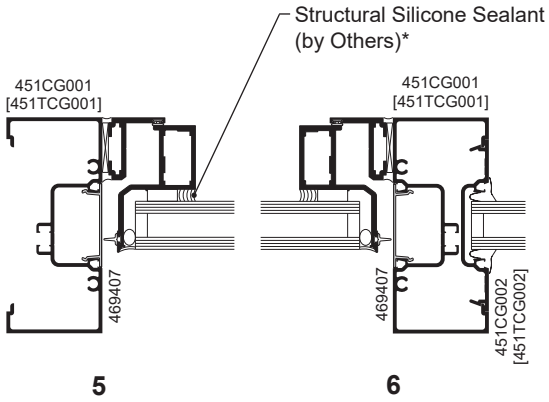


ELEVATION IS NUMBER KEYED TO DETAILS

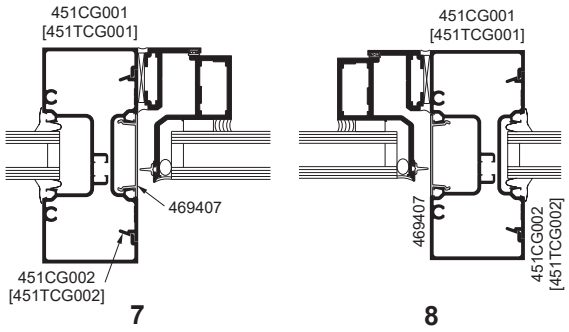
PROJECT-OUT VERTICAL SECTION



OUTSWING CASEMENT HORIZONTAL SECTION



PROJECT-OUT HORIZONTAL SECTION



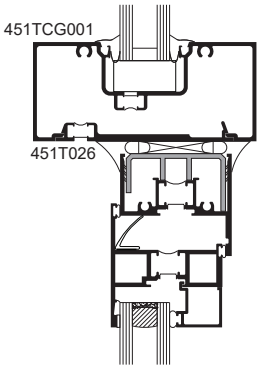
NOTE: Black spacer is recommended when 1" (25.4) insulating glass is used.

*** INSTALLER NOTE:** Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.

Additional information and CAD details are available at www.kawneer.com

PROJECT-OUT VERTICAL SECTION

1



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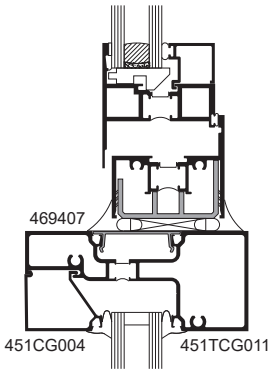
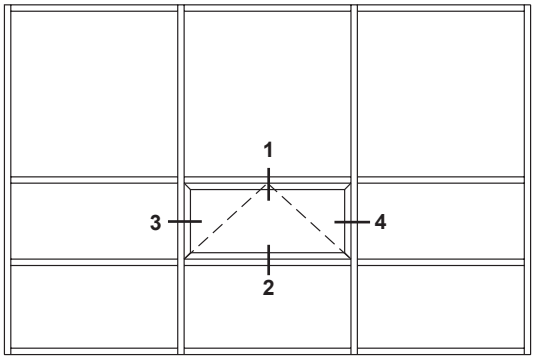
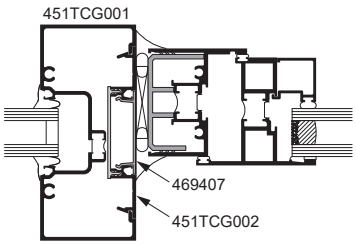


8225TL THERMAL WINDOWS SHOWN
NOTE: OTHER VENT TYPES CAN BE ACCOMMODATED, CONSULT YOUR KAWNEER REPRESENTATIVE FOR OTHER OPTIONS



ELEVATION IS NUMBER KEYED TO DETAILS

PROJECT-OUT HORIZONTAL SECTION



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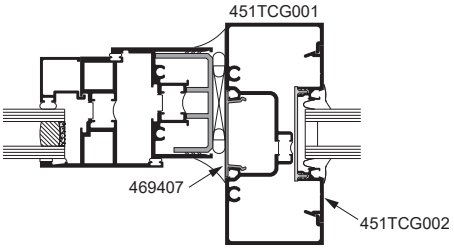


4

Trifab® VersaGlaze® 451/451T Framing System

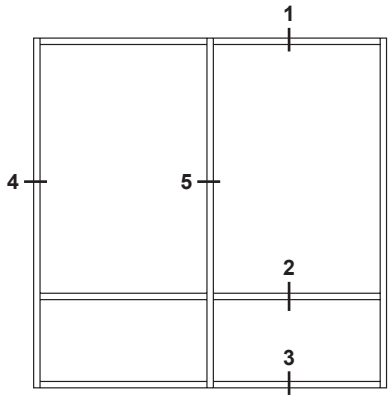
FEBRUARY, 2022

BASIC FRAMING DETAILS (CENTER - Outside Glazed - Stops Down)
LEVEL D - LARGE MISSILE IMPACT

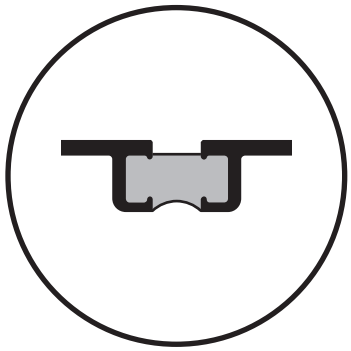
EC 97911-262

Hurricane Resistant Product

Additional information and CAD details are available at www.kawneer.com

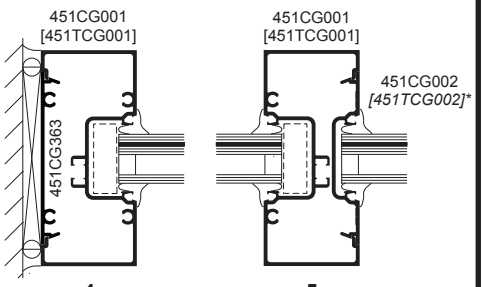


ELEVATION IS NUMBER KEYED TO DETAILS

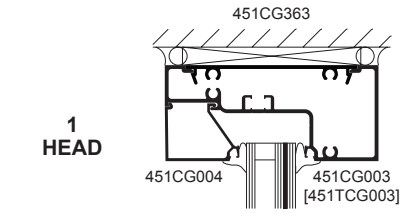


NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

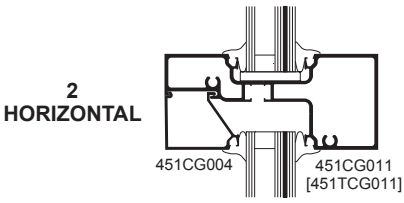
SCREW SPLINE



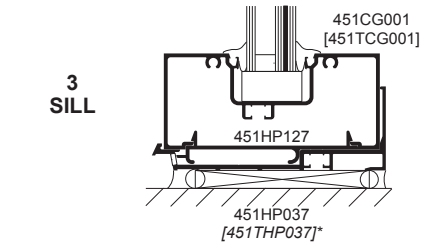
4 JAMB **5 VERTICAL**



1 HEAD

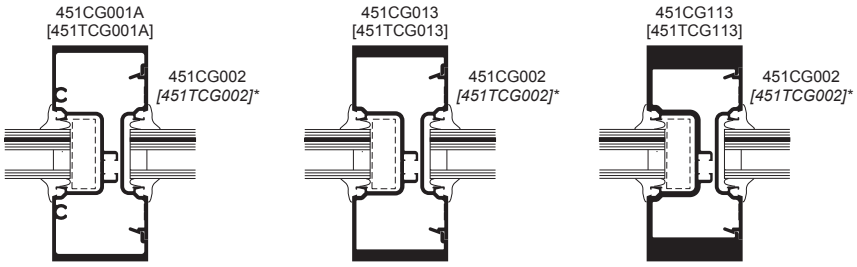


2 HORIZONTAL

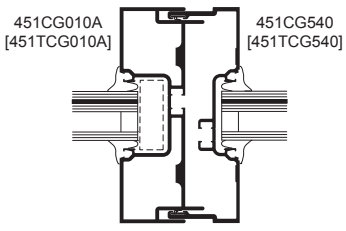


3 SILL

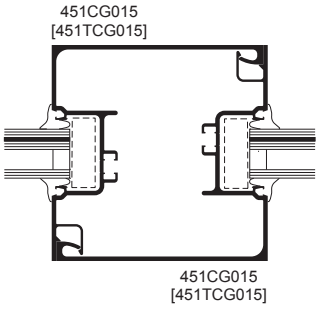
OPTIONAL FRAMING (CENTER)



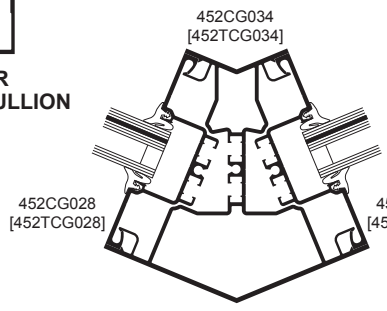
5 VERTICAL **5 VERTICAL** **5 VERTICAL**



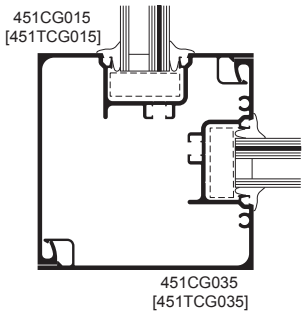
TUBULAR EXPANSION MULLION



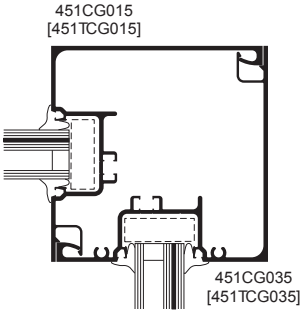
TWO POCKET CORNER POST



135° CORNER



TWO POCKET OUTSIDE CORNER POST



TWO POCKET INSIDE CORNER POST

Trifab® VersaGlaze® 451/451T Framing System

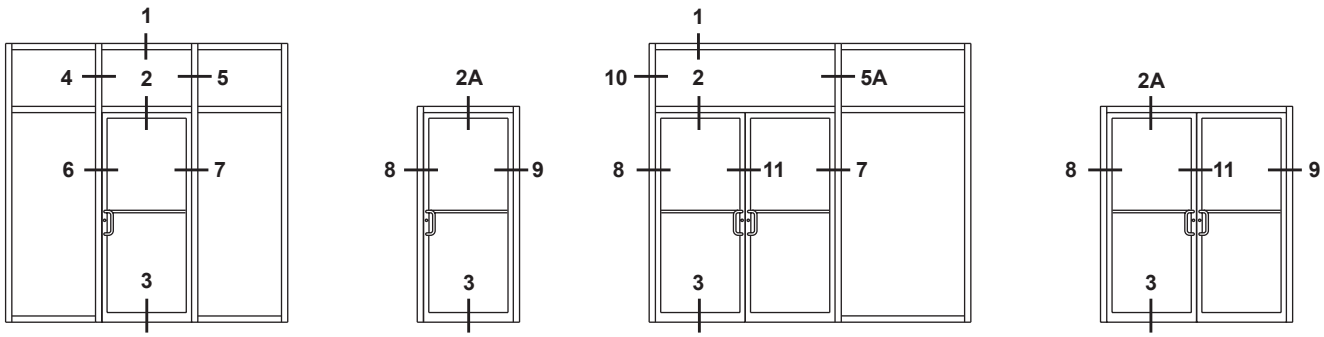
ENTRANCE FRAMING (CENTER)
LEVEL D - LARGE MISSILE IMPACT
Hurricane Resistant Product

Additional information and CAD details are available at www.kawneer.com

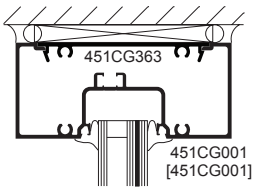
Trifab® VersaGlaze® 451 FRAMING INCORPORATING KAWNEER® "350/500 IR" DOORS (DRY GLAZED).

DOOR FRAMING NON-THERMAL ONLY

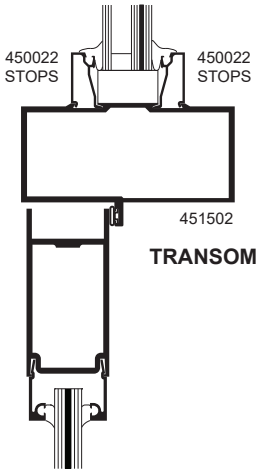
NOTE: OTHER TYPES OF KAWNEER DOORS MAY BE USED WITH THIS FRAMING SYSTEM. SEE ENTRANCE DETAILS FOR ADDITIONAL INFORMATION.



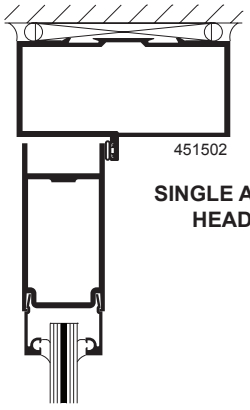
ELEVATIONS ARE NUMBER KEYED TO DETAILS



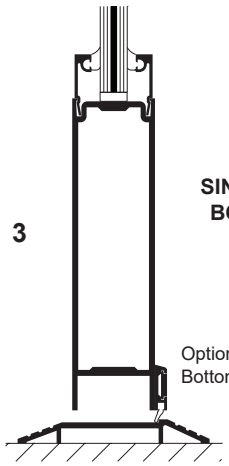
1 **TRANSOM HEAD**



2 **TRANSOM BAR**

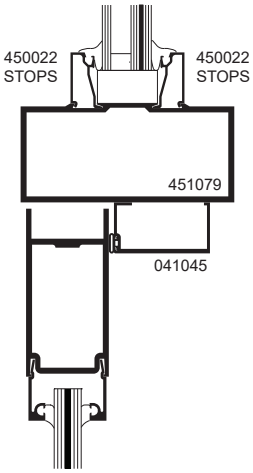


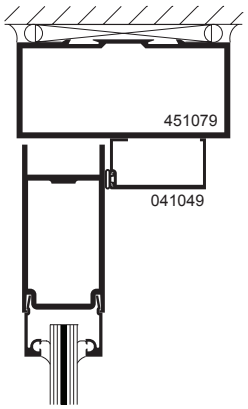
2A **SINGLE ACTING HEADER**



3 **SINGLE ACTING BOTTOM RAIL**

CONCEALED OVERHEAD CLOSERS





Trifab® VersaGlaze® 451/451T Framing System

ENTRANCE FRAMING (CENTER)
LEVEL D - LARGE MISSILE IMPACT

EC 97911-262

Hurricane Resistant Product

Additional information and CAD details are available at www.kawneer.com

Trifab® VersaGlaze® 451 FRAMING INCORPORATING KAWNEER® "350/500 IR" DOORS (DRY GLAZED).

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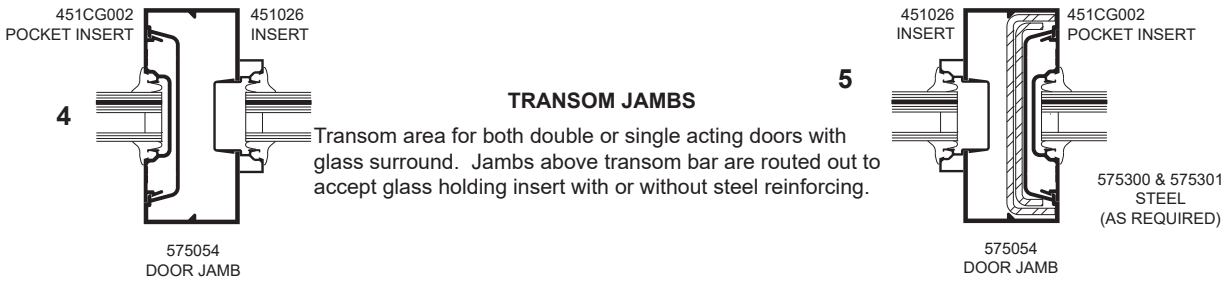
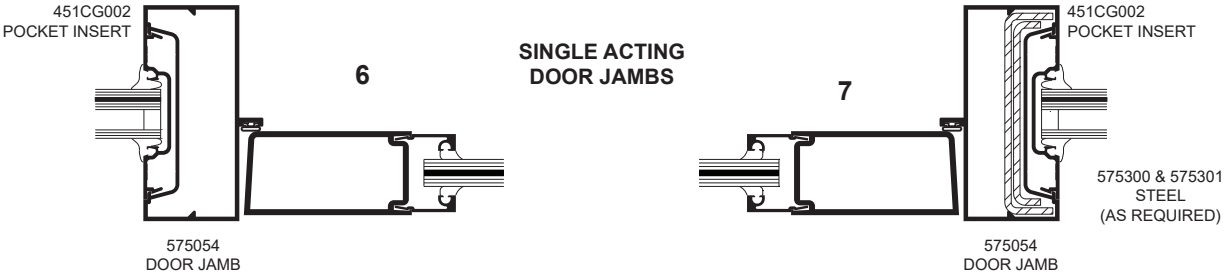
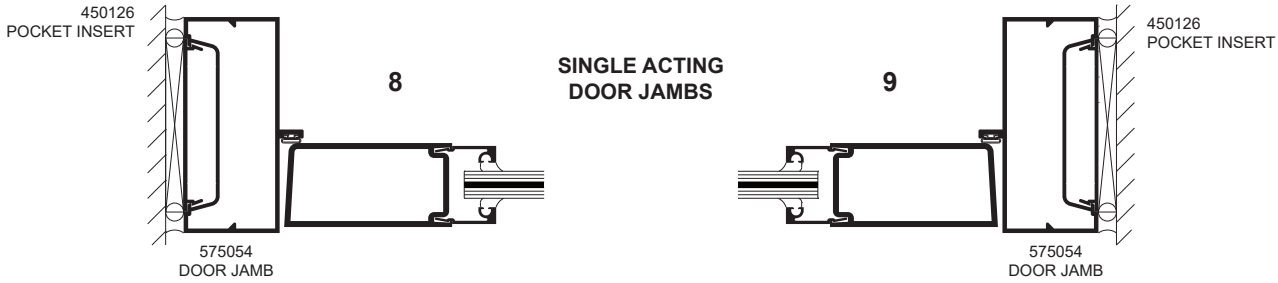


TRANSOM JAMBS

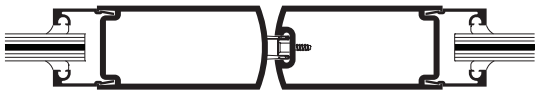
Transom area for both double or single acting doors with glass surround. Jambs above transom bar are routed out to accept glass holding insert with or without steel reinforcing.



SINGLE ACTING DOOR JAMBS



SINGLE ACTING DOOR JAMBS

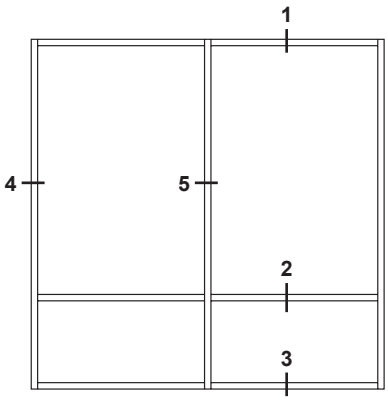


11
MEETING STILES

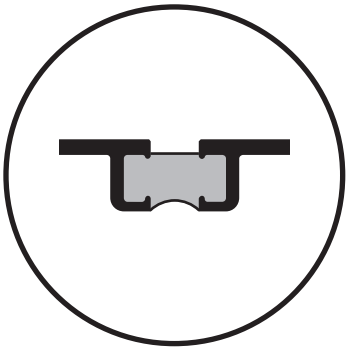
Trifab® VersaGlaze® 451/451T Framing System

BASIC FRAMING DETAILS (FRONT - Inside Glazed - Stops Down)

Additional information and CAD details are available at www.kawneer.com

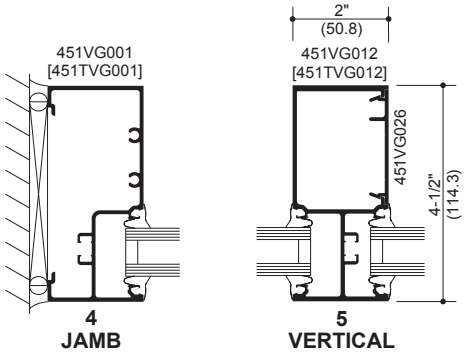


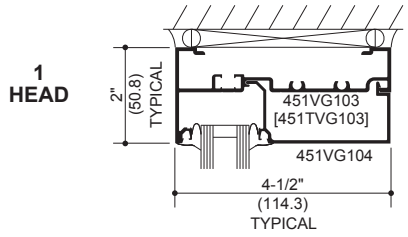
ELEVATION IS NUMBER KEYED TO DETAILS

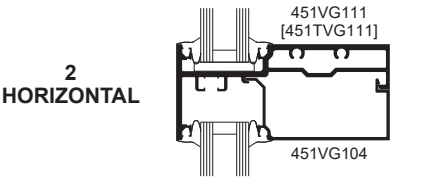


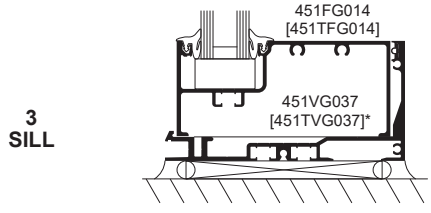
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

SCREW SPLINE



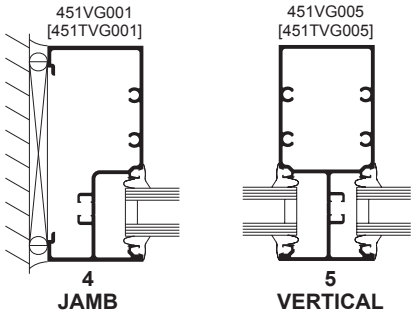


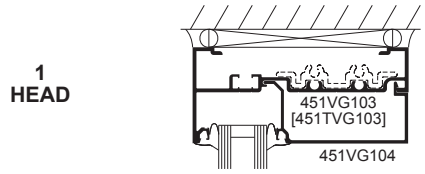


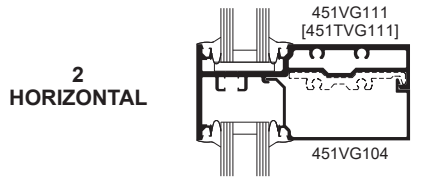


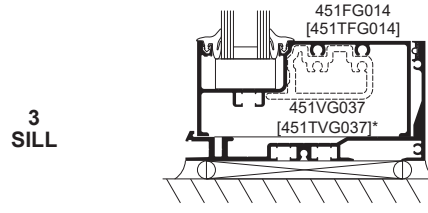
*HP Sill Flashing shown with optional gasket.

SHEAR BLOCK



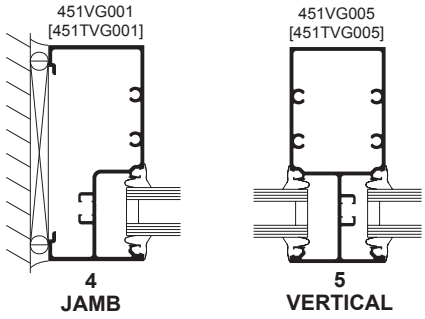


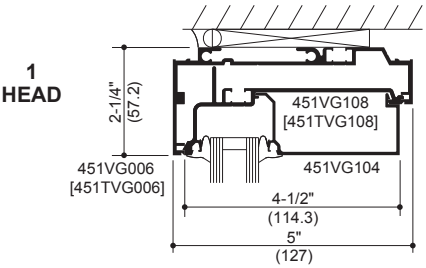


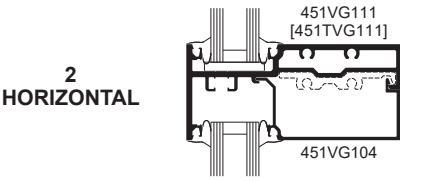


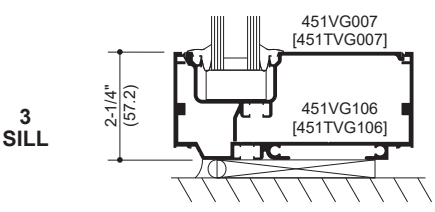
*HP Sill Flashing shown with optional gasket.

STICK





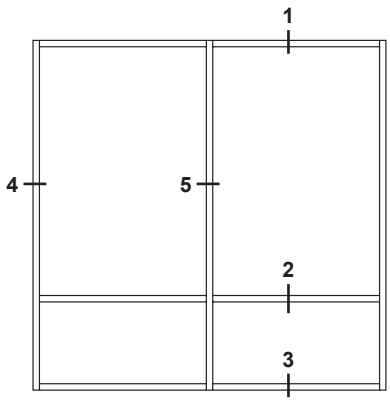




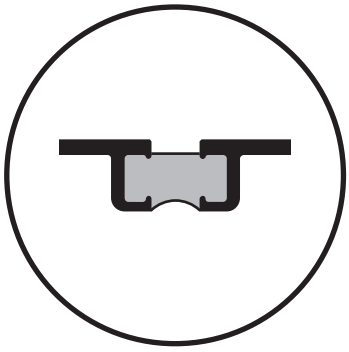
Trifab® VersaGlaze® 451/451T Framing System

BASIC FRAMING DETAILS (FRONT - Outside Glazed - Stops Down)

Additional information and CAD details are available at www.kawneer.com

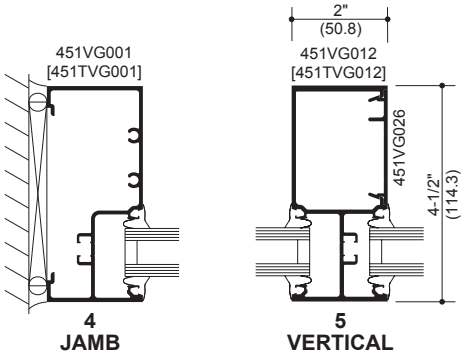


ELEVATION IS NUMBER KEYED TO DETAILS



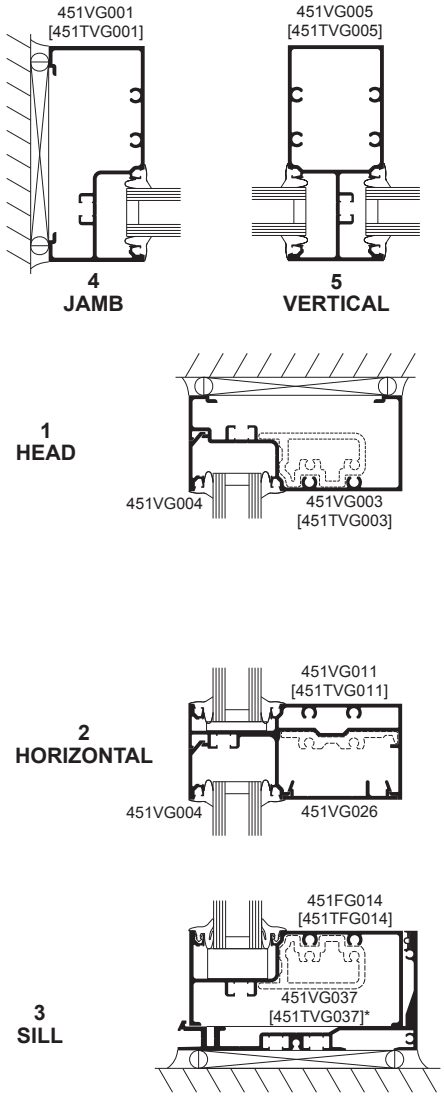
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

SCREW SPLINE



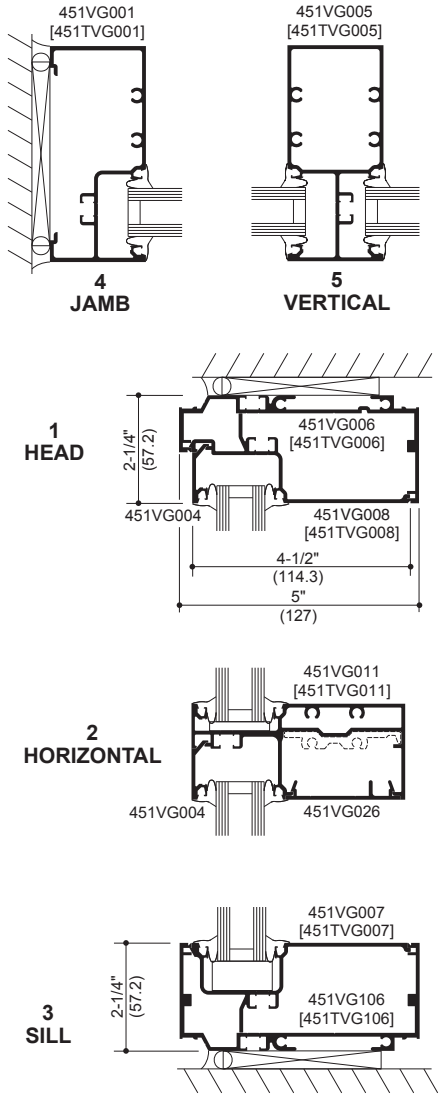
* HP Sill Flashing shown with optional gasket.

SHEAR BLOCK

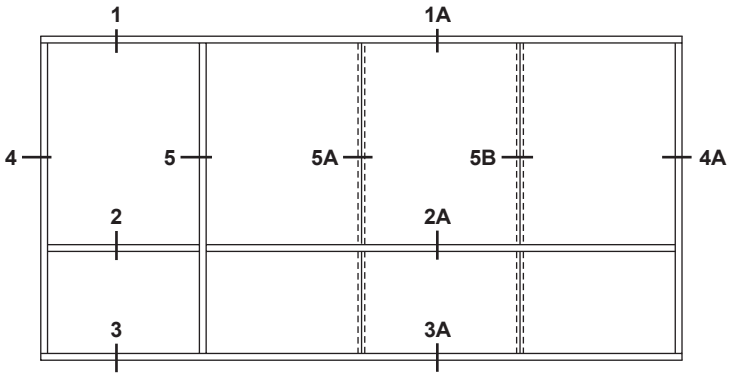


* HP Sill Flashing shown with optional gasket.

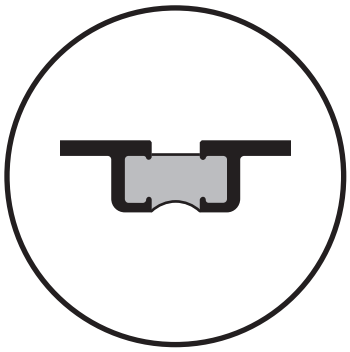
STICK



Additional information and CAD details are available at www.kawneer.com



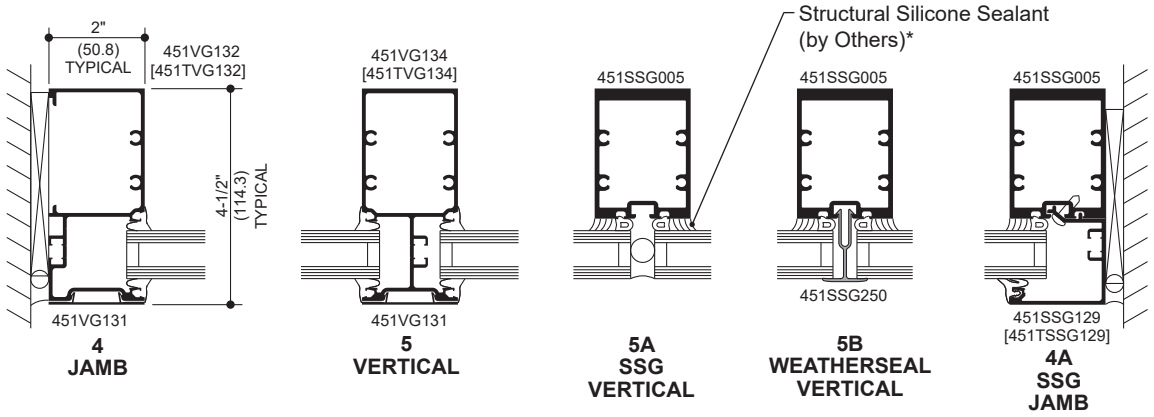
ELEVATION IS NUMBER KEYED TO DETAILS

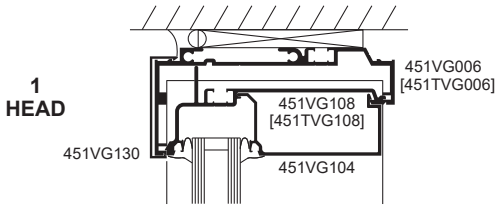


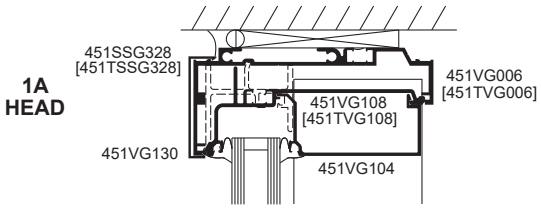
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

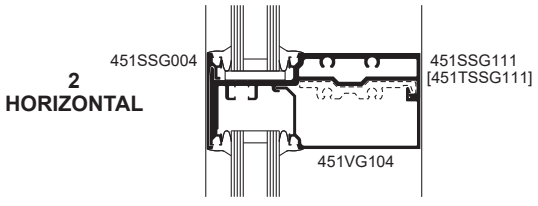
STICK (INSIDE GLAZED) TWO COLOR OPTION

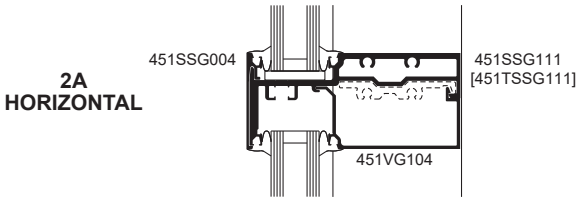
STANDARD RECEPTOR *with SSG ADAPTOR*

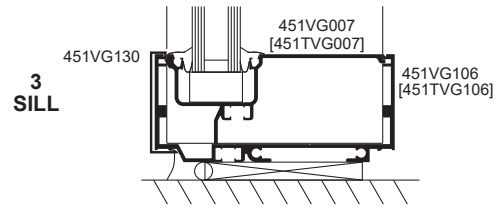


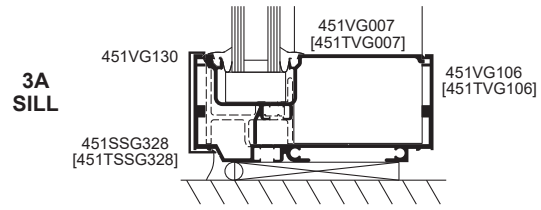












*** INSTALLER NOTE:** Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.

Trifab® VersaGlaze® 451/451T Framing System

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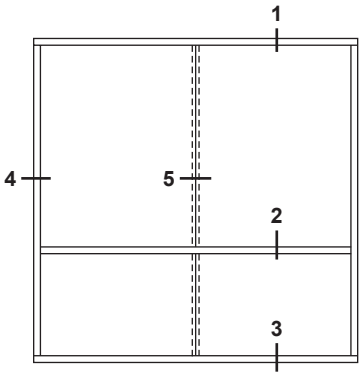
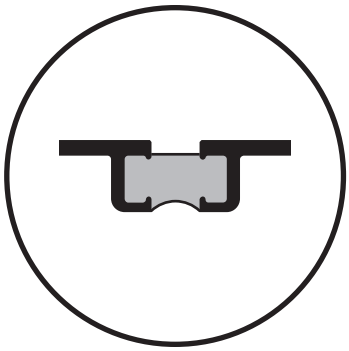
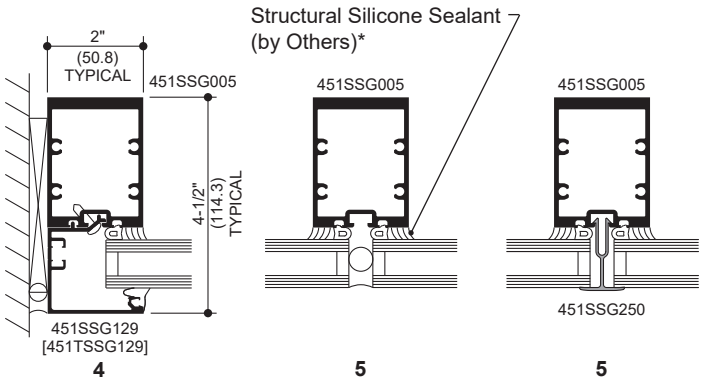


ELEVATION IS NUMBER KEYED TO DETAILS



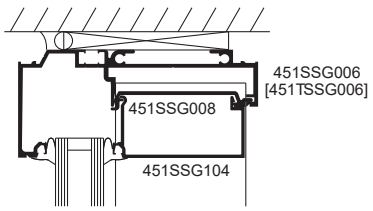
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

STICK (INSIDE GLAZED)
SSG RECEPTOR

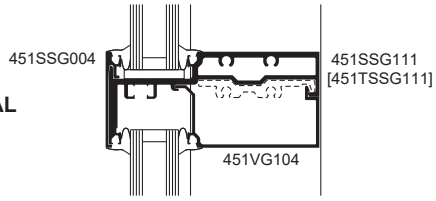


4 JAMB | **5 SSG VERTICAL** | **5 WEATHERSEAL VERTICAL**

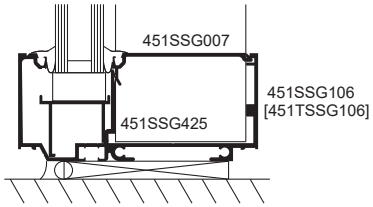
1 HEAD



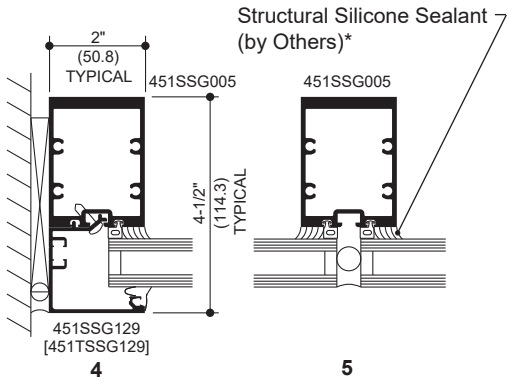
2 HORIZONTAL



3 SILL

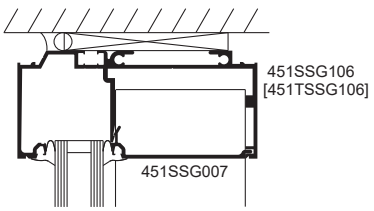


STICK (OUTSIDE GLAZED)
SSG RECEPTOR

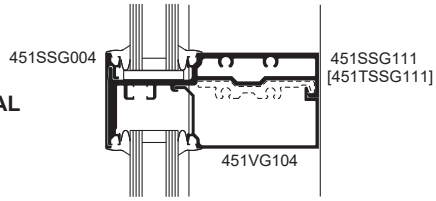


4 JAMB | **5 SSG VERTICAL**

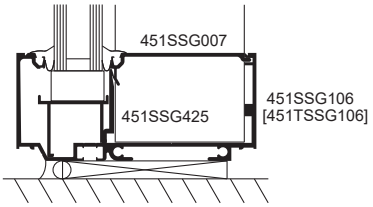
1 HEAD



2 HORIZONTAL



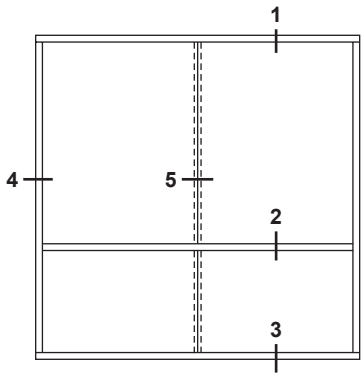
3 SILL



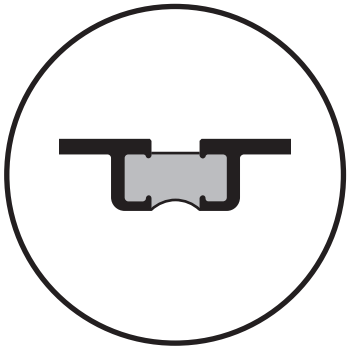
*** INSTALLER NOTE:** Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.

KAWNEER

Additional information and CAD details are available at www.kawneer.com



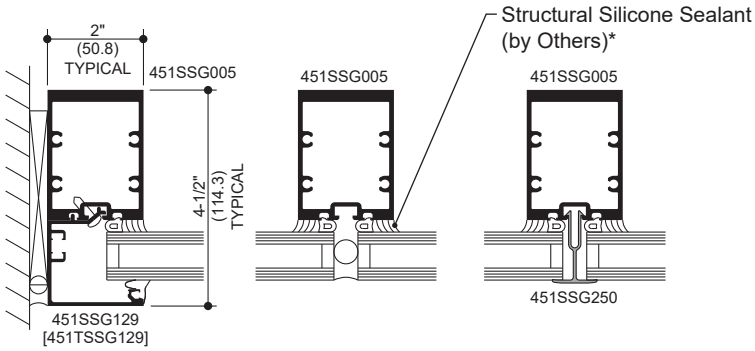
ELEVATION IS NUMBER KEYED TO DETAILS



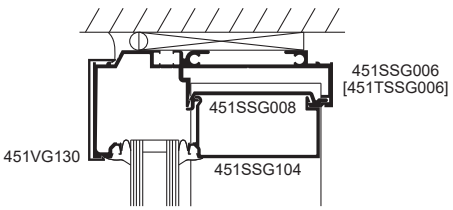
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

STICK (INSIDE GLAZED) TWO COLOR OPTION

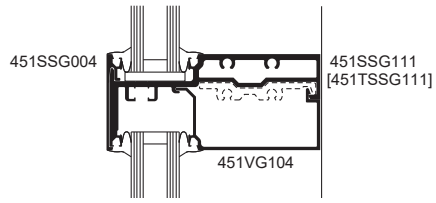
SSG RECEPTOR



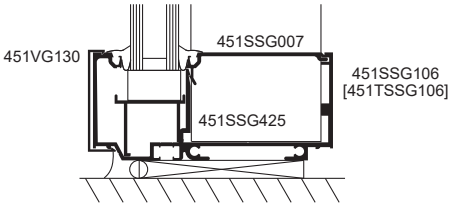
4 JAMB | **5 SSG VERTICAL** | **5 WEATHERSEAL VERTICAL**



1 HEAD



2 HORIZONTAL



3 SILL

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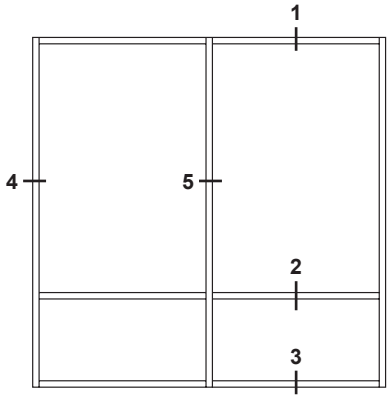
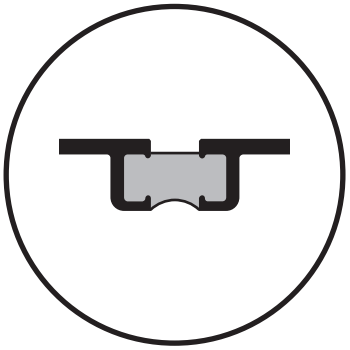


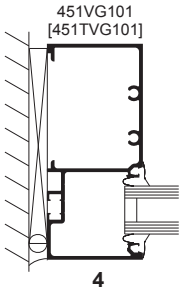
ELEVATION IS NUMBER KEYED TO DETAILS



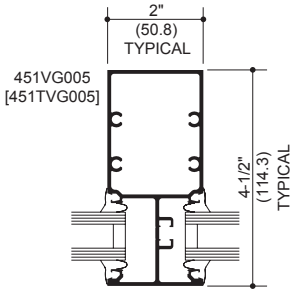
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

CONTINUOUS HEAD AND SILL (INSIDE GLAZED)

PUNCHED OPENING

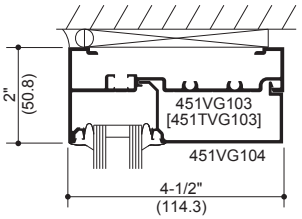


4
JAMB

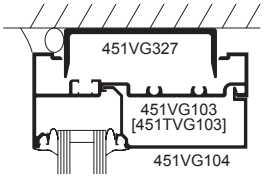


5
VERTICAL

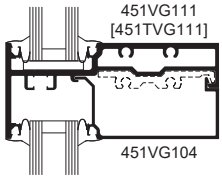
1
HEAD



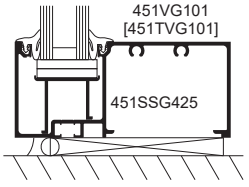
1A
HEAD



2
HORIZONTAL



3
SILL



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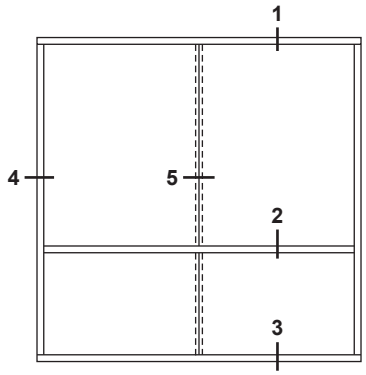
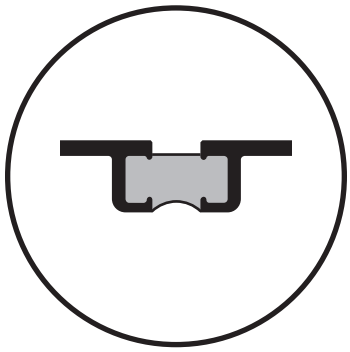


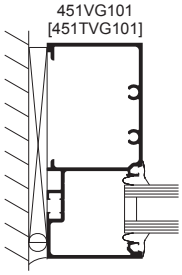
ELEVATION IS NUMBER KEYED TO DETAILS



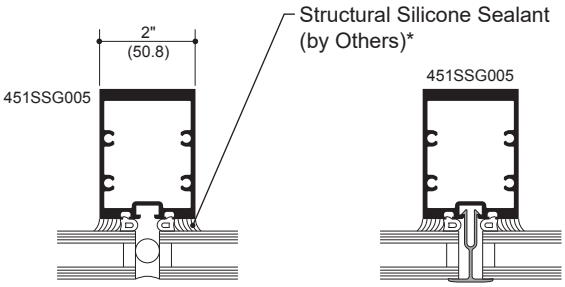
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

CONTINUOUS HEAD AND SILL (INSIDE GLAZED)
SSG \ WEATHERSEAL

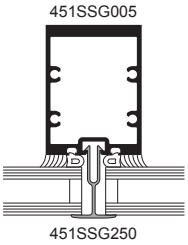
PUNCHED OPENING



4
JAMB

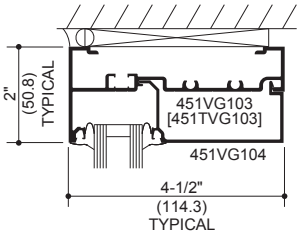


5
SSG
VERTICAL

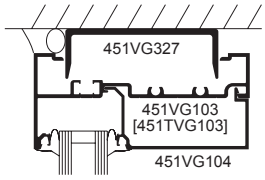


5
WEATHERSEAL
VERTICAL

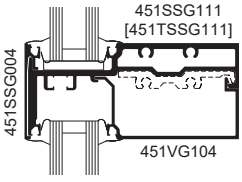
1
HEAD



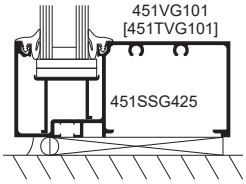
1A
HEAD



2
HORIZONTAL



3
SILL



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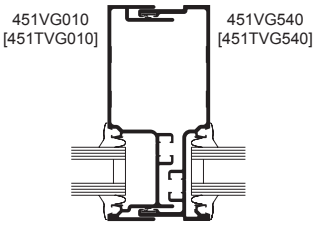
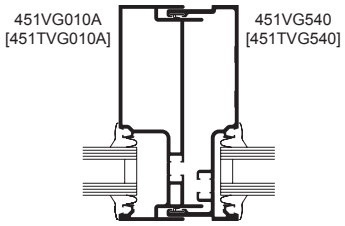
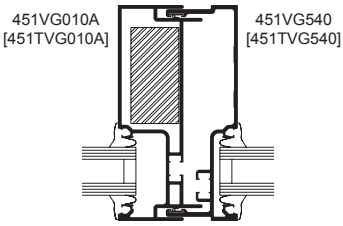


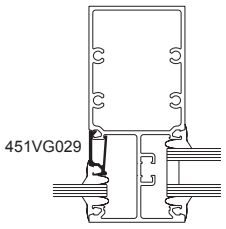
EXPANSION MULLION



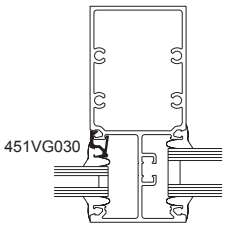
TUBULAR EXPANSION MULLION



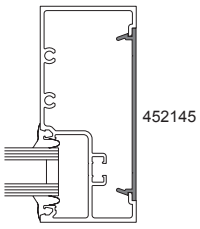
TUBULAR EXPANSION MULLION WITH STEEL



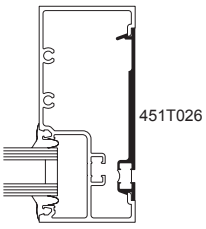
1/4" (6.4) INFILL SNAP-IN ADAPTOR



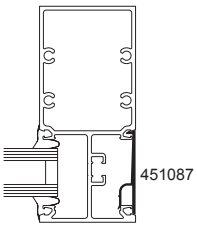
5/8" (15.9) INFILL SNAP-IN ADAPTOR



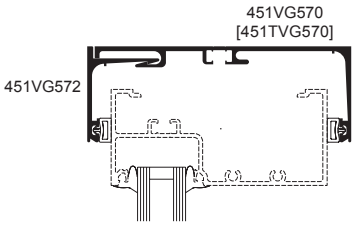
PVC FLAT FILLER (NON STRUCTURAL)



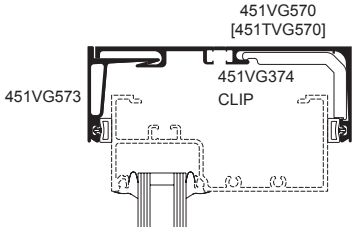
THERMAL FLAT FILLER



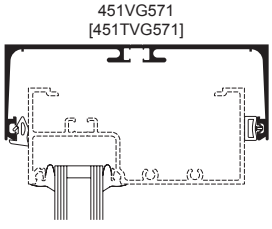
SNAP-IN FLAT FILLER



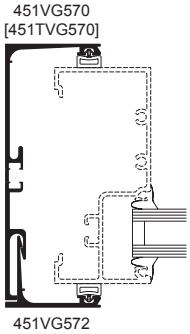
STANDARD - HEAD COMPENSATING RECEPTOR
(EXTERIOR INSTALLED)



HEAVY WEIGHT - HEAD COMPENSATING RECEPTOR

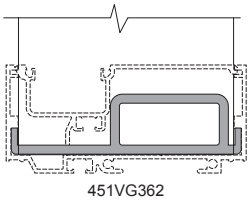


ONE PIECE - HEAD COMPENSATING RECEPTOR

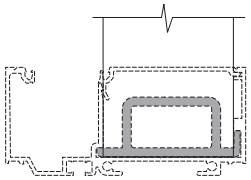


JAMB COMPENSATING RECEPTOR
(EXTERIOR INSTALLED)

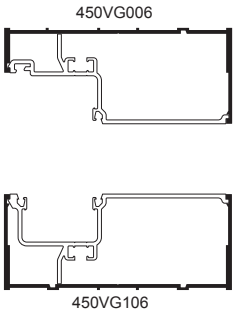
Additional information and CAD details are available at www.kawneer.com



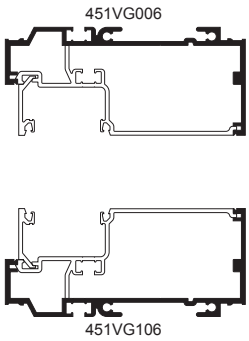
MULLION ANCHOR



SSG MULLION ANCHOR



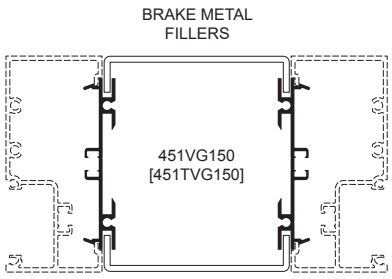
OPTIONAL LIGHTWEIGHT CAN RECEPTORS



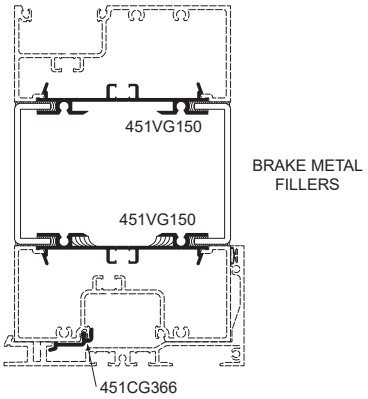
OPTIONAL UNEQUAL LEG CAN RECEPTORS

NOTE:
If the end reaction of the mullion (mullion spacing (ft.) times height (ft) times specified wind load (psf), divided by two) is more than 500 LBS., the optional Mullion Anchor must be used. Consult Application Engineering.

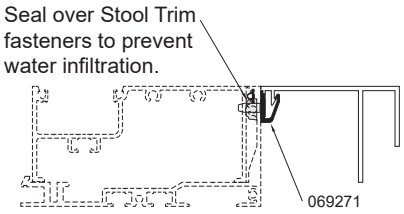
NOTE:
Mullion Anchor not used with Lightweight Receptor.



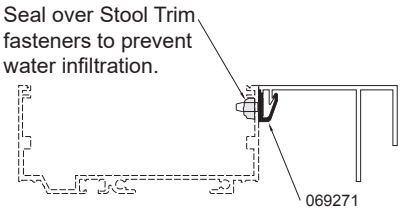
BRAKE METAL ADAPTOR



BRAKE METAL ADAPTOR AT HORIZONTAL

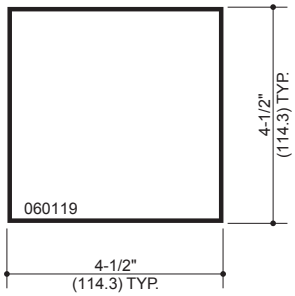


STOOL TRIM CLIP with HP FLASHING

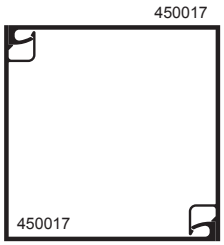


STOOL TRIM CLIP FOR STICK ASSEMBLY

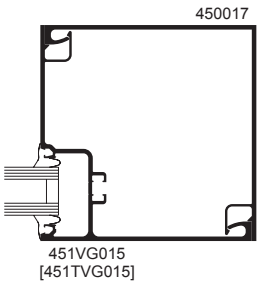
Additional information and CAD details are available at www.kawneer.com



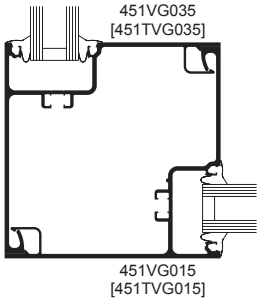
4-1/2" X 4-1/2" TUBE



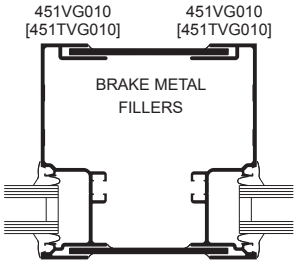
TWO PIECE NO POCKET CORNER



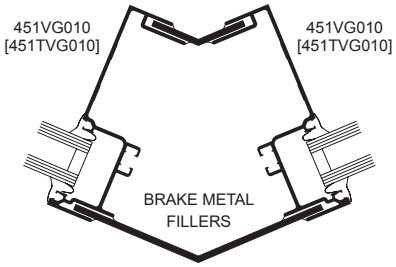
ONE POCKET CORNER



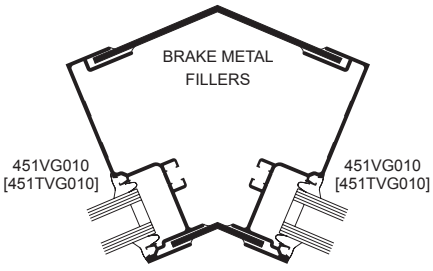
TWO POCKET 90° CORNER



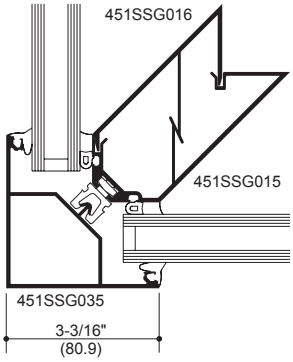
TWO POCKET CORNER POST



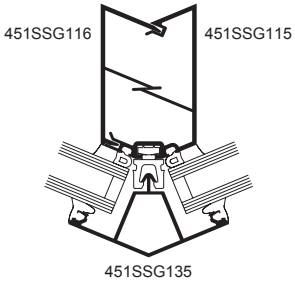
VARIABLE DEGREE BRAKE METAL OUTSIDE CORNER



VARIABLE DEGREE BRAKE METAL INSIDE CORNER



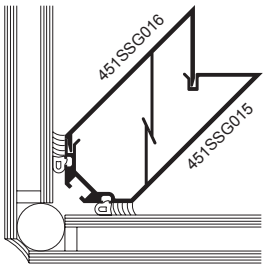
90° CORNER



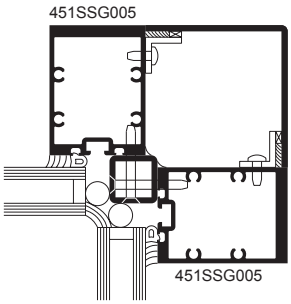
135° CORNER

Additional information and CAD details are available at www.kawneer.com

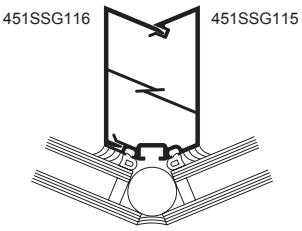
INSIDE GLAZED



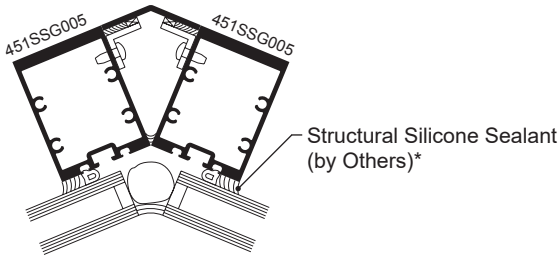
90° OUTSIDE CORNER



90° INSIDE CORNER

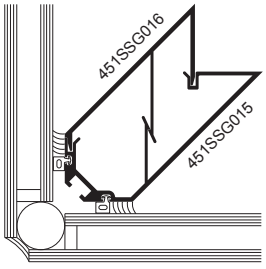


135° OUTSIDE CORNER

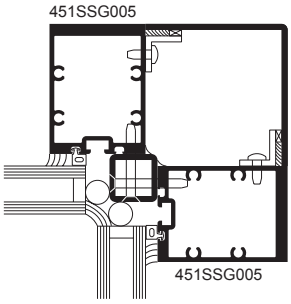


135° INSIDE CORNER

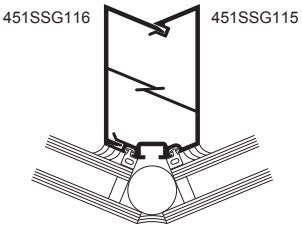
OUTSIDE GLAZED



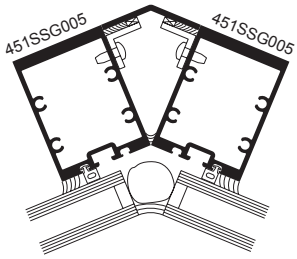
90° OUTSIDE CORNER



90° INSIDE CORNER



135° OUTSIDE CORNER



135° INSIDE CORNER

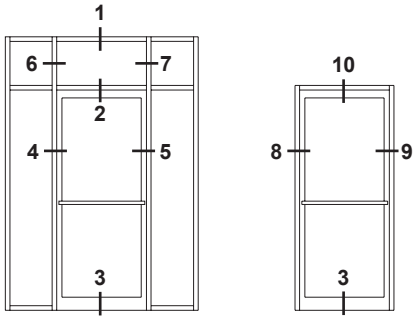
*** INSTALLER NOTE:** Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.

Additional information and CAD details are available at www.kawneer.com

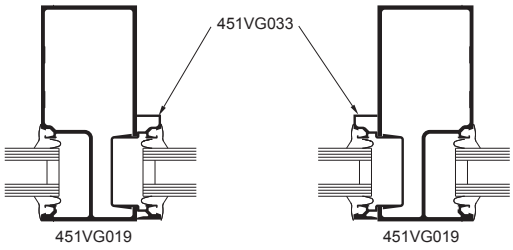
Trifab® VersaGlaze® 451 FRAMING INCORPORATING KAWNEER "190" DOORS.

DOOR FRAMING NON-THERMAL ONLY

NOTE: OTHER TYPES OF KAWNEER DOORS MAY BE USED WITH THIS FRAMING SYSTEM. SEE ENTRANCE DETAILS FOR ADDITIONAL INFORMATION.

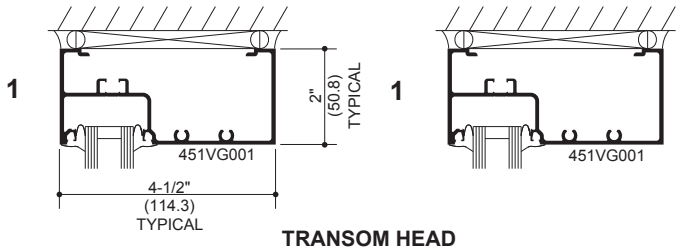


ELEVATIONS ARE NUMBER KEYED TO DETAILS

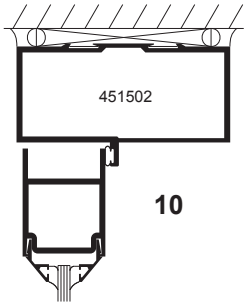


6 TRANSOM JAMBS 7

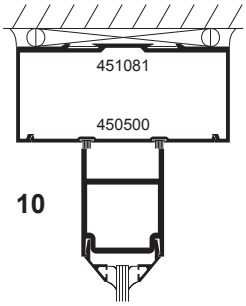
Transom area for both double or single acting doors with glass surround. Jambs above transom bar are routed out to accept glass holding insert.



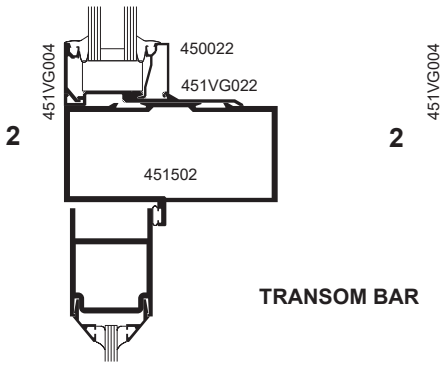
TRANSOM HEAD

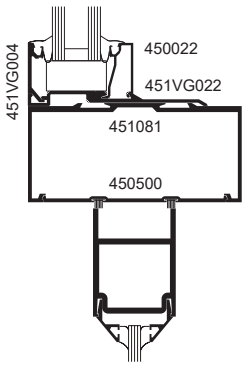


SINGLE ACTING HEADER

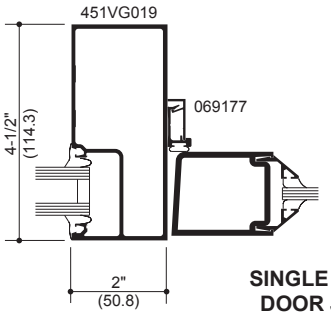


DOUBLE ACTING HEADER





TRANSOM BAR



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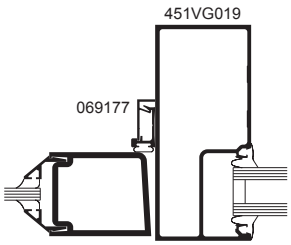
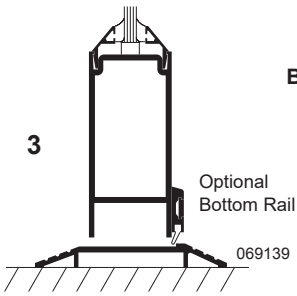
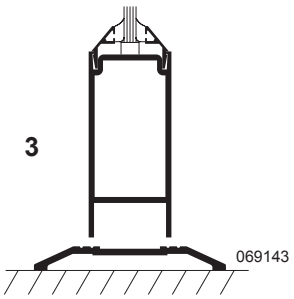


SINGLE ACTING DOOR JAMBS **5**

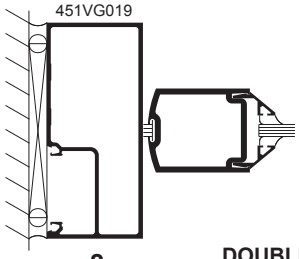
BOTTOM RAIL



SINGLE ACTING



DOUBLE ACTING



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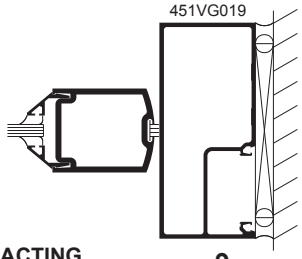
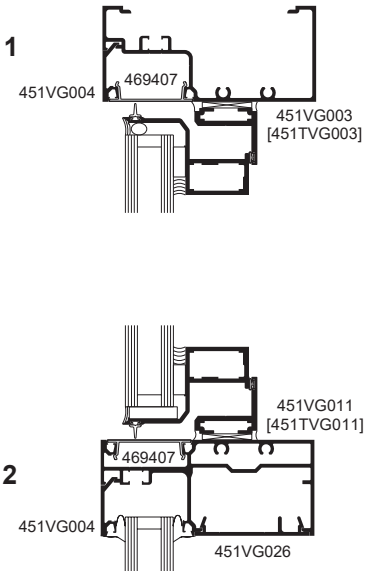
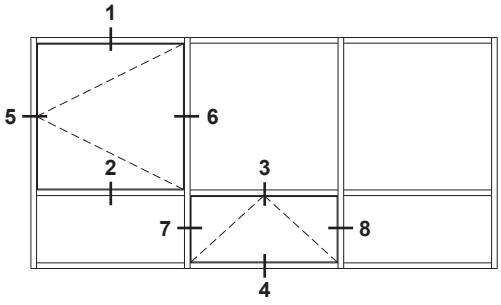


DOUBLE ACTING DOOR JAMBS **9**

Additional information and CAD details are available at www.kawneer.com

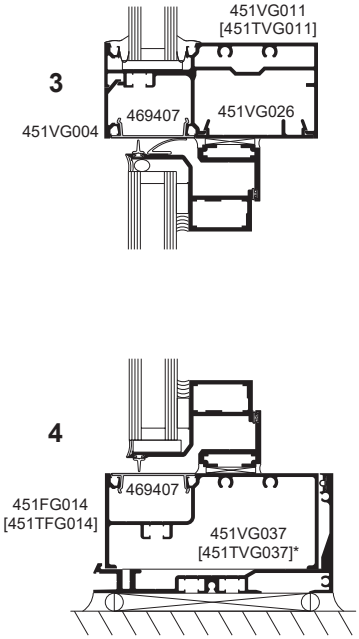
OUTSWING CASEMENT VERTICAL SECTION



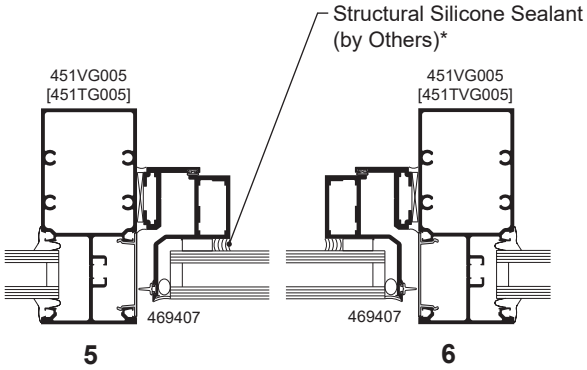


ELEVATION IS NUMBER KEYED TO DETAILS

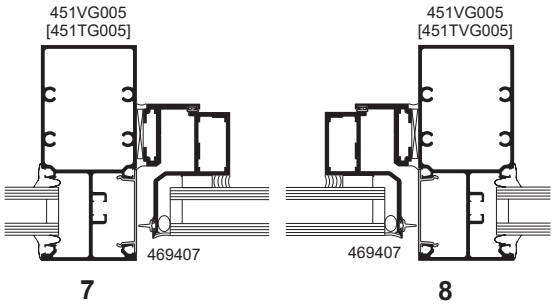
PROJECT-OUT VERTICAL SECTION



OUTSWING CASEMENT HORIZONTAL SECTION



PROJECT-OUT HORIZONTAL SECTION



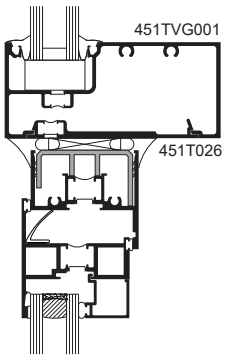
NOTE: Black spacer is recommended when 1" insulating glass is used.

*** INSTALLER NOTE:** Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.

Additional information and CAD details are available at www.kawneer.com

PROJECT-OUT VERTICAL SECTION

1



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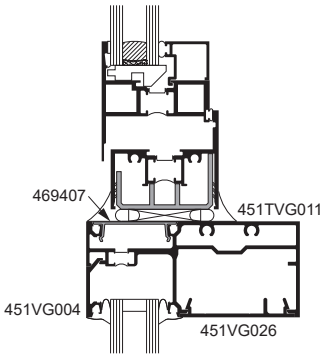
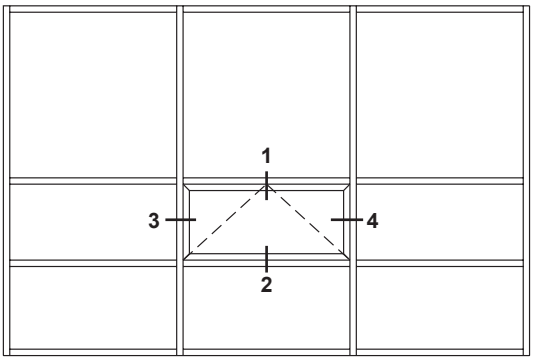
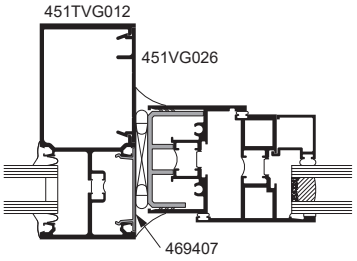


8225TL THERMAL WINDOWS SHOWN
NOTE: OTHER VENT TYPES CAN BE ACCOMMODATED, CONSULT YOUR KAWNEER REPRESENTATIVE FOR OTHER OPTIONS

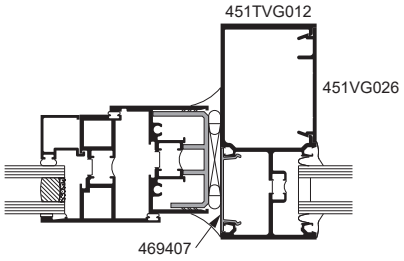


ELEVATION IS NUMBER KEYED TO DETAILS

PROJECT-OUT HORIZONTAL SECTION



3

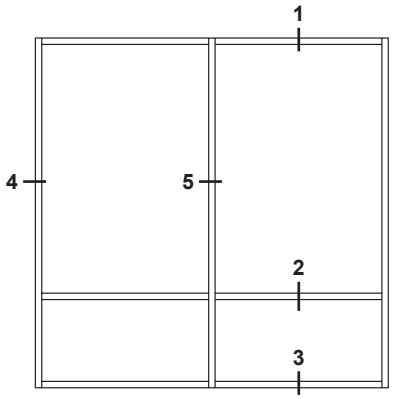


4

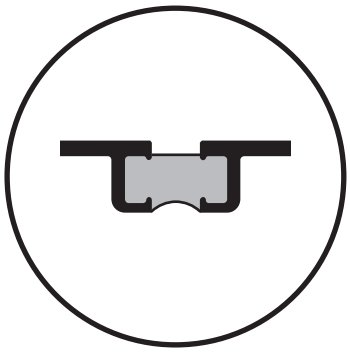
Trifab® VersaGlaze® 451/451T Framing System

BASIC FRAMING DETAILS (BACK - Inside Glazed - Stops Down)

Additional information and CAD details are available at www.kawneer.com

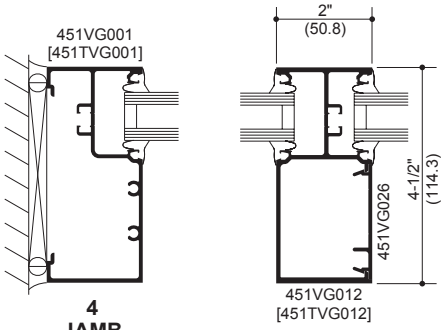


ELEVATION IS NUMBER KEYED TO DETAILS



NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

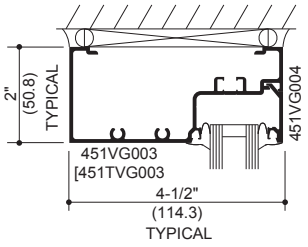
SCREW SPLINE



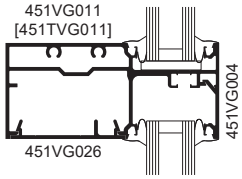
4 JAMB

5 VERTICAL

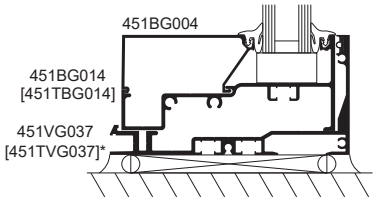
1 HEAD



2 HORIZONTAL

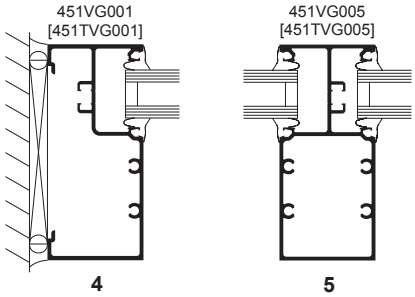


3 SILL



*HP Sill Flashing shown with optional gasket.

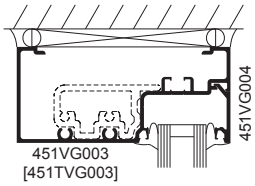
SHEAR BLOCK



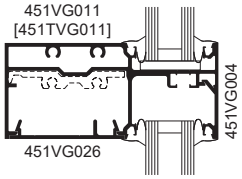
4 JAMB

5 VERTICAL

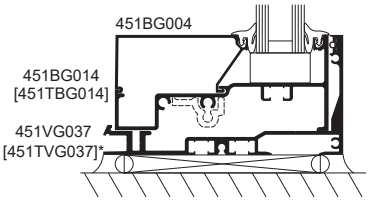
1 HEAD



2 HORIZONTAL

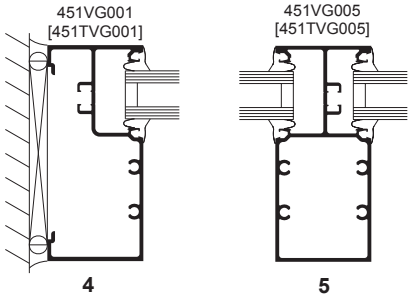


3 SILL



*HP Sill Flashing shown with optional gasket.

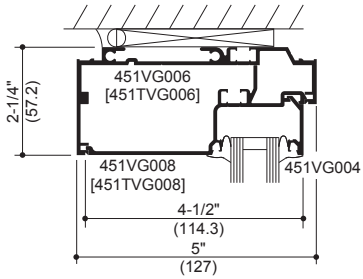
STICK



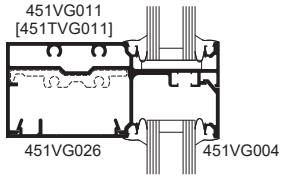
4 JAMB

5 VERTICAL

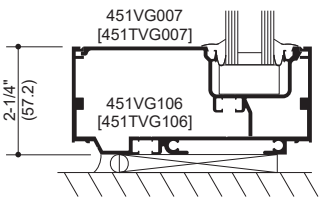
1 HEAD



2 HORIZONTAL



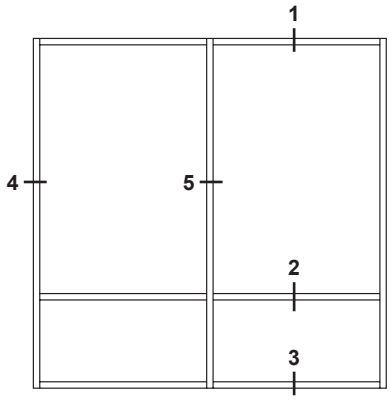
3 SILL



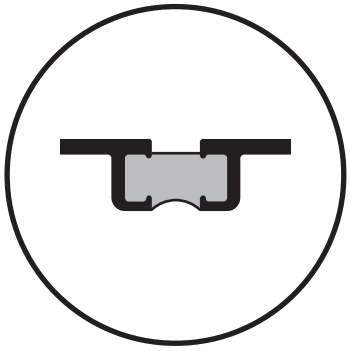
Trifab® VersaGlaze® 451/451T Framing System

BASIC FRAMING DETAILS (BACK - Outside Glazed - Stops Down)

Additional information and CAD details are available at www.kawneer.com

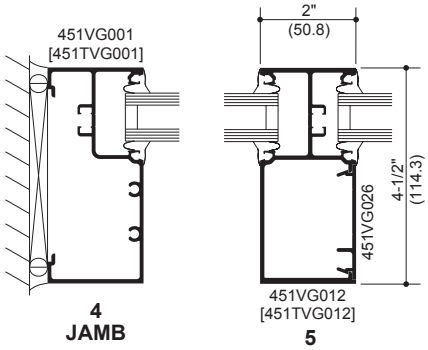


ELEVATION IS NUMBER KEYED TO DETAILS



NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

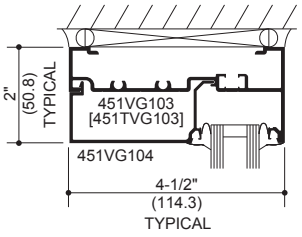
SCREW SPLINE



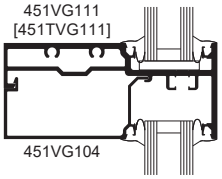
4 JAMB

5 VERTICAL

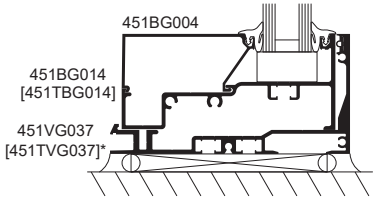
1 HEAD



2 HORIZONTAL

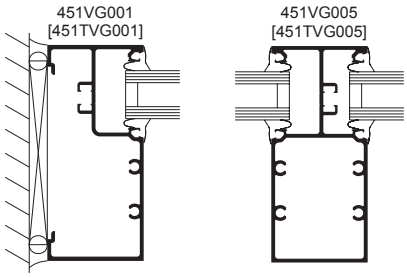


3 SILL



* HP Sill Flashing shown with optional gasket.

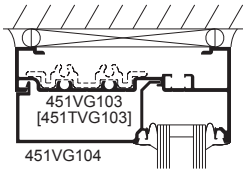
SHEAR BLOCK



4 JAMB

5 VERTICAL

1 HEAD



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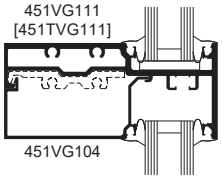
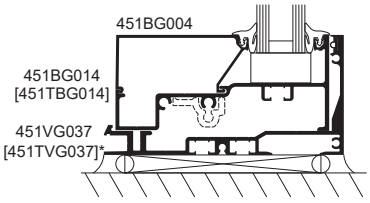
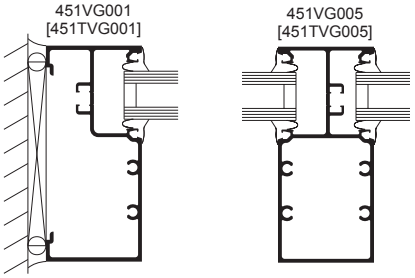


3 SILL



* HP Sill Flashing shown with optional gasket.

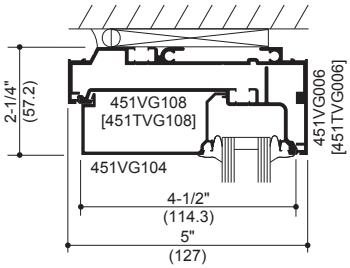
STICK



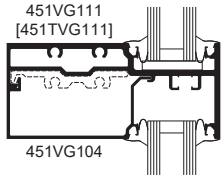
4 JAMB

5 VERTICAL

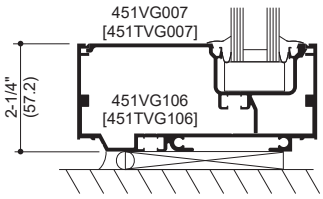
1 HEAD



2 HORIZONTAL

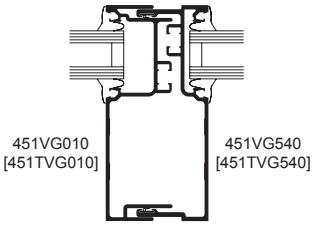


3 SILL

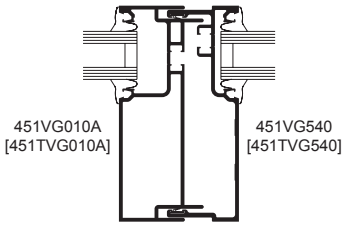


KAWNEER

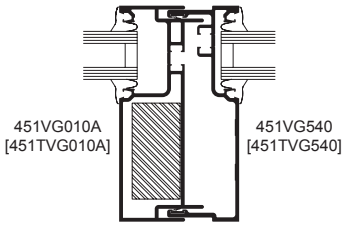
Additional information and CAD details are available at www.kawneer.com



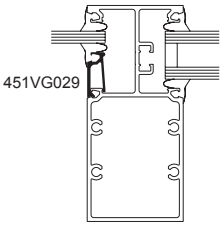
EXPANSION MULLION



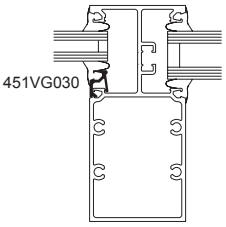
TUBULAR EXPANSION MULLION



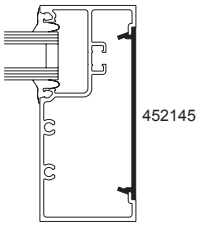
TUBULAR EXPANSION MULLION WITH STEEL



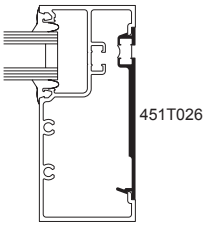
1/4" (6.4) INFILL SNAP-IN ADAPTOR



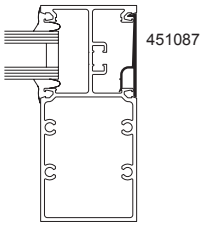
5/8" (15.9) INFILL SNAP-IN ADAPTOR



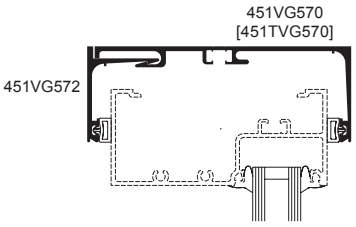
PVC FLAT FILLER (NON STRUCTURAL)



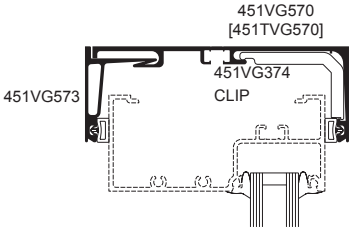
THERMAL FLAT FILLER



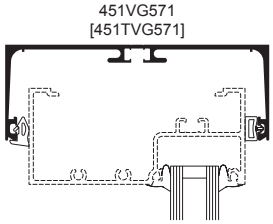
SNAP-IN FLAT FILLER



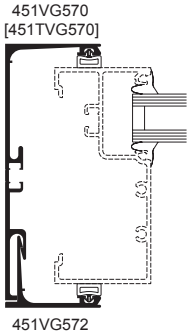
STANDARD - HEAD COMPENSATING RECEPTOR



HEAVY WEIGHT - HEAD COMPENSATING RECEPTOR
(EXTERIOR INSTALLED)

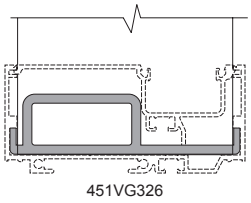


STANDARD - HEAD COMPENSATING RECEPTOR



JAMB COMPENSATING RECEPTOR
(EXTERIOR INSTALLED)

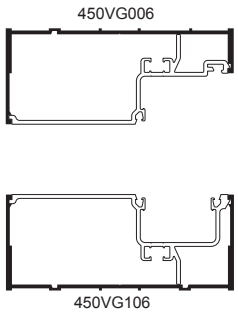
Additional information and CAD details are available at www.kawneer.com



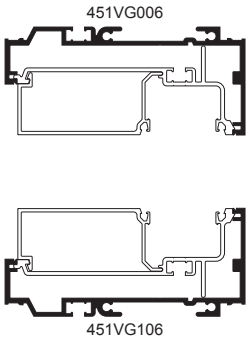
MULLION ANCHOR

NOTE:
If the end reaction of the mullion (mullion spacing (ft.) times height (ft) times specified wind load (psf), divided by two) is more than 500 LBS., the optional Mullion Anchor must be used. Consult Application Engineering.

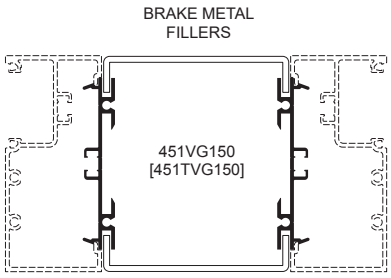
NOTE:
Mullion Anchor not used with Lightweight Receptor.



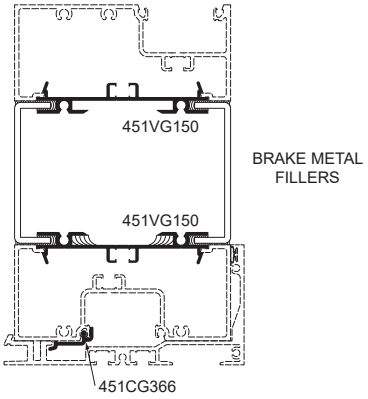
OPTIONAL LIGHTWEIGHT CAN RECEPTORS



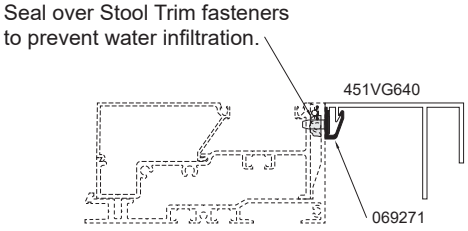
OPTIONAL UNEQUAL LEG CAN RECEPTORS



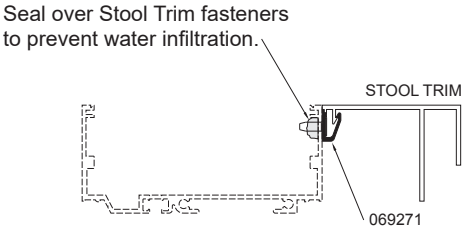
BRAKE METAL ADAPTOR



BRAKE METAL ADAPTOR AT HORIZONTAL

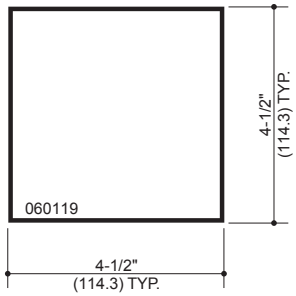


STOOL TRIM CLIP with HP FLASHING

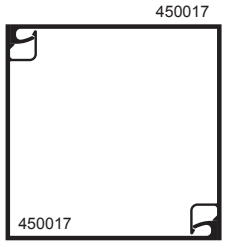


STOOL TRIM CLIP FOR STICK ASSEMBLY

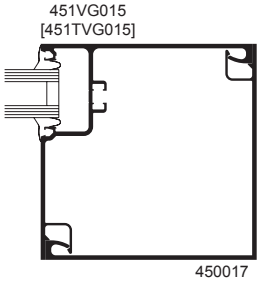
Additional information and CAD details are available at www.kawneer.com



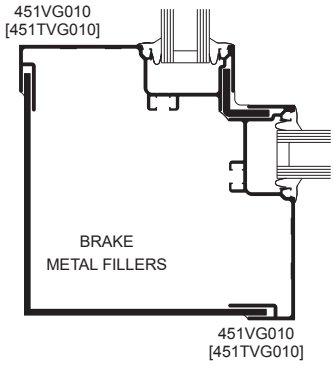
4-1/2" X 4-1/2" TUBE



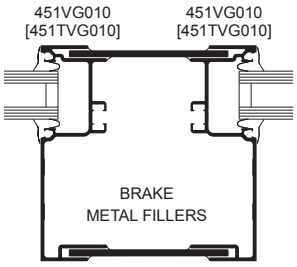
TWO PIECE NO POCKET CORNER



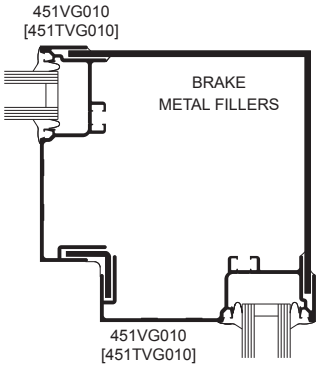
ONE POCKET CORNER



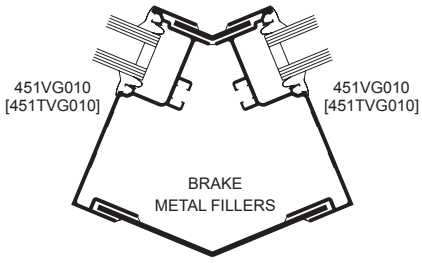
OUTSIDE 90° CORNER



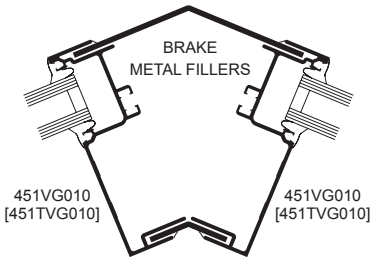
TWO POCKET CORNER POST



INSIDE 90° CORNER



135° OUTSIDE CORNER



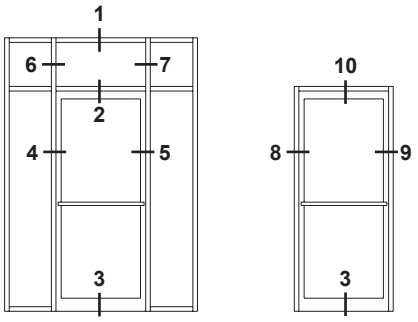
135° INSIDE CORNER

Additional information and CAD details are available at www.kawneer.com

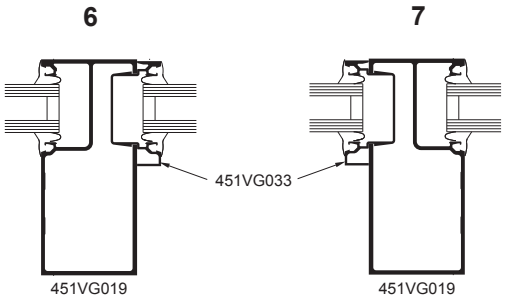
TRIFAB® VersaGlaze® 451 FRAMING INCORPORATING KAWNEER "190" DOORS.

DOOR FRAMING NON-THERMAL ONLY

NOTE: OTHER TYPES OF KAWNEER DOORS MAY BE USED WITH THIS FRAMING SYSTEM.
SEE ENTRANCE DETAILS FOR ADDITIONAL INFORMATION.

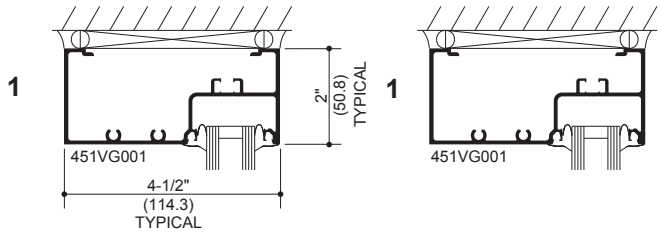


ELEVATIONS ARE NUMBER KEYED TO DETAILS

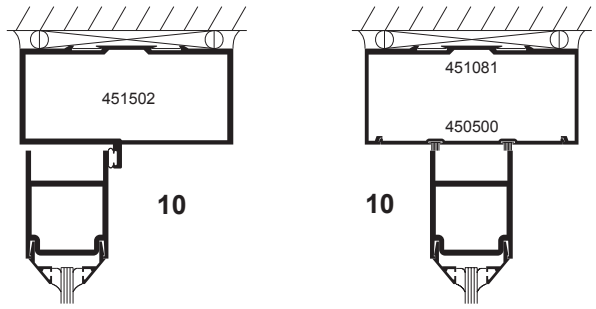


TRANSOM JAMBS

Transom area for both double or single acting doors with glass surround. Jambs above transom bar are routed out to accept glass holding insert.

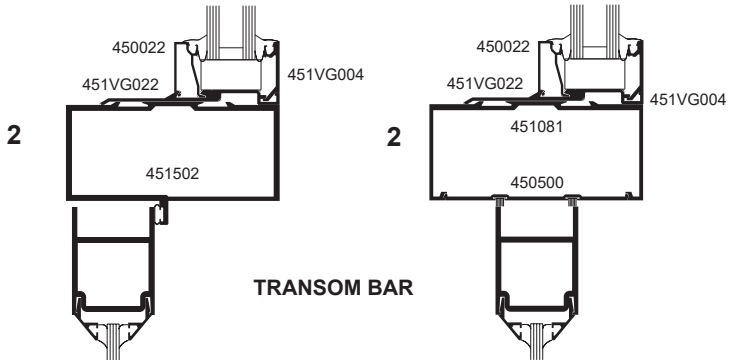


TRANSOM HEAD

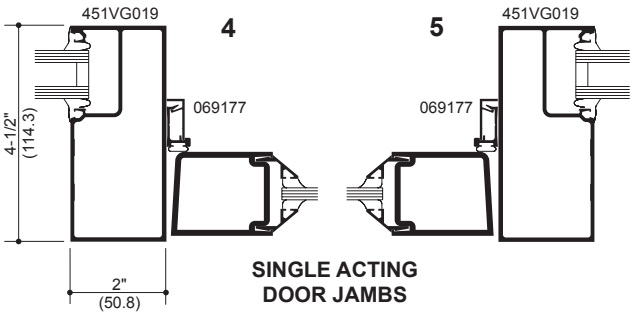


SINGLE ACTING HEADER

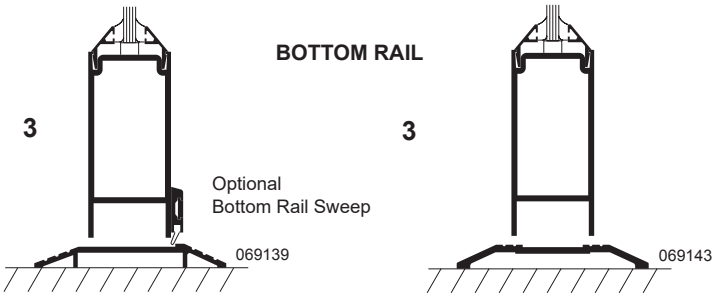
DOUBLE ACTING HEADER



TRANSOM BAR



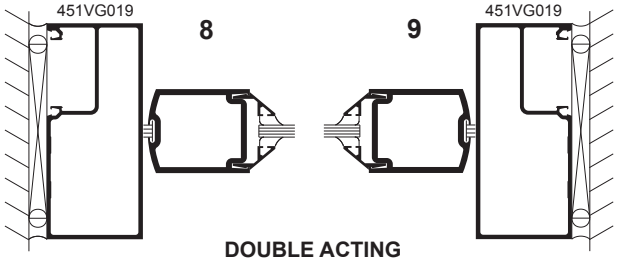
SINGLE ACTING DOOR JAMBS



BOTTOM RAIL

SINGLE ACTING

DOUBLE ACTING

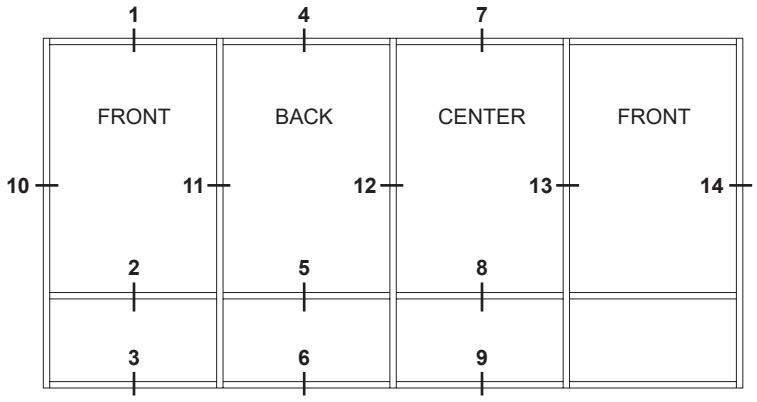


DOUBLE ACTING DOOR JAMBS

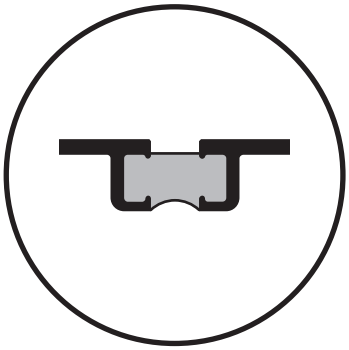
(See appropriate Center, Front or Back Section for Miscellaneous Details.)

Additional information and CAD details are available at www.kawneer.com

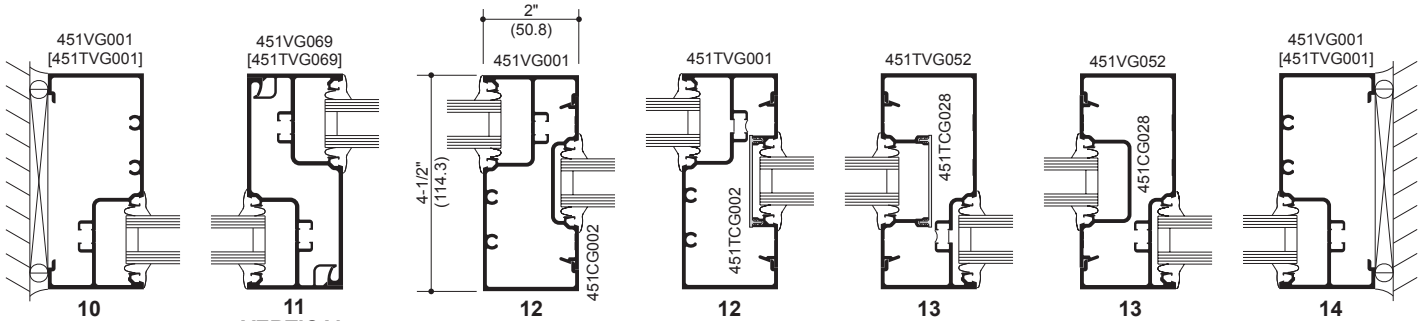
SCREW SPLINE ASSEMBLY



ELEVATION IS NUMBER KEYED TO DETAILS



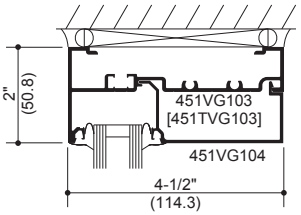
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS



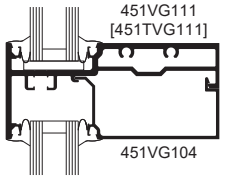
FRONT

See Pages 32 thru 45 for all FRONT details.

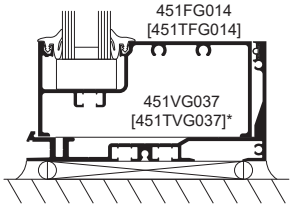
1 HEAD



2 HORIZONTAL



3 SILL

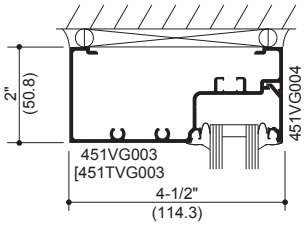


*HP Sill Flashing shown with optional gasket.

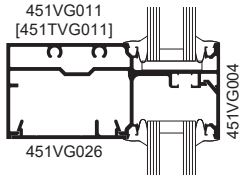
BACK

See Pages 48 thru 53 for all BACK details.

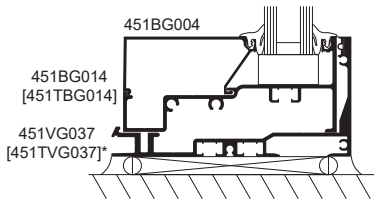
4 HEAD



5 HORIZONTAL



6 SILL

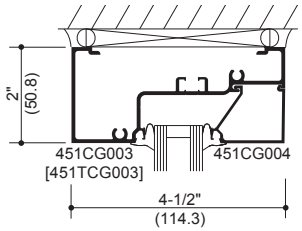


*HP Sill Flashing shown with optional gasket.

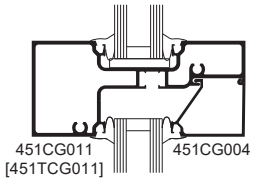
CENTER

See Pages 12 thru 30 for all CENTER details.

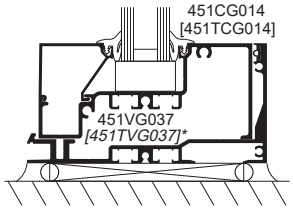
7 HEAD



8 HORIZONTAL



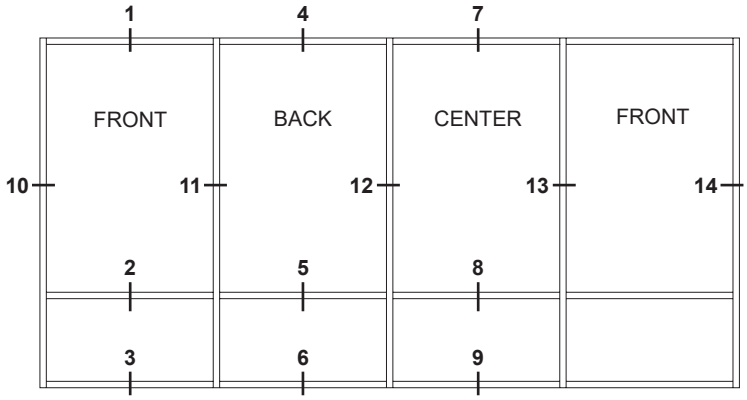
9 SILL



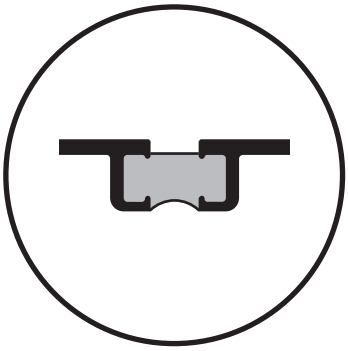
*HP Sill Flashing shown with optional gasket.

Additional information and CAD details are available at www.kawneer.com

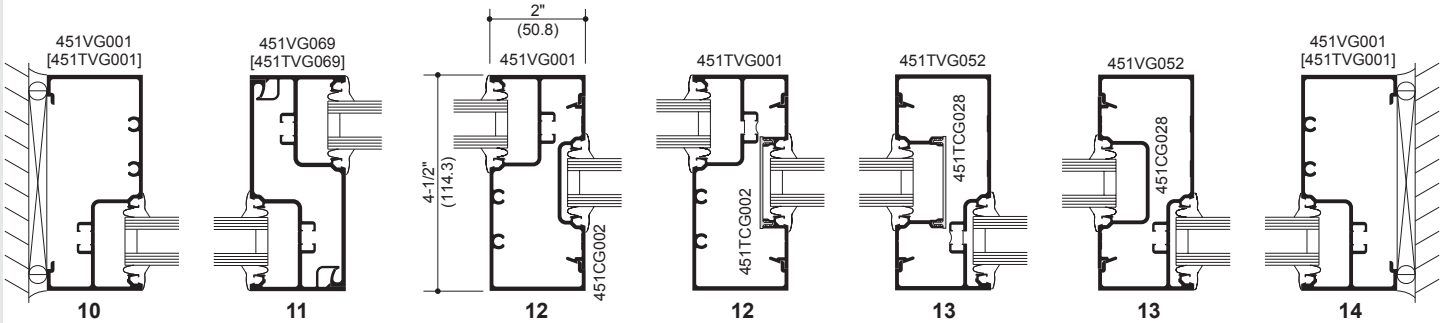
SCREW SPLINE ASSEMBLY



ELEVATION IS NUMBER KEYED TO DETAILS



NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

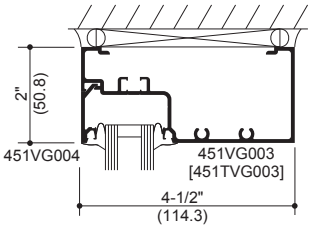


10 JAMB | 11 VERTICAL | 12 VERTICAL | 12 VERTICAL (THERMAL) | 13 VERTICAL (THERMAL) | 13 VERTICAL | 14 JAMB

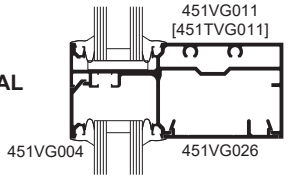
FRONT

See Pages 32 thru 45 for all FRONT details.

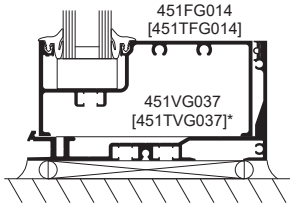
1 HEAD



2 HORIZONTAL



3 SILL

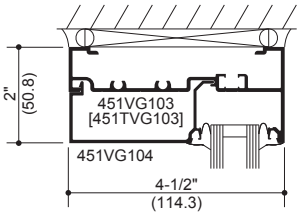


* HP Sill Flashing shown with optional gasket.

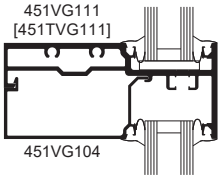
BACK

See Pages 48 thru 53 for all BACK details.

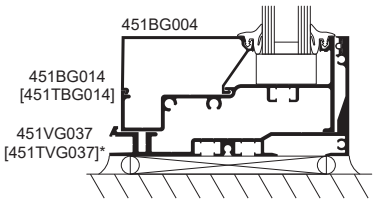
4 HEAD



5 HORIZONTAL



6 SILL

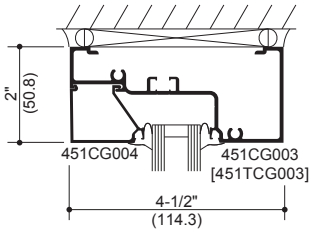


* HP Sill Flashing shown with optional gasket.

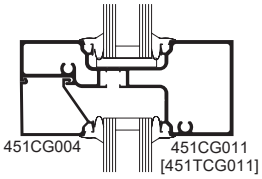
CENTER

See Pages 12 thru 30 for all CENTER details.

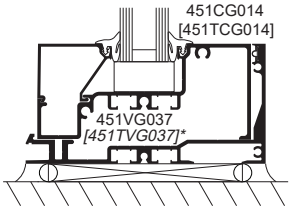
7 HEAD



8 HORIZONTAL



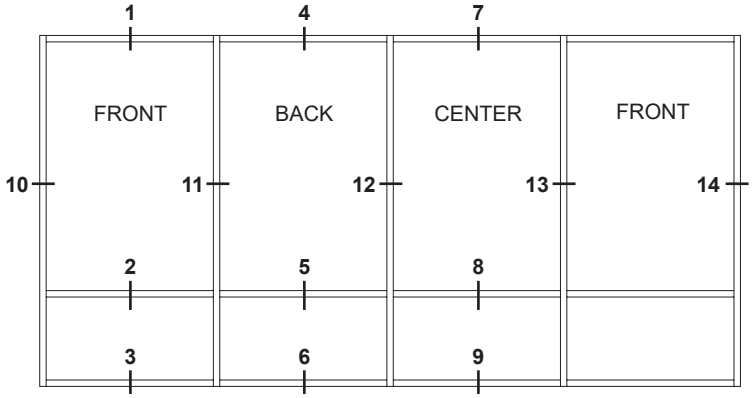
9 SILL



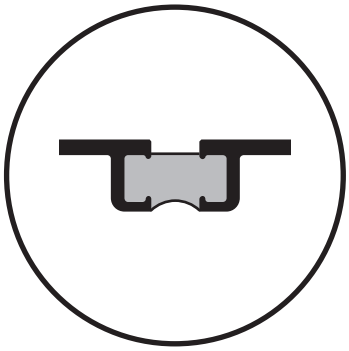
* HP Sill Flashing shown with optional gasket.

Additional information and CAD details are available at www.kawneer.com

SHEAR BLOCK ASSEMBLY

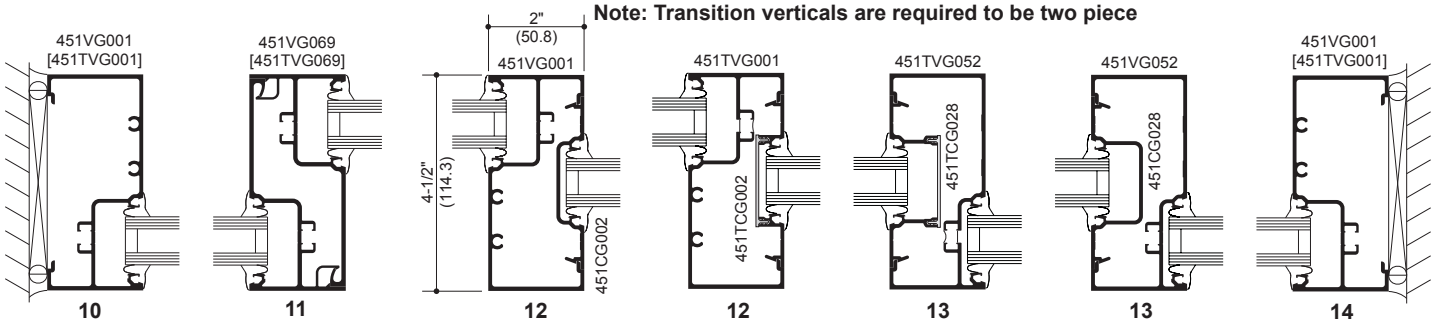


ELEVATION IS NUMBER KEYED TO DETAILS



NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

Note: Transition verticals are required to be two piece

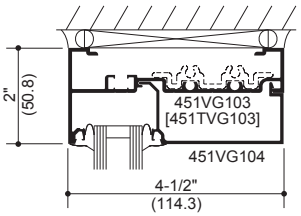


10 JAMB | 11 VERTICAL | 12 VERTICAL | 12 VERTICAL (THERMAL) | 13 VERTICAL (THERMAL) | 13 VERTICAL | 14 JAMB

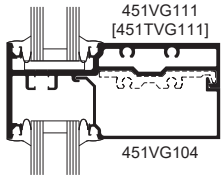
FRONT

See Pages 32 thru 45 for all FRONT details.

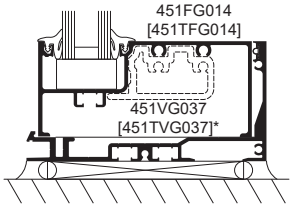
1 HEAD



2 HORIZONTAL



3 SILL

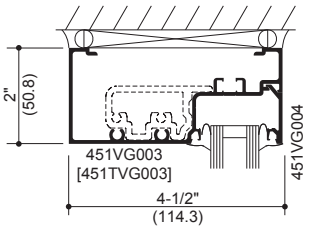


* HP Sill Flashing shown with optional gasket.

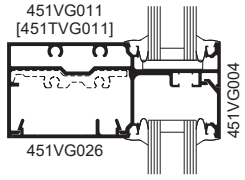
BACK

See Pages 48 thru 53 for all BACK details.

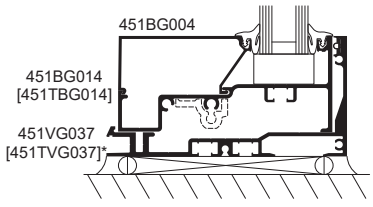
4 HEAD



5 HORIZONTAL



6 SILL

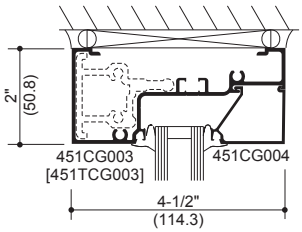


* HP Sill Flashing shown with optional gasket.

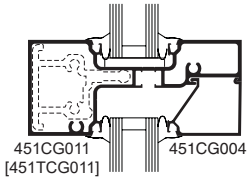
CENTER

See Pages 12 thru 30 for all CENTER details.

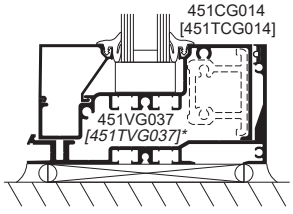
7 HEAD



8 HORIZONTAL



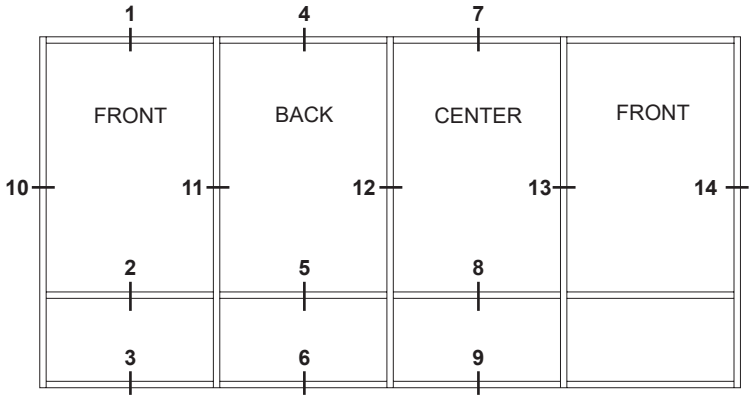
9 SILL



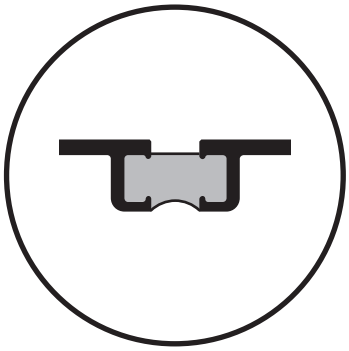
* HP Sill Flashing shown with optional gasket.

Additional information and CAD details are available at www.kawneer.com

SHEAR BLOCK ASSEMBLY

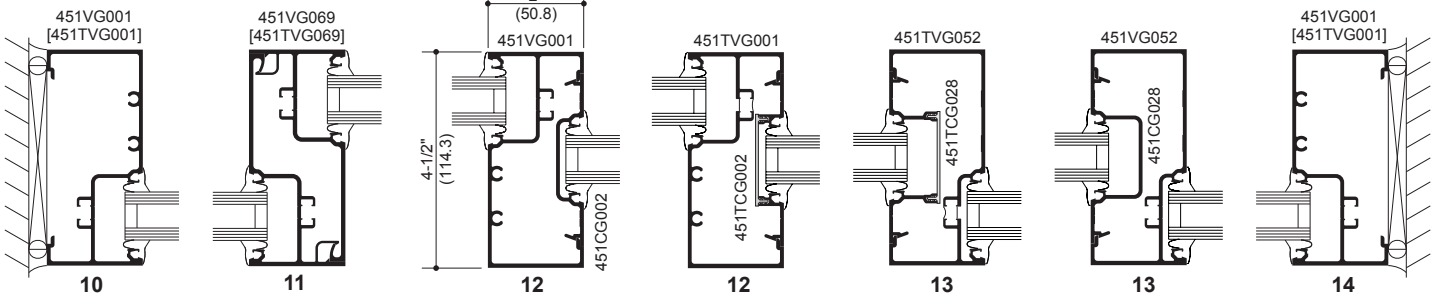


ELEVATION IS NUMBER KEYED TO DETAILS



NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

Note: Transition verticals are required to be two piece.

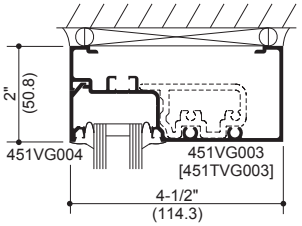


10 JAMB | 11 VERTICAL | 12 VERTICAL | 12 VERTICAL (THERMAL) | 13 VERTICAL (THERMAL) | 13 VERTICAL | 14 JAMB

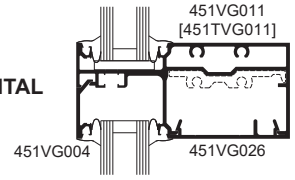
FRONT

See Pages 32 thru 45 for all FRONT details.

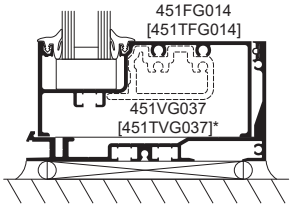
1 HEAD



2 HORIZONTAL



3 SILL

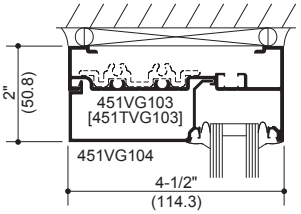


* HP Sill Flashing shown with optional gasket.

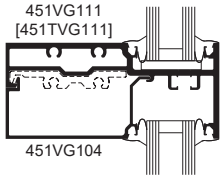
BACK

See Pages 48 thru 53 for all BACK details.

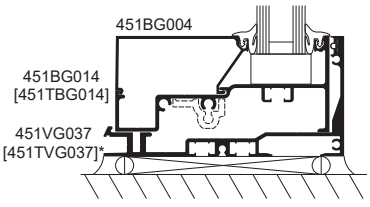
4 HEAD



5 HORIZONTAL



6 SILL

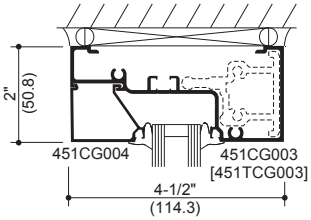


* HP Sill Flashing shown with optional gasket.

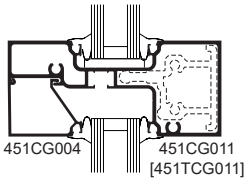
CENTER

See Pages 12 thru 30 for all CENTER details.

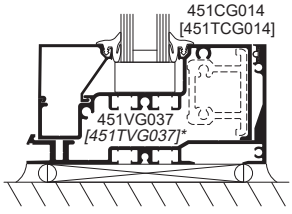
7 HEAD



8 HORIZONTAL



9 SILL



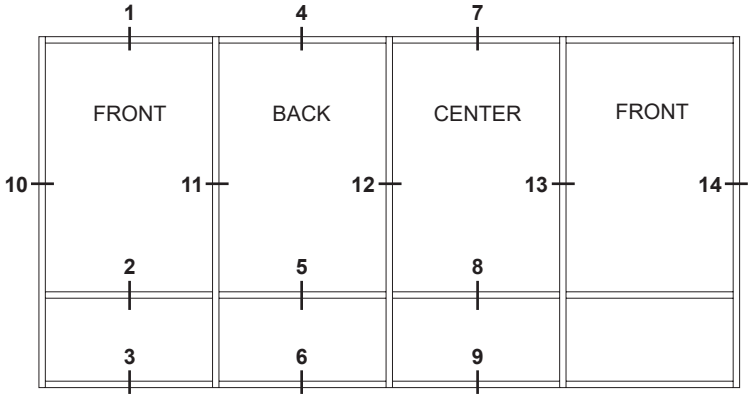
* HP Sill Flashing shown with optional gasket.

Trifab® VersaGlaze® 451/451T Framing System

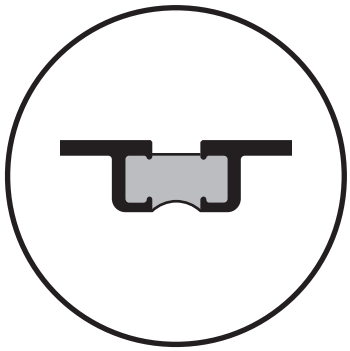
BASIC FRAMING DETAILS (MULTI-PLANE - Inside Glazed - Stops Down)

Additional information and CAD details are available at www.kawneer.com

STICK ASSEMBLY

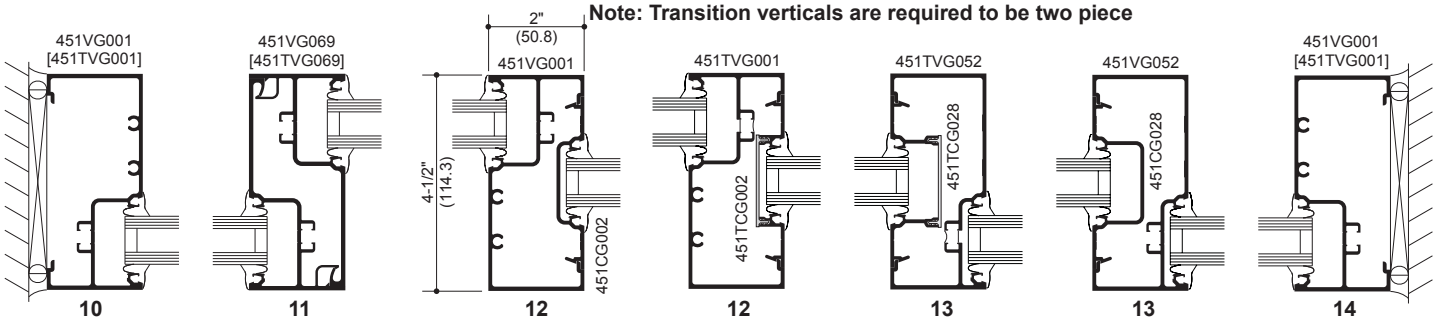


ELEVATION IS NUMBER KEYED TO DETAILS



NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

Note: Transition verticals are required to be two piece

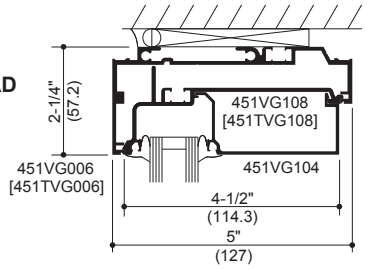


10 JAMB | 11 VERTICAL | 12 VERTICAL | 12 VERTICAL (THERMAL) | 13 VERTICAL (THERMAL) | 13 VERTICAL | 14 JAMB

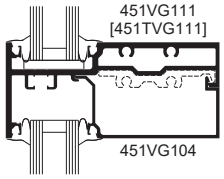
FRONT

See Pages 32 thru 45 for all FRONT details.

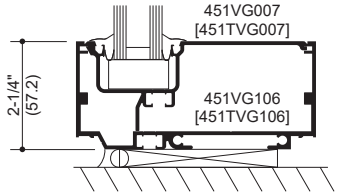
1 HEAD



2 HORIZONTAL



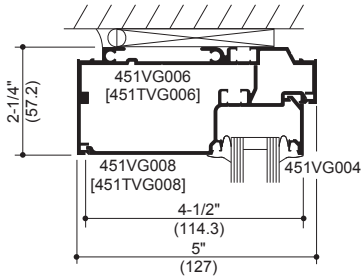
3 SILL



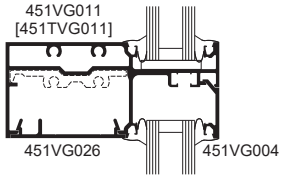
BACK

See Pages 48 thru 53 for all BACK details.

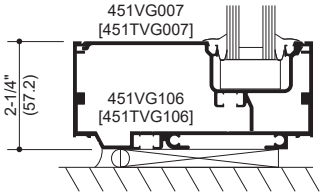
4 HEAD



5 HORIZONTAL



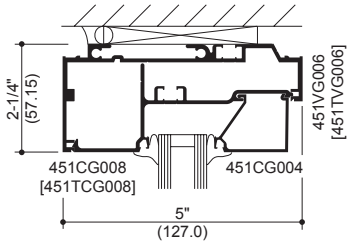
6 SILL



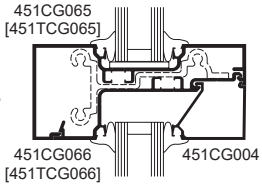
CENTER

See Pages 12 thru 30 for all CENTER details.

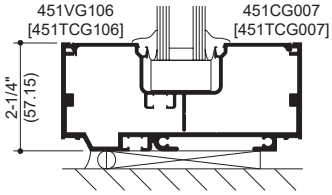
7 HEAD



8 HORIZONTAL



9 SILL

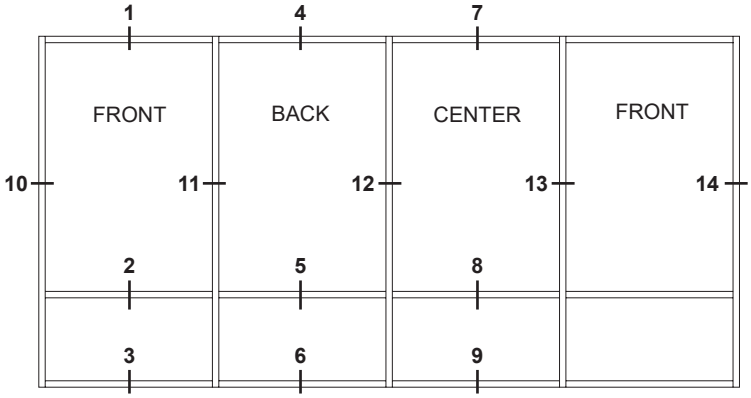


Trifab® VersaGlaze® 451/451T Framing System

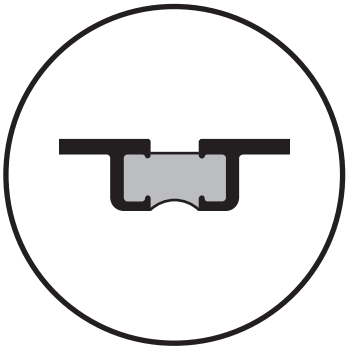
BASIC FRAMING DETAILS (MULTI-PLANE - Outside Glazed - Stops Down)

Additional information and CAD details are available at www.kawneer.com

STICK ASSEMBLY

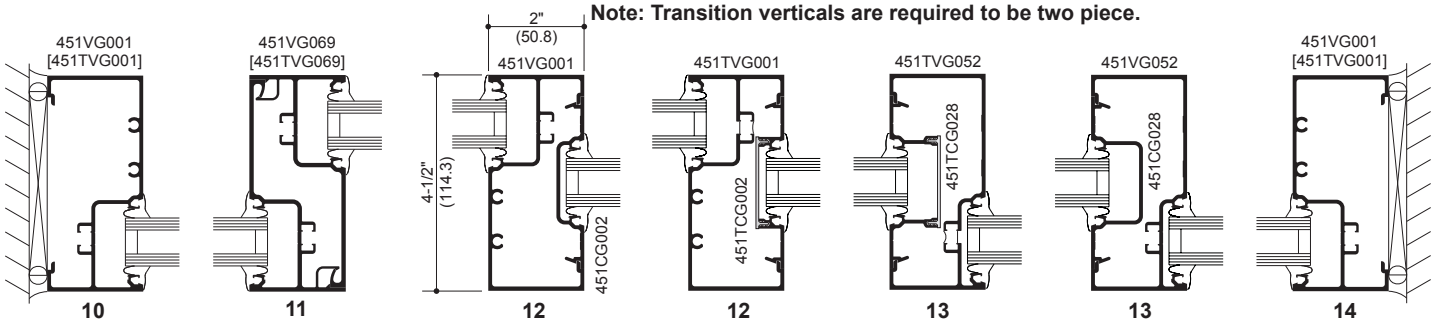


ELEVATION IS NUMBER KEYED TO DETAILS



NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

Note: Transition verticals are required to be two piece.

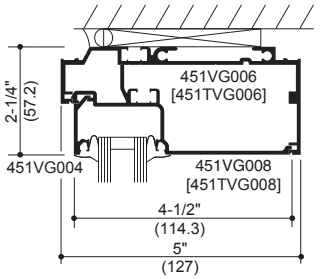


10 JAMB | 11 VERTICAL | 12 VERTICAL | 12 VERTICAL (THERMAL) | 13 VERTICAL (THERMAL) | 13 VERTICAL | 14 JAMB

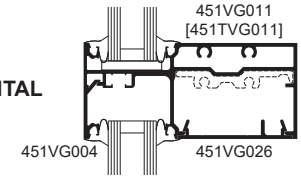
FRONT

See Pages 32 thru 45 for all FRONT details.

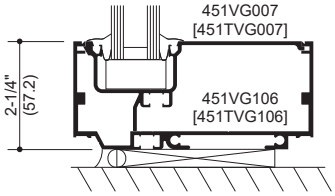
1 HEAD



2 HORIZONTAL



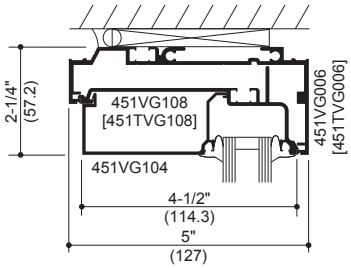
3 SILL



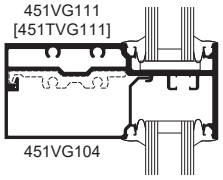
BACK

See Pages 48 thru 53 for all BACK details.

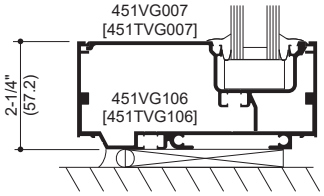
4 HEAD



5 HORIZONTAL



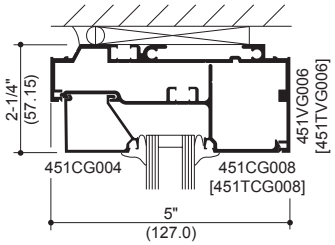
6 SILL



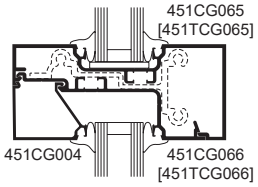
CENTER

See Pages 12 thru 30 for all CENTER details.

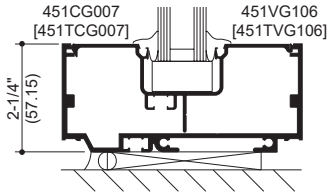
7 HEAD



8 HORIZONTAL



9 SILL



KAWNEER

The following applications utilize Tremco Proglaze® ETA Connections as the transition assembly from the wall air/vapor barrier membrane to the storefront framing perimeter. Corners are sealed with either Proglaze® ETA 3D molded silicone corners or lapped Proglaze® ETA silicone sheet material. Transition assembly components are set in Tremco Spectrem® 1 silicone sealant. For complete installation instructions of Tremco Proglaze® ETA products, contact your local Tremco representative or visit www.tremcosealants.com.

For integration of a silicone engineered transition assembly, the Trifab® storefront system must use continuous head and jamb mullion fillers, a head receptor with continuous jamb fillers or a head receptor with jamb receptors.

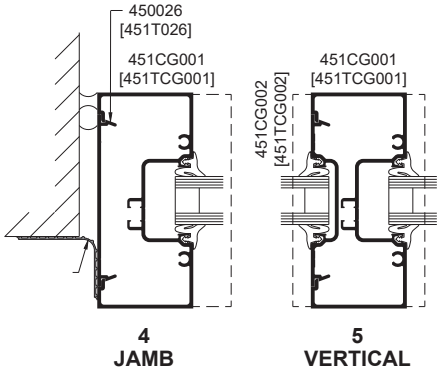
Reference air/vapor barrier installation instructions 451VG977EN. All storefront framing to be installed according to applicable Kawneer storefront system installation instructions, project specific plans, specifications and shop details.

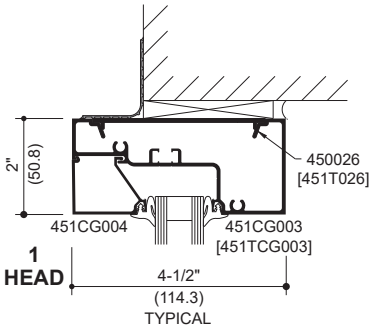
Storefront installations require the sill to be structurally supported directly under the glass setting blocks and mullion locations, as well as where the sill is anchored to the substrate. Any projecting or cantilevered sill applications that are not supported must be reviewed by Kawneer application engineering.

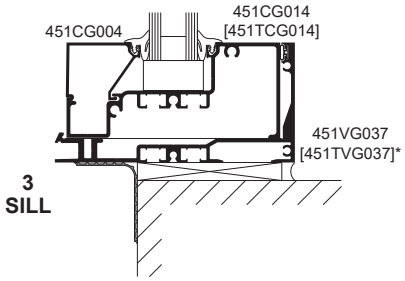
Installer to independently confirm sealant compatibility and adhesion with all job specific storefront framing materials, silicone ETA sheet material and wall AVB material.

(451 center plane details shown, 451T and front/back/multi-plane similar.

CONTINUOUS HEAD AND JAMB MULLION FILLERS



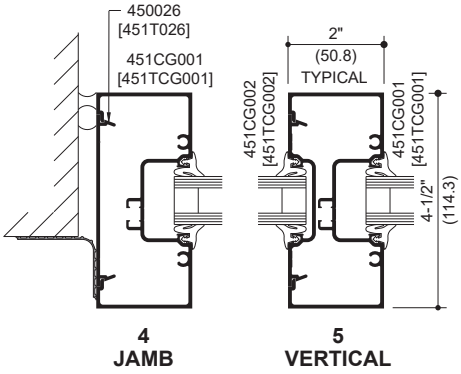


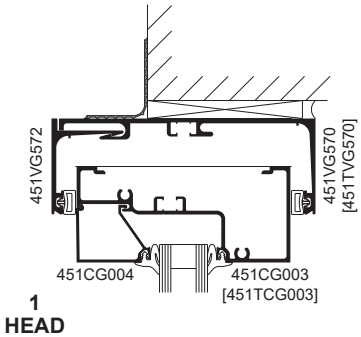


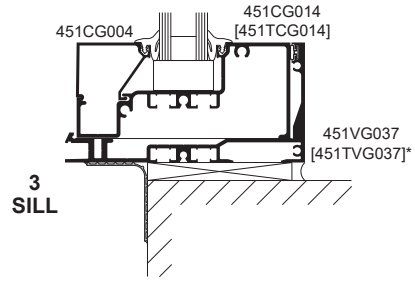
*HP Sill Flashing shown with optional gasket.

HEAD RECEPTOR WITH CONTINUOUS JAMB FILLERS

(EXTERIOR INSTALLED)



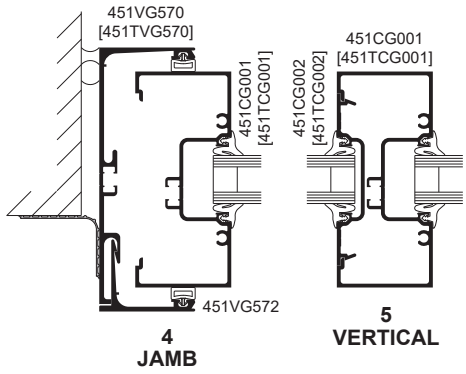


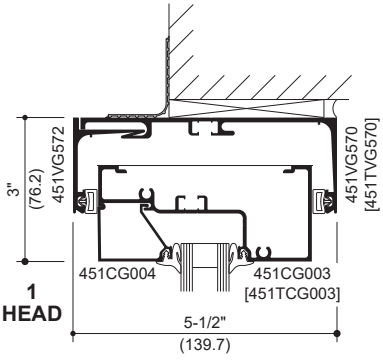


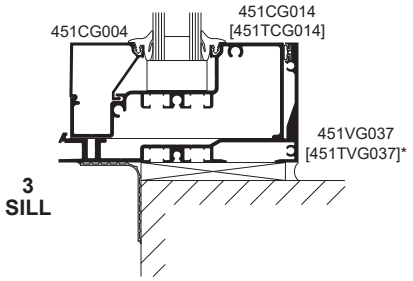
*HP Sill Flashing shown with optional gasket.

HEAD AND JAMB RECEPTORS

(EXTERIOR INSTALLED)







*HP Sill Flashing shown with optional gasket.

WIND LOAD CHARTS

Mullions are designed for deflection limitations in accordance with AAMA TIR-A11 of L/175 up to 13' 6" and L/240 +1/4" above 13' 6". These curves are for mullions WITH HORIZONTALS and are based on engineering calculations for stress and deflection. Allowable wind load stress for ALUMINUM 15,152 psi (104 MPa), STEEL 30,000 psi (207 MPa). Charted curves, in all cases are for the limiting value. Wind load charts contained herein are based upon nominal wind load utilized in allowable stress design. A conversion from Load Resistance Factor Design (LRFD) is provided. To convert ultimate wind loads to nominal loads, multiply ultimate wind loads by a factor of 0.6 per ASCE/SEI 7. A 4/3 increase in allowable stress has not been used to develop these curves. For special situations not covered by these curves, contact your Kawneer representative for additional information.

If the end reaction of the mullion [mullion spacing (ft.) times height (ft.) times specified wind load (psf) divided by two] is more than 500 lbs., the optional Heavyweight Compensating Receptor Face/Reinforcing Clip (Screw Spline/Shear Block systems) or Mullion Anchors (Stick system) must be used. Consult Application Engineering. *(Mullion Anchor not used with Standard Receptor.)*

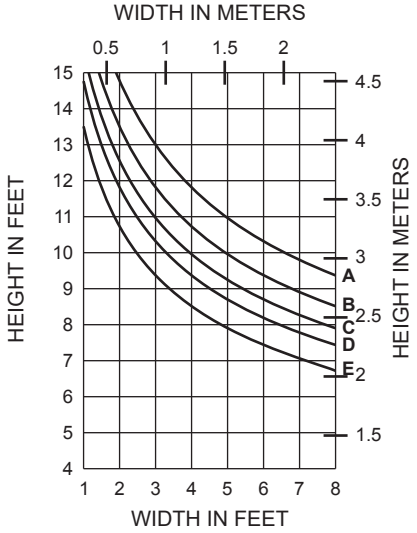
DEADLOAD CHARTS

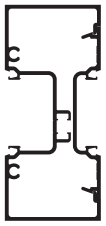
Horizontal or deadload limitations are based upon 1/8" (3.2), maximum allowable deflection at the center of an intermediate horizontal member. The accompanying charts are calculated for 1" (25.4) thick insulating glass or 1/4" (6.4) thick glass supported on two setting blocks placed at the loading points shown.

NOTE: Charts are for THERMAL and NON-THERMAL members.

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

WITH HORIZONTALS

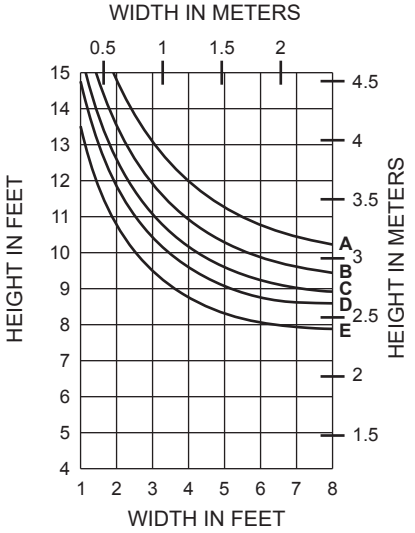




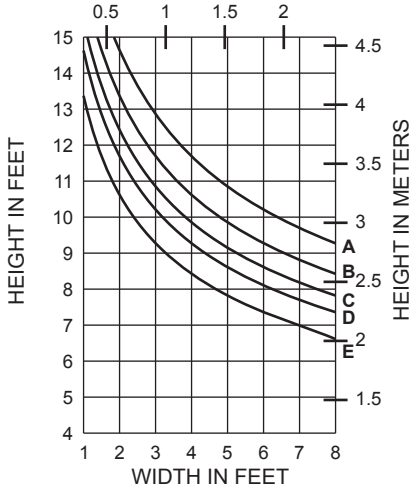
451CG001
451CG002

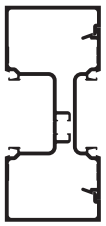
I = 3.237 (134.73 x 10^4)
S = 1.431 (23.45 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS

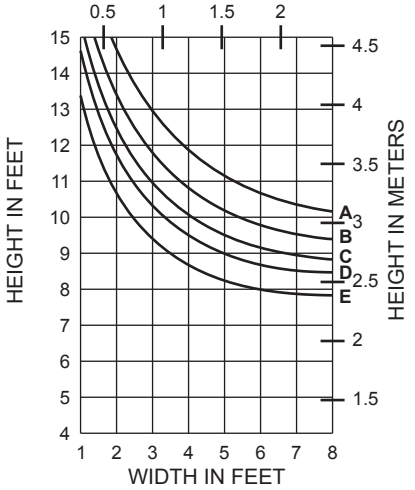




451CG012
451CG002

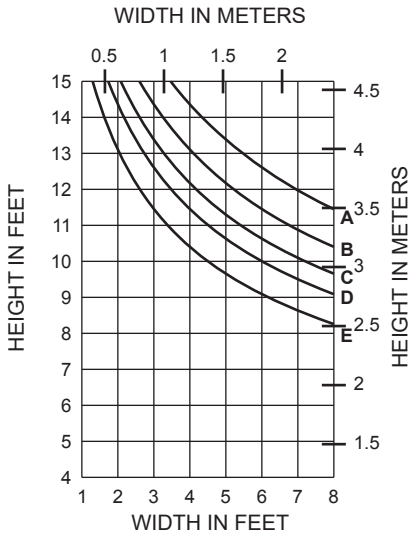
I = 3.137 (130.57 x 10^4)
S = 1.384 (22.68 x 10^3)

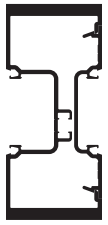
WITHOUT HORIZONTALS



	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

WITH HORIZONTALS

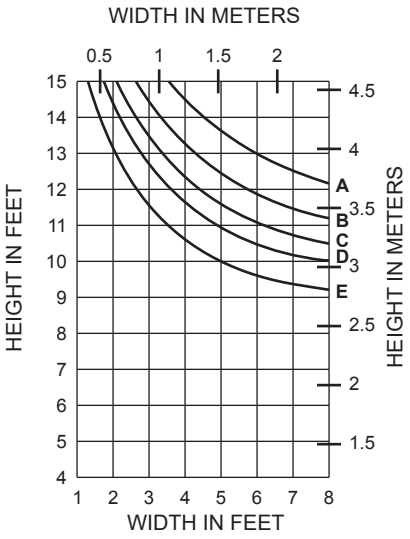




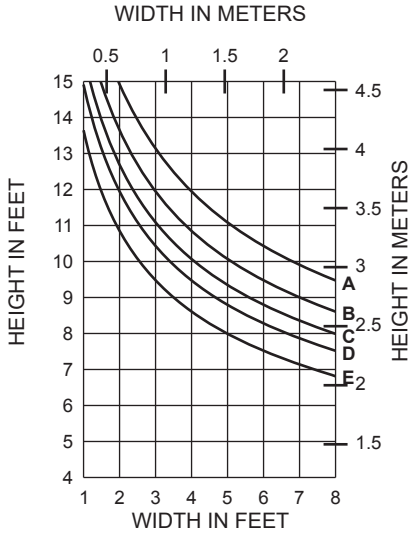
451CG013
451CG002

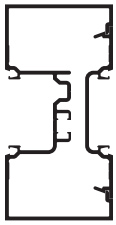
I = 5.907 (245.86 x 10^4)
S = 2.615 (42.85 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS

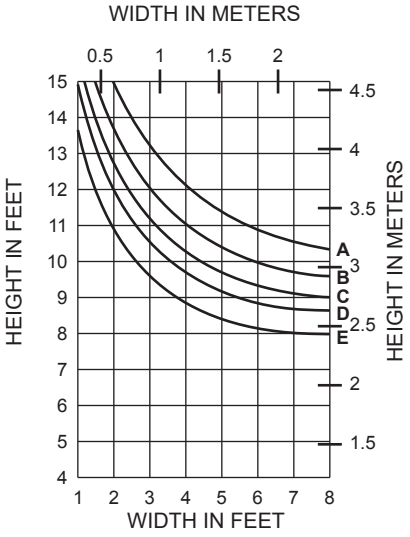




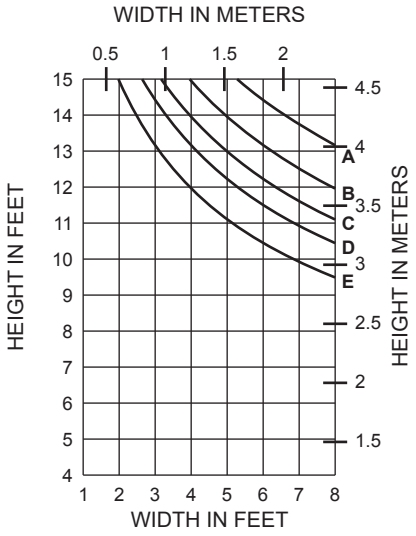
451CG112
451CG002

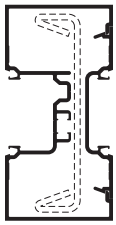
I = 3.346 (139.27 x 10^4)
S = 1.474 (24.15 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS



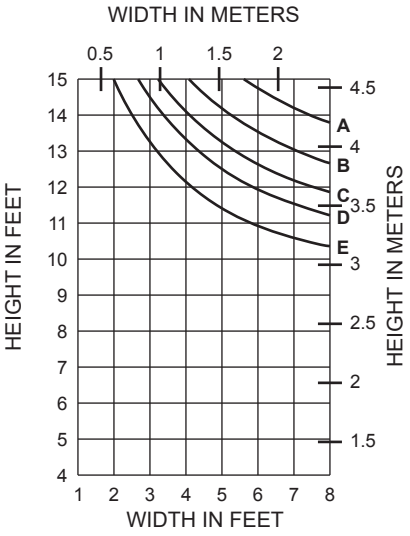


451CG112
451CG002
with 450110 STEEL

I_A = 3.346 (139.27 x 10^4)
S_A = 1.474 (24.15 x 10^3)

I_S = 1.935 (80.54 x 10^4)
S_S = 0.938 (15.37 x 10^3)

WITHOUT HORIZONTALS

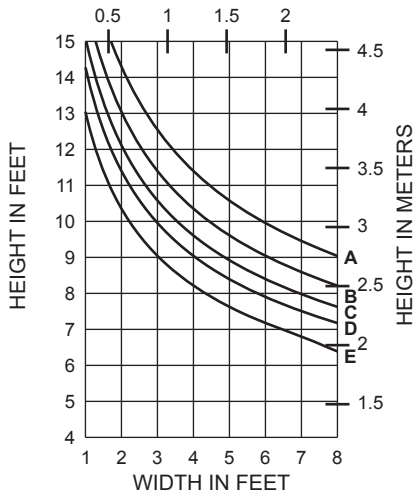


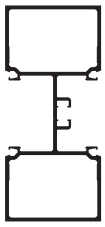
Trifab® VersaGlaze® 451 Framing System

WIND LOAD CHARTS (CENTER) Non-Thermal

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

WITH HORIZONTALS

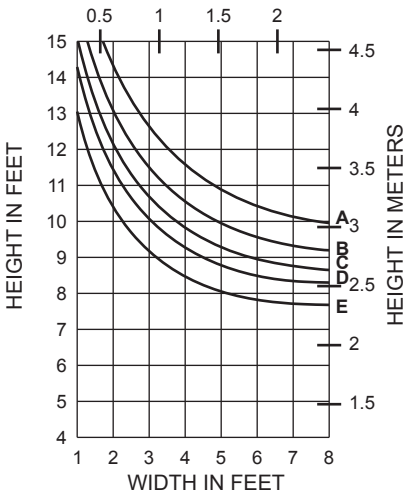




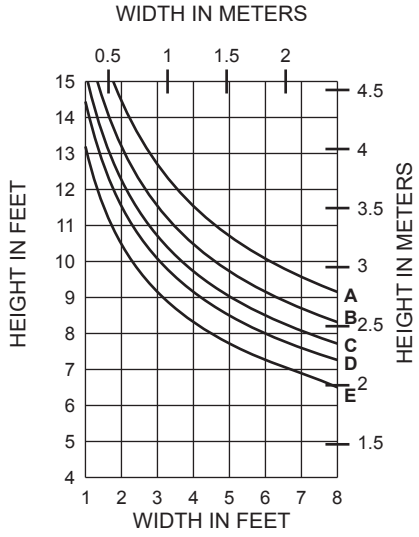
451CG005

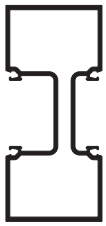
I = 2.907 (120.99 x 10^4)
S = 1.292 (21.17 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS

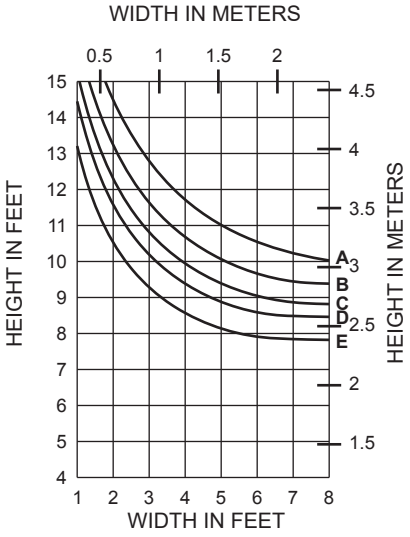




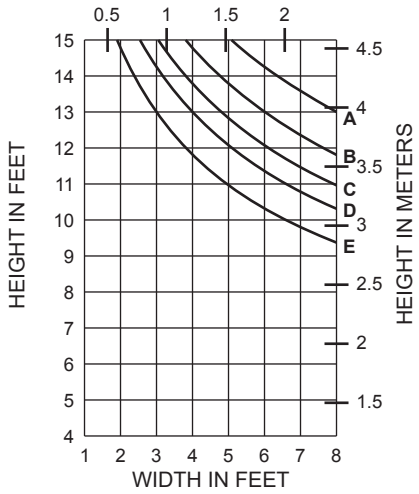
451CG005A

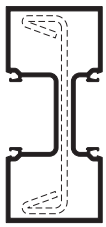
I = 3.016 (125.53 x 10^4)
S = 1.340 (21.96 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS

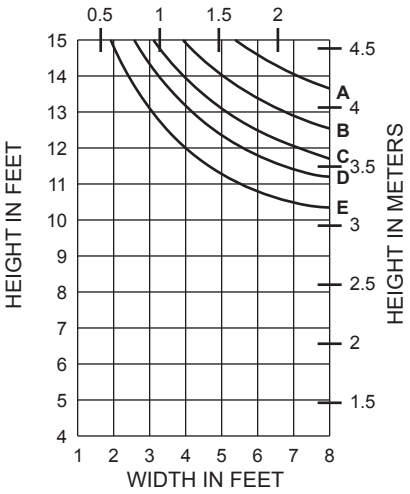




451CG005A with 450110 STEEL

I_A = 3.016 (125.53 x 10^4)
S_A = 1.340 (21.96 x 10^3)
I_S = 1.935 (80.54 x 10^4)
S_S = 0.938 (15.37 x 10^3)

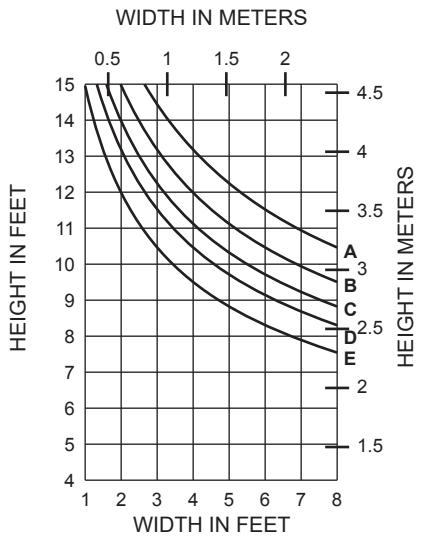
WITHOUT HORIZONTALS

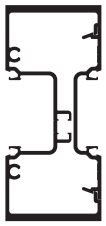


KAWNEER

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

WITH HORIZONTALS

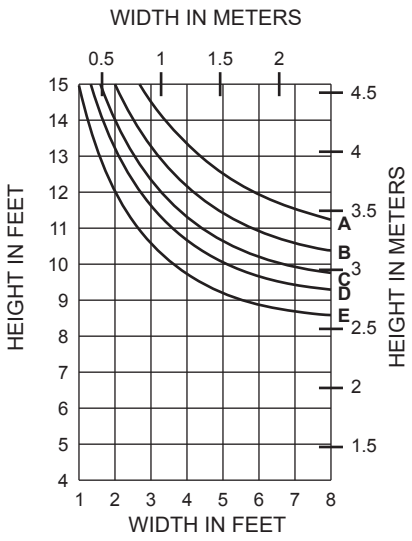




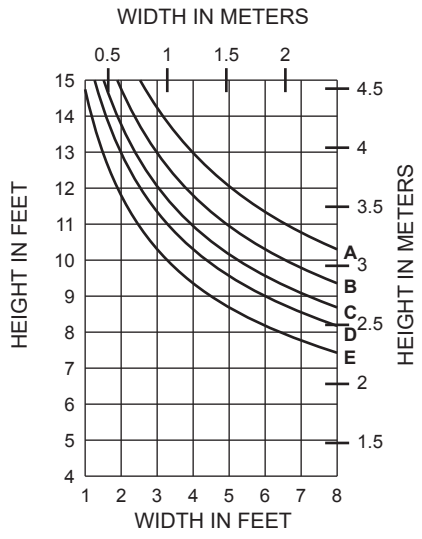
451CG001A
451CG002

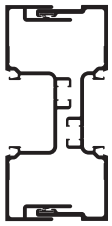
I = 4.507 (187.59 x 10^4)
S = 1.993 (32.66 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS

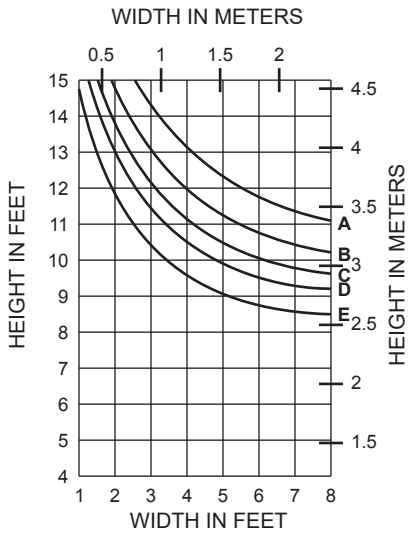




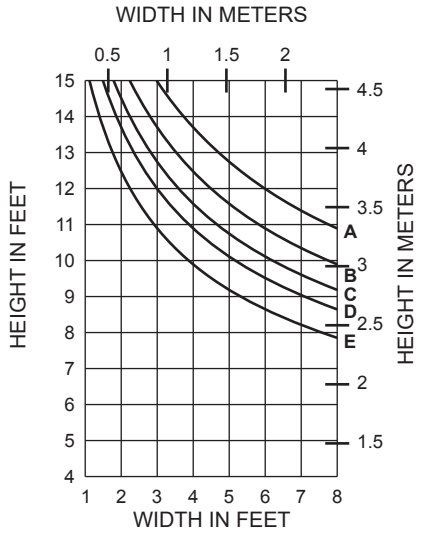
451CG010
451CG540

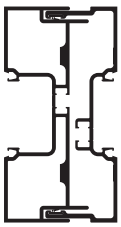
I = 4.301 (179.02 x 10^4)
S = 1.886 (30.91 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS

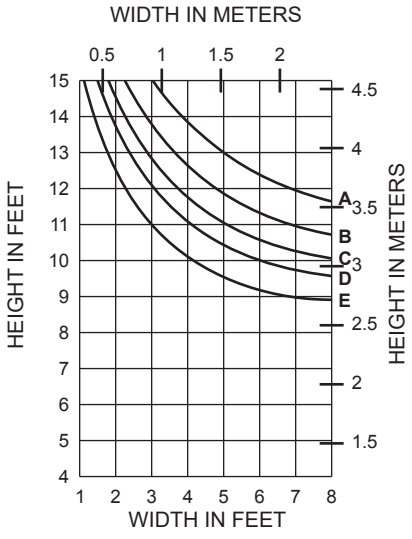




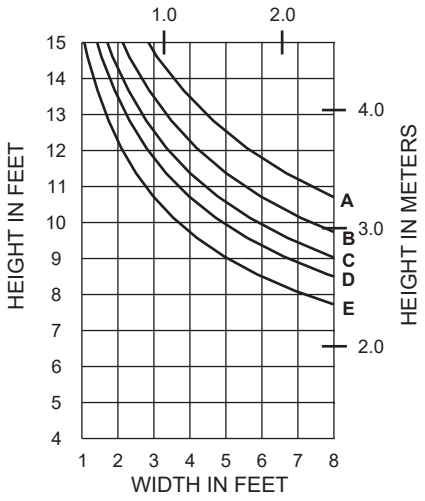
451CG010A
451CG540

I = 5.083 (211.57 x 10^4)
S = 2.259 (37.02 x 10^3)

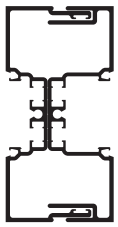
WITHOUT HORIZONTALS



WITH HORIZONTALS



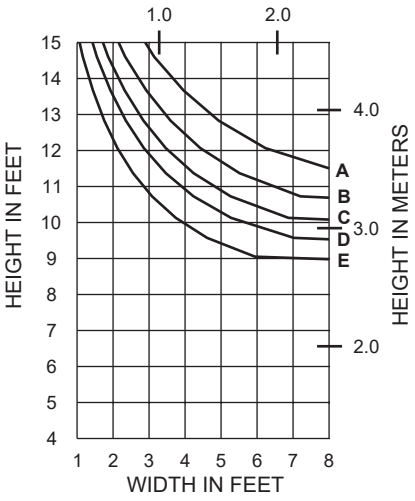
	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



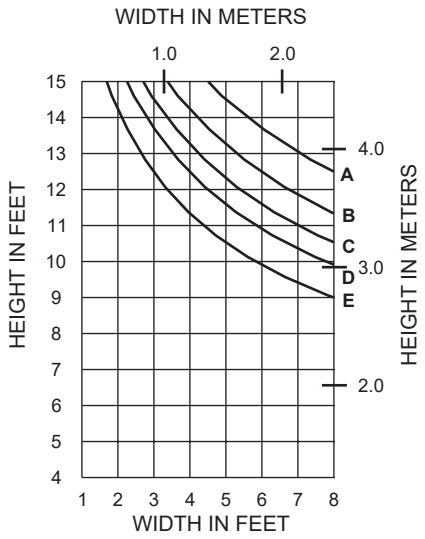
451CG081 / 451CG082

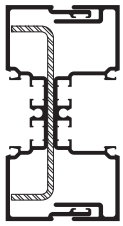
I = 4.829 (201.00 x 10^4)
S = 2.146 (35.17 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS

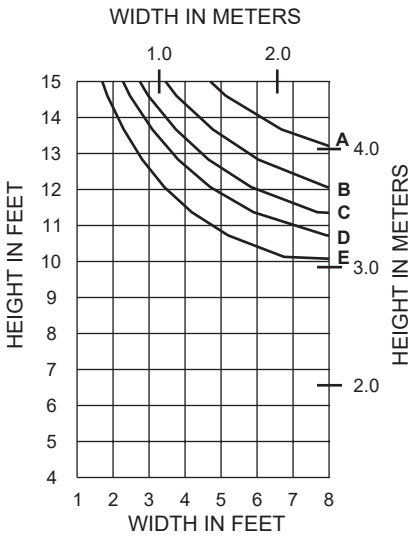




451CG081 / 451CG082
with 400110 STEEL

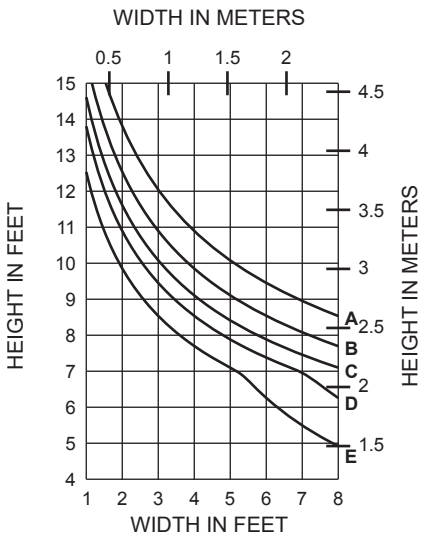
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

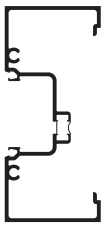
WITHOUT HORIZONTALS



	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

WITH HORIZONTALS

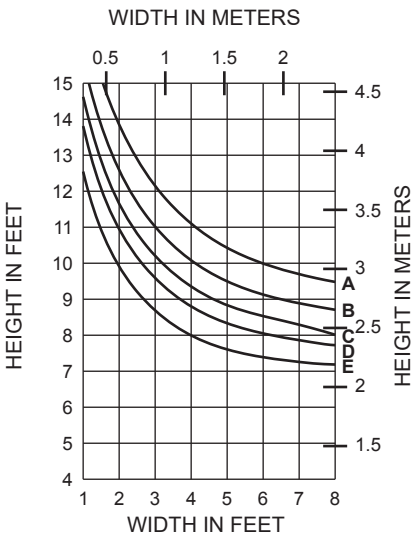




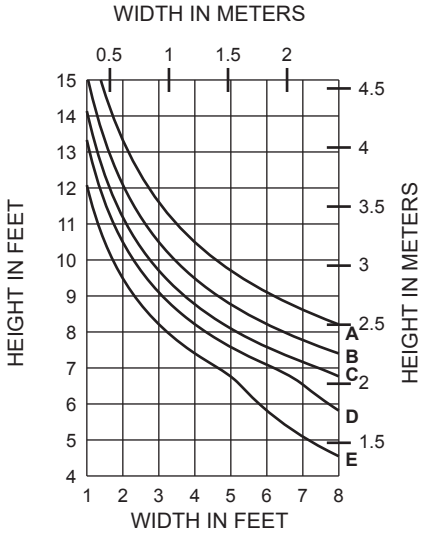
451TCG001

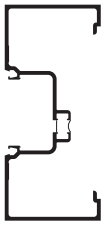
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS



WITH HORIZONTALS

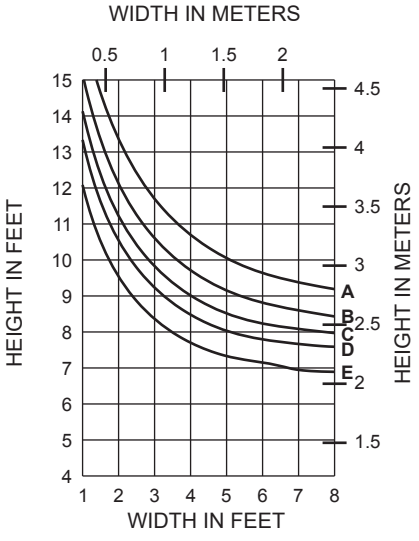




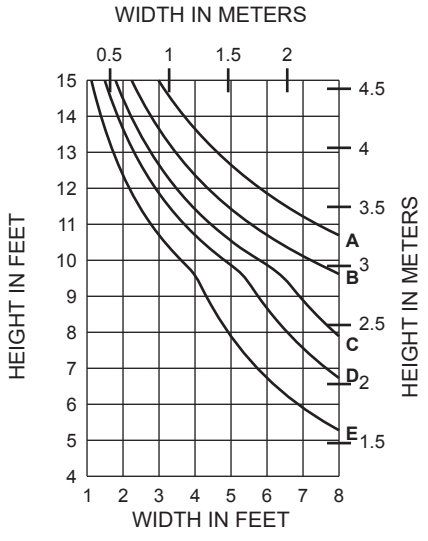
451TCG012

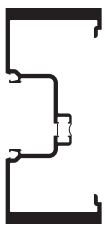
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS



WITH HORIZONTALS

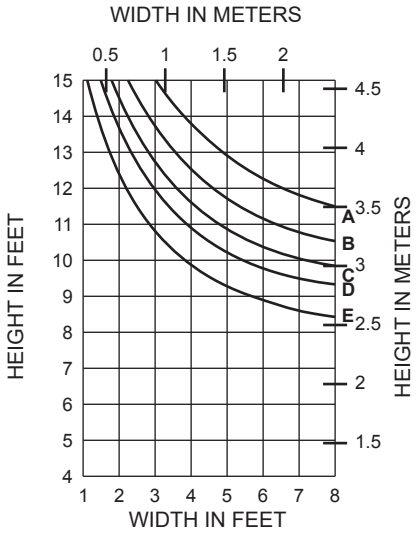




451TCG013

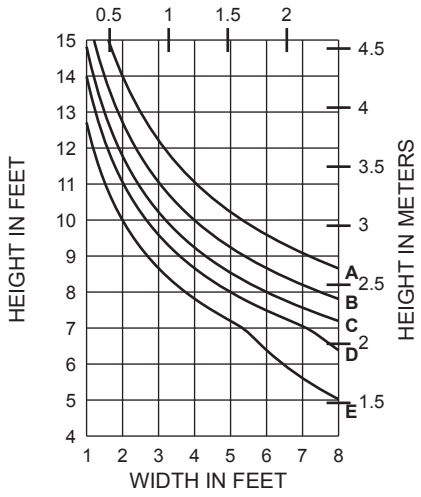
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

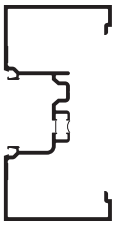
WITHOUT HORIZONTALS



	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

WITH HORIZONTALS

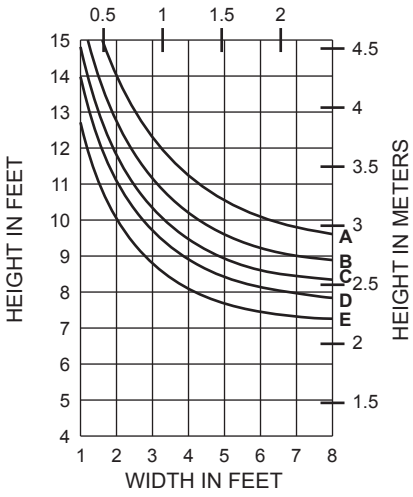




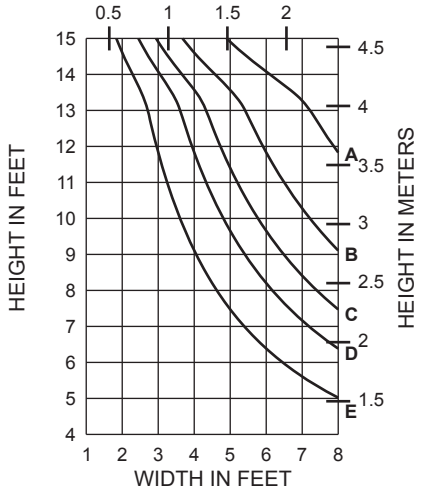
451TCG112

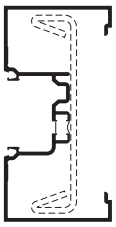
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS



WITH HORIZONTALS

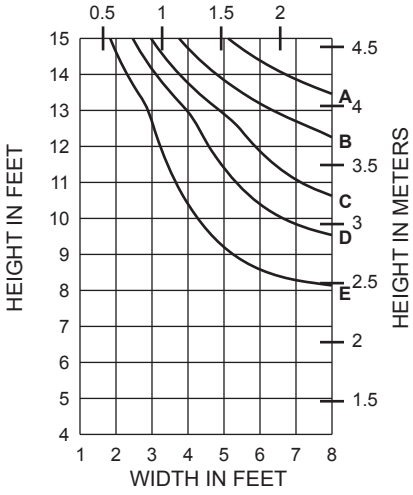




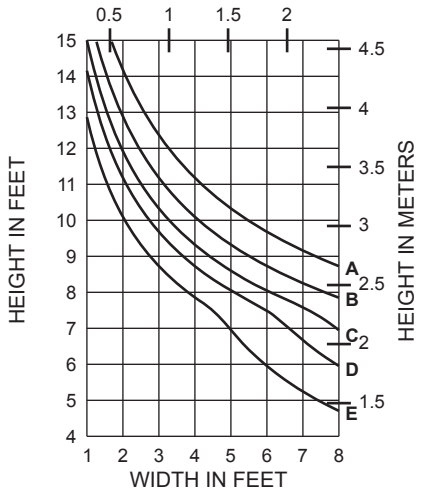
451TCG112
with 450110 STEEL

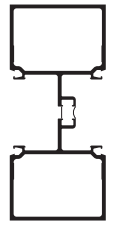
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS



WITH HORIZONTALS

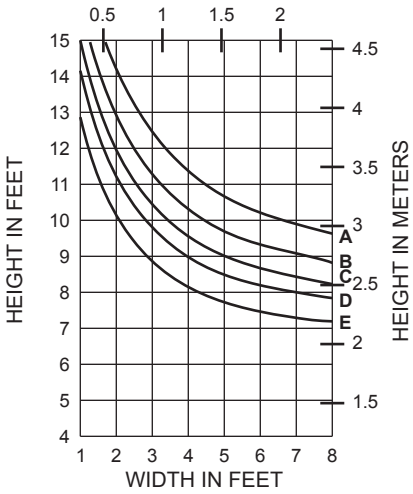




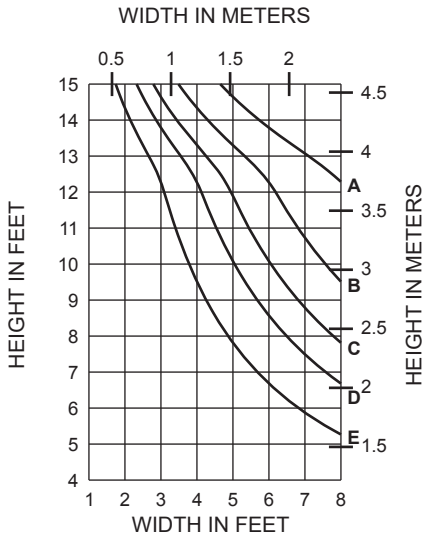
451TCG005

WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

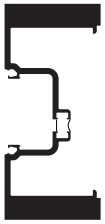
WITHOUT HORIZONTALS



WITH HORIZONTALS



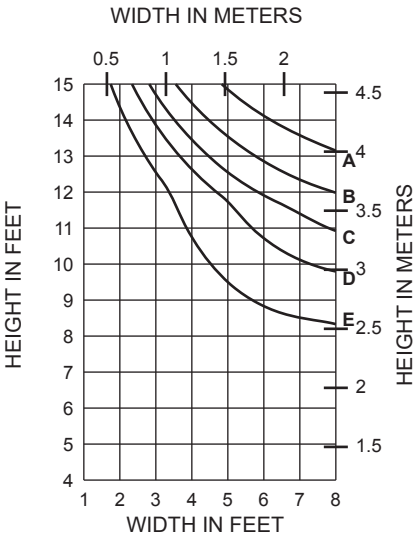
	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



451TCG113

WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS

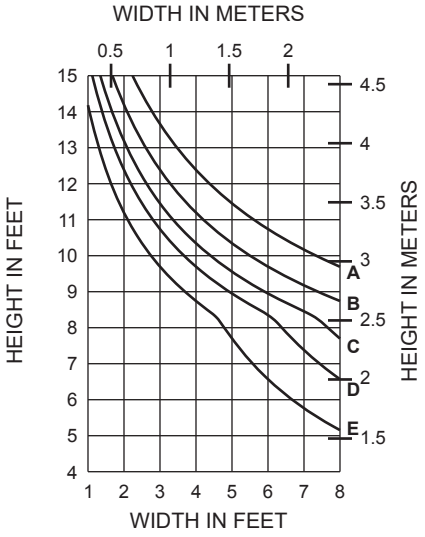


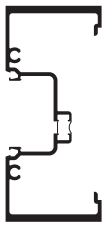
Trifab® VersaGlaze® 451T Framing System

WIND LOAD CHARTS (CENTER) Thermal

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

WITH HORIZONTALS

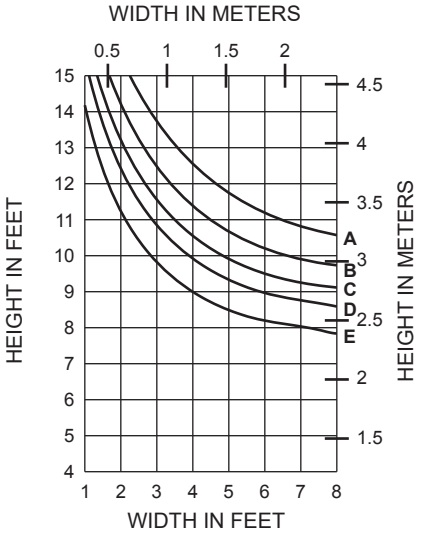




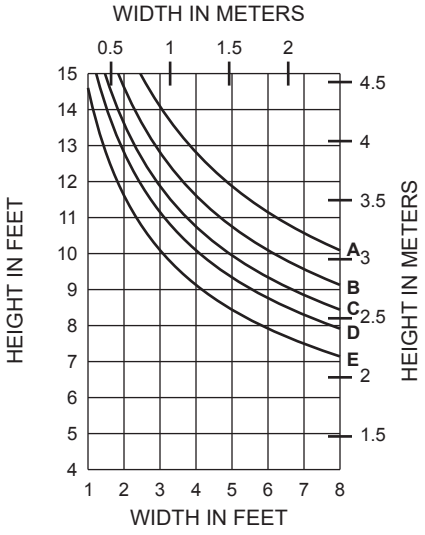
451TCG001A

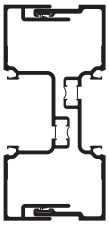
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS



WITH HORIZONTALS

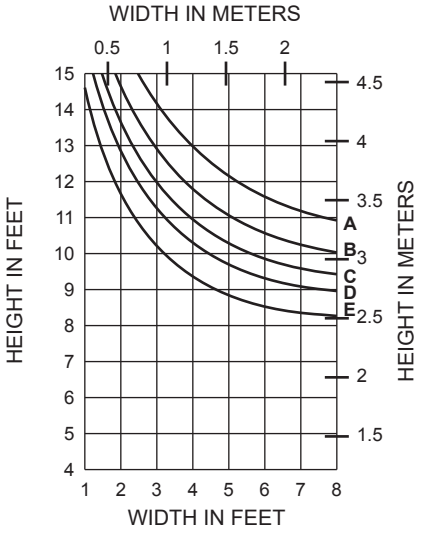




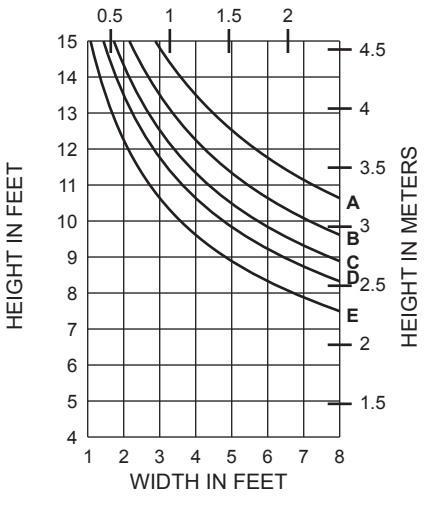
451TCG540
451TCG010

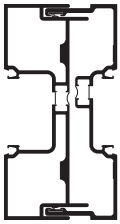
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS



WITH HORIZONTALS

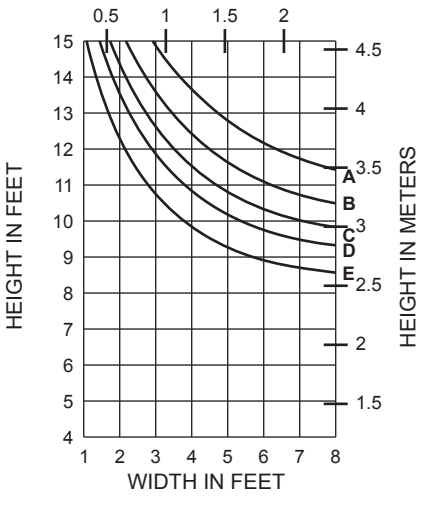




451TCG540
451TCG010A

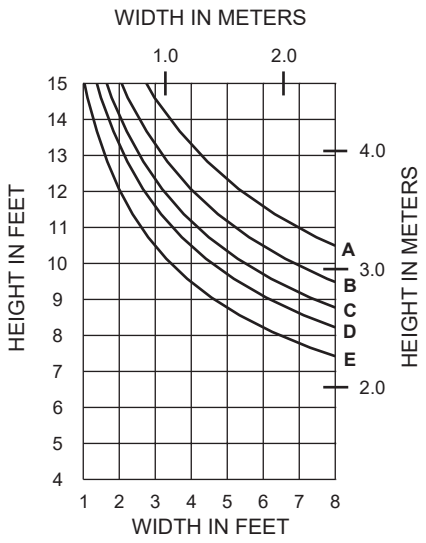
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS

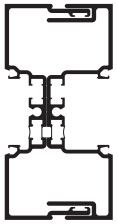


KAWNEER

WITH HORIZONTALS



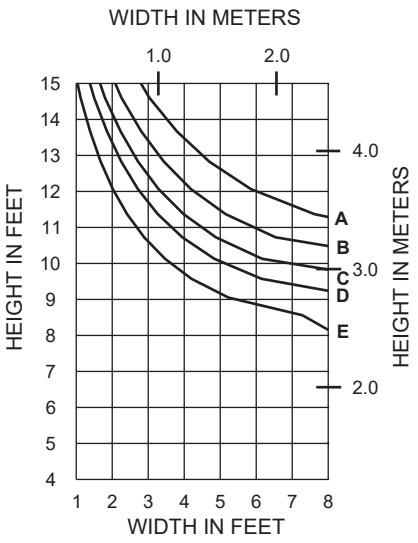
	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



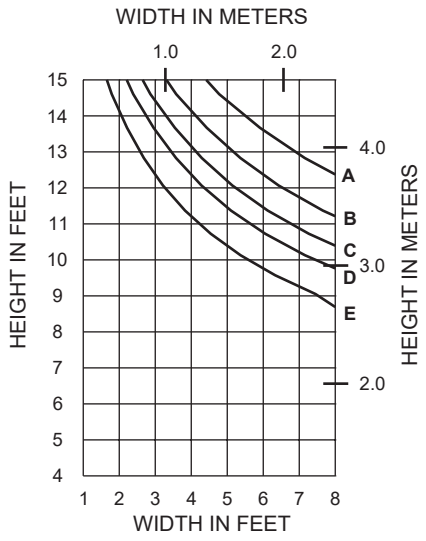
451TCG081 / 451TCG082

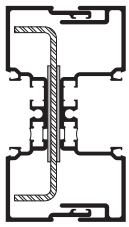
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS



WITH HORIZONTALS

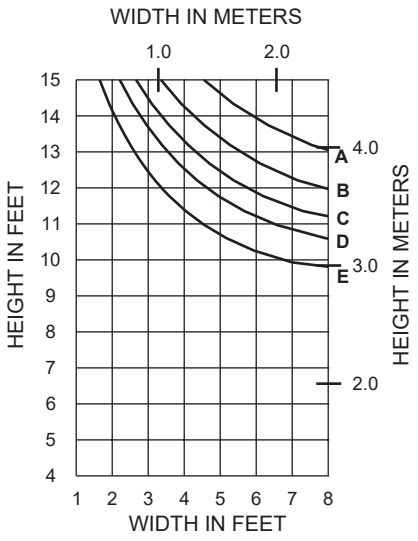




451TCG081 / 451TCG082 with 400110 STEEL

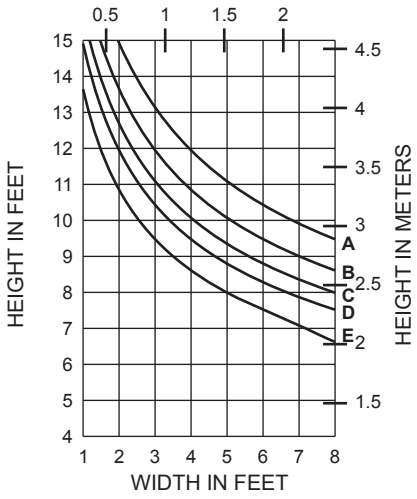
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

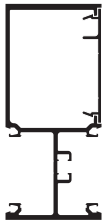
WITHOUT HORIZONTALS



	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

WITH HORIZONTALS

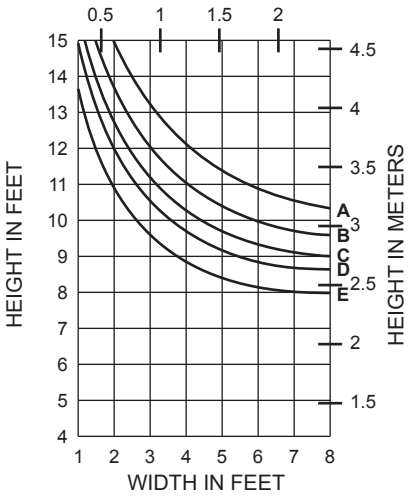




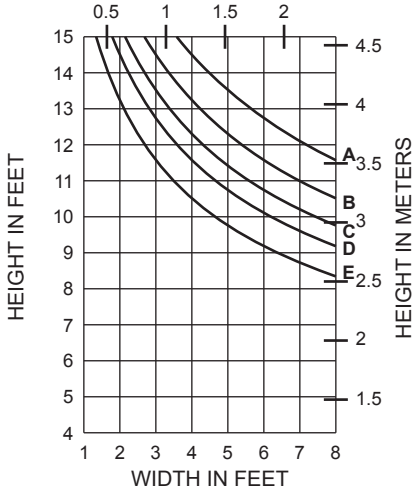
451VG012
451VG026

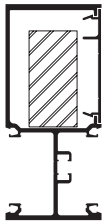
I = 3.346 (139.27 x 10^4)
S = 1.447 (23.71 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS



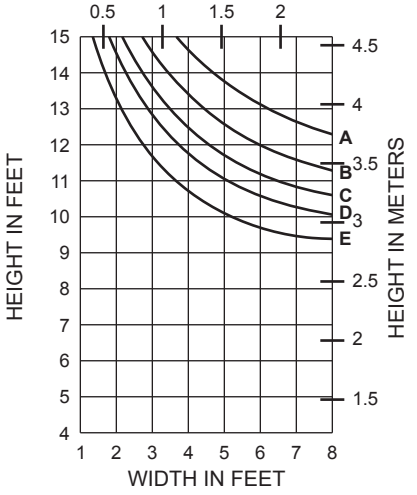


451VG012
451VG026
with 1" x 2-1/4" STEEL BAR

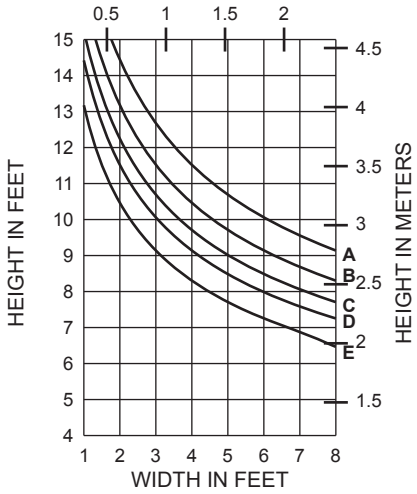
I_A = 3.346 (139.27 x 10^4)
S_A = 1.447 (23.71 x 10^3)

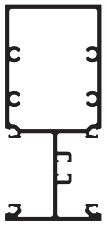
I_S = 0.949 (39.50 x 10^4)
S_S = 0.844 (13.83 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS

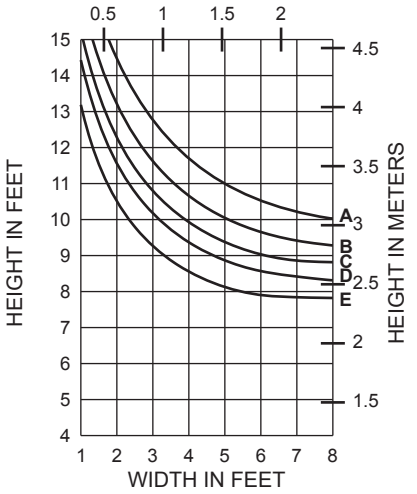




451VG005

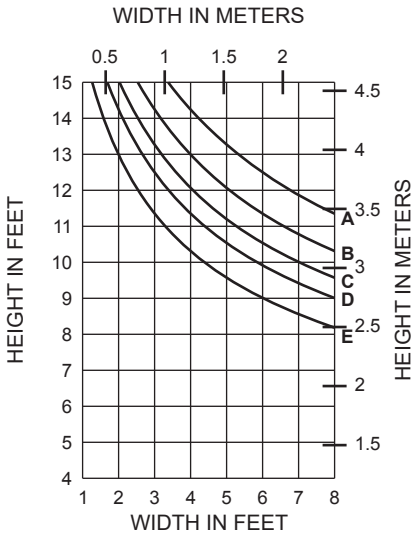
I = 3.001 (124.91 x 10^4)
S = 1.323 (21.68 x 10^3)

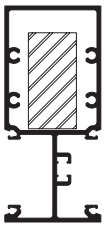
WITHOUT HORIZONTALS



	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

WITH HORIZONTALS



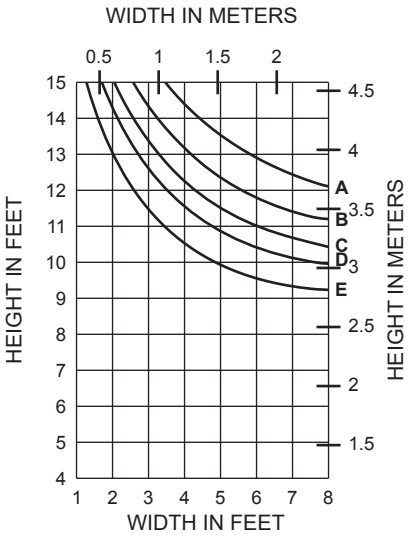


451VG005
with 1" x 2-1/4" STEEL BAR

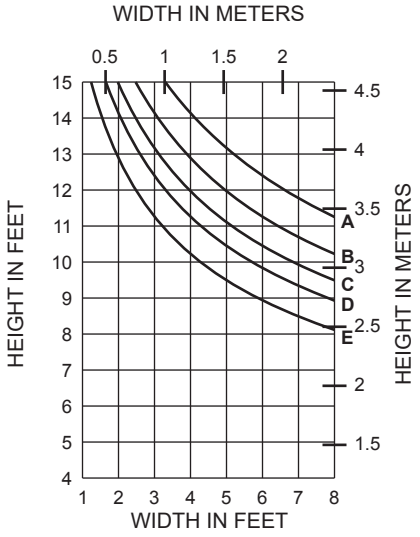
I_A = 3.001 (124.91 x 10^4)
S_A = 1.323 (21.68 x 10^3)

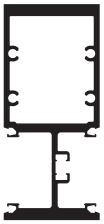
I_S = 0.949 (39.50 x 10^4)
S_S = 0.844 (13.83 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS

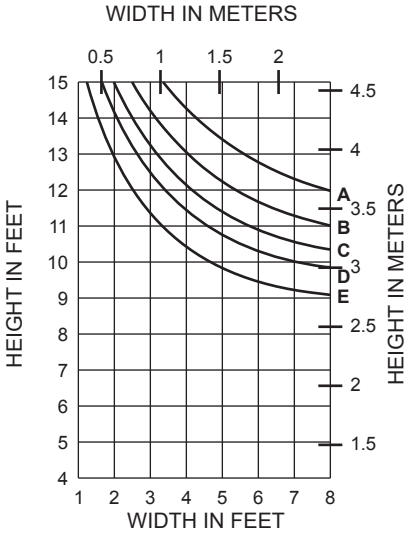




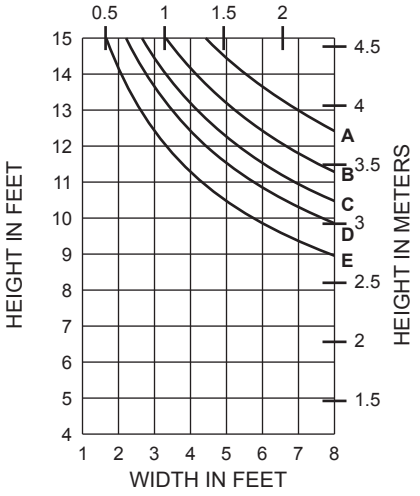
451VG014

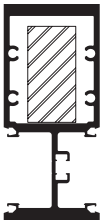
I = 5.604 (233.25 x 10^4)
S = 2.397 (39.28 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS



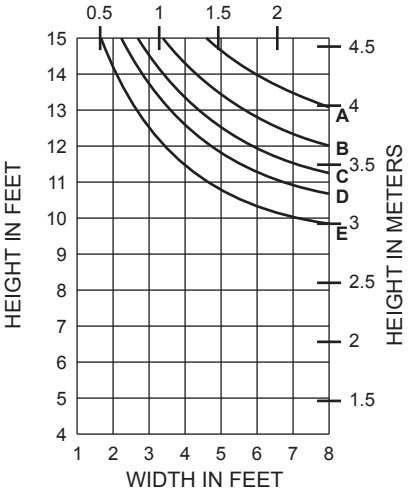


451VG014
with 1" x 2" STEEL BAR

I = 5.604 (233.25 x 10^4)
S = 2.397 (39.28 x 10^3)

I_S = 0.667 (27.26 x 10^4)
S_S = 0.667 (10.93 x 10^3)

WITHOUT HORIZONTALS

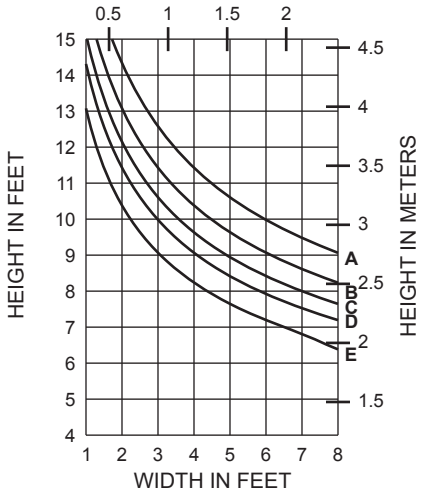


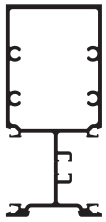
Trifab® VersaGlaze® 451 Framing System

WIND LOAD CHARTS (FRONT/BACK) Non-Thermal

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

WITH HORIZONTALS

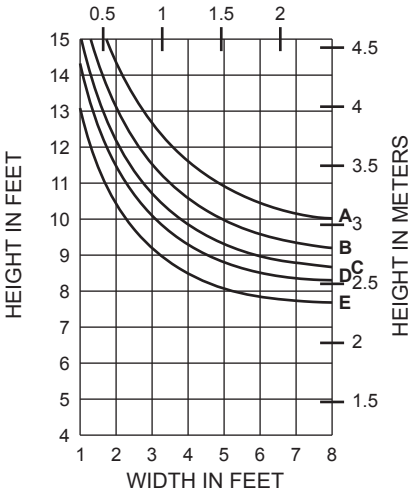




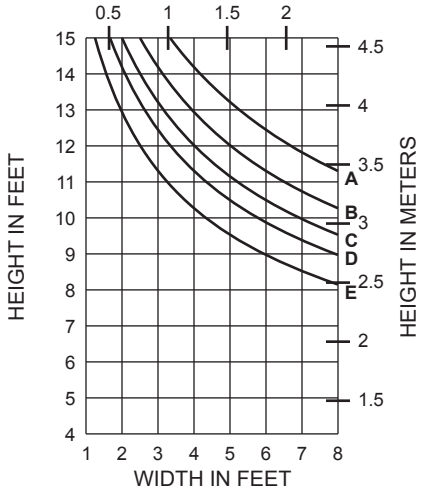
451VG134

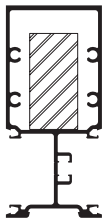
I = 2.930 (121.96 x 10^4)
S = 1.290 (21.13 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS



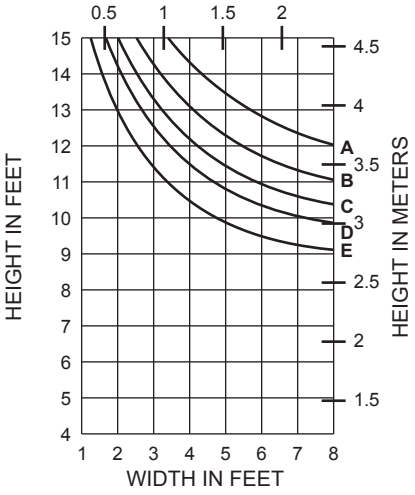


451VG134
with 1" x 2-1/4" STEEL BAR

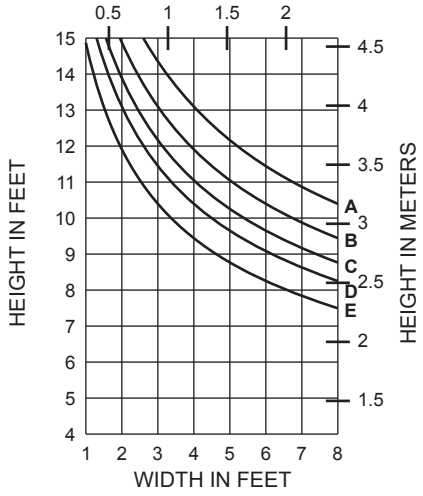
I_A = 2.930 (121.96 x 10^4)
S_A = 1.290 (21.13 x 10^3)

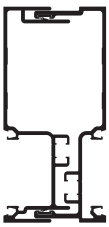
I_S = 0.949 (39.50 x 10^4)
S_S = 0.844 (13.83 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS

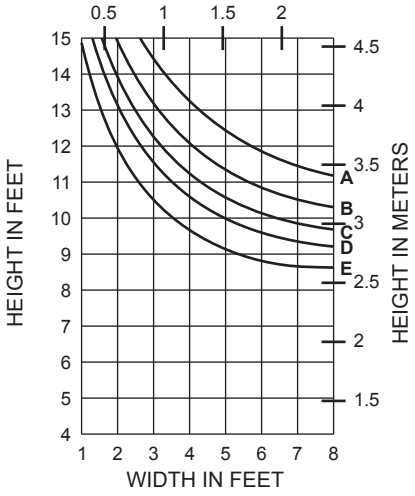




451VG010
451VG540

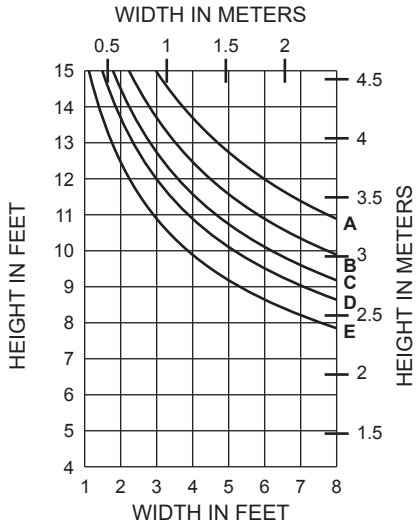
I = 4.418 (183.89 x 10^4)
S = 1.798 (29.46 x 10^3)

WITHOUT HORIZONTALS

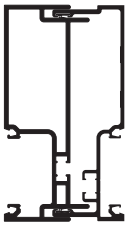


KAWNEER

WITH HORIZONTALS



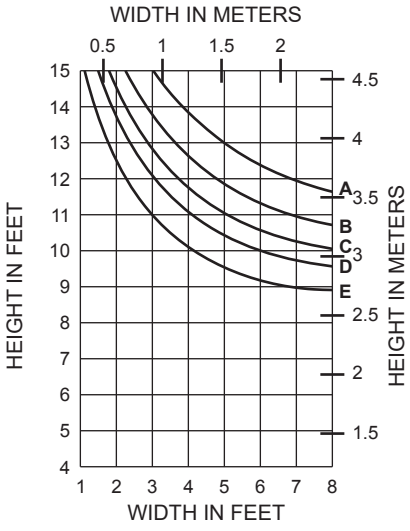
	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



451VG010A
451VG009

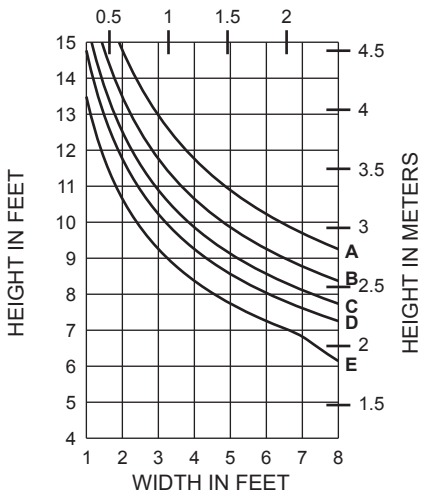
$I = 5.076 (211.27 \times 10^4)$
$S = 2.066 (33.86 \times 10^3)$

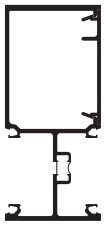
WITHOUT HORIZONTALS



	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

WITH HORIZONTALS

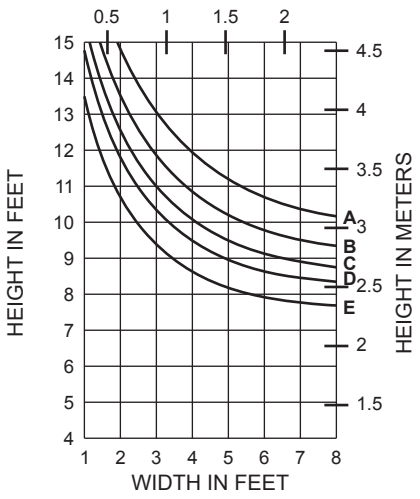




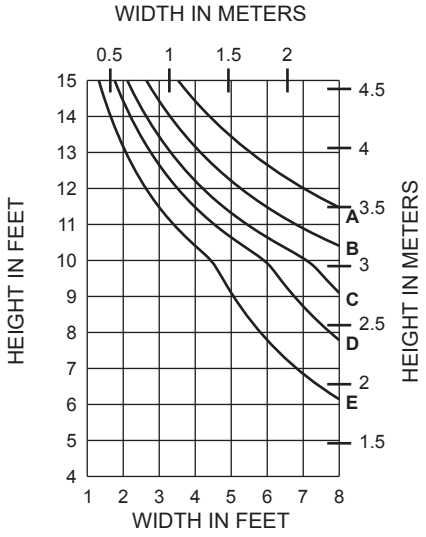
451TVG012
451VG026

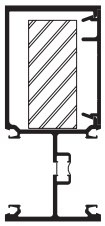
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS



WITH HORIZONTALS

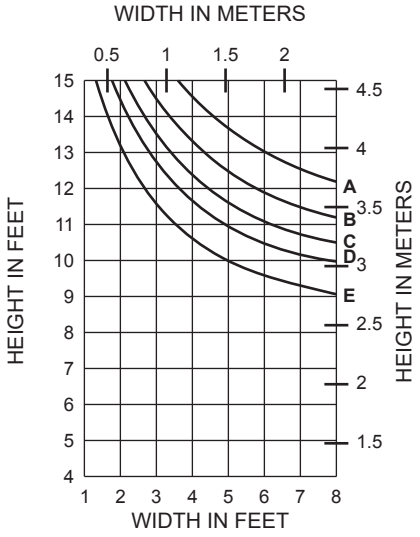




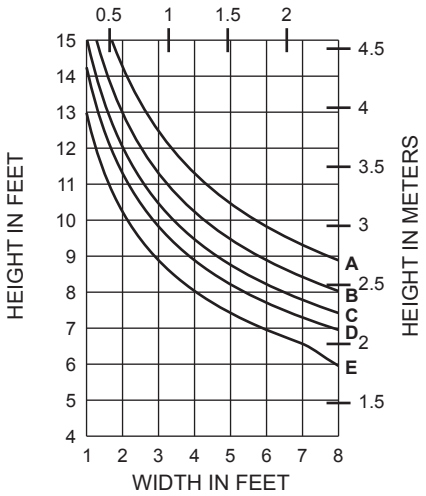
451TVG012
451VG026
with 1" x 2-1/4" STEEL BAR

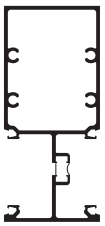
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS



WITH HORIZONTALS

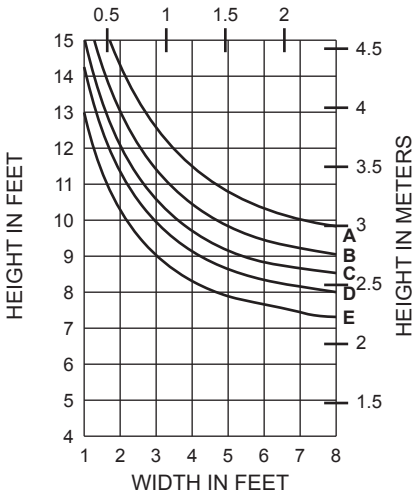




451TVG005

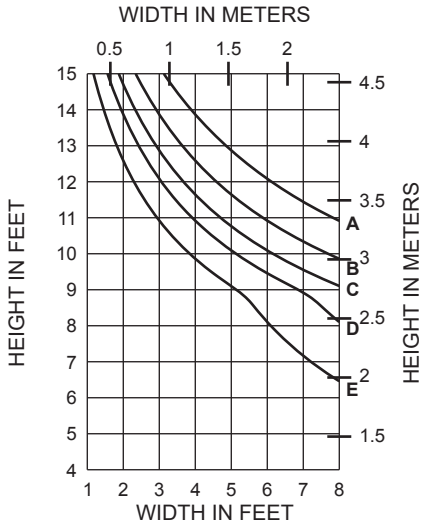
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

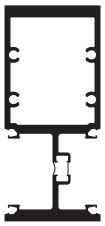
WITHOUT HORIZONTALS



	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

WITH HORIZONTALS

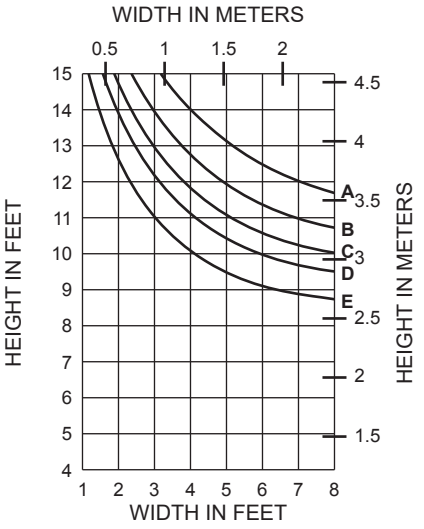




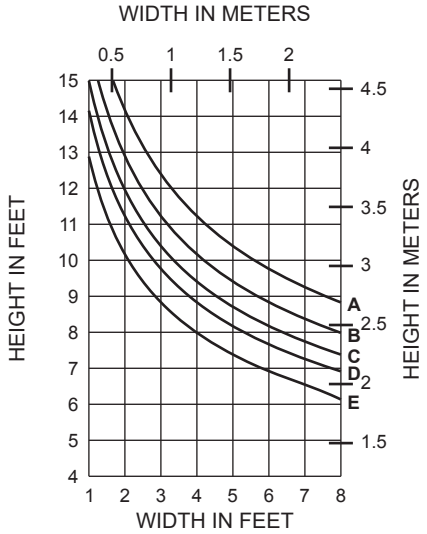
451TVG014

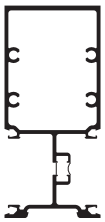
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS



WITH HORIZONTALS

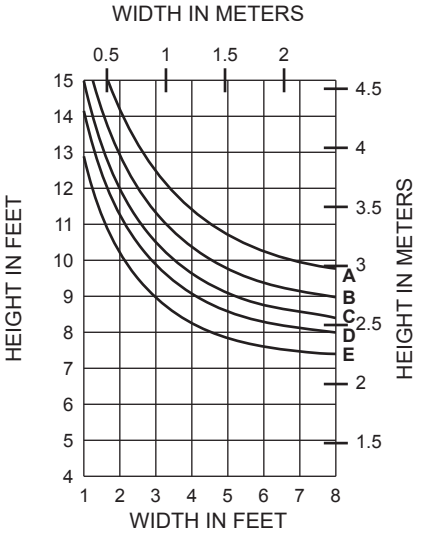




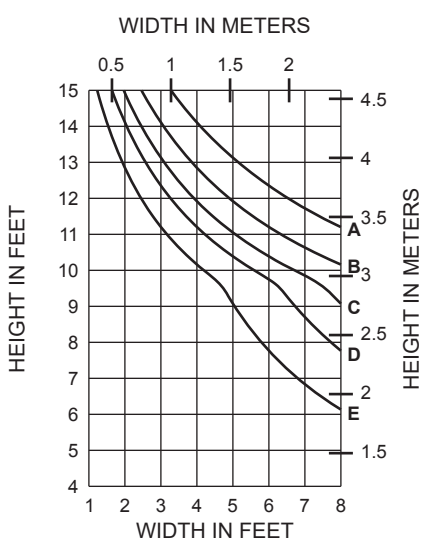
451TVG134

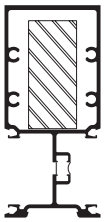
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS



WITH HORIZONTALS

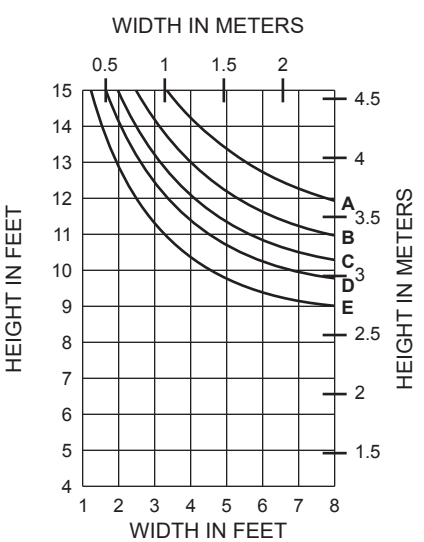




451TVG134
with 1" x 2-1/4" STEEL BAR

WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS

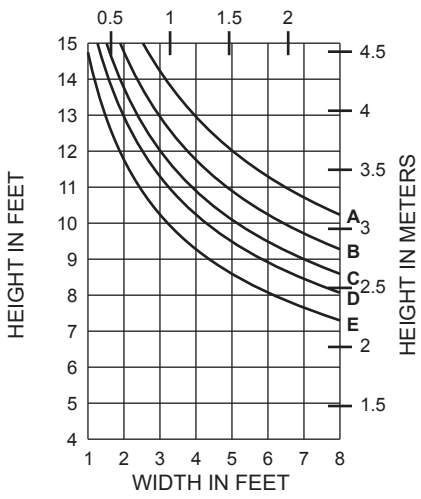


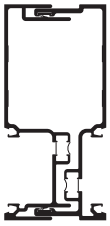
Trifab® VersaGlaze® 451T Framing System

WIND LOAD CHARTS (FRONT/BACK) Thermal

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

WITH HORIZONTALS

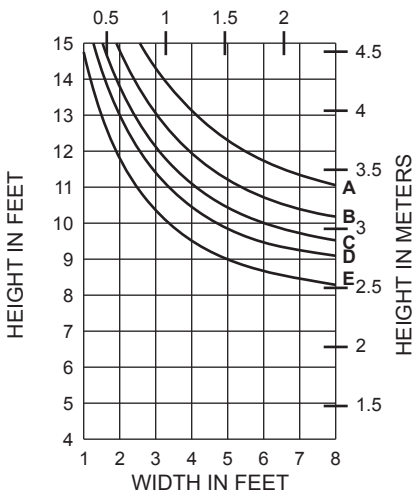




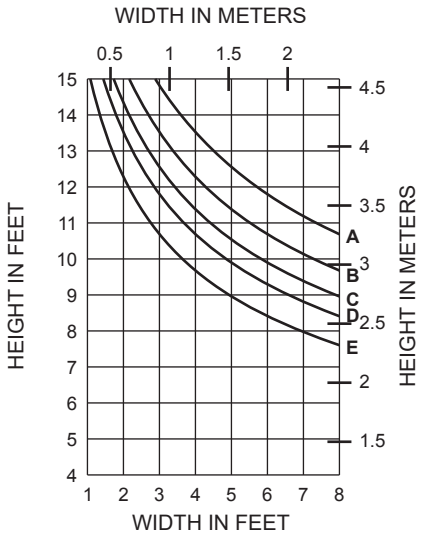
451TVG540
451TVG010

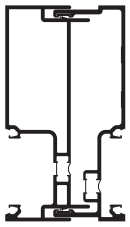
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS



WITH HORIZONTALS

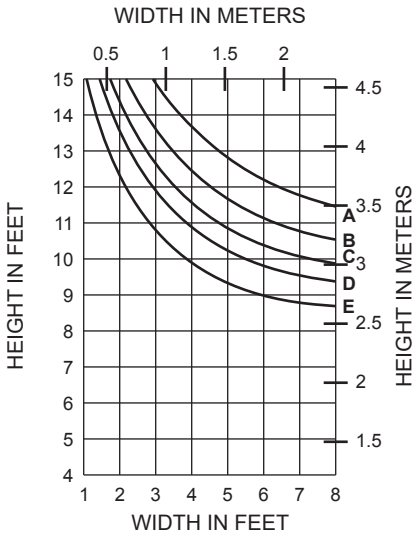




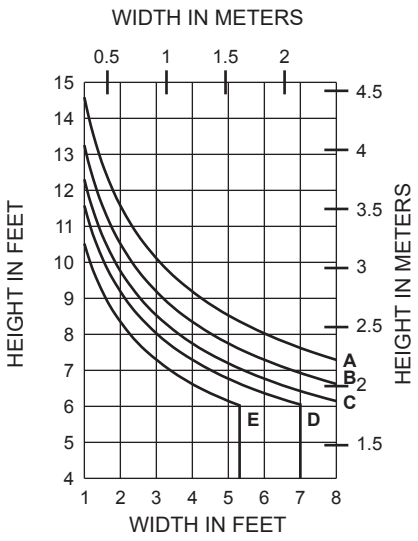
451TVG540
451TVG010A

WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

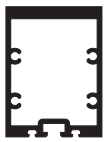
WITHOUT HORIZONTALS



WITH HORIZONTALS



	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

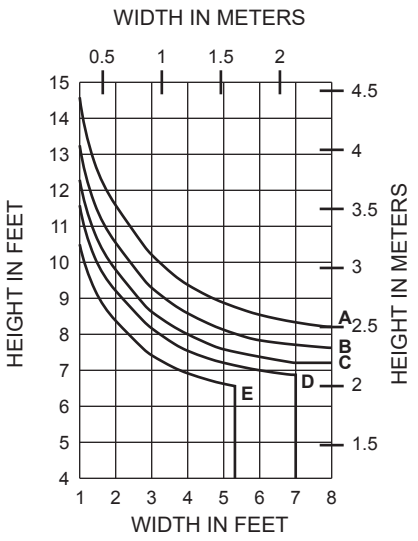


451SSG005

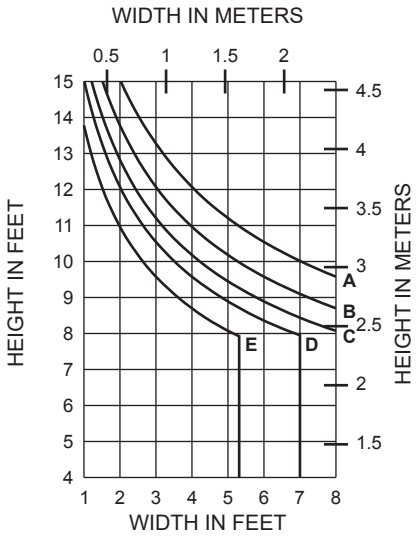
$I = 1.527 (63.55 \times 10^4)$

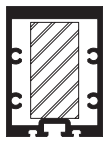
$S = 1.057 (17.32 \times 10^3)$

WITHOUT HORIZONTALS



WITH HORIZONTALS





451SSG005
with 1" x 2" STEEL BAR

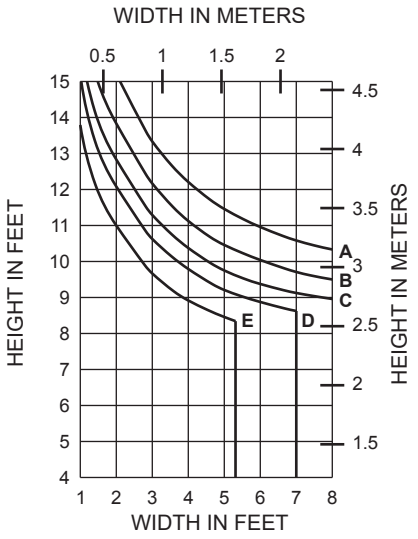
$I_A = 1.527 (63.55 \times 10^4)$

$S_A = 1.057 (17.32 \times 10^3)$

$I_S = 0.667 (27.76 \times 10^4)$

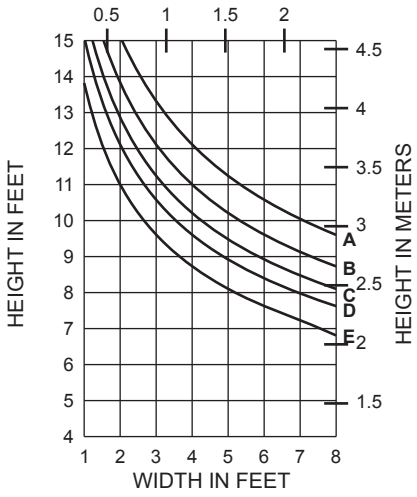
$S_S = 0.667 (10.93 \times 10^3)$

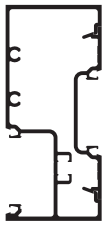
WITHOUT HORIZONTALS



	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

WITH HORIZONTALS

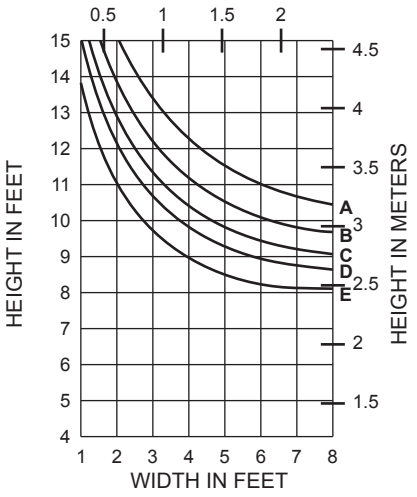




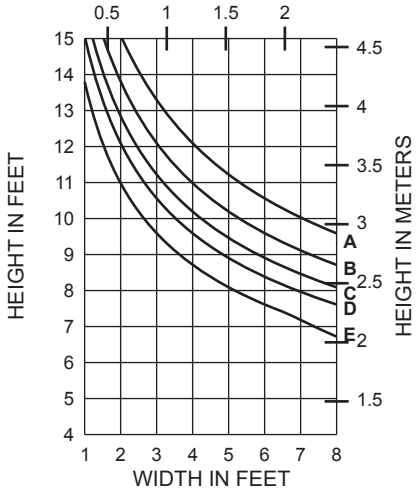
451VG001
451CG002

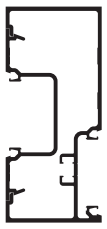
I = 3.485 (145.05 x 10^4)
S = 1.468 (24.06 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS

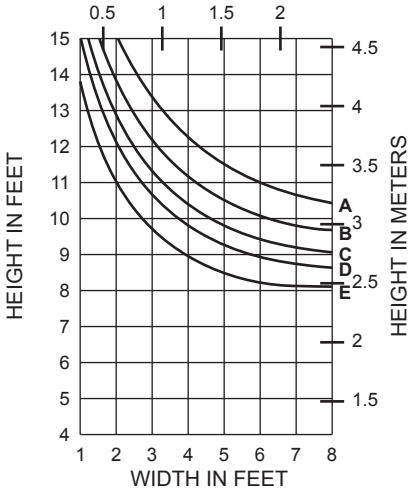




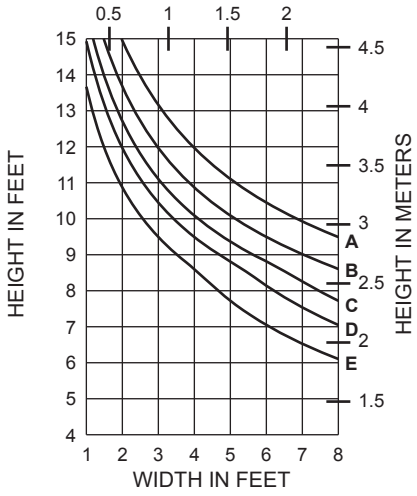
451VG052
451CG028

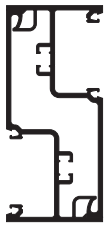
I = 3.470 (144.43 x 10^4)
S = 1.431 (23.45 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS

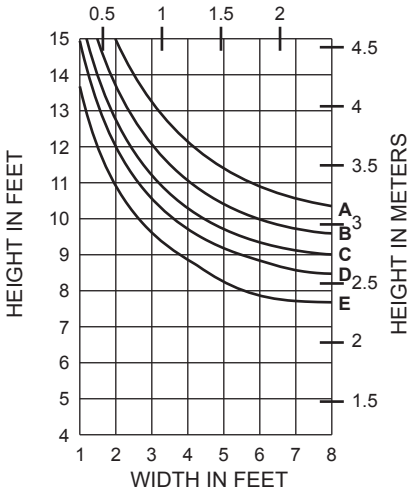




451VG069
451VG069

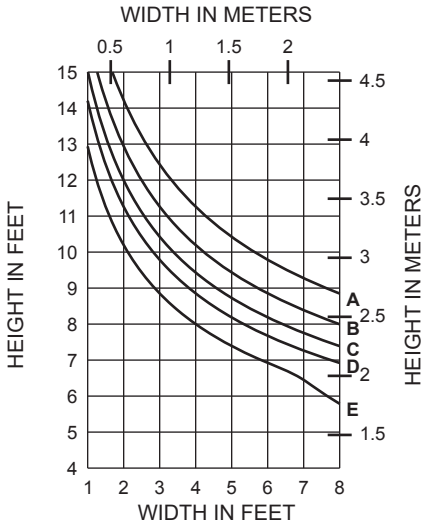
I = 3.362 (139.94 x 10^4)
S = 1.181 (19.35 x 10^3)

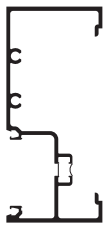
WITHOUT HORIZONTALS



	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

WITH HORIZONTALS

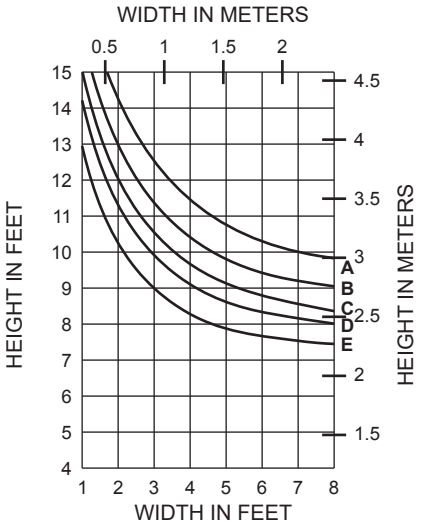




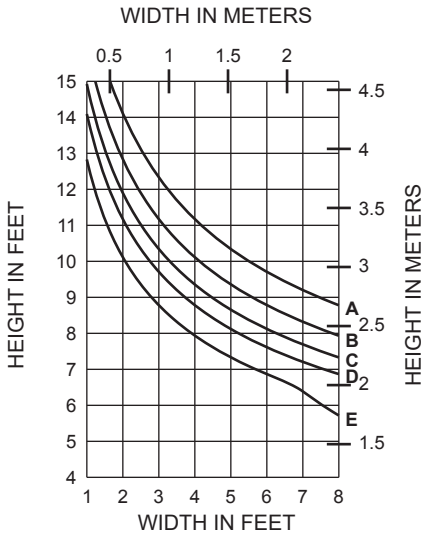
451TVG001

WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS



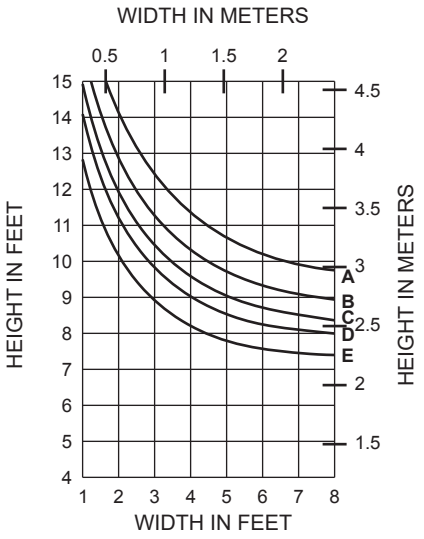
WITH HORIZONTALS



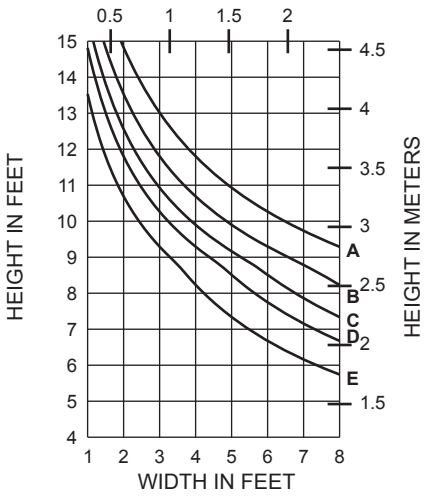
451TVG052

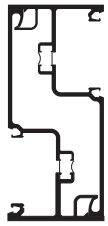
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS



WITH HORIZONTALS

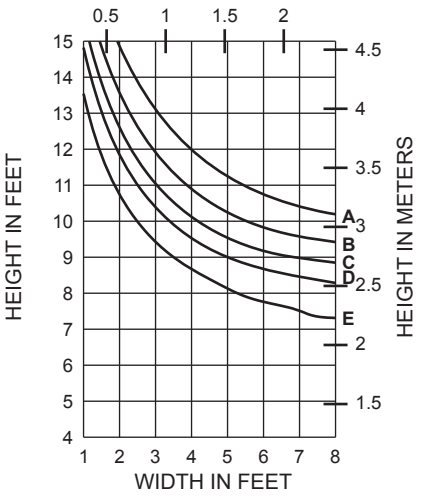




451TVG069
451TVG069

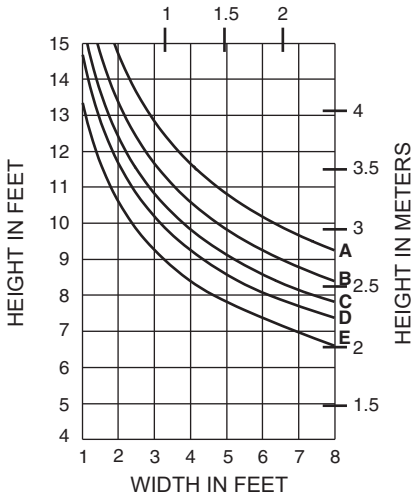
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

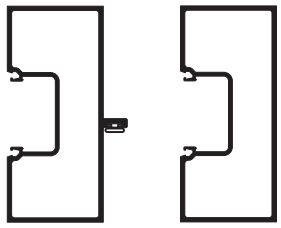
WITHOUT HORIZONTALS



	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

WITH HORIZONTALS

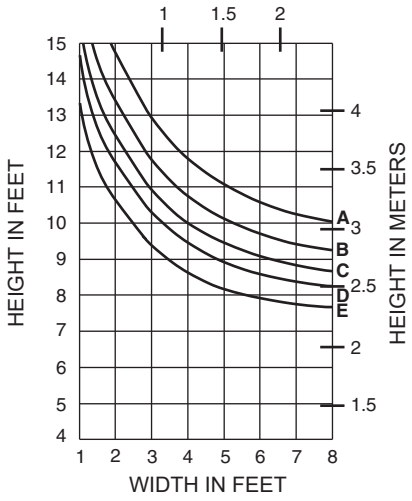




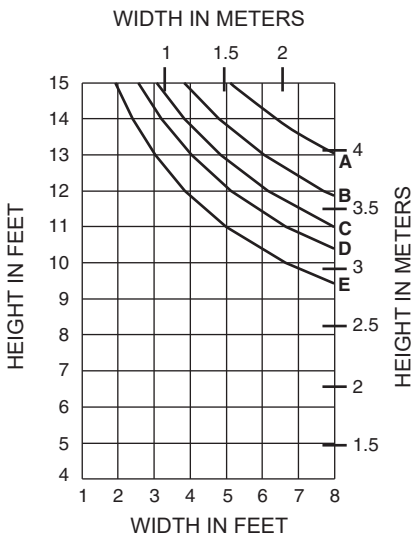
451501 **451019**

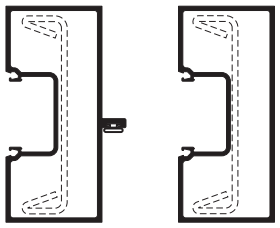
I = 3.116 (129.7 x 10^4)
S = 1.385 (22.7 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS



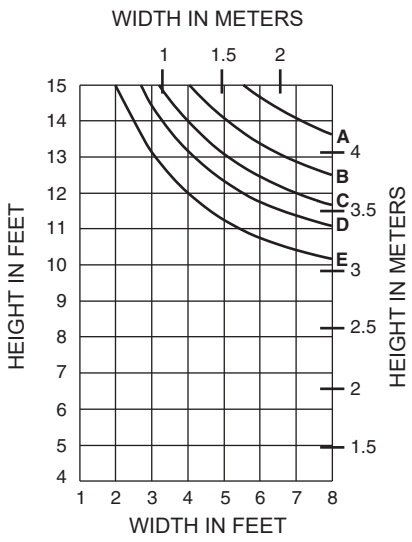


451501 **451019**
with 450110 STEEL

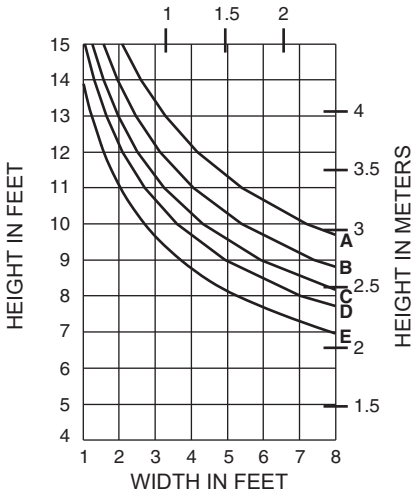
I_A = 3.116 (129.70 x 10^4)
S_A = 1.385 (22.70 x 10^3)

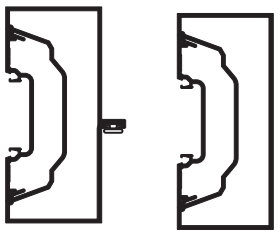
I_S = 1.935 (80.54 x 10^4)
S_S = 0.938 (15.37 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS

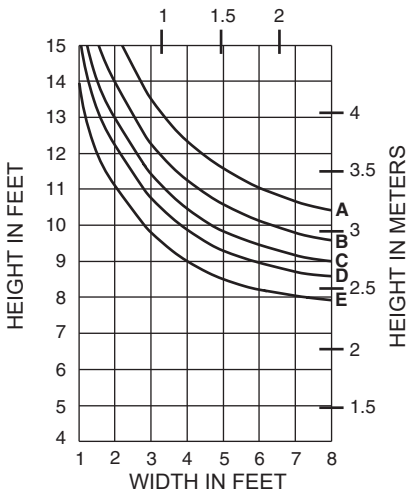




451599 **451064**
451CG002 **451CG002**

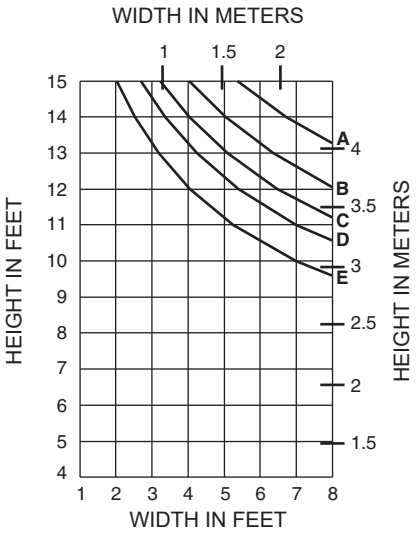
I = 3.586 (149.26 x 10^4)
S = 1.594 (26.12 x 10^3)

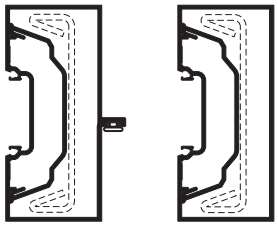
WITHOUT HORIZONTALS



	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

WITH HORIZONTALS





451599
451CG002

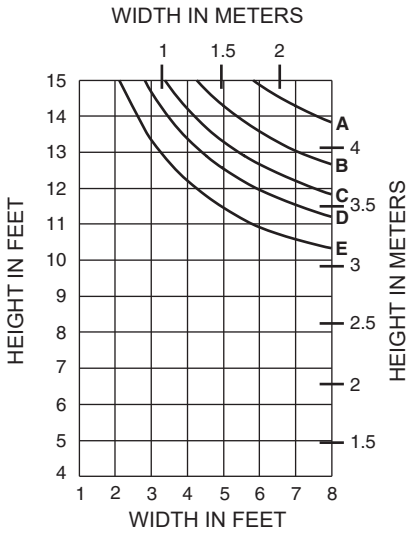
451064
451CG002

with 450110 STEEL

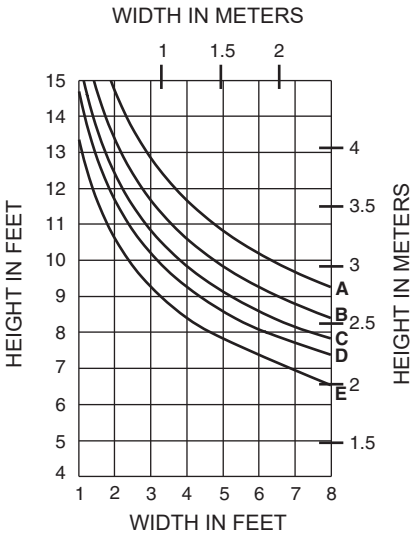
I = 3.565 (148.39 x 10^4)
S = 1.622 (26.58 x 10^3)

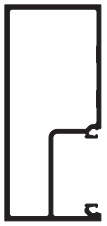
I_S = 1.935 (80.54 x 10^4)
S_S = 0.938 (15.37 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS

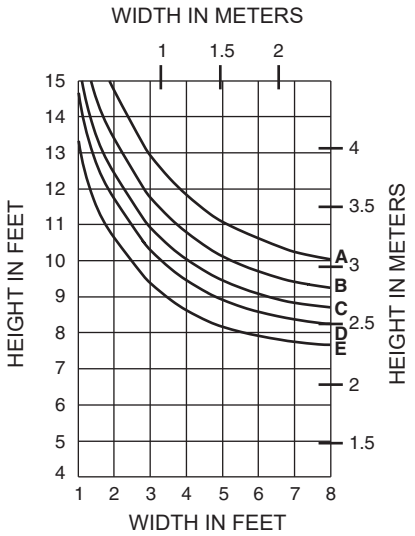




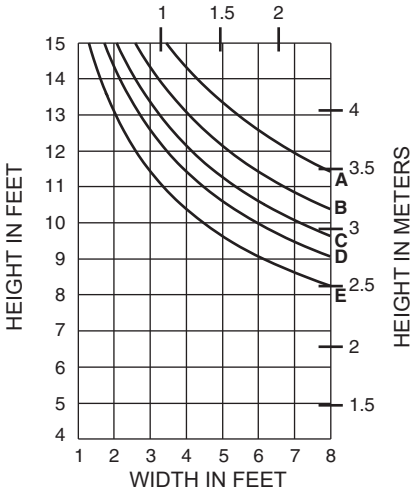
451VG019

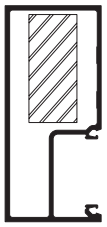
I = 3.124 (130.03 x 10^4)
S = 1.333 (21.84 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS



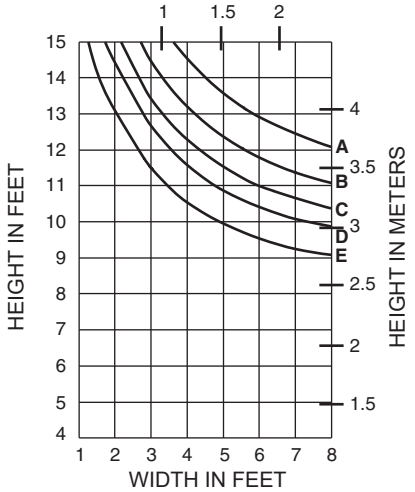


451VG019
with 1" x 2-1/4" STEEL BAR

I_A = 3.124 (130.03 x 10^4)
S_A = 1.333 (21.84 x 10^3)

I_S = 0.949 (39.50 x 10^4)
S_S = 0.844 (13.83 x 10^3)

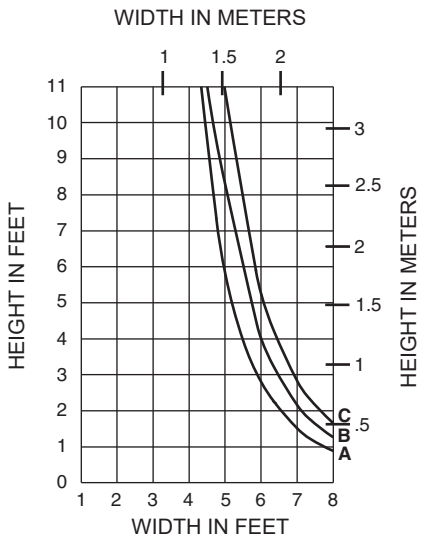
WITHOUT HORIZONTALS

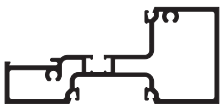


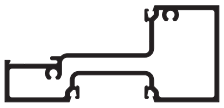
Horizontal or deadload limitations are based upon 1/8" (3.2) maximum allowable deflection at the center of an intermediate horizontal member. The accompanying charts are calculated for 1" (25.4) thick insulating glass supported on two setting blocks at the loading points shown.

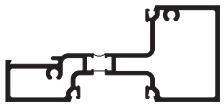
NOTE: Charts are for THERMAL and NON-THERMAL members.

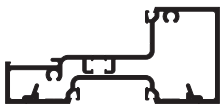
A = (1/4 POINT LOADING)
B = (1/6 POINT LOADING)
C = (1/8 POINT LOADING)

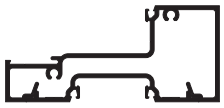


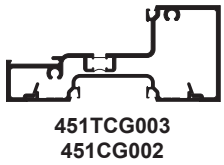


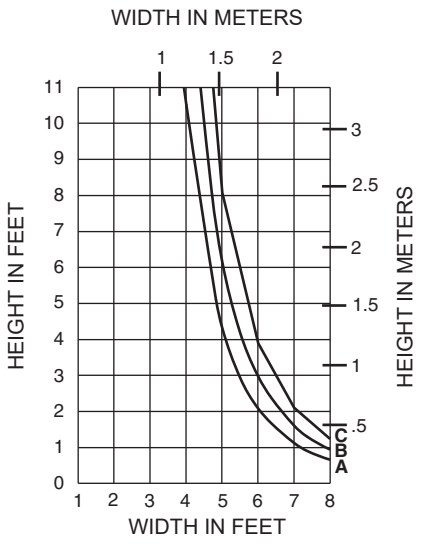


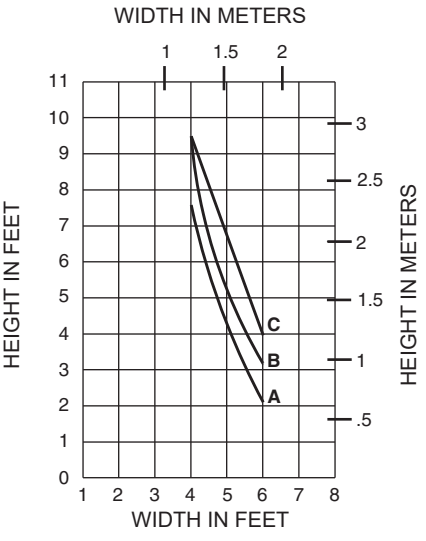


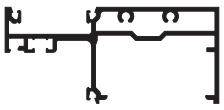


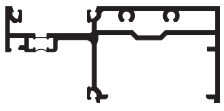


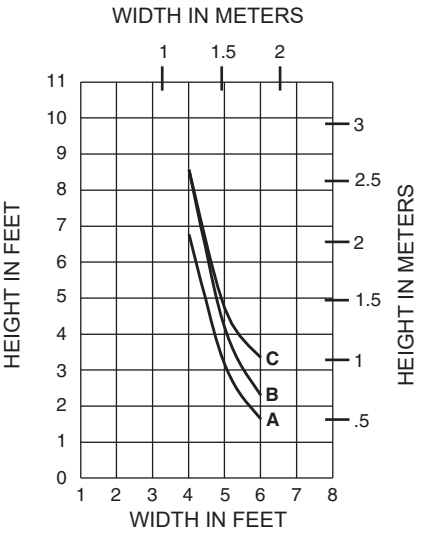








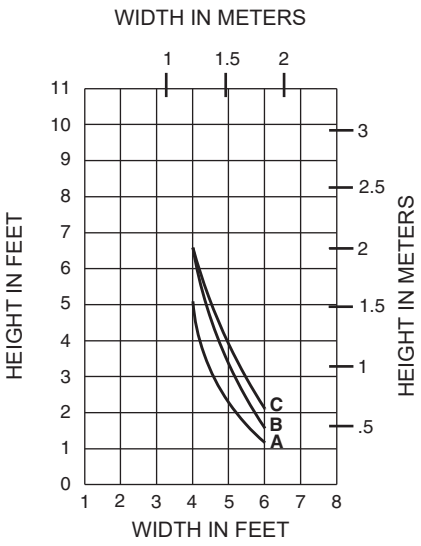




Horizontal or deadload limitations are based upon 1/8" (3.2) maximum allowable deflection at the center of an intermediate horizontal member. The accompanying charts are calculated for 1" (25.4) thick insulating glass supported on two setting blocks at the loading points shown.

NOTE: Charts are for THERMAL and NON-THERMAL members.

A = (1/4 POINT LOADING)
B = (1/6 POINT LOADING)
C = (1/8 POINT LOADING)

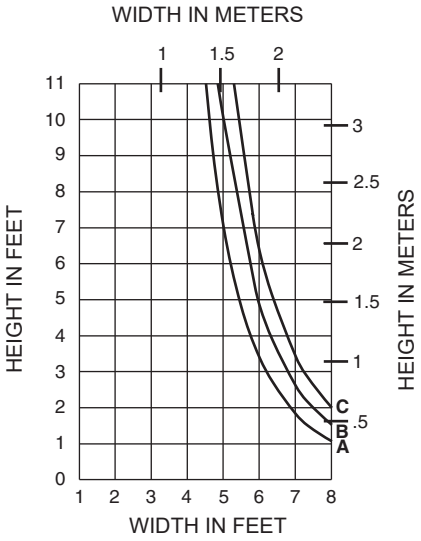


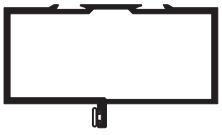
451SSG111

451TSSG111

Height limitations for transom glass over a doorway are based upon a 1/16" (1.6) maximum allowable deflection at the center of a transom bar. The accompanying charts are calculated for 1" (25.4) thick insulating glass supported on two setting blocks placed at the loading points shown.

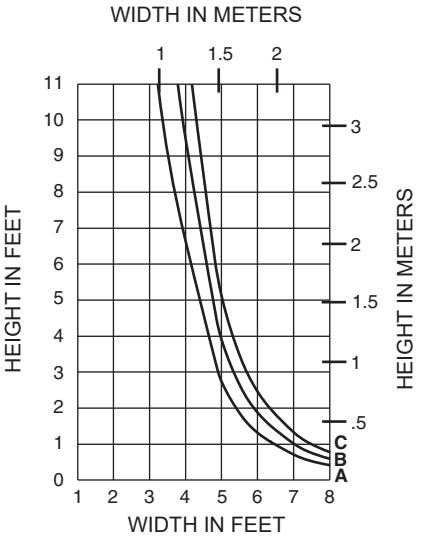
A = (1/4 POINT LOADING)
B = (1/6 POINT LOADING)
C = (1/8 POINT LOADING)





451502
SINGLE ACTING
T-BAR

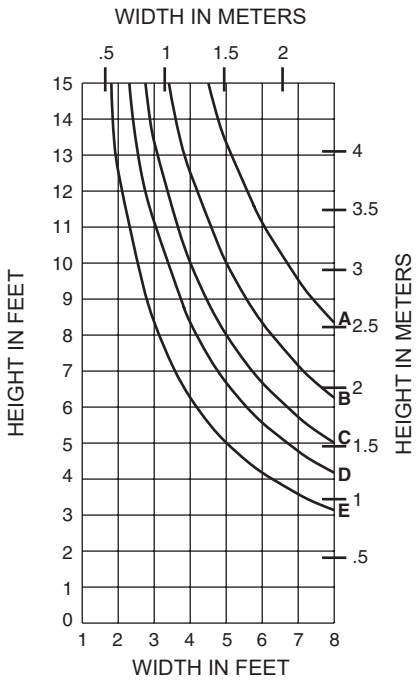
451081
DOUBLE ACTING
T-BAR

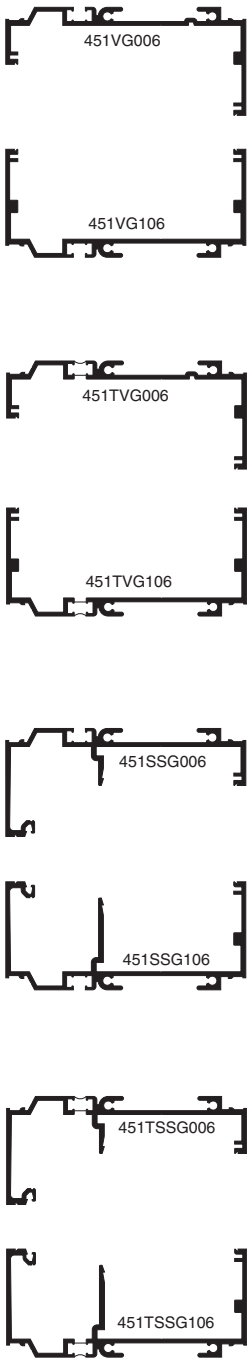


For each application, end reactions MUST be checked. These charts are used to verify that the end reactions at the head and sill receptors are 500 lbs. (2224N) or less and will meet the specified wind load.

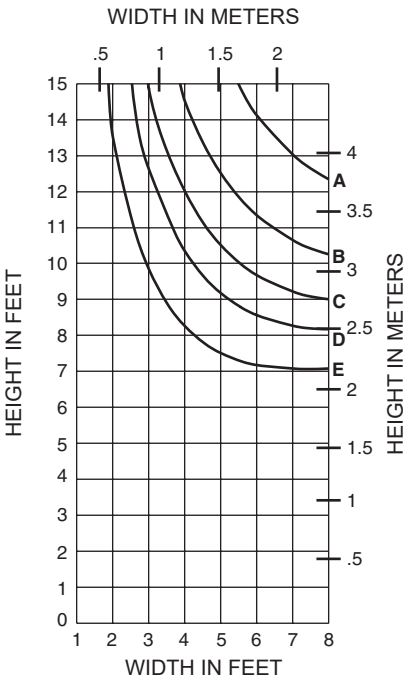
A = 15 PSF (720 Pa)
B = 20 PSF (960 Pa)
C = 25 PSF (1200 Pa)
D = 30 PSF (1440 Pa)
E = 40 PSF (1920 Pa)

WITH HORIZONTALS



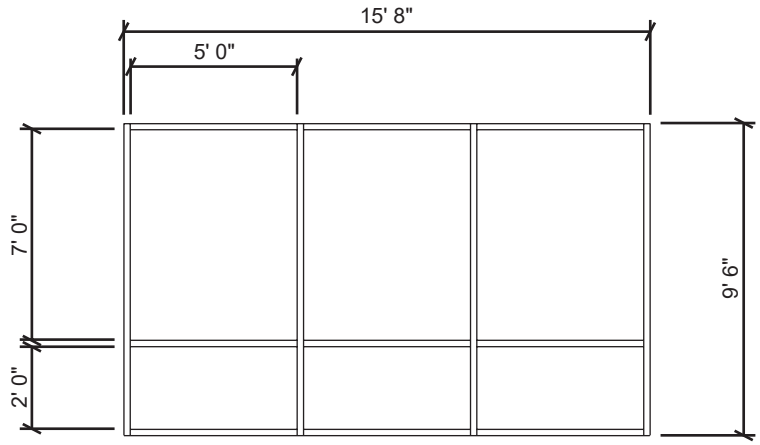


WITHOUT HORIZONTALS



500lbs. Max. End Reaction

Generic Project Specific U-factor Example Calculation
(Percent of Glass will vary on specific products depending on sitelines)



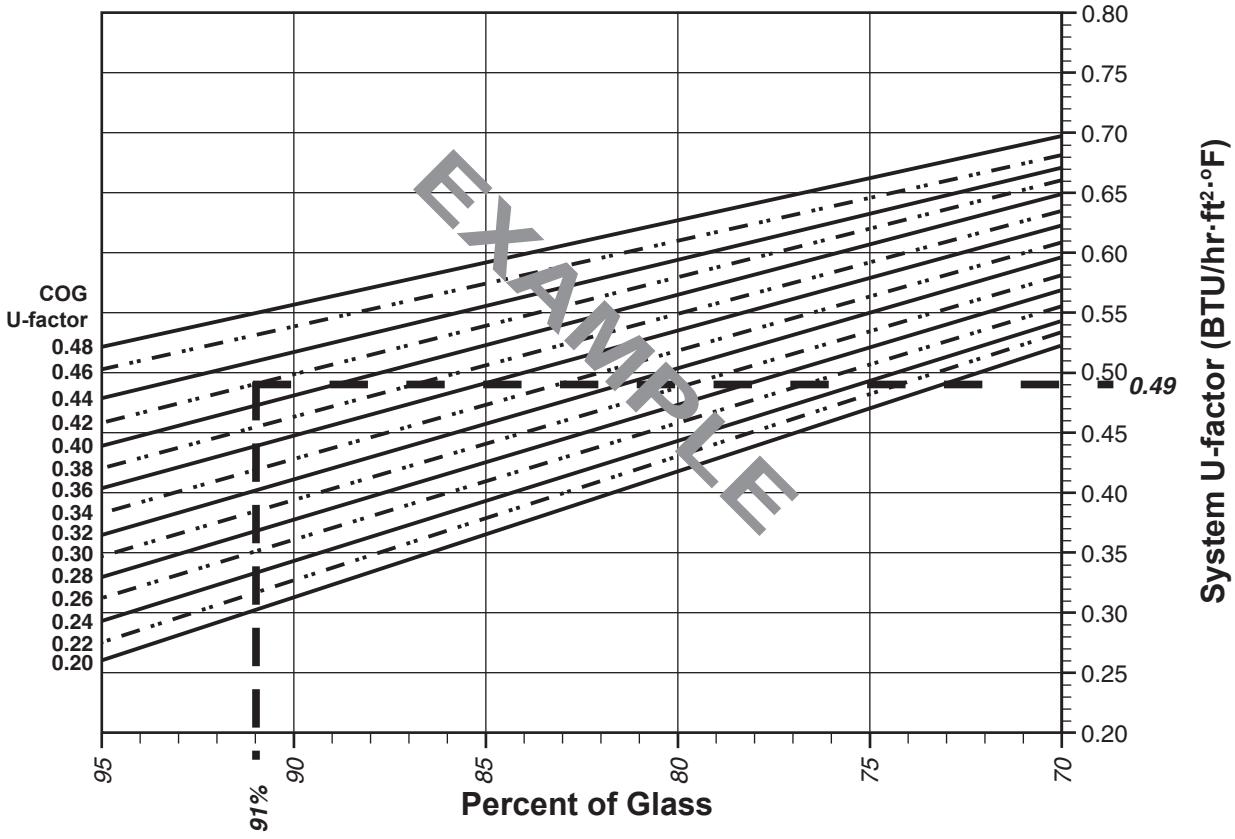
Example Glass U-factor = 0.42 Btu/hr·ft²·°F

Total Daylight Opening = 3(5' x 7') + 3(5' x 2') = 135ft²

Total Projected Area = (Total Daylight Opening + Total Area of Framing System)
= 15' 8" x 9' 6" = 148.83ft²

Percent of Glass = (Total Daylight Opening ÷ Total Projected Area)
= (135 ÷ 148.83)100 = 91%

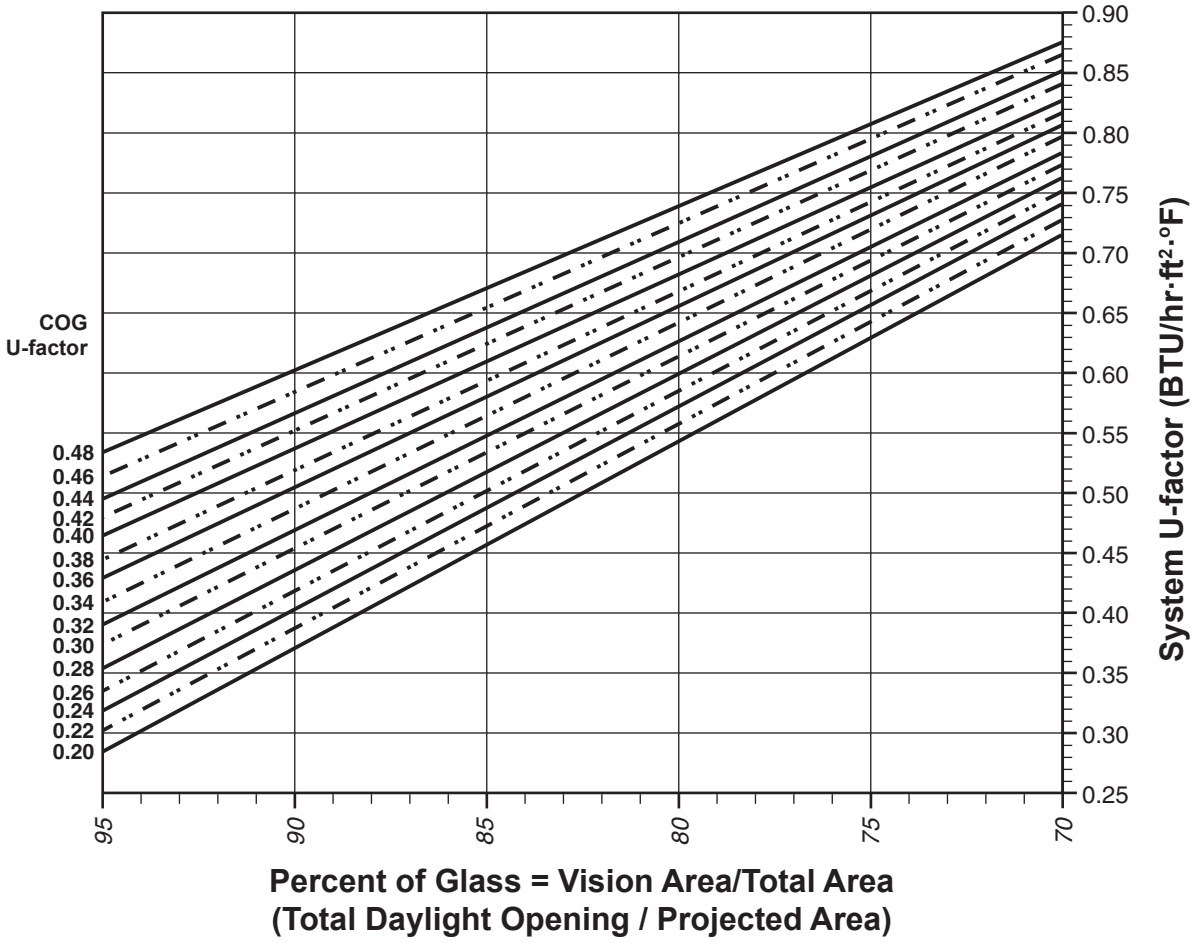
System U-factor vs Percent of Glass Area



Based on 91% glass and center of glass (COG) U-factor of 0.42
System U-factor is equal to 0.49 Btu/hr x ft² x °F

Trifab® VersaGlaze® 451 (CENTER – Non-Thermal)

System U-factor vs Percent of Glass Area



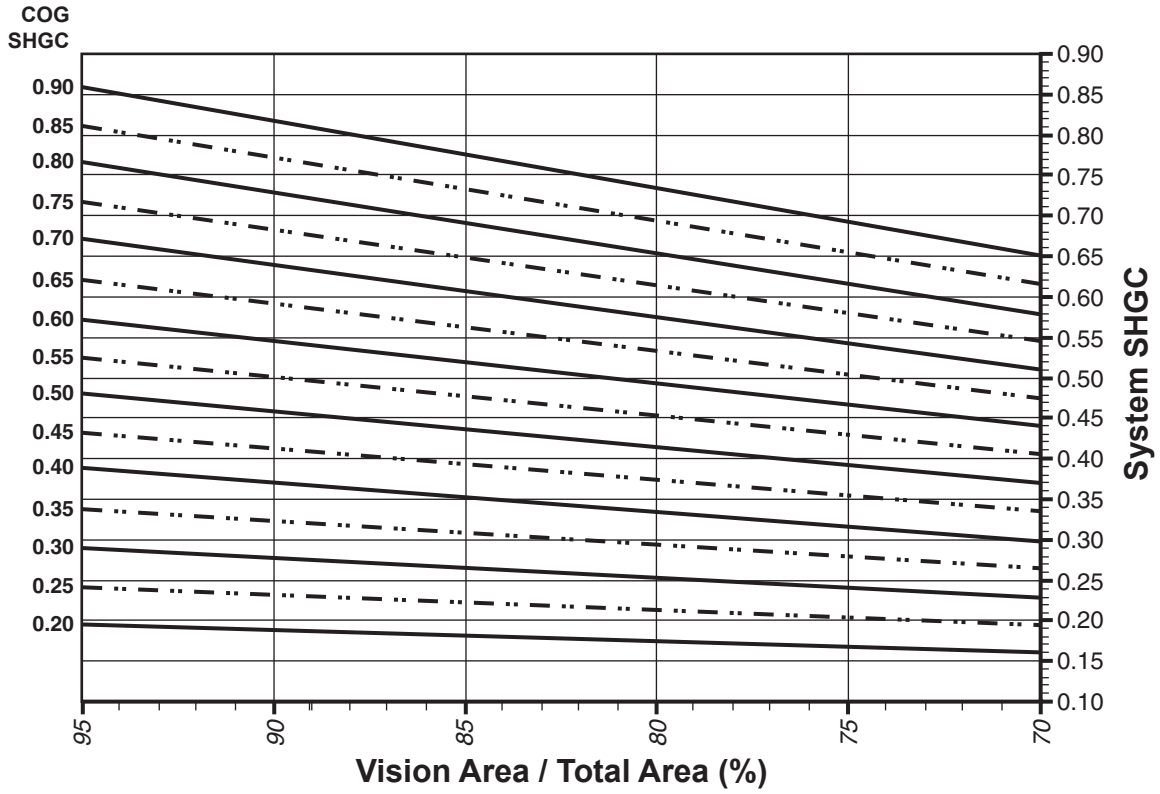
Notes for System U-Factor, SHGC and VT charts:

For glass values that are not listed, linear interpolation is permitted.

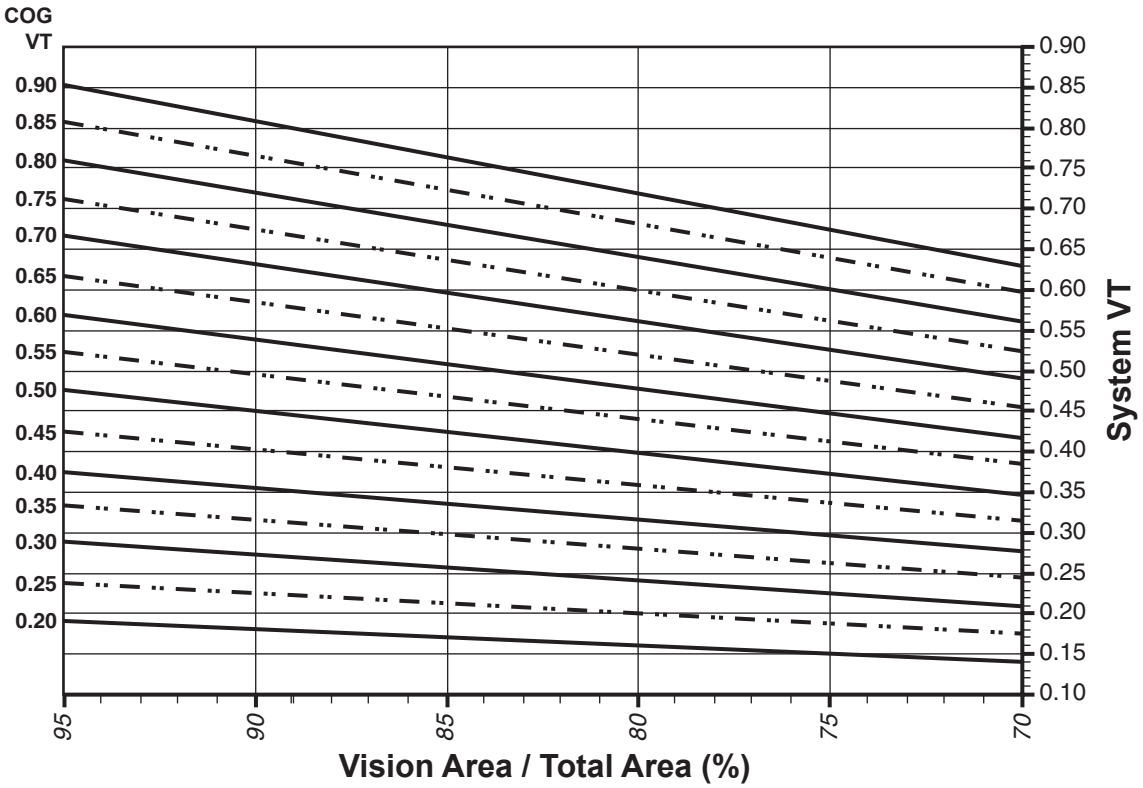
Glass properties are based on center of glass values and are obtained from your glass supplier.

Trifab® VersaGlaze® 451 (CENTER – Non-Thermal)

System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area



System Visible Transmittance (VT) vs Percent of Vision Area



Trifab® VersaGlaze® 451 (CENTER – Non-Thermal)

Thermal Transmittance [1] (BTU/hr • ft [2] • °F)

Glass U-Factor [3]	Overall U-Factor [4]
0.48	0.63
0.46	0.61
0.44	0.60
0.42	0.58
0.40	0.57
0.38	0.55
0.36	0.53
0.34	0.52
0.32	0.50
0.30	0.49
0.28	0.47
0.26	0.45
0.24	0.44
0.22	0.42
0.20	0.41

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 2,000 mm wide by 2,000 mm high (78-3/4" by 78-3/4").

SHGC Matrix [2]

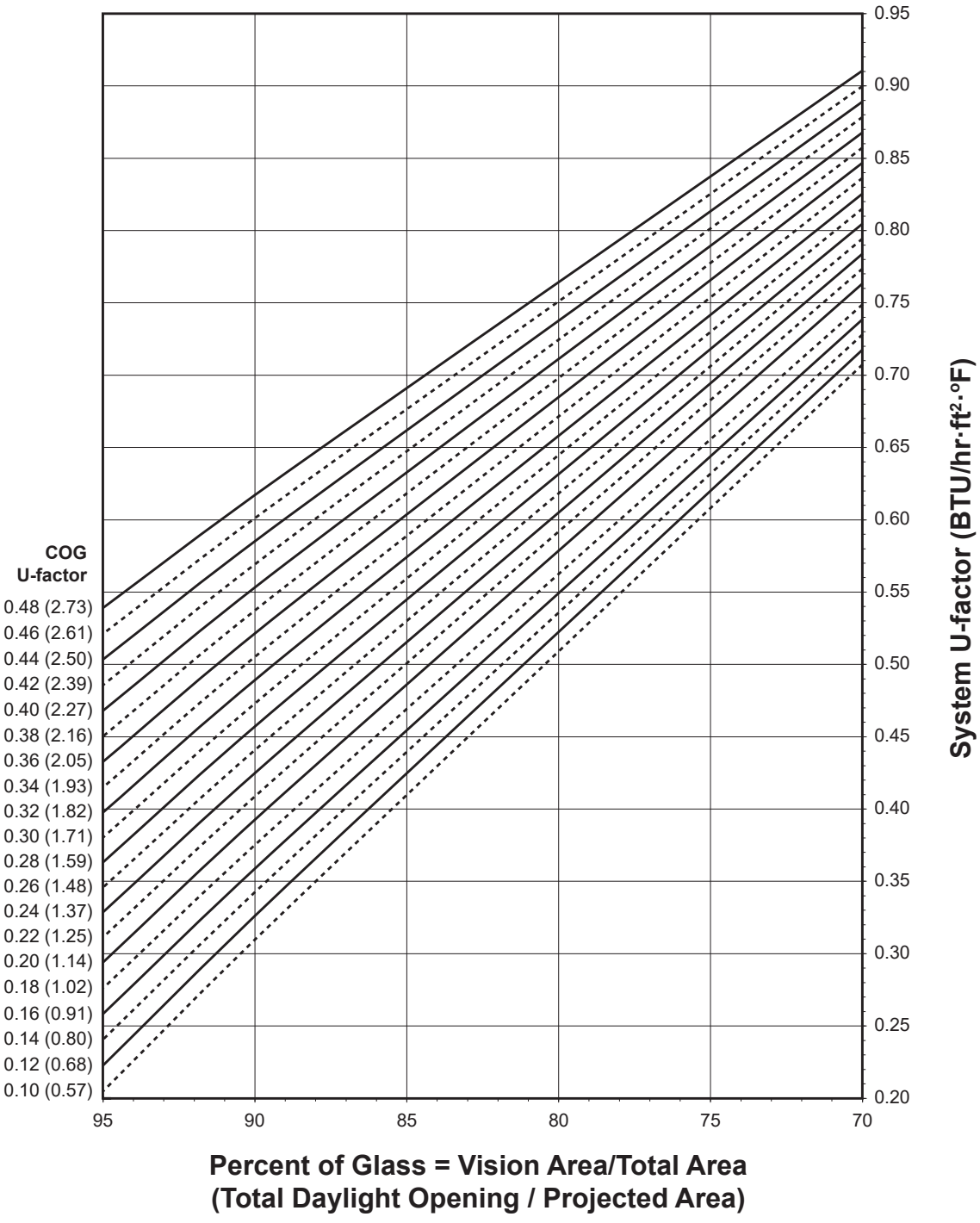
Glass SHGC [3]	Overall SHGC [4]
0.90	0.80
0.85	0.76
0.80	0.71
0.75	0.67
0.70	0.63
0.65	0.58
0.60	0.64
0.55	0.49
0.50	0.45
0.45	0.41
0.40	0.36
0.35	0.32
0.30	0.27
0.25	0.23
0.20	0.18

Visible Transmittance [2]

Glass VT [3]	Overall VT [4]
0.90	0.79
0.85	0.75
0.80	0.71
0.75	0.66
0.70	0.62
0.65	0.57
0.60	0.53
0.55	0.49
0.50	0.44
0.45	0.40
0.40	0.35
0.35	0.31
0.30	0.26
0.25	0.22
0.20	0.18

Trifab® VersaGlaze® 451 Pre-Glazed (CENTER – Non-Thermal)

System U-factor vs Percent of Glass Area



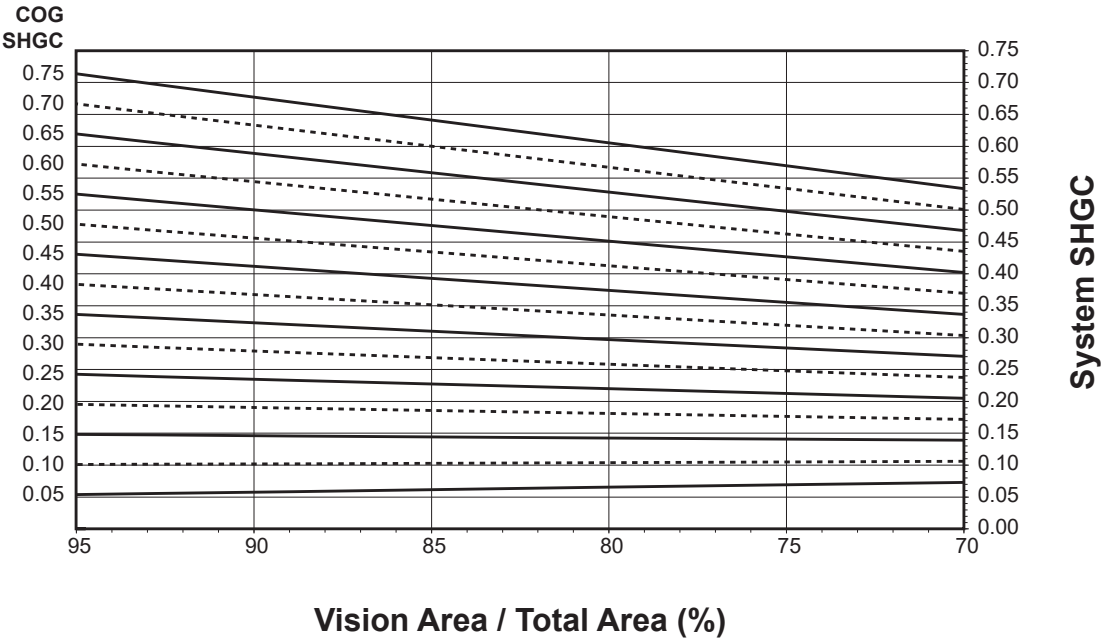
Notes for System U-Factor, SHGC and VT charts:

For glass values that are not listed, linear interpolation is permitted.

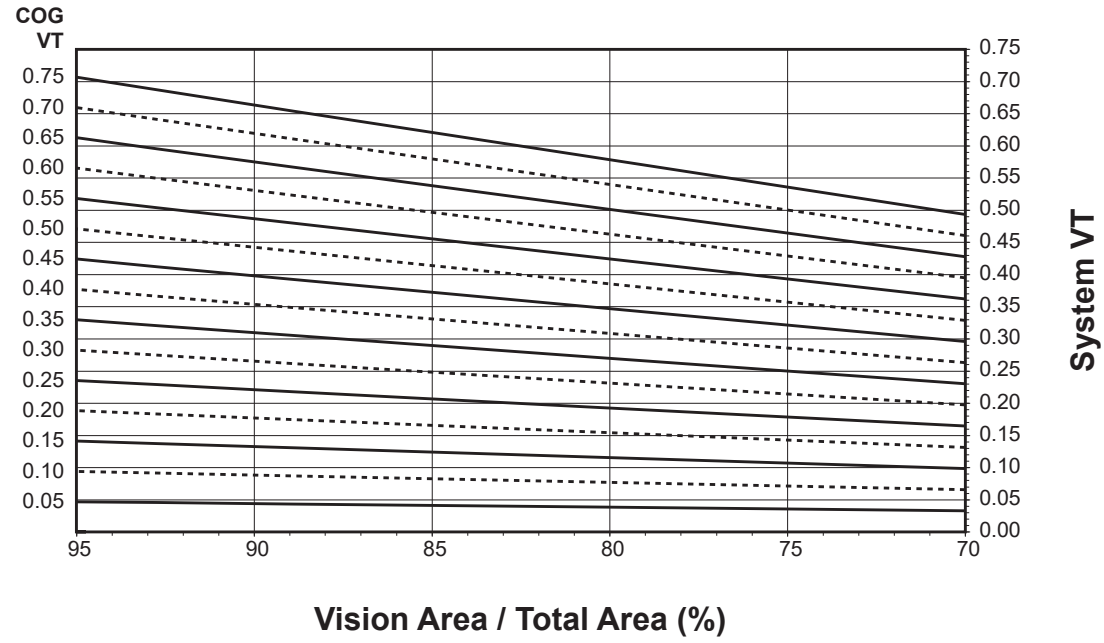
Glass properties are based on center of glass values and are obtained from your glass supplier.

Trifab® VersaGlaze® 451 Pre-Glazed (CENTER – Non-Thermal)

System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area



System Visible Transmittance (VT) vs Percent of Vision Area



Trifab® VersaGlaze® 451 Pre-Glazed (CENTER – Non-Thermal)

Thermal Transmittance [1] (BTU/hr • ft [2] • °F)

Glass U-Factor [3]	Overall U-Factor [4]
0.48	0.63
0.46	0.62
0.44	0.60
0.42	0.59
0.40	0.57
0.38	0.56
0.36	0.54
0.34	0.52
0.32	0.51
0.30	0.49
0.28	0.48
0.26	0.46
0.24	0.45
0.22	0.43
0.20	0.41
0.18	0.40
0.16	0.38
0.14	0.36
0.12	0.35
0.10	0.33

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 2,000 mm wide by 2,000 mm high (78-3/4" by 78-3/4").

SHGC Matrix [2]

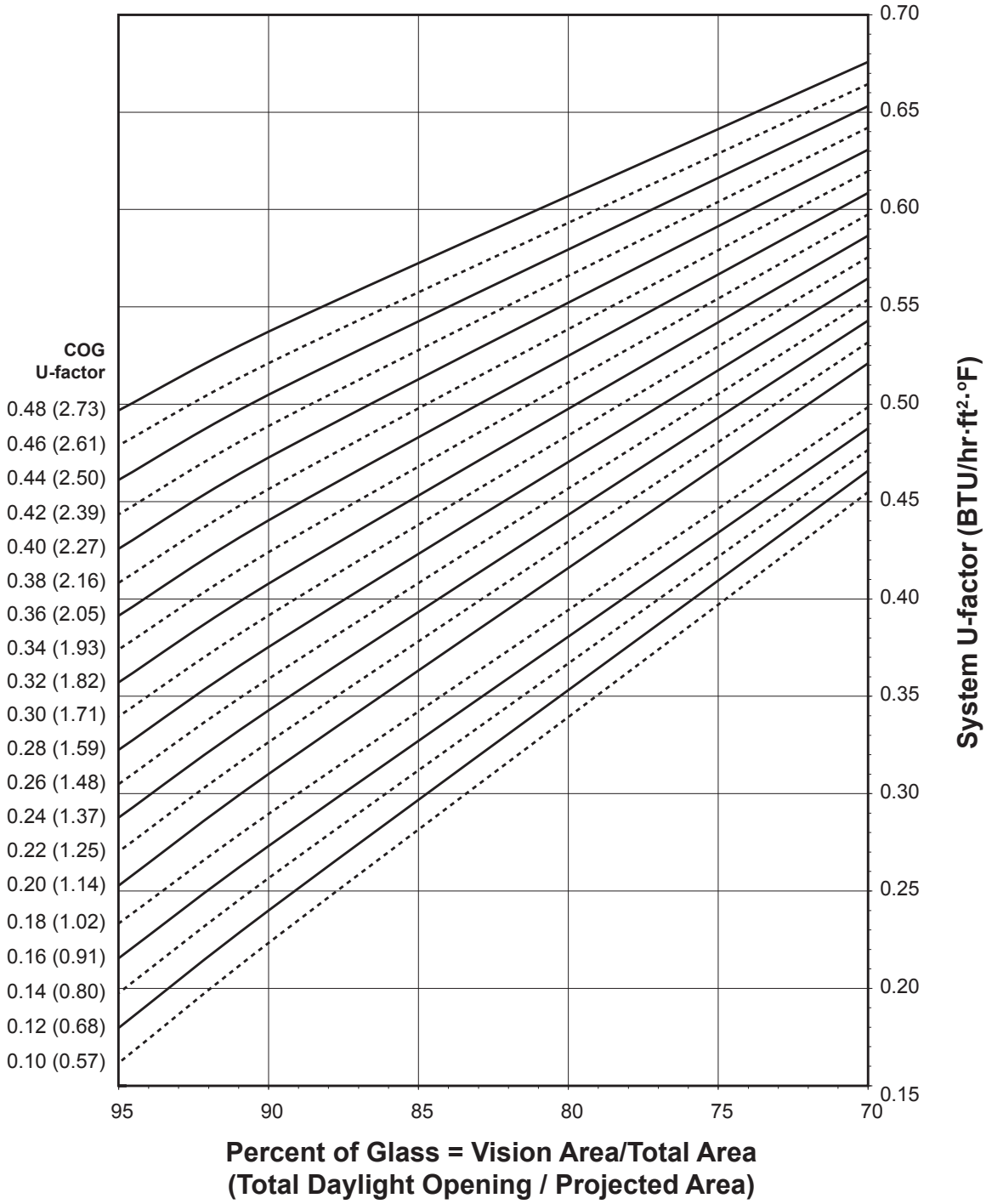
Glass SHGC [3]	Overall SHGC [4]
0.75	0.67
0.70	0.63
0.65	0.58
0.60	0.54
0.55	0.49
0.50	0.45
0.45	0.41
0.40	0.36
0.35	0.32
0.30	0.28
0.25	0.23
0.20	0.19
0.15	0.15
0.10	0.10
0.05	0.06

Visible Transmittance [2]

Glass VT [3]	Overall VT [4]
0.75	0.65
0.70	0.61
0.65	0.57
0.60	0.52
0.55	0.48
0.50	0.44
0.45	0.39
0.40	0.35
0.35	0.31
0.30	0.26
0.25	0.22
0.20	0.17
0.15	0.13
0.10	0.09
0.05	0.04

Trifab® VersaGlaze® 451T (CENTER – Thermal)

System U-factor vs Percent of Glass Area



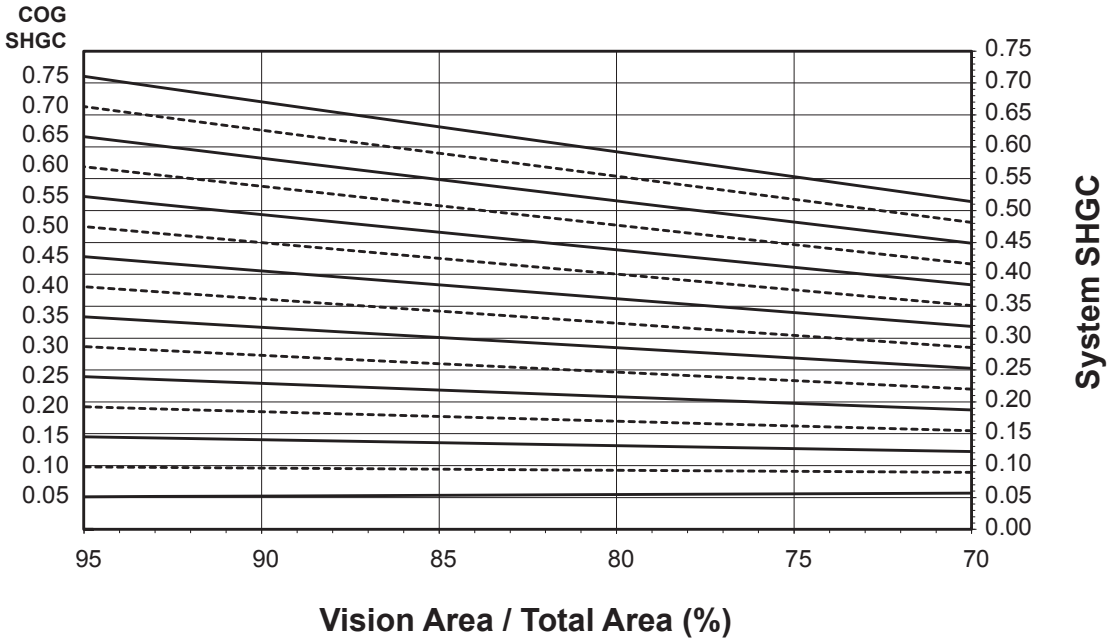
Notes for System U-Factor, SHGC and VT charts:

For glass values that are not listed, linear interpolation is permitted.

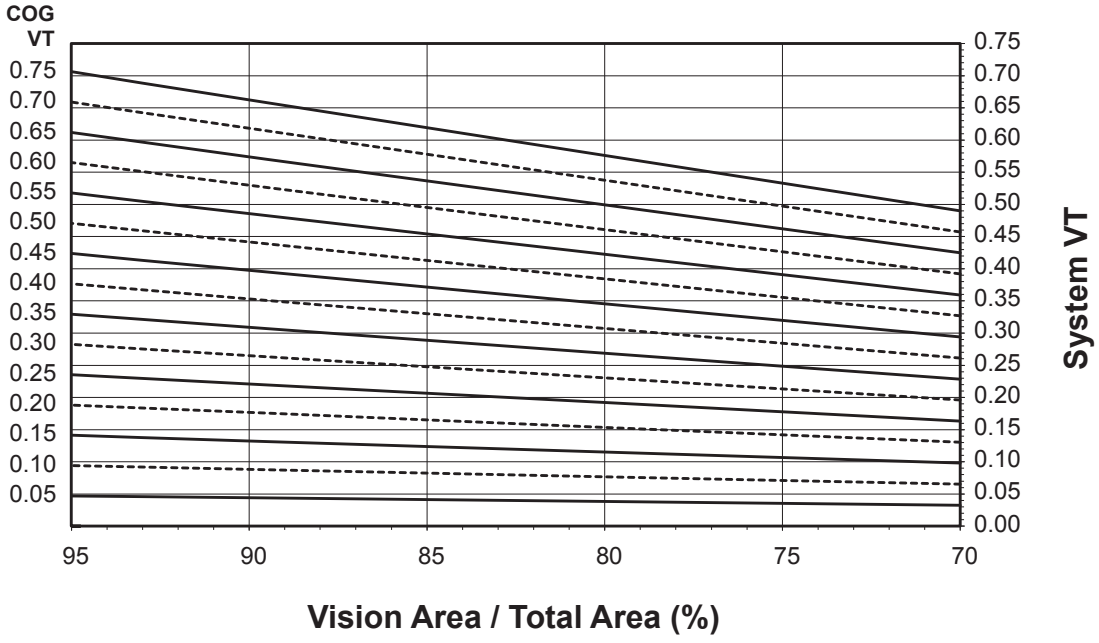
Glass properties are based on center of glass values and are obtained from your glass supplier.

Trifab® VersaGlaze® 451T (CENTER – Thermal)

System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area



System Visible Transmittance (VT) vs Percent of Vision Area



Trifab® VersaGlaze® 451T (CENTER – Thermal)

Thermal Transmittance [1] (BTU/hr • ft [2] • °F)

Glass U-Factor [3]	Overall U-Factor [4]
0.48	0.54
0.46	0.52
0.44	0.51
0.42	0.49
0.40	0.48
0.38	0.46
0.36	0.44
0.34	0.43
0.32	0.41
0.30	0.40
0.28	0.38
0.26	0.36
0.24	0.35
0.22	0.33
0.20	0.32
0.18	0.29
0.16	0.28
0.14	0.26
0.12	0.25
0.10	0.23

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 2,000 mm wide by 2,000 mm high (78-3/4" by 78-3/4").

SHGC Matrix [2]

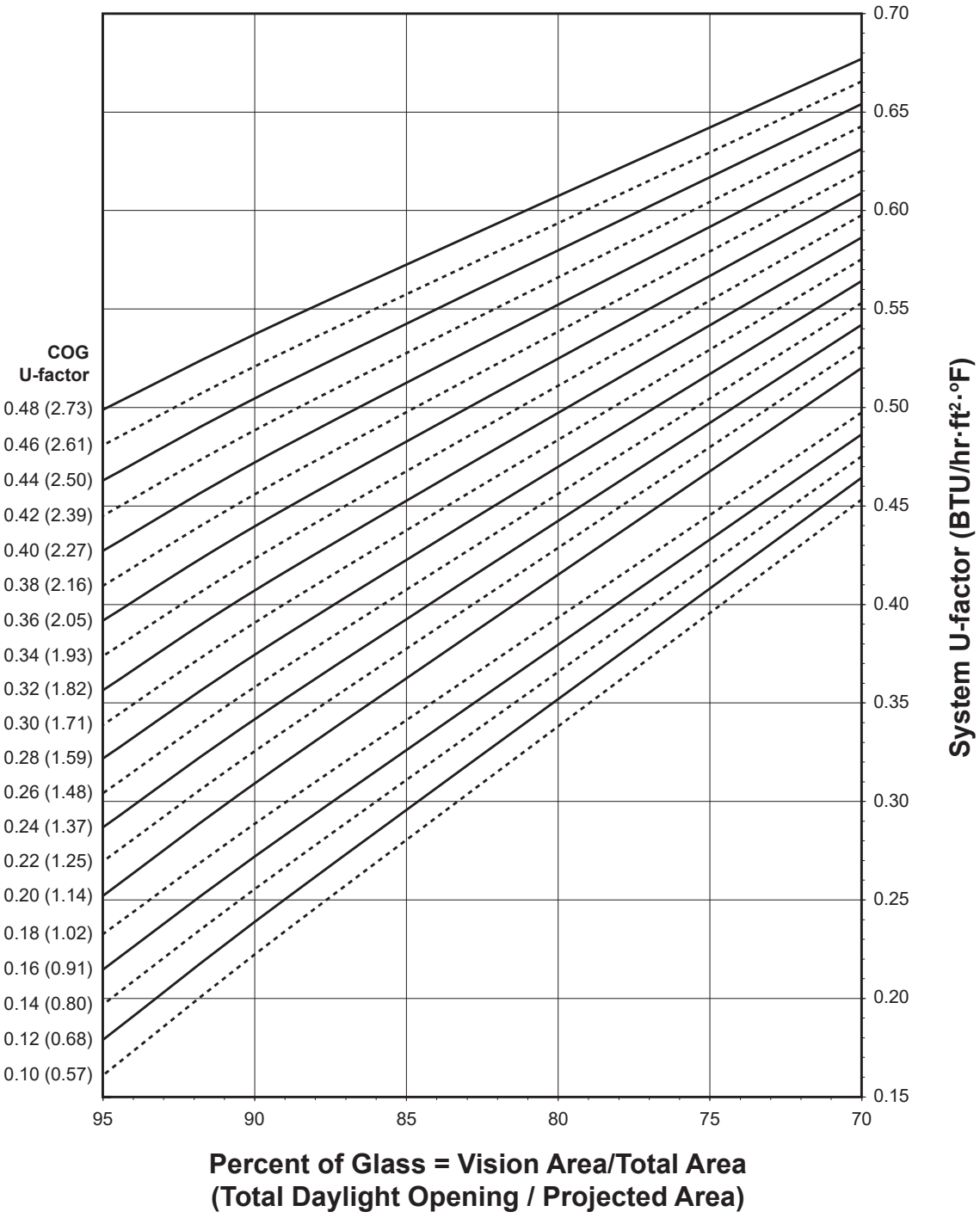
Glass SHGC [3]	Overall SHGC [4]
0.75	0.67
0.70	0.62
0.65	0.58
0.60	0.53
0.55	0.49
0.50	0.45
0.45	0.40
0.40	0.36
0.35	0.32
0.30	0.27
0.25	0.23
0.20	0.18
0.15	0.14
0.10	0.10
0.05	0.05

Visible Transmittance [2]

Glass VT [3]	Overall VT [4]
0.75	0.66
0.70	0.61
0.65	0.57
0.60	0.53
0.55	0.48
0.50	0.44
0.45	0.39
0.40	0.35
0.35	0.31
0.30	0.26
0.25	0.22
0.20	0.18
0.15	0.13
0.10	0.09
0.05	0.04

Trifab® VersaGlaze® 451T Pre-Glazed (CENTER – Thermal)

System U-factor vs Percent of Glass Area



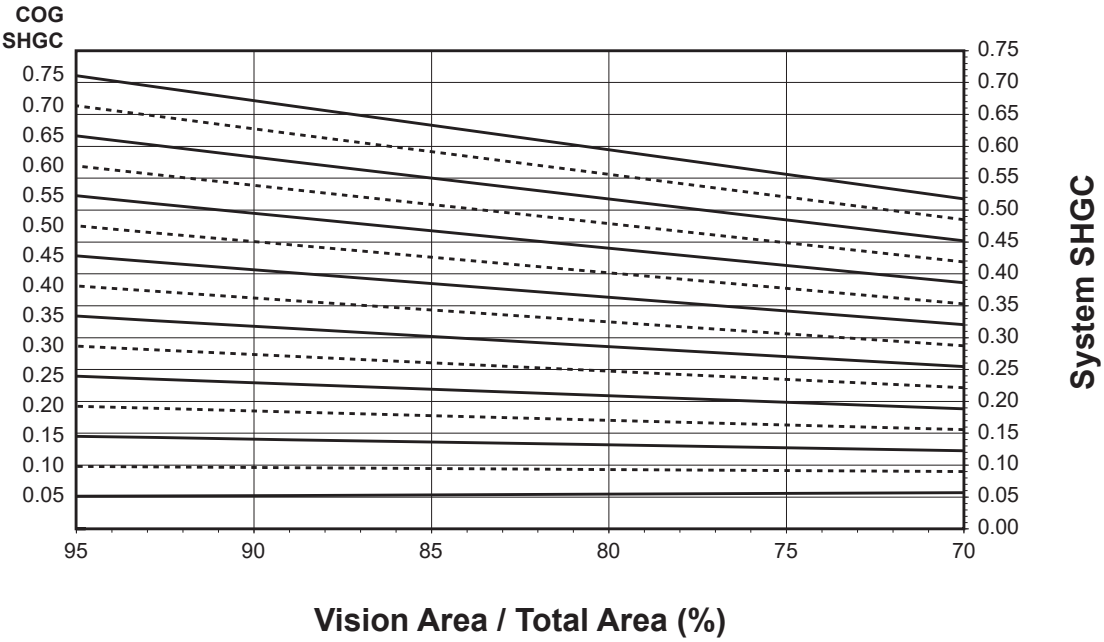
Notes for System U-Factor, SHGC and VT charts:

For glass values that are not listed, linear interpolation is permitted.

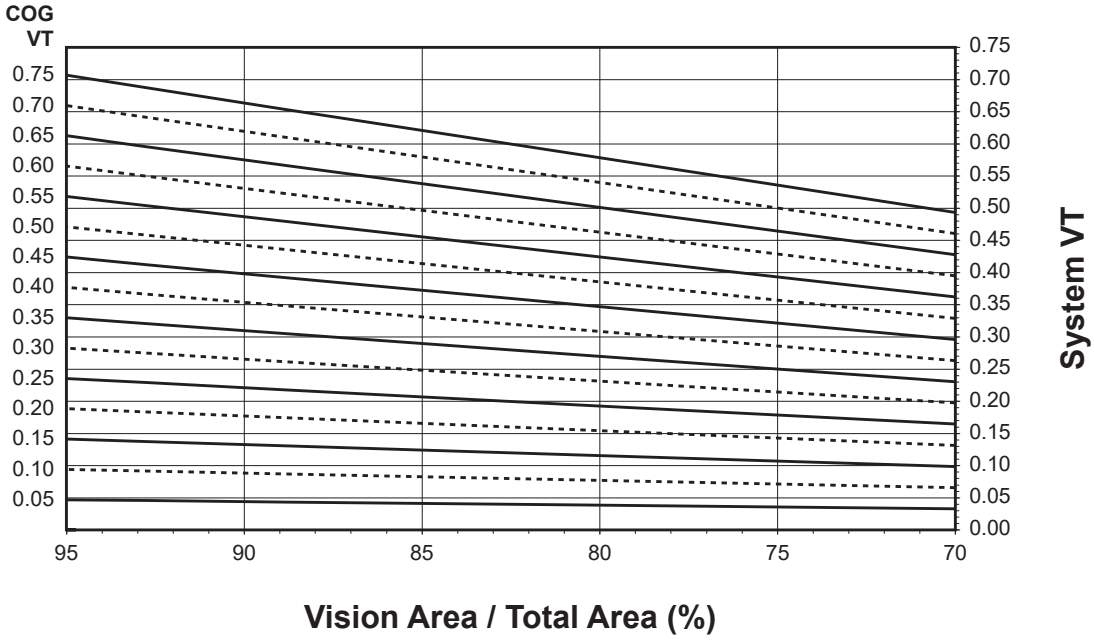
Glass properties are based on center of glass values and are obtained from your glass supplier.

Trifab® VersaGlaze® 451T Pre-Glazed (CENTER – Thermal)

System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area



System Visible Transmittance (VT) vs Percent of Vision Area



Thermal Transmittance [1] (BTU/hr • ft [2] • °F)

Glass U-Factor [3]	Overall U-Factor [4]
0.48	0.55
0.46	0.53
0.44	0.51
0.42	0.50
0.40	0.48
0.38	0.47
0.36	0.45
0.34	0.43
0.32	0.42
0.30	0.40
0.28	0.39
0.26	0.37
0.24	0.35
0.22	0.34
0.20	0.32
0.18	0.30
0.16	0.28
0.14	0.27
0.12	0.25
0.10	0.24

Trifab® VersaGlaze® 451T Pre-Glazed (CENTER – Thermal)

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 2,000 mm wide by 2,000 mm high (78-3/4" by 78-3/4").

SHGC Matrix [2]

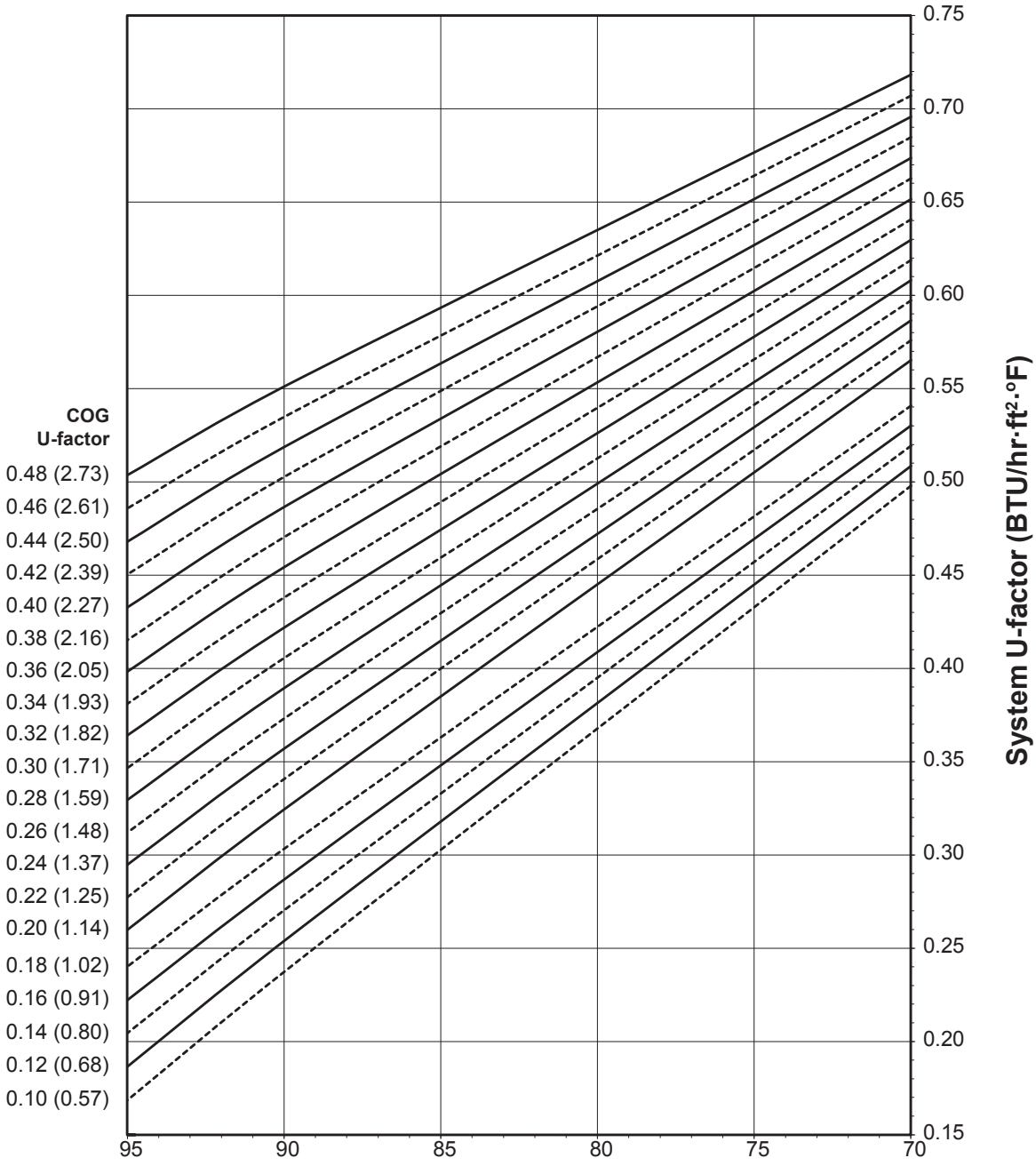
Glass SHGC [3]	Overall SHGC [4]
0.75	0.66
0.70	0.62
0.65	0.58
0.60	0.53
0.55	0.49
0.50	0.45
0.45	0.40
0.40	0.36
0.35	0.31
0.30	0.27
0.25	0.23
0.20	0.18
0.15	0.14
0.10	0.10
0.05	0.05

Visible Transmittance [2]

Glass VT [3]	Overall VT [4]
0.75	0.65
0.70	0.61
0.65	0.57
0.60	0.52
0.55	0.48
0.50	0.44
0.45	0.39
0.40	0.35
0.35	0.31
0.30	0.26
0.25	0.22
0.20	0.17
0.15	0.13
0.10	0.09
0.05	0.04

Trifab® VersaGlaze® 451T (FRONT – Thermal)

System U-factor vs Percent of Glass Area



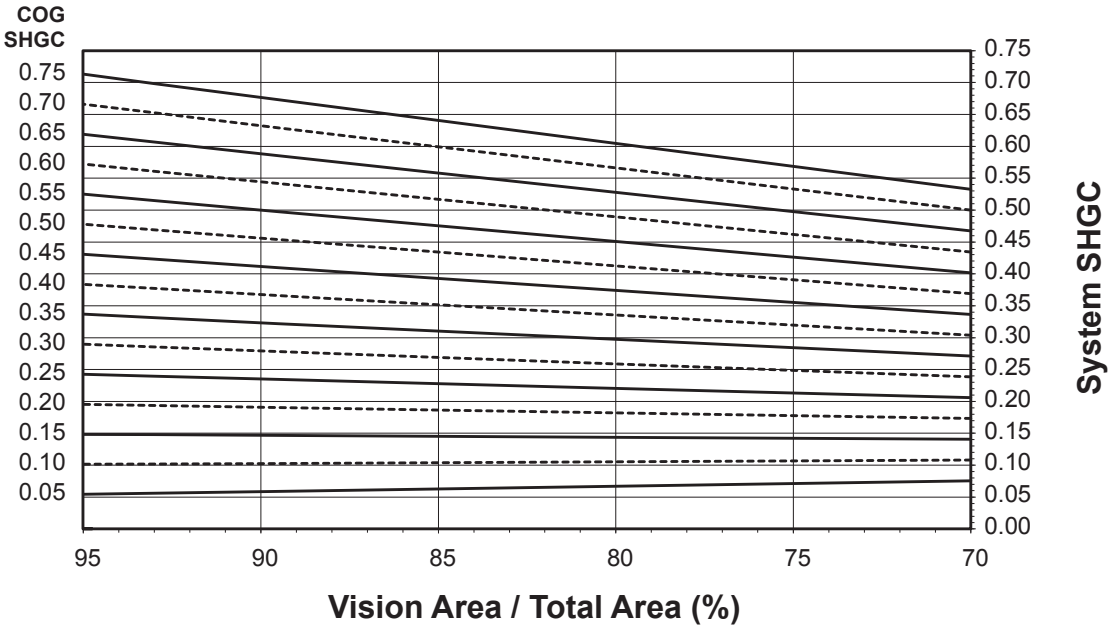
Notes for System U-Factor, SHGC and VT charts:

For glass values that are not listed, linear interpolation is permitted.

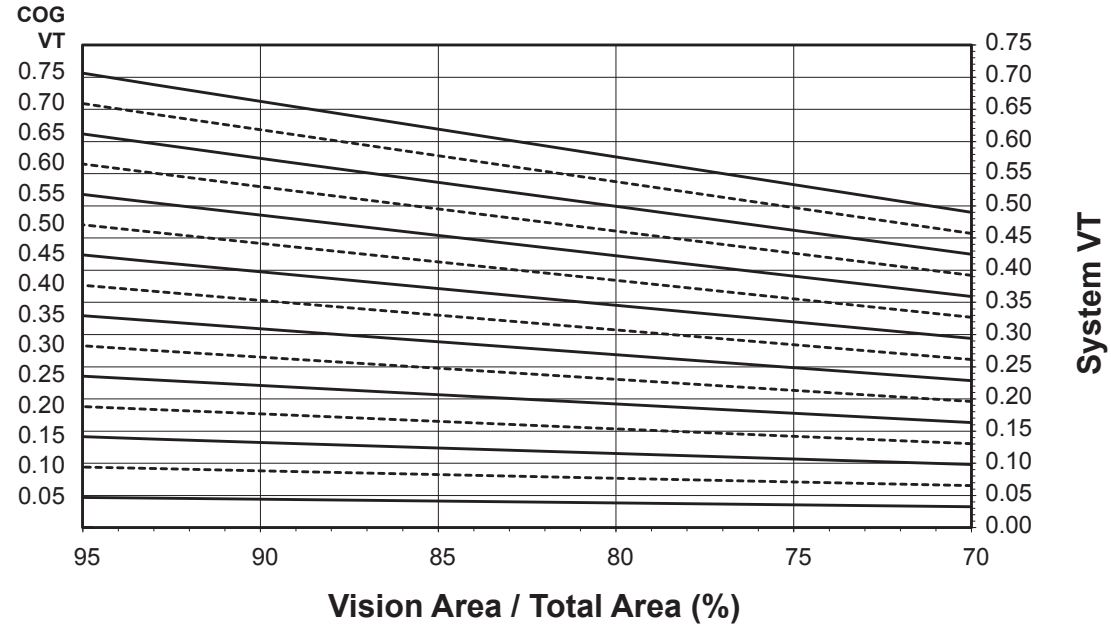
Glass properties are based on center of glass values and are obtained from your glass supplier.

Trifab® VersaGlaze® 451T (FRONT – Thermal)

System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area



System Visible Transmittance (VT) vs Percent of Vision Area



Trifab® VersaGlaze® 451T (FRONT – Thermal)

Thermal Transmittance [1] (BTU/hr • ft [2] • °F)

Glass U-Factor [3]	Overall U-Factor [4]
0.48	0.56
0.46	0.54
0.44	0.52
0.42	0.51
0.40	0.49
0.38	0.48
0.36	0.46
0.34	0.44
0.32	0.43
0.30	0.41
0.28	0.40
0.26	0.38
0.24	0.36
0.22	0.35
0.20	0.33
0.18	0.31
0.16	0.29
0.14	0.28
0.12	0.26
0.10	0.24

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 2,000 mm wide by 2,000 mm high (78-3/4" by 78-3/4").

SHGC Matrix [2]

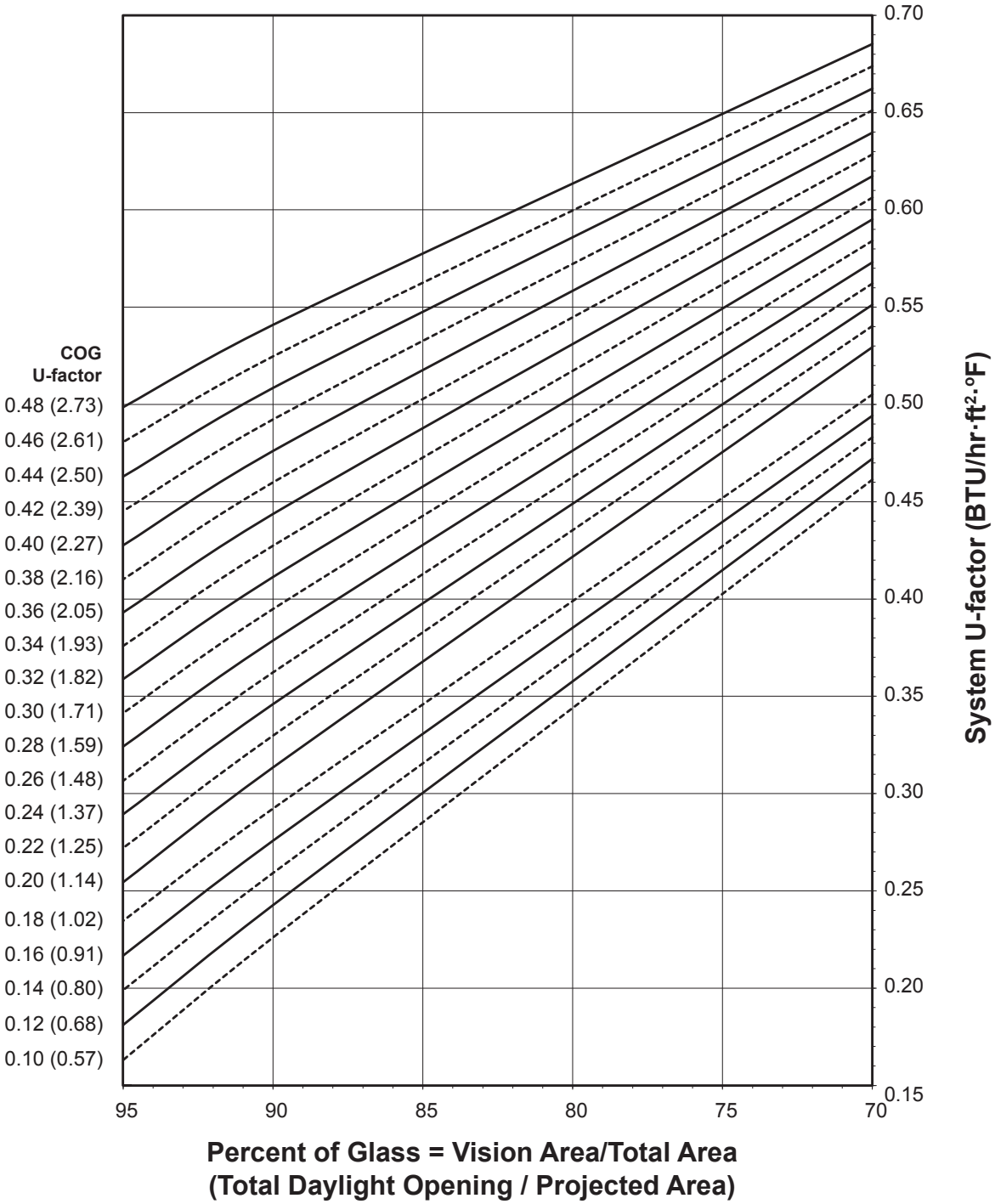
Glass SHGC [3]	Overall SHGC [4]
0.75	0.67
0.70	0.63
0.65	0.59
0.60	0.54
0.55	0.50
0.50	0.45
0.45	0.41
0.40	0.37
0.35	0.32
0.30	0.28
0.25	0.23
0.20	0.19
0.15	0.15
0.10	0.10
0.05	0.06

Visible Transmittance [2]

Glass VT [3]	Overall VT [4]
0.75	0.66
0.70	0.61
0.65	0.57
0.60	0.53
0.55	0.48
0.50	0.44
0.45	0.39
0.40	0.35
0.35	0.31
0.30	0.26
0.25	0.22
0.20	0.18
0.15	0.13
0.10	0.09
0.05	0.04

Trifab® VersaGlaze® 451T (BACK – Thermal)

System U-factor vs Percent of Glass Area



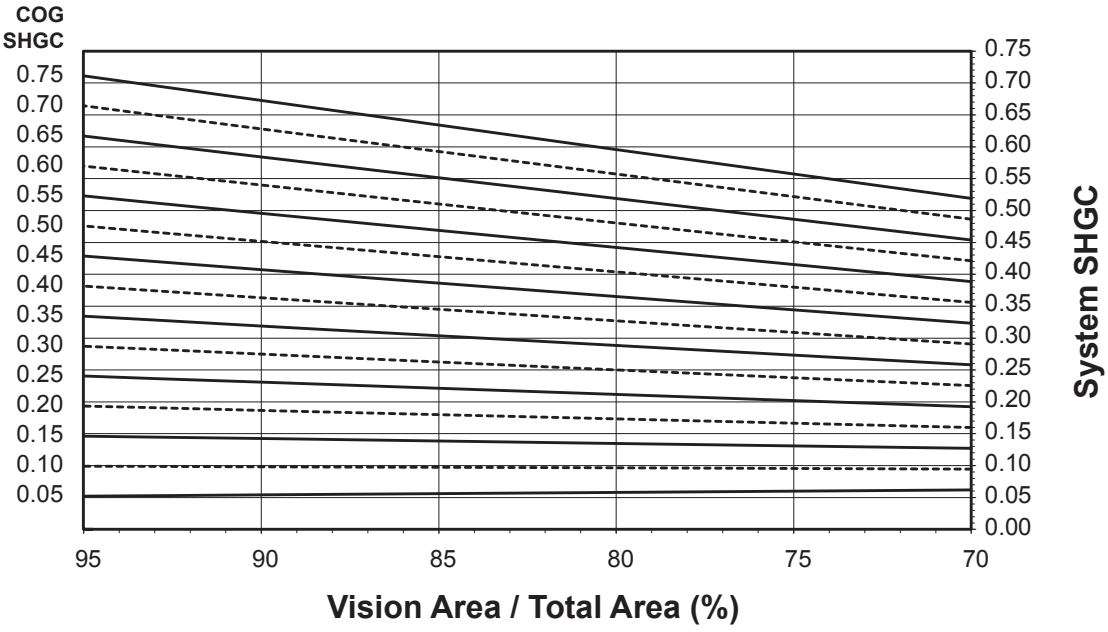
Notes for System U-Factor, SHGC and VT charts:

For glass values that are not listed, linear interpolation is permitted.

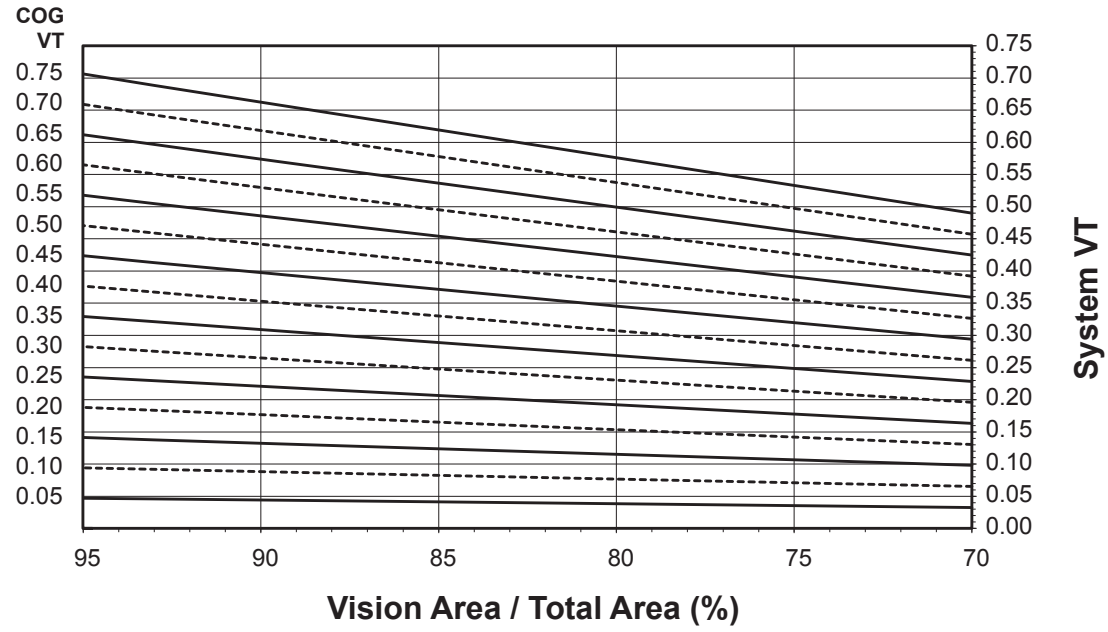
Glass properties are based on center of glass values and are obtained from your glass supplier.

Trifab® VersaGlaze® 451T (BACK – Thermal)

System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area



System Visible Transmittance (VT) vs Percent of Vision Area



Thermal Transmittance [1] (BTU/hr • ft [2] • °F)

Glass U-Factor [3]	Overall U-Factor [4]
0.48	0.54
0.46	0.53
0.44	0.51
0.42	0.50
0.40	0.48
0.38	0.46
0.36	0.45
0.34	0.43
0.32	0.42
0.30	0.40
0.28	0.38
0.26	0.37
0.24	0.35
0.22	0.34
0.20	0.32
0.18	0.30
0.16	0.28
0.14	0.26
0.12	0.25
0.10	0.23

Trifab® VersaGlaze® 451T (BACK – Thermal)

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 2,000 mm wide by 2,000 mm high (78-3/4" by 78-3/4").

SHGC Matrix [2]

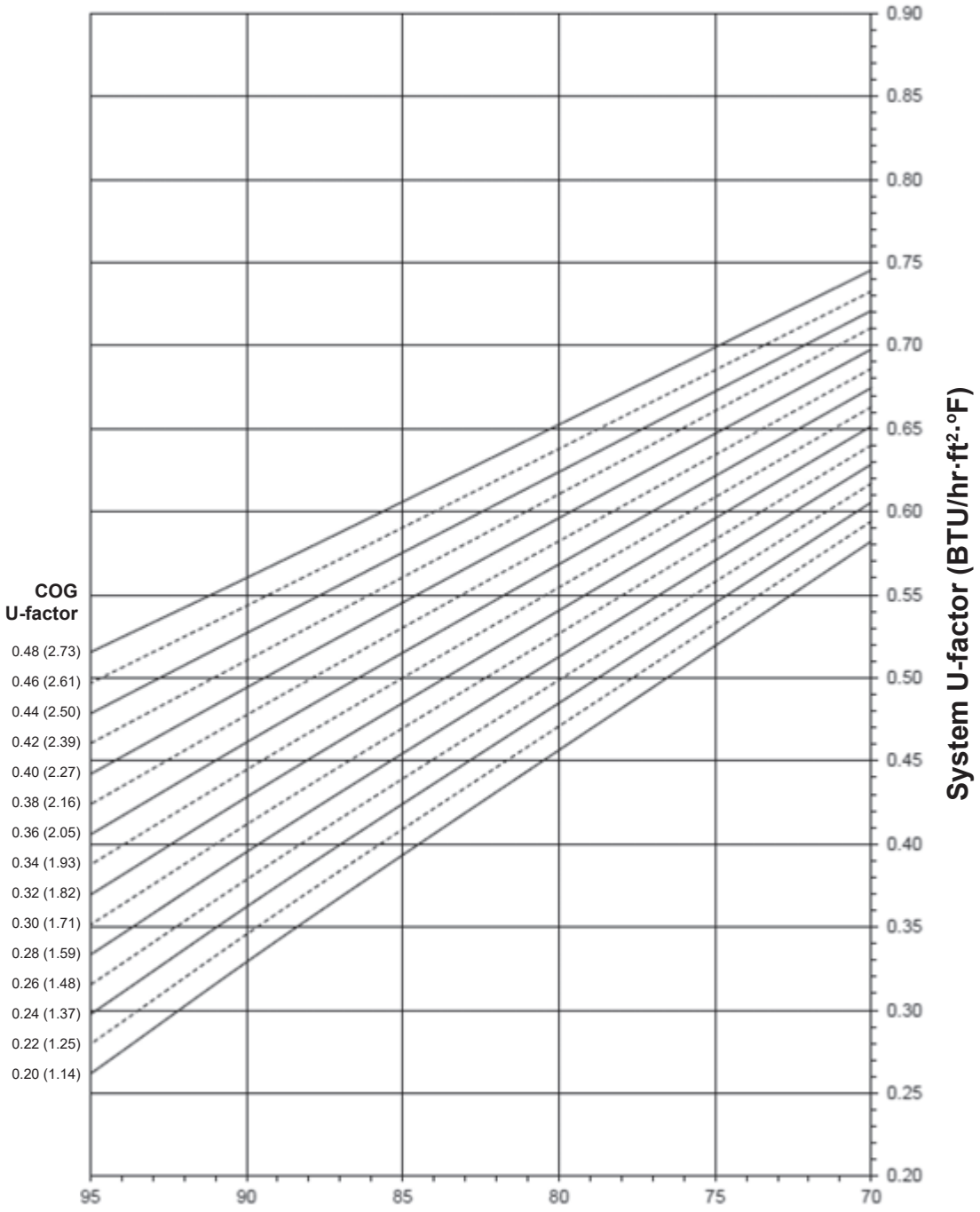
Glass SHGC [3]	Overall SHGC [4]
0.75	0.67
0.70	0.62
0.65	0.58
0.60	0.54
0.55	0.49
0.50	0.45
0.45	0.41
0.40	0.36
0.35	0.32
0.30	0.27
0.25	0.23
0.20	0.19
0.15	0.14
0.10	0.10
0.05	0.05

Visible Transmittance [2]

Glass VT [3]	Overall VT [4]
0.75	0.66
0.70	0.61
0.65	0.57
0.60	0.53
0.55	0.48
0.50	0.44
0.45	0.39
0.40	0.35
0.35	0.31
0.30	0.26
0.25	0.22
0.20	0.18
0.15	0.13
0.10	0.09
0.05	0.04

Trifab® VersaGlaze® 451T with Steel (CENTER)

System U-factor vs Percent of Glass Area



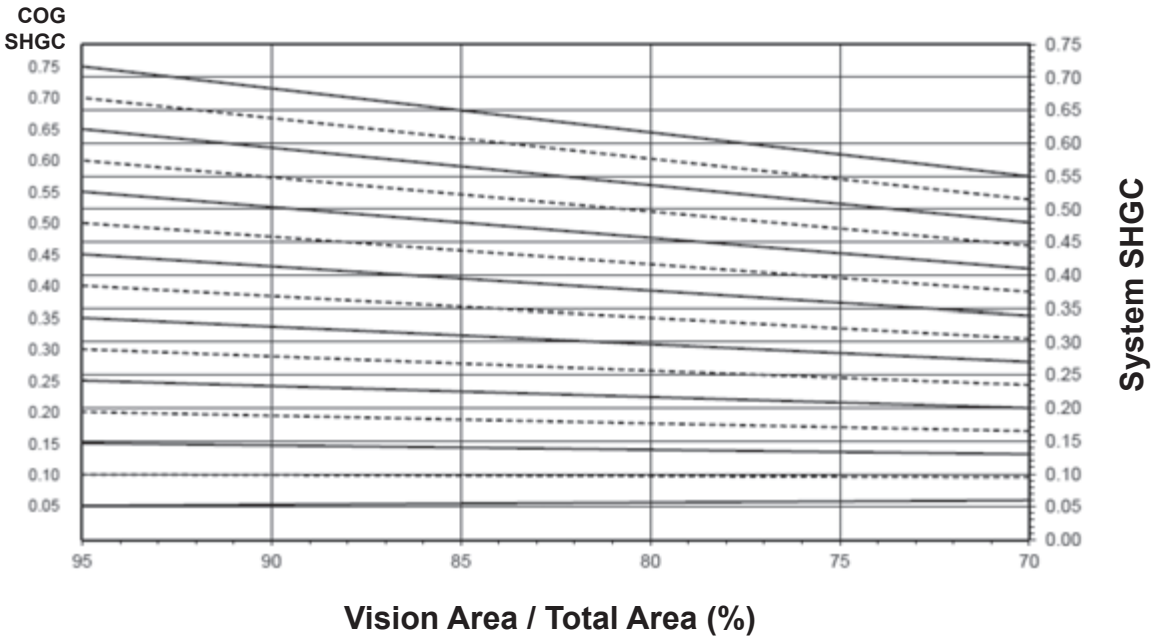
Notes for System U-Factor, SHGC and VT charts:

For glass values that are not listed, linear interpolation is permitted.

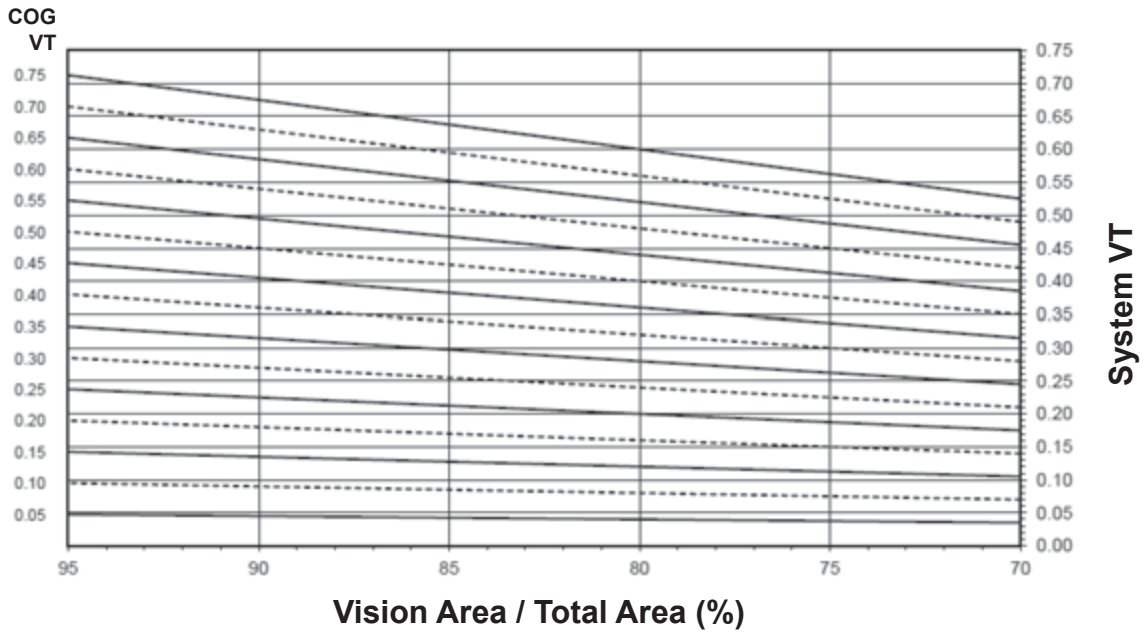
Glass properties are based on center of glass values and are obtained from your glass supplier.

Trifab® VersaGlaze® 451T with Steel (CENTER)

System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area



System Visible Transmittance (VT) vs Percent of Vision Area



Trifab® VersaGlaze® 451T with Steel (CENTER)

Thermal Transmittance [1] (BTU/hr • ft [2] • °F)

Glass U-Factor [3]	Overall U-Factor [4]
0.48	0.59
0.46	0.57
0.44	0.55
0.42	0.54
0.40	0.52
0.38	0.51
0.36	0.49
0.34	0.48
0.32	0.46
0.30	0.44
0.28	0.43
0.26	0.41
0.24	0.40
0.22	0.38
0.20	0.37

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 2,000 mm wide by 2,000 mm high (78-3/4" by 78-3/4").

SHGC Matrix [2]

Glass SHGC [3]	Overall SHGC [4]
0.75	0.66
0.70	0.62
0.65	0.58
0.60	0.53
0.55	0.49
0.50	0.45
0.45	0.40
0.40	0.36
0.35	0.32
0.30	0.27
0.25	0.23
0.20	0.19
0.15	0.14
0.10	0.10
0.05	0.05

Visible Transmittance [2]

Glass VT [3]	Overall VT [4]
0.75	0.65
0.70	0.61
0.65	0.57
0.60	0.52
0.55	0.48
0.50	0.44
0.45	0.39
0.40	0.35
0.35	0.31
0.30	0.26
0.25	0.22
0.20	0.17
0.15	0.13
0.10	0.09
0.05	0.04