EC 97911-262 FEATURES

# City of Puyallup Development & Permitting Services ISSUED PERMIT Building Planning Engineering Public Works Fire Traffic

#### **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<sup>®</sup> 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.



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Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.



PICTORIAL VIEWS	5-10
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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



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EC 97911-262 PICTORIAL VIEW (CENTER)

FLASHING

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

MULLION

SNAP-IN FILLER

SPLINE SCREWS

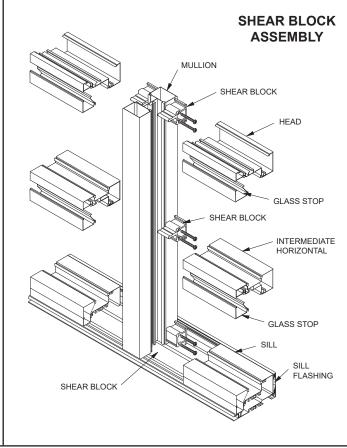
HEAD

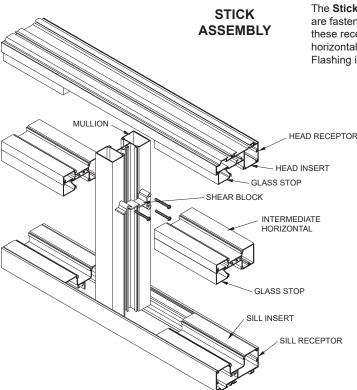
INTERMEDIATE
HORIZONTAL

GLASS STOP

SILL

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





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)

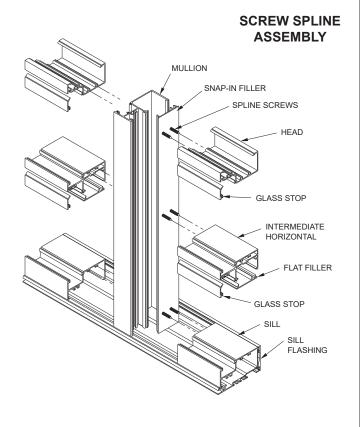


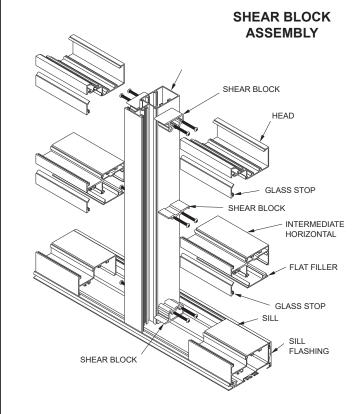
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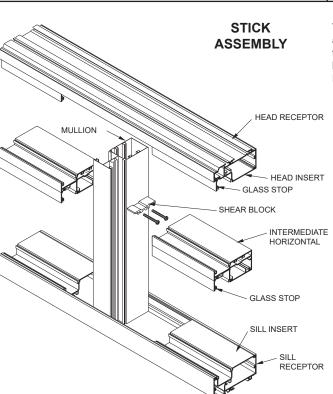
PICTORIAL VIEW (FRONT)

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.

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







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.

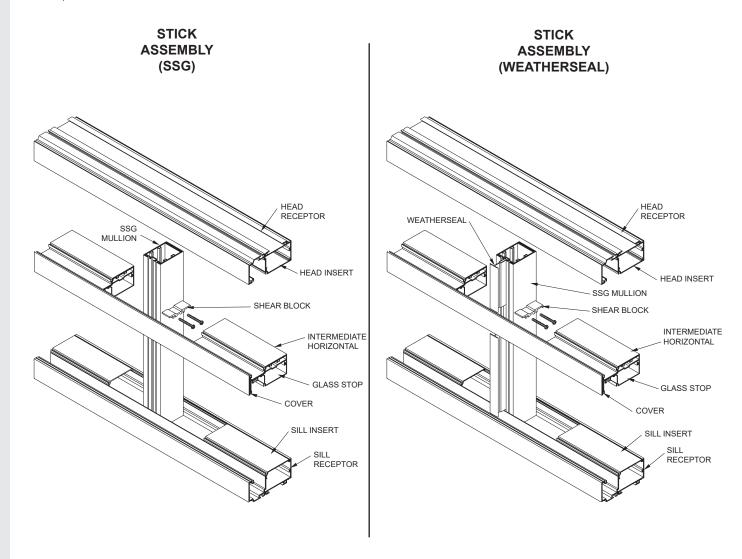
If the end reaction of the mullion (mullion spacing (ft.) times height (ft.) times specified wind load (psf) divided by two) is more than 500 lbs., the optional mullion anchors must be used. (See page 40)

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EC 97911-262

PICTORIAL VIEW (FRONT)

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.



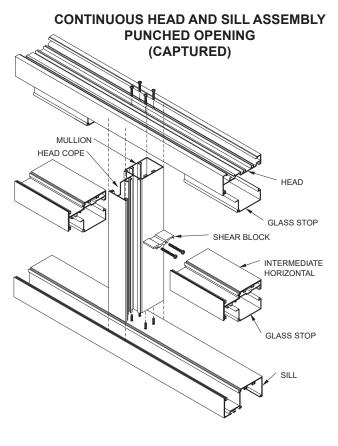
#### NOTE:

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)

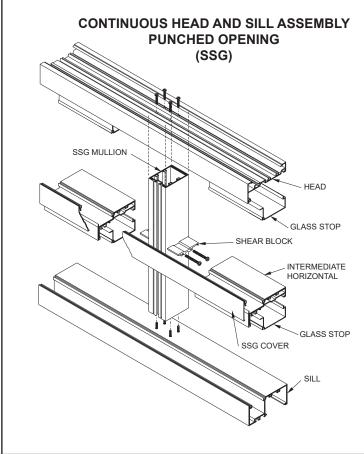


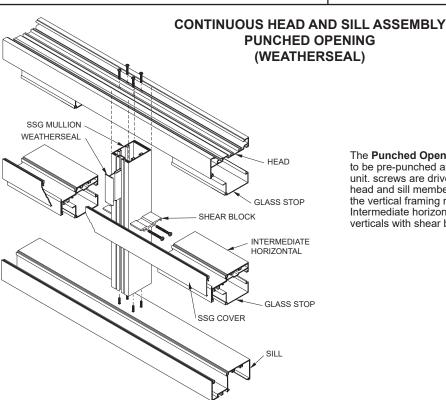
The CONTINUOUS HEAD AND SILL punched opening fabrication allows a frame to be pre-assembled and installed as a single unit. Screws are driven

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.



PICTORIAL VIEW (FRONT)





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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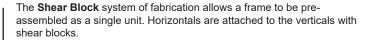
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

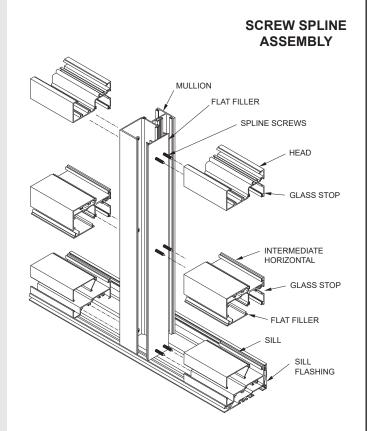
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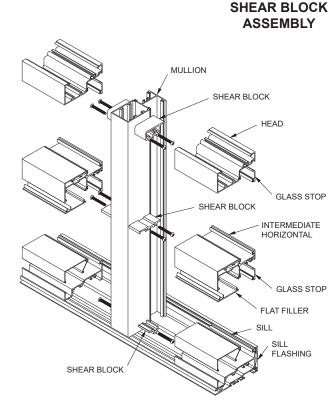
EC 97911-262

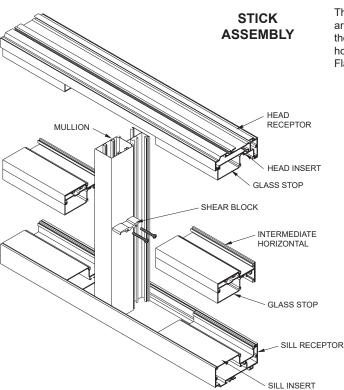
PICTORIAL VIEW (BACK)

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.









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.

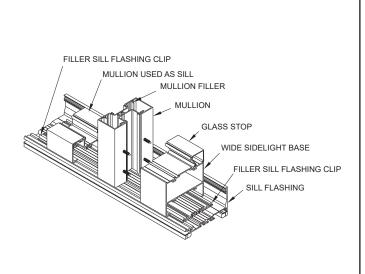
If the end reaction of the mullion (mullion spacing (ft.) times height (ft.) times specified wind load (psf) divided by two) is more than 500 lbs., the optional mullion anchors must be used. (See page 51)

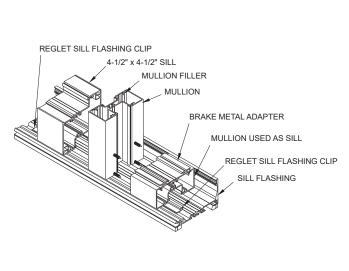


#### PICTORIAL VIEW (OPTIONAL 451 / 451T SILL ASSEMBLIES USING FILLER AND REGLET SILL FLASHING CLIPS)

#### **SCREW SPLINE ASSEMBLY**

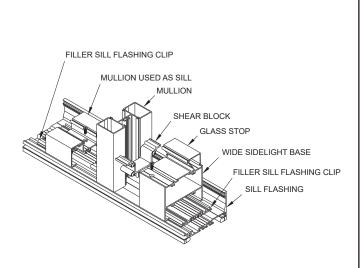
The split vertical in the Screw Spline system allows a frame to be installed from unitized assemblies. Screws are driven through the back of the verticals into splines extruded in the horizontal framing members. The Individual units are then snapped together to form a complete frame.

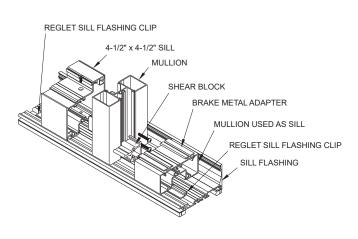




#### SHEAR BLOCK ASSEMBLY

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.

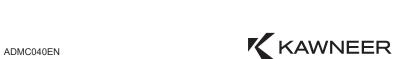




Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

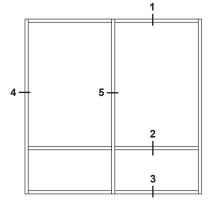
EC 97911-262 INDEX (CENTER)

## **BASIC FRAMING DETAILS** (CENTER - Outside Glazed - Stops Up)......12 (CENTER - Inside Glazed - Stops Down)......13 (CENTER - Outside Glazed - Stops Down).....14 PRE-GLAZED FRAMING DETAILS (CENTER - Outside Glazed - Stops Up)......15 (CENTER - Inside Glazed - Stops Down)......16 (CENTER - Outside Glazed - Stops Down).....17 MISCELLANEOUS FRAMING...... 18-19 CURVING & TRIM DETAILS ......21 ENTRANCE FRAMING ......22 ENTRANCE FRAMING (OPEN BACK)......23 250T/350T/500T INSULPOUR® THERMAL ENTRANCES ......... 24-25 GLASSvent® WINDOW for STOREFRONT FRAMING ......26 8225TL THERMAL WINDOW DETAILS......27

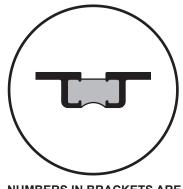


BASIC FRAMING DETAILS (CENTER - Outside Glazed - Stops Up)

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

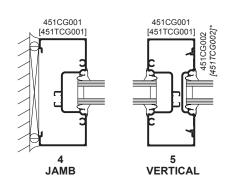


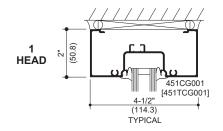
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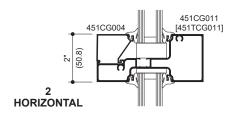


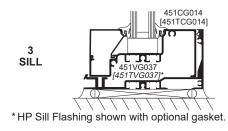
**NUMBERS IN BRACKETS ARE** THERMALLY BROKEN MEMBERS

#### **SCREW SPLINE**

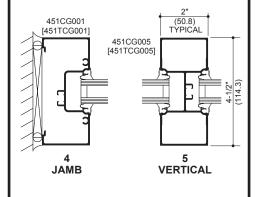


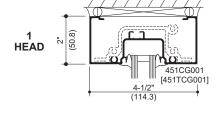


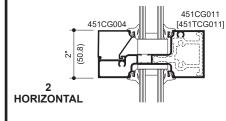


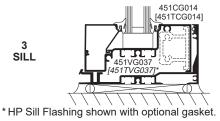


#### **SHEAR BLOCK**

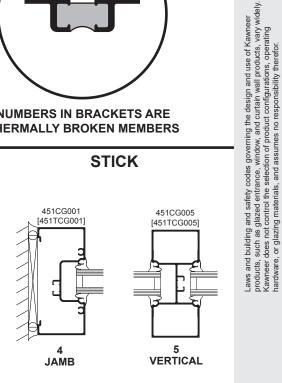


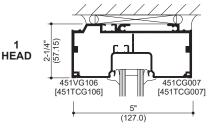


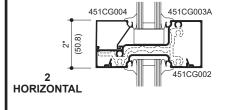


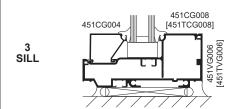


#### **STICK**







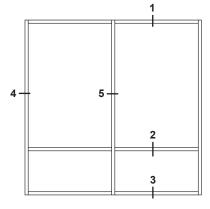


ADMC040EN

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

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

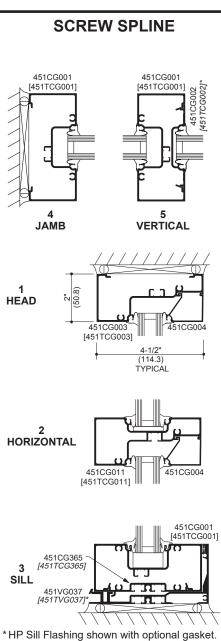


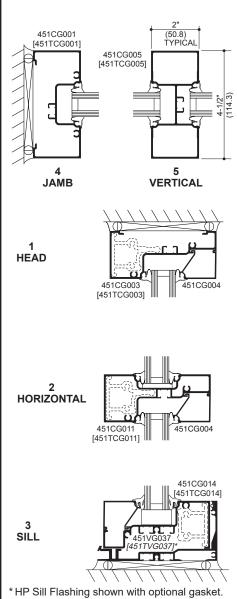
**ELEVATION IS NUMBER KEYED TO DETAILS** 

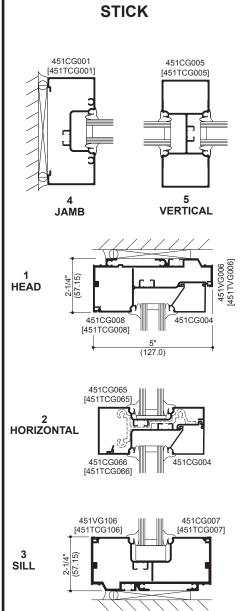
SHEAR BLOCK



**NUMBERS IN BRACKETS ARE** THERMALLY BROKEN MEMBERS



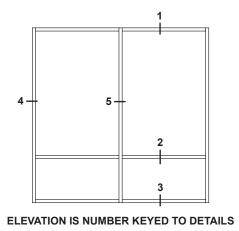






BASIC FRAMING DETAILS (CENTER - Outside Glazed - Stops Down)

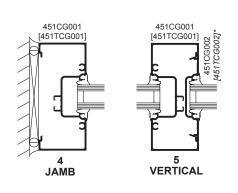
#### Additional information and CAD details are available at www.kawneer.com

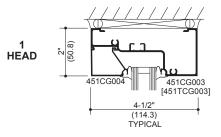


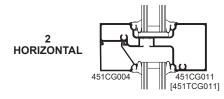


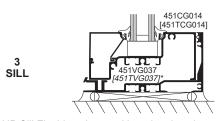
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

#### **SCREW SPLINE**



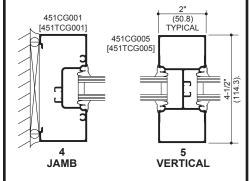


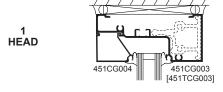


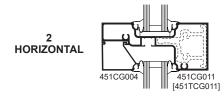


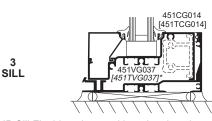
\* HP Sill Flashing shown with optional gasket.

#### **SHEAR BLOCK**



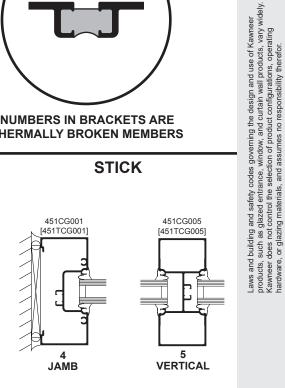


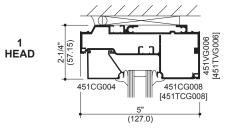


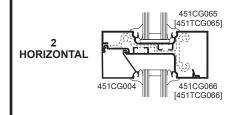


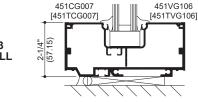
\* HP Sill Flashing shown with optional gasket.

#### **STICK**









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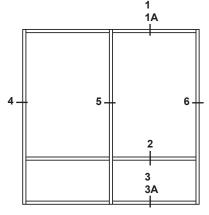
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PRE-GLAZED FRAMING DETAILS (CENTER - Outside Glazed - Stops Up)

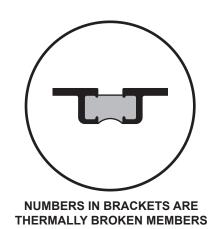
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EC 97911-262

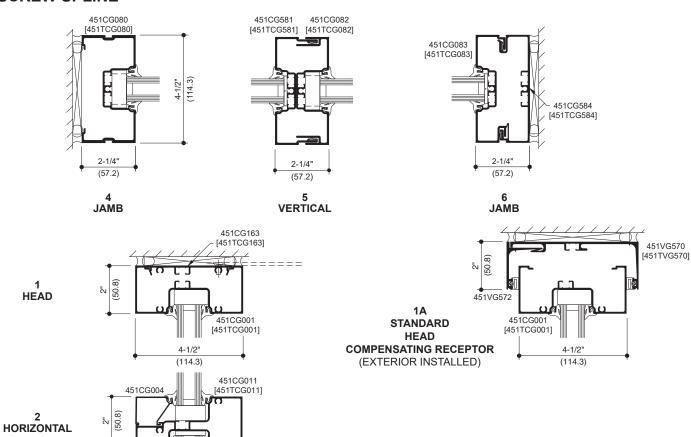
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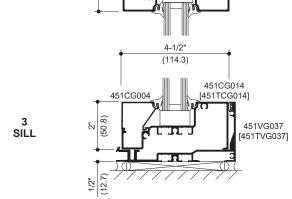


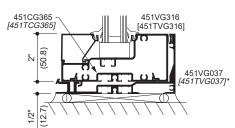




#### **SCREW SPLINE**



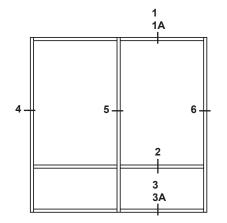




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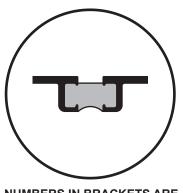
3A SILL 16

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



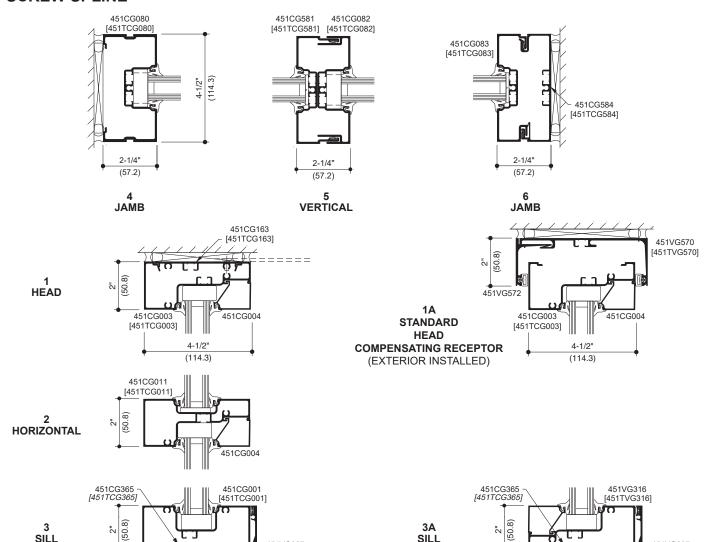
PRE-GLAZED FRAMING DETAILS (CENTER - Inside Glazed - Stops Down)

**ELEVATION IS NUMBER KEYED TO DETAILS** 



**NUMBERS IN BRACKETS ARE** THERMALLY BROKEN MEMBERS

#### **SCREW SPLINE**



SILL

SILL

\* HP Sill Flashing shown with optional gasket.

451VG037

11

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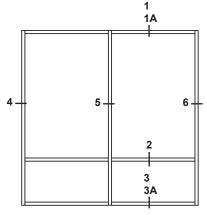
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451VG037 [451TVG037]\*

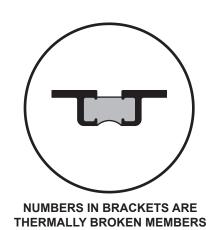
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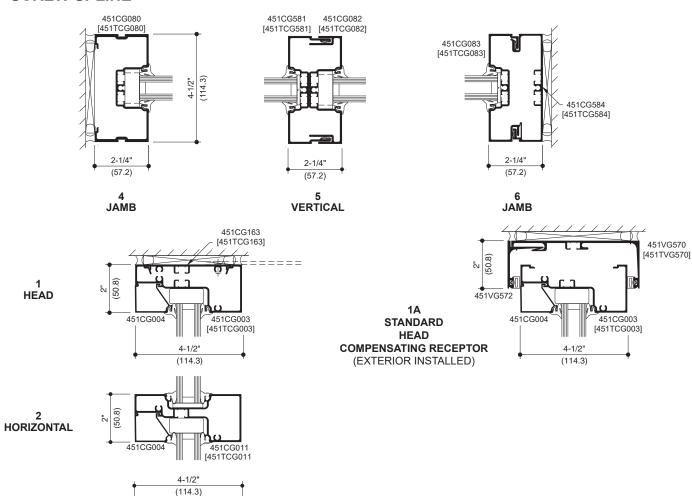
Additional information and CAD details are available at www.kawneer.com



**ELEVATION IS NUMBER KEYED TO DETAILS** 



**SCREW SPLINE** 



PRCTI20221793

SILL



451CG365 [451TCG365]

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(50.8)

3A SILL 451CG001 [451TCG001]

451VG037

KAWNEER

451CG014 [451TCG014]

451VG037

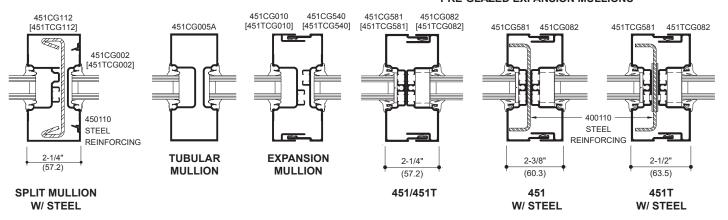
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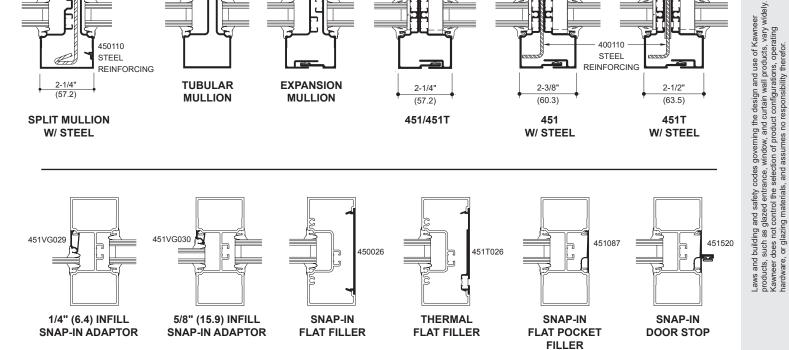
451CG004

(20.8)

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

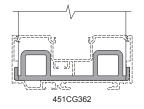
#### PRE-GLAZED EXPANSION MULLIONS







#### THERMAL POCKET FILLERS



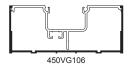
#### **MULLION ANCHOR**

#### NOTE:

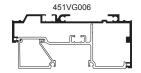
If the end reaction of the mullion (mullion spacing (ft.) times height (ft) times specified wind load (psf), divided by two) is more than 500 LBS., the optional mullion anchor must be used. Consult Application Engineering.

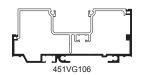
Mullion Anchor not used with Lightweight Receptor.





**OPTIONAL LIGHTWEIGHT CAN RECEPTORS** 

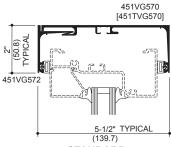




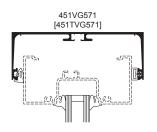
**OPTIONAL UNEQUAL LEG CAN RECEPTORS** 

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

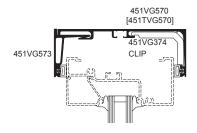
#### Additional information and CAD details are available at www.kawneer.com



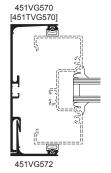
**STANDARD HEAD COMPENSATING RECEPTOR** (EXTERIOR INSTALLED)



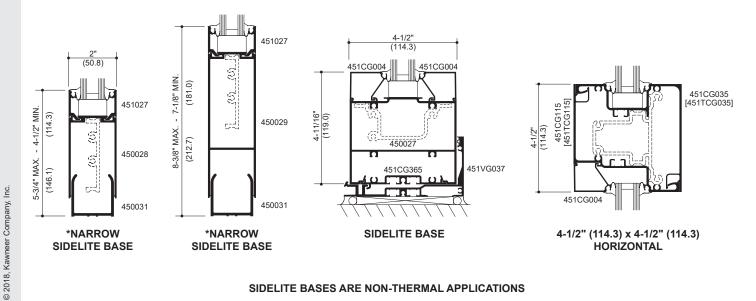
**ONE PIECE HEAD COMPENSATING RECEPTOR** 



**HEAVY WEIGHT HEAD COMPENSATING RECEPTOR** (EXTERIOR INSTALLED)



**JAMB COMPENSATING RECEPTOR** (EXTERIOR INSTALLED)



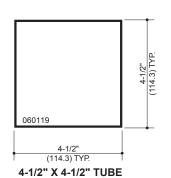
#### SIDELITE BASES ARE NON-THERMAL APPLICATIONS

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

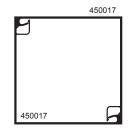
NOTE: SIDELITE BASES SHOWN ARE FOR USE WITH SCREW SPLINE AND SHEAR BLOCK SYSTEMS ONLY.

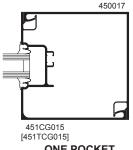


#### Additional information and CAD details are available at www.kawneer.com



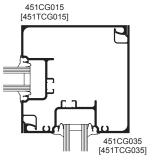
CORNERS (CENTER)

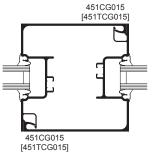


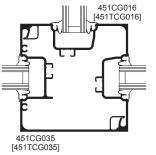


**TWO PIECE NO POCKET CORNER** 

**ONE POCKET CORNER** 



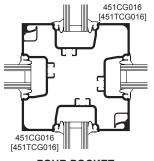


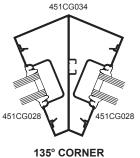


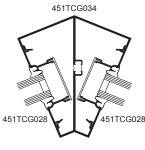
**TWO POCKET** 90° CORNER

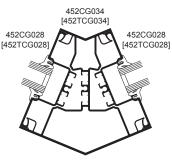
**TWO POCKET CORNER POST** 

THREE POCKET 90° CORNER







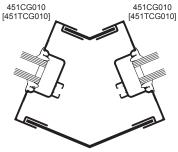


**FOUR POCKET** 90° CORNER

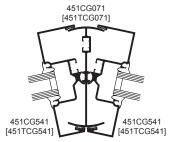
(NON-THERMAL)

135° CORNER (THERMAL)

135° CORNER



451CG071 [451TCG071] 451CG541 451CG541 [451TCG541] [451TCG541]



VARIABLE DEGREE **BRAKE METAL CORNER** 

155° TO 180° PIVOT MULLION (OUTSIDE CORNER)

155° TO 180° PIVOT MULLION (INSIDE CORNER)

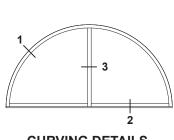
© 2018, Kawneer Company,

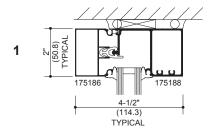
Laws and building and safety codes governing the design and use of Kawneer bodocks, such as glazed entrance, window, and cutain wall products, vary widely. Rawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

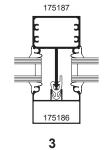
Trifab® VersaGlaze® 451/451T Framing System

**CURVING & TRIM DETAILS** 

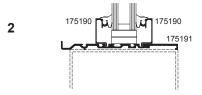
#### Additional information and CAD details are available at www.kawneer.com

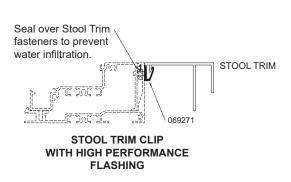


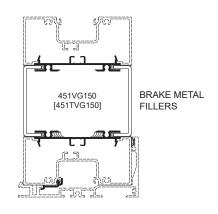




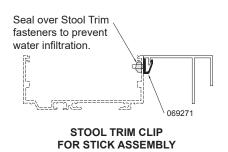
**CURVING DETAILS** (Center Plane Only)

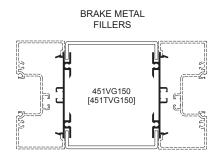






**BRAKE METAL** ADAPTOR AT HORIZONTAL





**BRAKE METAL** ADAPTOR AT VERTICAL

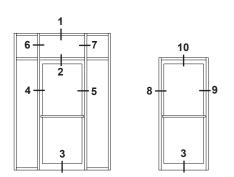


## **ENTRANCE FRAMING (CENTER)**

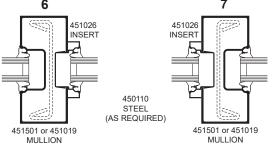
#### Additional information and CAD details are available at www.kawneer.com

#### 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.

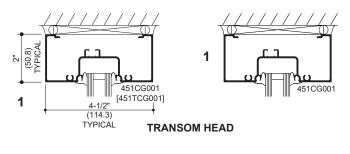


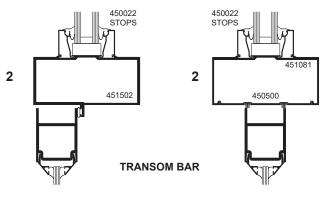
**ELEVATIONS ARE NUMBER KEYED TO DETAILS** 

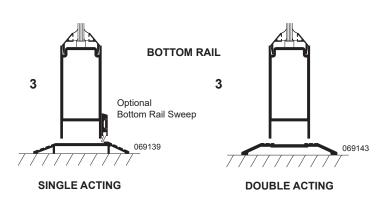


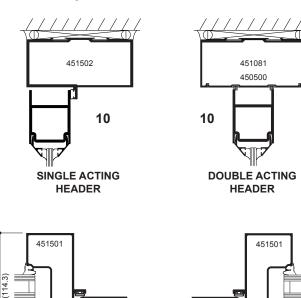
#### TRANSOM JAMBS

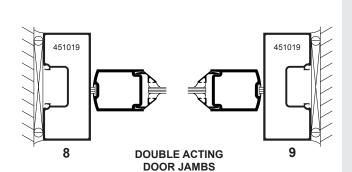
Transom area for both double or single acting doors with glass surround. Jambs above transom bar are routed out to accept glass holding insert with or without steel reinforcina.











SINGLE ACTING

**DOOR JAMBS** 

(50.8)

4

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

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Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entriance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

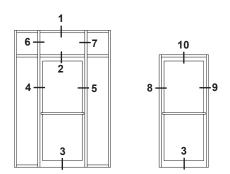
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#### Additional information and CAD details are available at www.kawneer.com

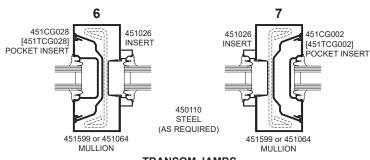
### Trifab® VersaGlaze® 451 FRAMING INCORPORATING KAWNEER® "190" DOORS.

#### DOOR FRAMING NON-THERMAL ONLY

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

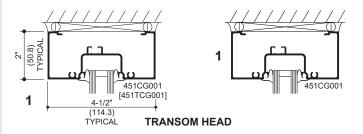


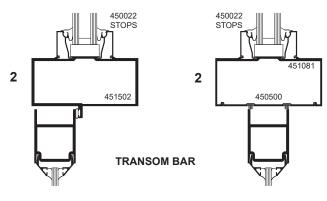
**ELEVATIONS ARE NUMBER KEYED TO DETAILS** 

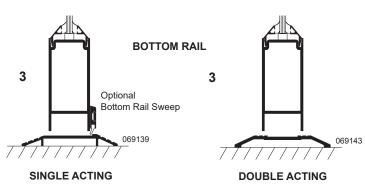


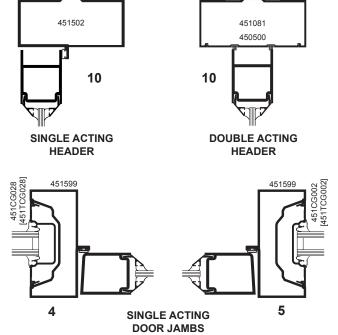
TRANSOM JAMBS

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.

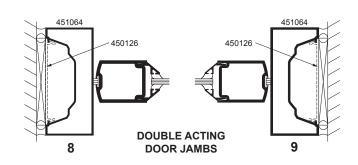








**NOTE:** Sidelite mullions must be oriented to provide at least one (1) deep vertical pocket per lite to facilitate glazing.



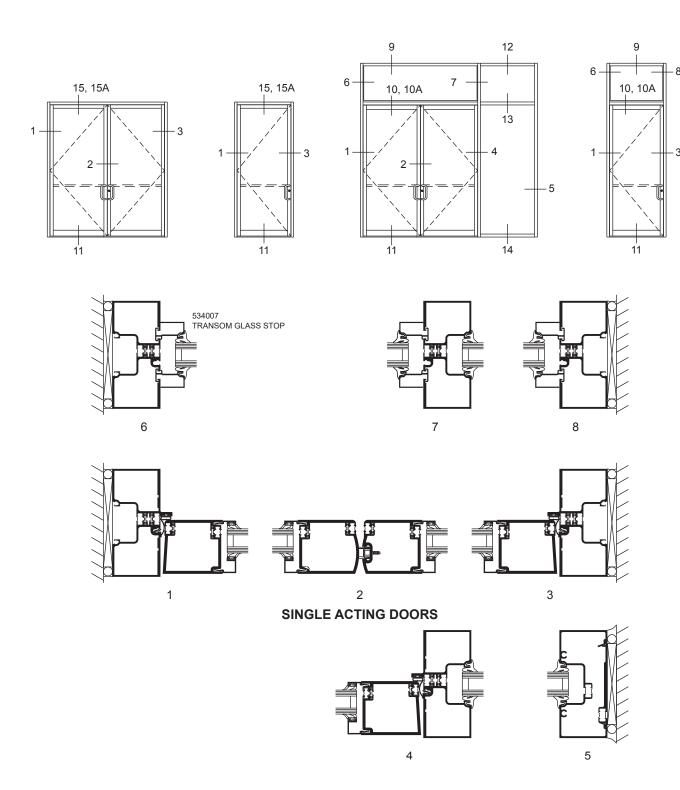


#### 250T/350T/500T INSULPOUR® THERMAL ENTRANCES

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.

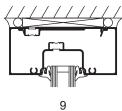


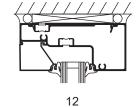
# © 2018, Kawneer Company, Inc.

#### EC 97911-262

#### 250T/350T/500T INSULPOUR® THERMAL ENTRANCES

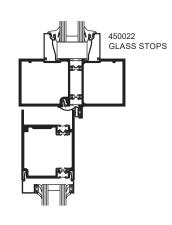
#### Additional information and CAD details are available at www.kawneer.com



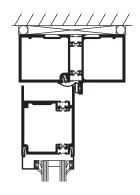


13

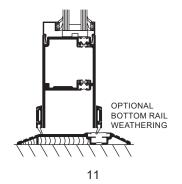
#### SINGLE ACTING DOORS



10

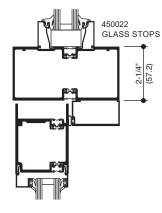


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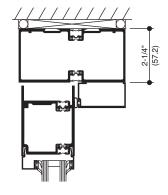


**SURFACE OVERHEAD CLOSER** 

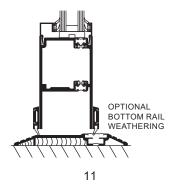
#### **COC WITH SINGLE ACTING OFFSET ARM**



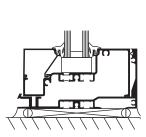
10A



15A



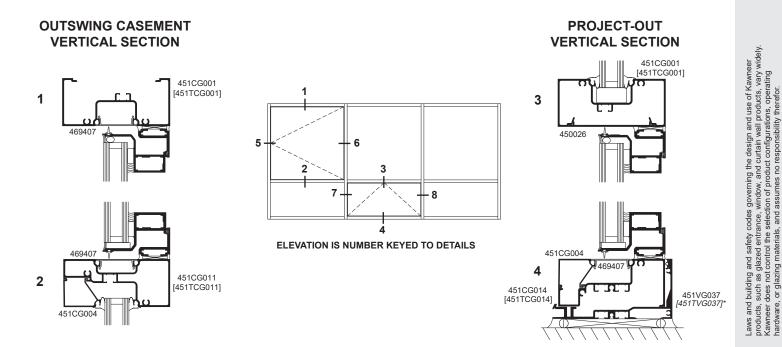
**CONSEALED OVERHEAD CLOSER** 



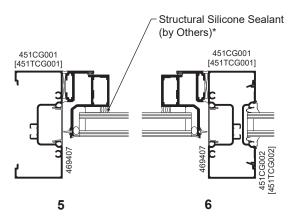
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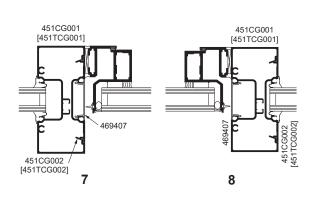
#### Additional information and CAD details are available at www.kawneer.com



#### **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.

ADMC040EN

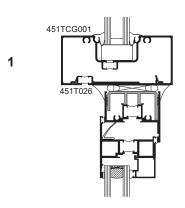


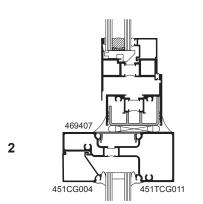
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

8225TL THERMAL WINDOWS (CENTER)

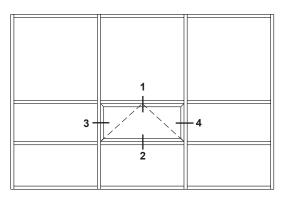
#### Additional information and CAD details are available at www.kawneer.com

#### **PROJECT-OUT VERTICAL SECTION**



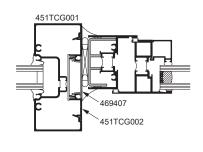


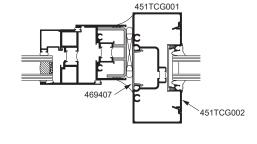
8225TL THERMAL WINDOWS SHOWN NOTE: OTHER VENT TYPES CAN BE ACCOMMODATED. CONSULT YOUR KAWNEER REPRESENTATIVE FOR OTHER OPTIONS



**ELEVATION IS NUMBER KEYED TO DETAILS** 

#### **PROJECT-OUT** HORIZONTAL SECTION





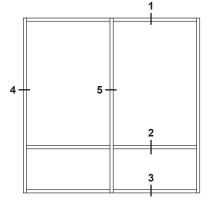
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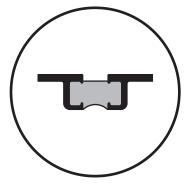
BASIC FRAMING DETAILS (CENTER - Outside Glazed - Stops Down) LEVEL D - LARGE MISSILE IMPACT

#### **Hurricane Resistant Product**

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

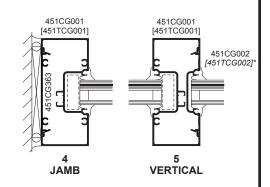


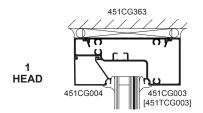
**ELEVATION IS NUMBER KEYED TO DETAILS** 

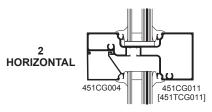


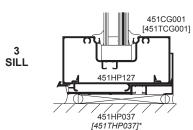
**NUMBERS IN BRACKETS ARE** THERMALLY BROKEN MEMBERS

#### **SCREW SPLINE**

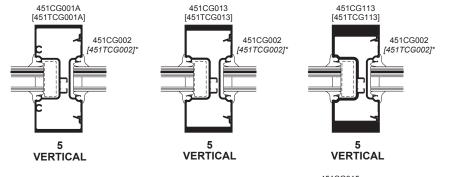


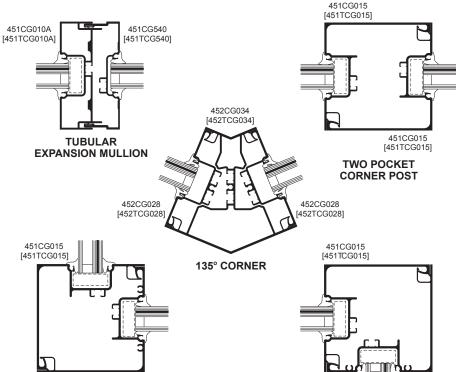






## **OPTIONAL FRAMING (CENTER)**





TWO POCKET **OUTSIDE CORNER POST** 

ADMC040EN

451CG035

[451TCG035]

**INSIDE CORNER POST** 

TWO POCKET

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451CG035

[451TCG035]

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ENTRANCE FRAMING (CENTER)
LEVEL D - LARGE MISSILE IMPACT

#### Hurricane Resistant Product

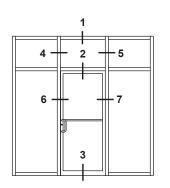
#### Additional information and CAD details are available at www.kawneer.com

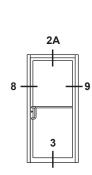
Trifab® VersaGlaze® 451 FRAMING INCORPORATING KAWNEER® "350/500 IR" DOORS (DRY GLAZED).

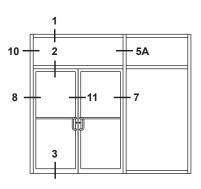
DOOR FRAMING NON-THERMAL ONLY

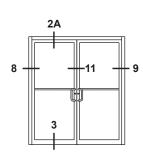
ADMC040EN

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

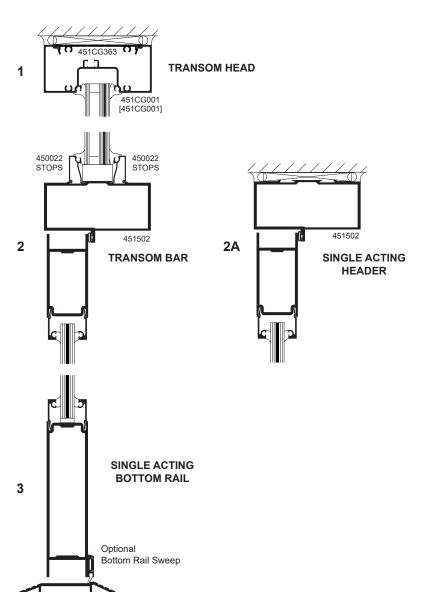




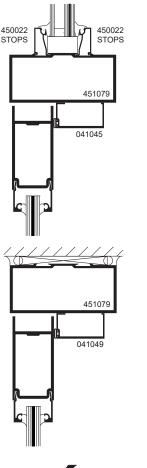




**ELEVATIONS ARE NUMBER KEYED TO DETAILS** 



## CONCEALED OVERHEAD CLOSERS





ENTRANCE FRAMING (CENTER)
LEVEL D - LARGE MISSILE IMPACT

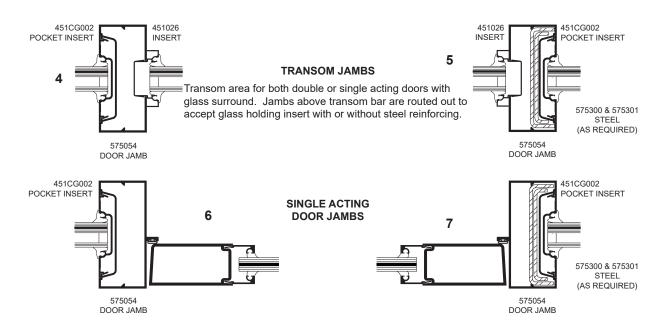
EC 9/911-202

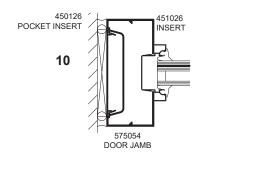
#### Hurricane Resistant Product

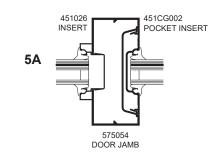
#### Additional information and CAD details are available at www.kawneer.com

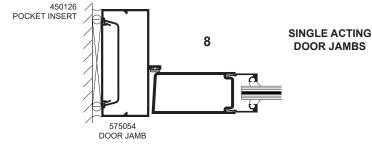
## Trifab® VersaGlaze® 451 FRAMING INCORPORATING KAWNEER® "350/500 IR" DOORS (DRY GLAZED). DOOR FRAMING NON-THERMAL ONLY

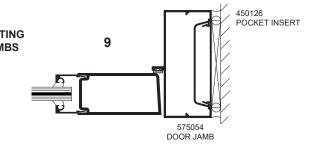
**NOTE**: OTHER TYPES OF KAWNEER DOORS MAY BE USED WITH THIS FRAMING SYSTEM. SEE ENTRANCE DETAILS FOR ADDITIONAL INFORMATION.

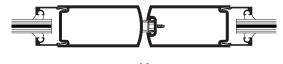












11
MEETING STILES



ADMC040EN

EC 97911-262 INDEX (FRONT)

## 

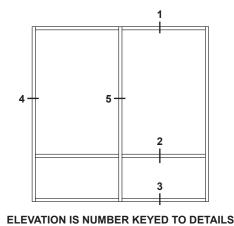
8225TL THERMAL WINDOW DETAILS......45

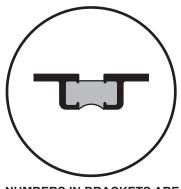




BASIC FRAMING DETAILS (FRONT - Inside Glazed - Stops Down)

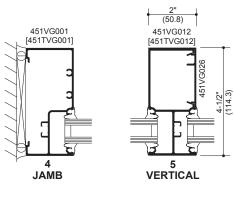
#### Additional information and CAD details are available at www.kawneer.com





**NUMBERS IN BRACKETS ARE** THERMALLY BROKEN MEMBERS

#### **SCREW SPLINE**





[451TVG103]

(114.3)

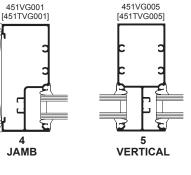
**TYPICAL** 

451VG104

451VG111

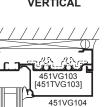
[451TVG111]

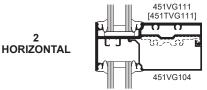
451VG104

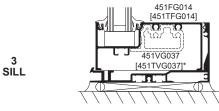


SHEAR BLOCK



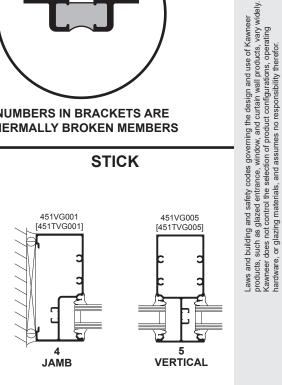


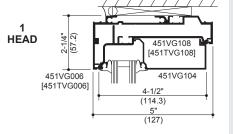


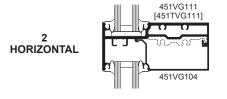


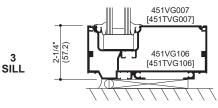
HP Sill Flashing shown with optional gasket.

#### **STICK**



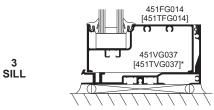






2 HORIZONTAL

**HEAD** 



\* HP Sill Flashing shown with optional gasket.

PRCY125221793

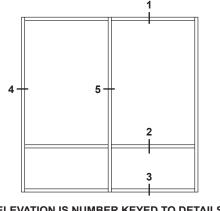
ADMC040EN

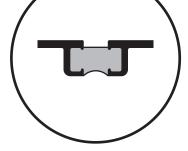
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

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

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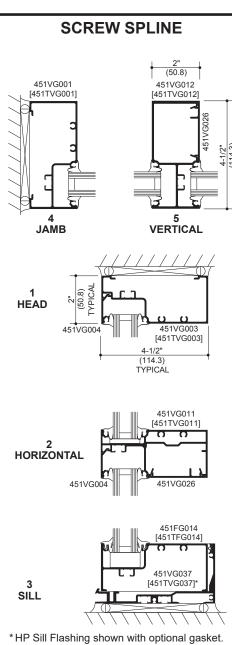
#### Additional information and CAD details are available at www.kawneer.com

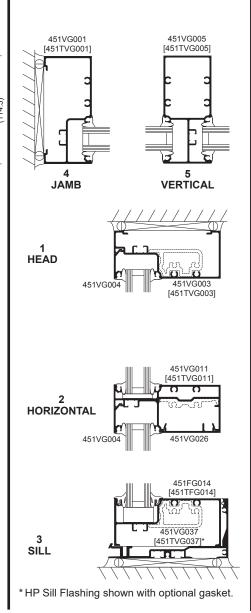




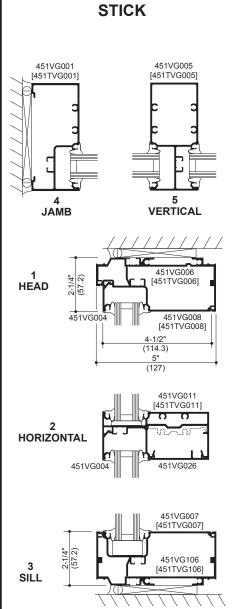
**NUMBERS IN BRACKETS ARE** THERMALLY BROKEN MEMBERS

#### **ELEVATION IS NUMBER KEYED TO DETAILS**





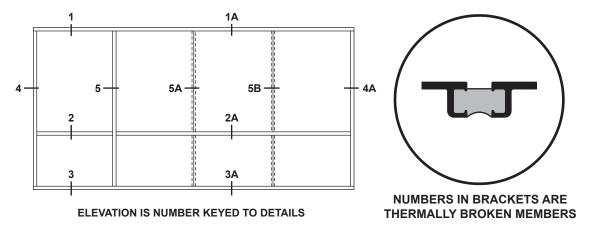
SHEAR BLOCK





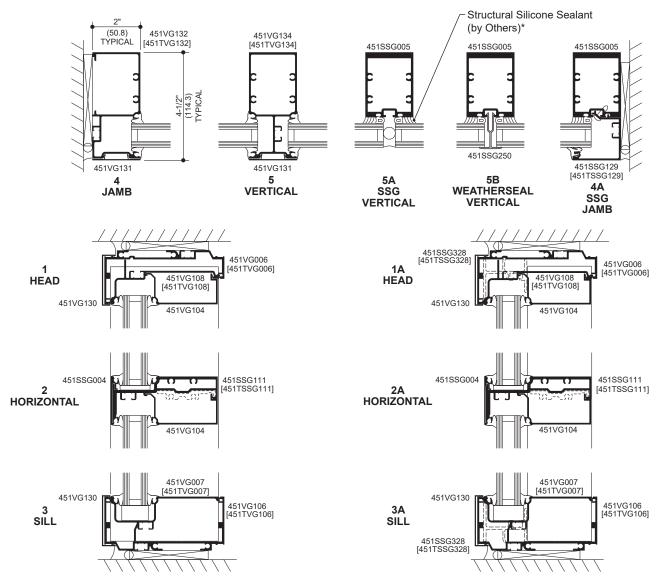
#### Additional information and CAD details are available at www.kawneer.com

BASIC FRAMING DETAILS (FRONT)



#### STICK (INSIDE GLAZED) TWO COLOR OPTION

#### STANDARD RECEPTOR with SSG ADAPTOR



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



Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

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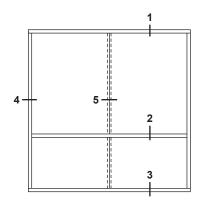
Laws and building and safety codes governing the design and use of Kawneer brodicts, such as glazed entrance, window, and cutain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

© 2018, Kawneer Company, Inc.

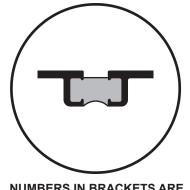
EC 97911-262

BASIC FRAMING DETAILS (FRONT)

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

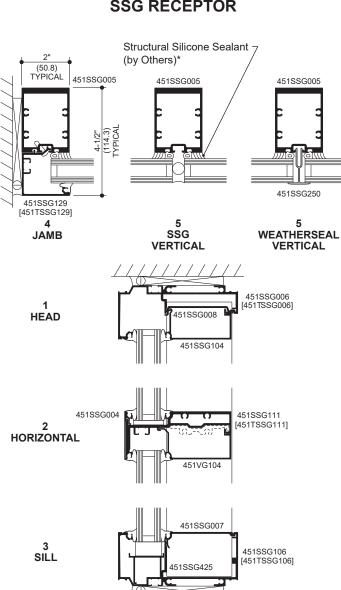


**ELEVATION IS NUMBER KEYED TO DETAILS** 

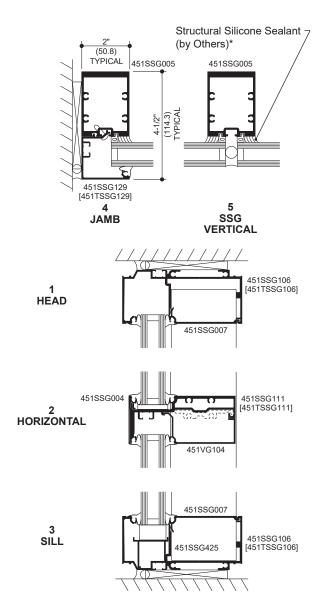


NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

# STICK (INSIDE GLAZED) SSG RECEPTOR



## STICK (OUTSIDE GLAZED) SSG RECEPTOR

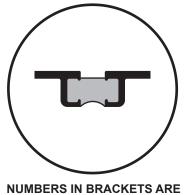


<sup>\*</sup> INSTALLER NOTE: Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.



BASIC FRAMING DETAILS (FRONT)

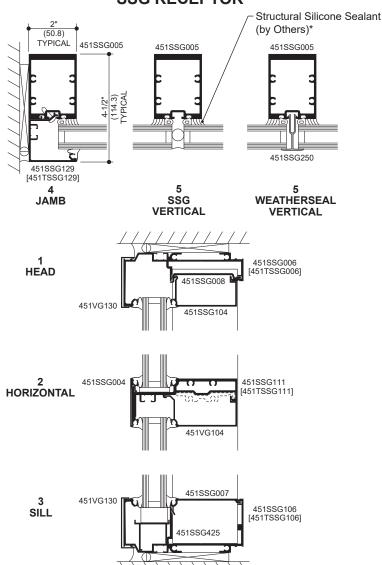




NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

## STICK (INSIDE GLAZED) TWO COLOR OPTION

#### **SSG RECEPTOR**



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

**PRCY1265**21793

Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

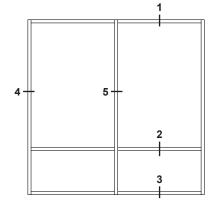
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

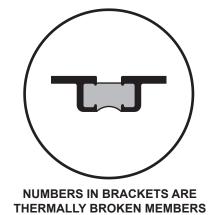
Laws and building and safety codes governing the design and use of Kawneer broucks, such as glazed entrance, window, and cutain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

EC 97911-262

BASIC FRAMING DETAILS (FRONT)

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

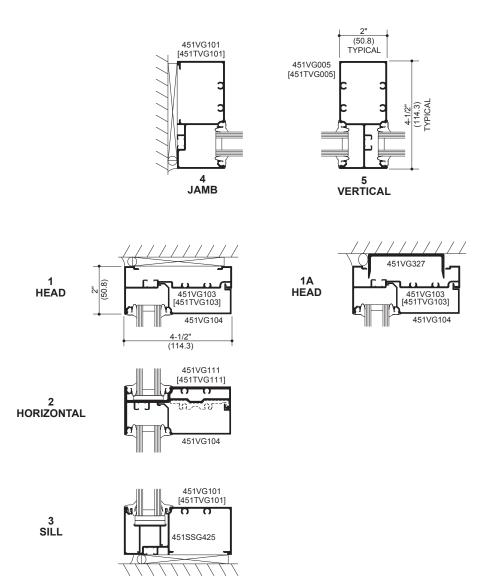




**ELEVATION IS NUMBER KEYED TO DETAILS** 

**CONTINUOUS HEAD AND SILL (INSIDE GLAZED)** 

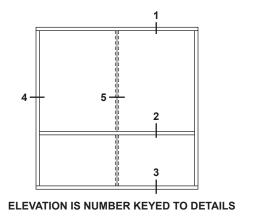
#### **PUNCHED OPENING**

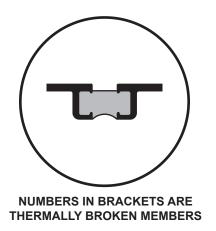




#### Additional information and CAD details are available at www.kawneer.com

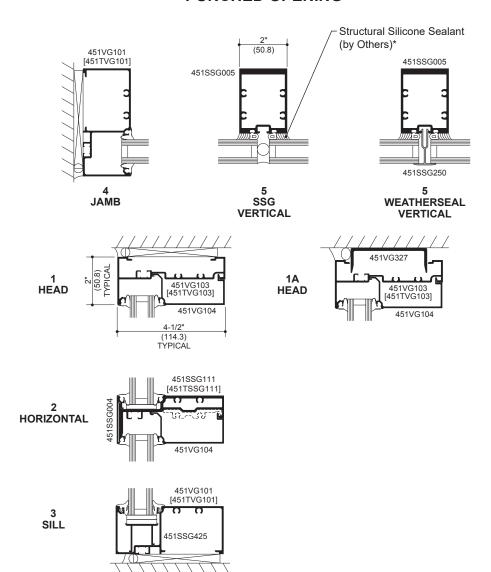
BASIC FRAMING DETAILS (FRONT)





# CONTINUOUS HEAD AND SILL (INSIDE GLAZED) SSG \ WEATHERSEAL

#### **PUNCHED OPENING**



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



or notice when deemed Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and cutain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

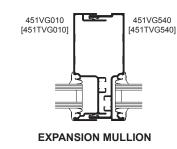
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

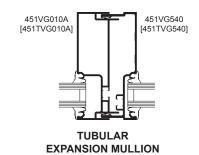
© 2018, Kawneer Company, Inc.

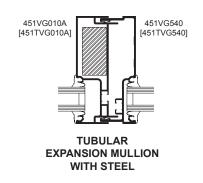
## Trifab® VersaGlaze® 451/451T Framing System

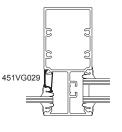
MISCELLANEOUS FRAMING (FRONT)

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

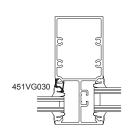








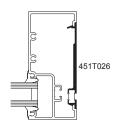
1/4" (6.4) INFILL **SNAP-IN ADAPTOR** 



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



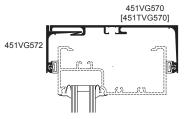
**PVC FLAT FILLER** (NON STRUCTURAL)



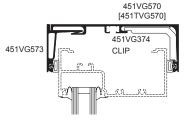
**THERMAL FLAT FILLER** 



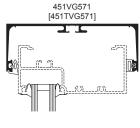
SNAP-IN **FLAT FILLER** 



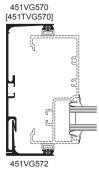
STANDARD - HEAD **COMPENSATING RECEPTOR** (EXTERIOR INSTALLED)



**HEAVY WEIGHT - HEAD COMPENSATING RECEPTOR** 



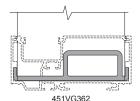
**ONE PIECE - HEAD COMPENSATING RECEPTOR** 



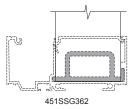
**JAMB COMPENSATING RECEPTOR** (EXTERIOR INSTALLED)



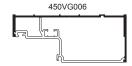
#### Additional information and CAD details are available at www.kawneer.com

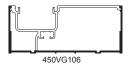


**MULLION ANCHOR** 

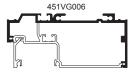


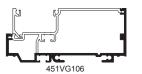
SSG MULLION ANCHOR





**OPTIONAL LIGHTWEIGHT CAN RECEPTORS** 



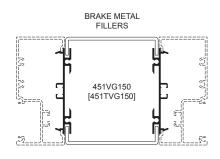


**OPTIONAL UNEQUAL LEG CAN RECEPTORS** 

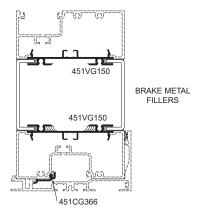
If the end reaction of the mullion (mullion spacing (ft.) times height (ft) times specified wind load (psf), divided by two) is more than 500 LBS., the optional Mullion Anchor must be used. Consult Application Engineering.

#### NOTE:

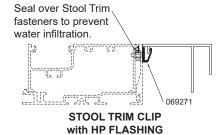
Mullion Anchor not used with Lightweight Receptor.



**BRAKE METAL ADAPTOR** 



**BRAKE METAL ADAPTOR** AT HORIZONTAL





STOOL TRIM CLIP FOR STICK ASSEMBLY

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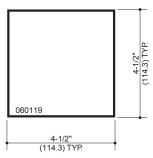
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and cutrain wall products, vary widely, Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

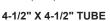
Laws and building and safety codes governing the design and use of Kawneer products, such as glazade antrance, window, and outrain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

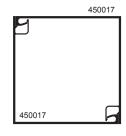
# © 2018, Kawneer Company, Inc.

EC 97911-262 CORNERS (FRONT)

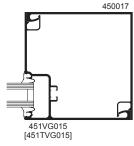
#### Additional information and CAD details are available at www.kawneer.com



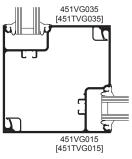




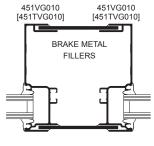
TWO PIECE NO POCKET CORNER



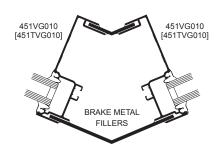
ONE POCKET CORNER



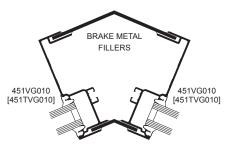
TWO POCKET 90° CORNER



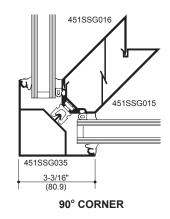
TWO POCKET CORNER POST

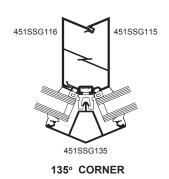


VARIABLE DEGREE BRAKE METAL OUTSIDE CORNER



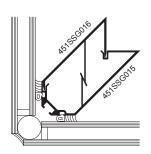
VARIABLE DEGREE BRAKE METAL INSIDE CORNER



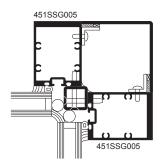




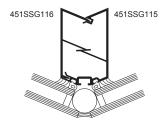
#### **INSIDE GLAZED**



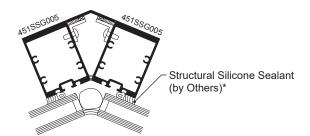
90° OUTSIDE CORNER



90° INSIDE CORNER

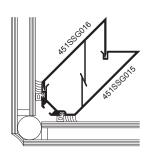


135° OUTSIDE CORNER

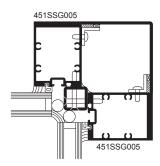


135° INSIDE CORNER

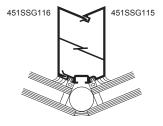
#### **OUTSIDE GLAZED**



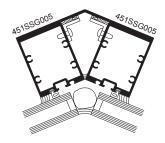
90° OUTSIDE CORNER



90° INSIDE CORNER



135° OUTSIDE CORNER



135° INSIDE CORNER

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



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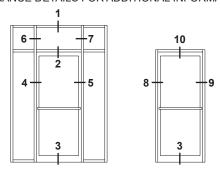
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#### Additional information and CAD details are available at www.kawneer.com

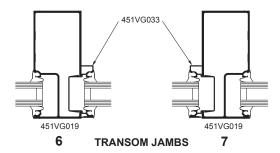
#### Trifab® VersaGlaze® 451 FRAMING INCORPORATING KAWNEER "190" DOORS.

#### DOOR FRAMING NON-THERMAL ONLY

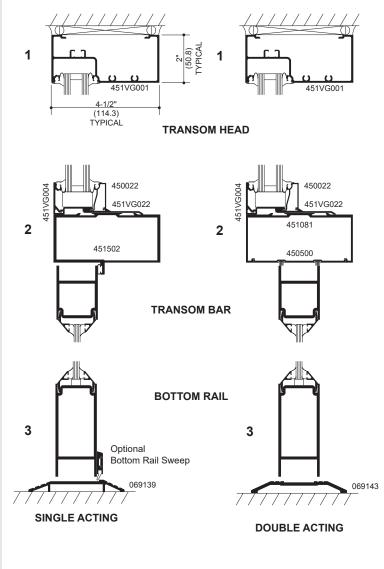
NOTE: OTHER TYPES OF KAWNEER DOORS MAY BE USED WITH THIS FRAMING SYSTEM. SEE ENTRANCE DETAILS FOR ADDITIONAL INFORMATION.

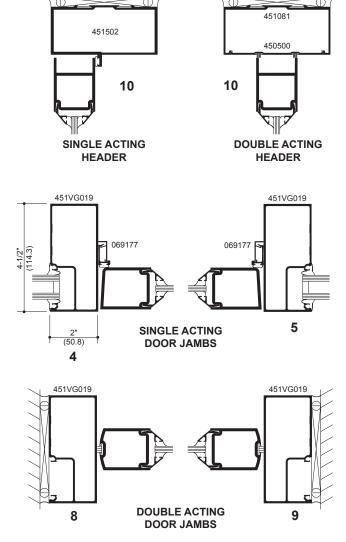


**ELEVATIONS ARE NUMBER KEYED TO DETAILS** 



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



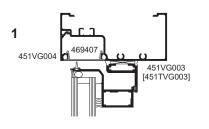


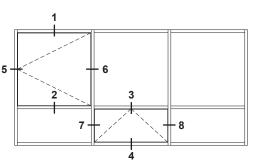


#### Additional information and CAD details are available at www.kawneer.com

GLASSvent®WINDOW for STOREFRONT FRAMING (FRONT)

#### **OUTSWING CASEMENT VERTICAL SECTION**

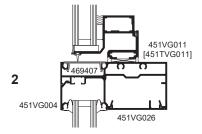




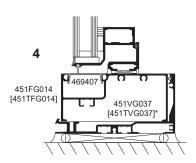
451VG011 [451TVG011] 3 451VG026 451VG004

**PROJECT-OUT** 

**VERTICAL SECTION** 

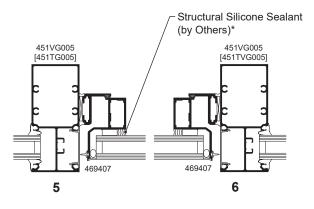


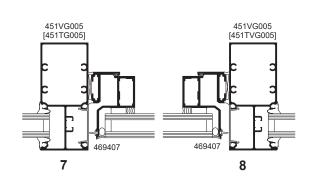
**ELEVATION IS NUMBER KEYED TO DETAILS** 



#### **OUTSWING CASEMENT HORIZONTAL SECTION**







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

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



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Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entriance, window, and cutrain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

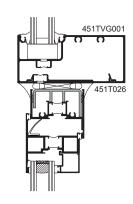
8225TL THERMAL WINDOWS (FRONT)

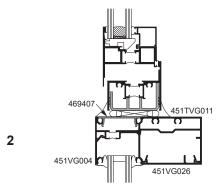
Trifab® VersaGlaze® 451/451T Framing System

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

#### **PROJECT-OUT VERTICAL SECTION**

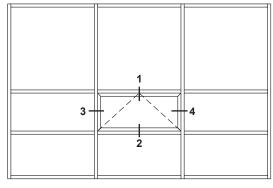
1





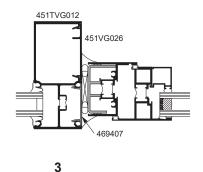
## 8225TL THERMAL WINDOWS SHOWN NOTE: OTHER VENT TYPES CAN BE

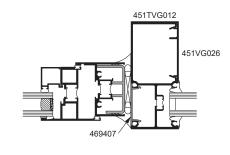
ACCOMMODATED, CONSULT YOUR KAWNEER REPRESENTATIVE FOR OTHER OPTIONS



**ELEVATION IS NUMBER KEYED TO DETAILS** 

#### **PROJECT-OUT HORIZONTAL SECTION**





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EC 97911-262

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INDEX (BACK)

## **BASIC FRAMING DETAILS**

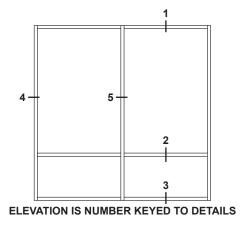
(BACK - Inside Glazed - Stops Down)	48
(BACK - Outside Glazed - Stops Down)	49
MISCELLANEOUS FRAMING	50-51
CORNERS	52
ENTRANCE FRAMING	53



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

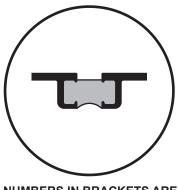
EC 97911-262

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



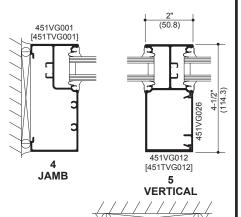
451VG001

HORIZONTAL



NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

#### **SCREW SPLINE**

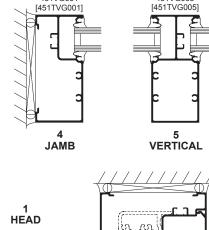


451VG003

[451TVG003

4-1/2" (114.3)

TYPICAL

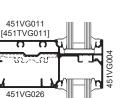


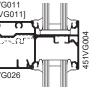
[451TVG003]

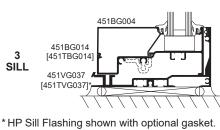
SHEAR BLOCK

451VG005



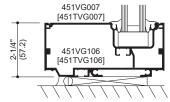






## **STICK** 451VG005 451VG001 [451TVG001] [451TVG005] 5 VERTICAL **JAMB** 451VG006 2-1/4" (57.2) [451TVG006] 451VG008 451VG004 [451TVG008] 4-1/2" (114.3) 451VG011 [451TVG011] 2 HORIZONTAL 451VG026 451VG004 451VG007

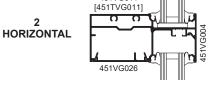
3 SILL



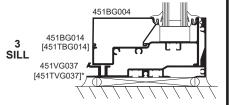
HEAD

TYPICAL

2" (50.8)



451VG011



\* HP Sill Flashing shown with optional gasket.

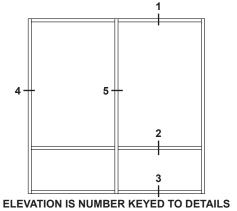
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and cutrain wall products, vary widely, Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

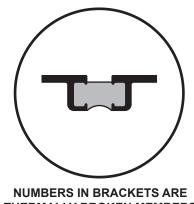
BASIC FRAMING DETAILS (BACK - Outside Glazed - Stops Down)

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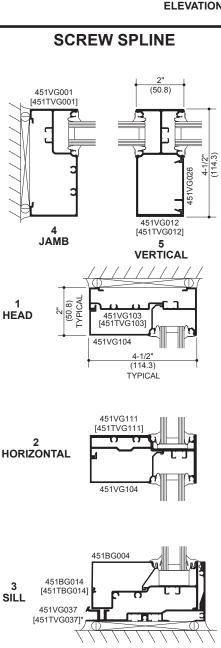
EC 97911-262

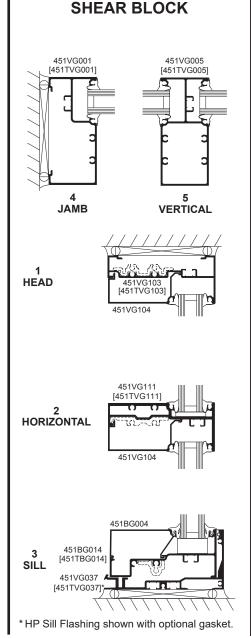
#### Additional information and CAD details are available at www.kawneer.com

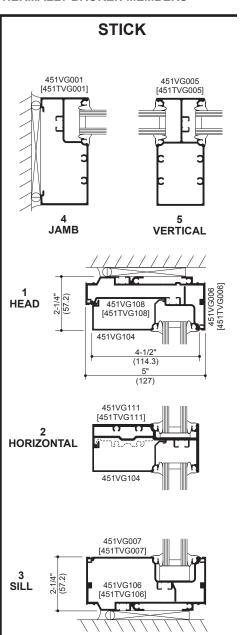




THERMALLY BROKEN MEMBERS





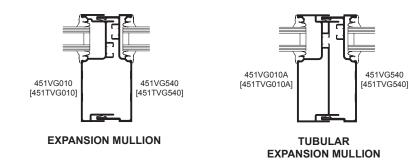


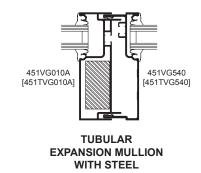


\* HP Sill Flashing shown with optional gasket.

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

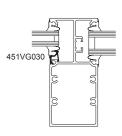
MISCELLANEOUS FRAMING (BACK)





451VG029

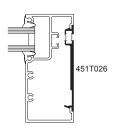
1/4" (6.4) INFILL **SNAP-IN ADAPTOR** 



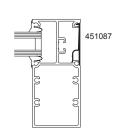
5/8" (15.9) INFILL SNAP-IN ADAPTOR



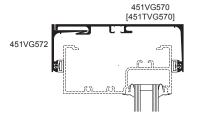
**PVC FLAT FILLER** (NON STRUCTURAL)



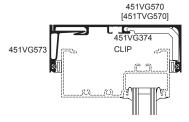
**THERMAL FLAT FILLER** 



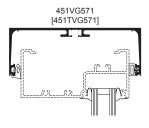
SNAP-IN **FLAT FILLER** 



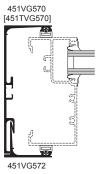
STANDARD - HEAD **COMPENSATING RECEPTOR** 



**HEAVY WEIGHT - HEAD COMPENSATING RECEPTOR** (EXTERIOR INSTALLED)



STANDARD - HEAD **COMPENSATING RECEPTOR** 



**JAMB COMPENSATING RECEPTOR** (EXTERIOR INSTALLED)

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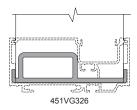
Laws and building and safety codes governing the design and use of Kawneer products, such as glazade antrannee, window, and ourfain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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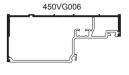
#### EC 97911-262

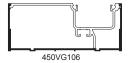
#### MISCELLANEOUS FRAMING (BACK)

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

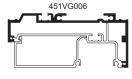


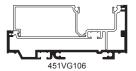






**OPTIONAL LIGHTWEIGHT CAN RECEPTORS** 





OPTIONAL UNEQUAL LEG **CAN RECEPTORS** 

## Anchor must be used. Consult Application Engineering.

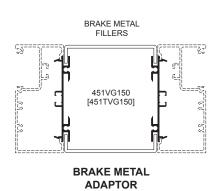
NOTE:

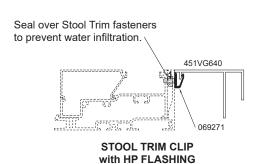
Mullion Anchor not used with Lightweight Receptor.

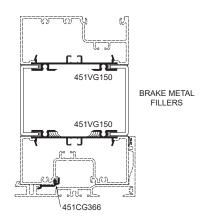
by two) is more than 500 LBS., the optional Mullion

If the end reaction of the mullion (mullion spacing (ft.)

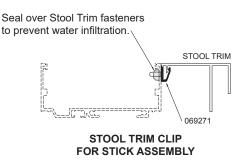
times height (ft) times specified wind load (psf), divided







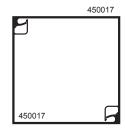
**BRAKE METAL ADAPTOR** AT HORIZONTAL



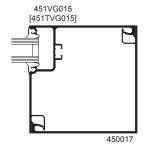


CORNERS (BACK)

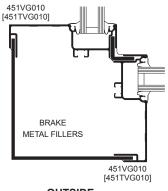
4-1/2" X 4-1/2" TUBE



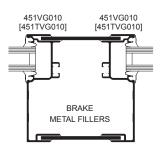
**TWO PIECE** NO POCKET CORNER



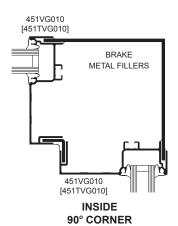
**ONE POCKET CORNER** 

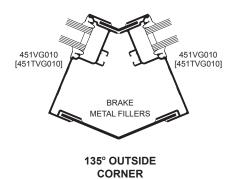


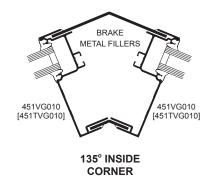
**OUTSIDE** 90° CORNER



**TWO POCKET CORNER POST** 







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**ENTRANCE FRAMING (BACK)** 

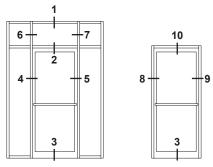
#### Additional information and CAD details are available at www.kawneer.com

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

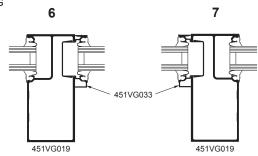
#### DOOR FRAMING NON-THERMAL ONLY

NOTE: OTHER TYPES OF KAWNEER DOORS MAY BE USED WITH THIS FRAMING

SEE ENTRANCE DETAILS FOR ADDITIONAL INFORMATION.

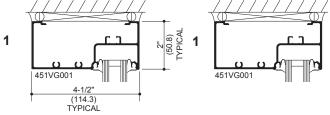


**ELEVATIONS ARE NUMBER KEYED TO DETAILS** 

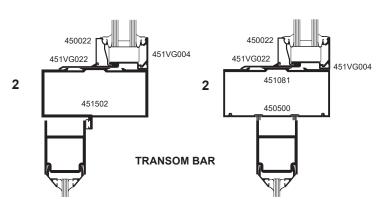


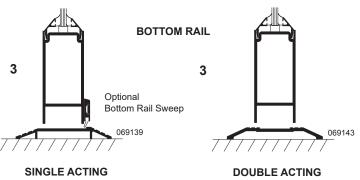
TRANSOM JAMBS

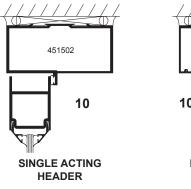
Transom area for both double or single acting doors with glass surround. Jambs above transom bar are routed out to accept glass holding insert.

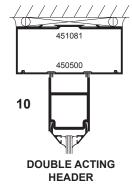


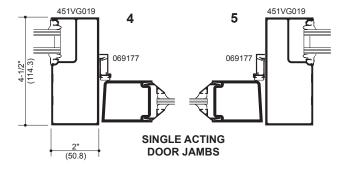
TRANSOM HEAD

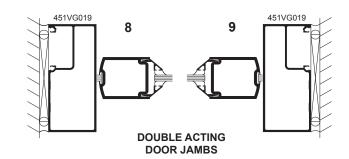














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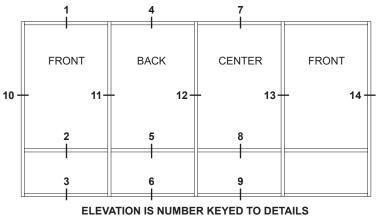
for Miscellaneous Details.)

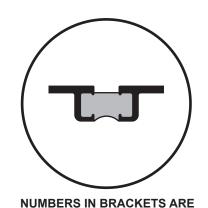


Trifab® VersaGlaze® 451/451T Framing System

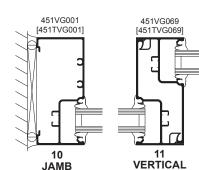
#### Additional information and CAD details are available at www.kawneer.com

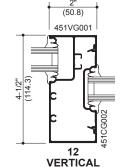
# SCREW SPLINE ASSEMBLY

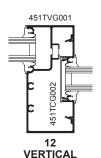




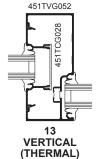
THERMALLY BROKEN MEMBERS

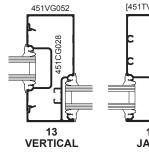


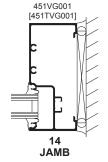




(THERMAL)

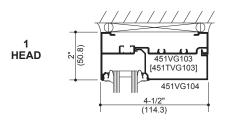


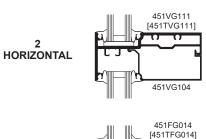


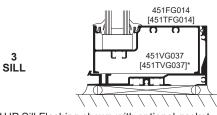


#### FRONT

See Pages 32 thru 45 for all FRONT details.



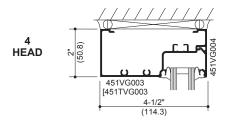


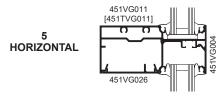


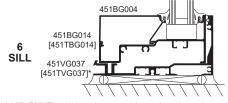
\* HP Sill Flashing shown with optional gasket.

#### BACK

See Pages 48 thru 53 for all BACK details.



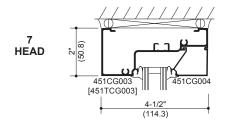


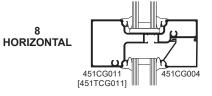


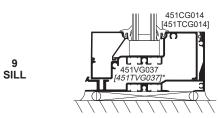
\* HP Sill Flashing shown with optional gasket.

#### CENTER

See Pages 12 thru 30 for all CENTER details.







\* HP Sill Flashing shown with optional gasket.

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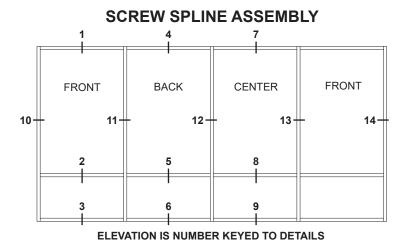
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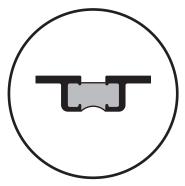
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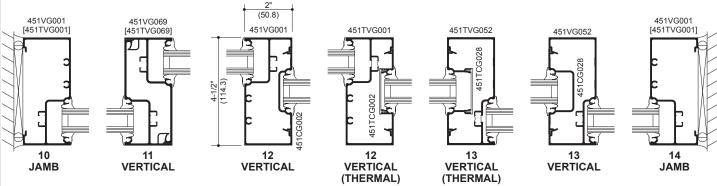
BASIC FRAMING DETAILS (MULTI-PLANE - Outside Glazed - Stops Down)

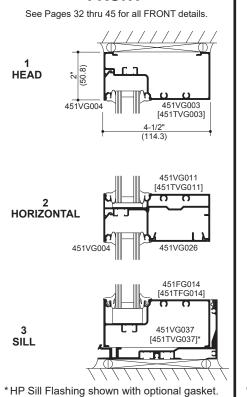
#### Additional information and CAD details are available at www.kawneer.com



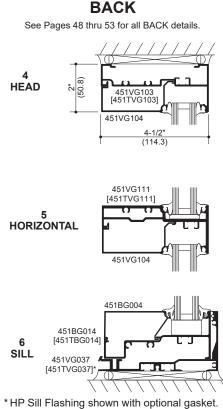


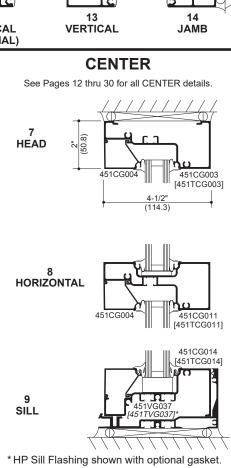
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS





FRONT



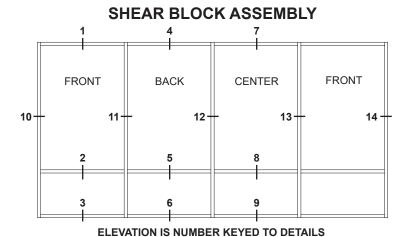


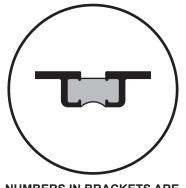


BASIC FRAMING DETAILS (MULTI-PLANE - Inside Glazed - Stops Down)

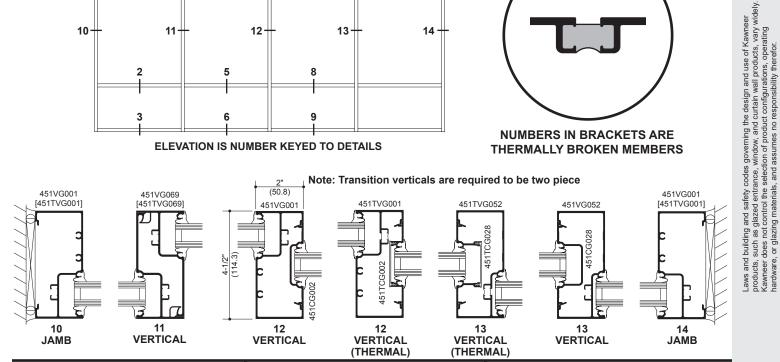
EC 97911-262

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



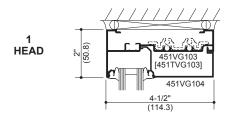


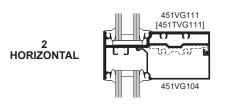
**NUMBERS IN BRACKETS ARE** THERMALLY BROKEN MEMBERS

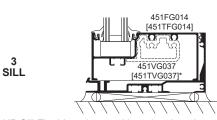




See Pages 32 thru 45 for all FRONT details.



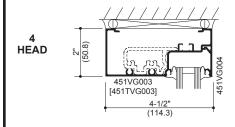


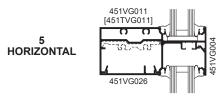


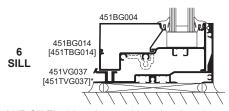
\* HP Sill Flashing shown with optional gasket.

#### **BACK**

See Pages 48 thru 53 for all BACK details.



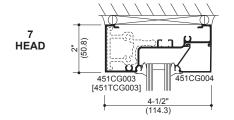


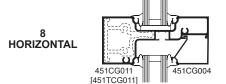


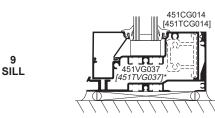
\* HP Sill Flashing shown with optional gasket.

#### CENTER

See Pages 12 thru 30 for all CENTER details.







\* HP Sill Flashing shown with optional gasket.

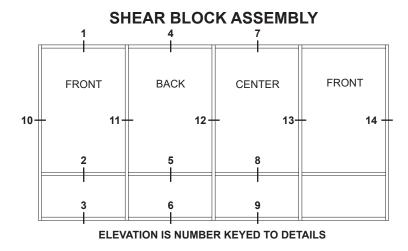
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

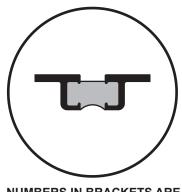
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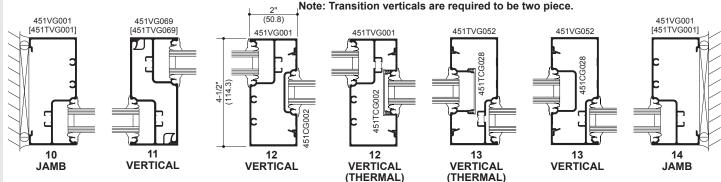
BASIC FRAMING DETAILS (MULTI-PLANE - Outside Glazed - Stops Down)

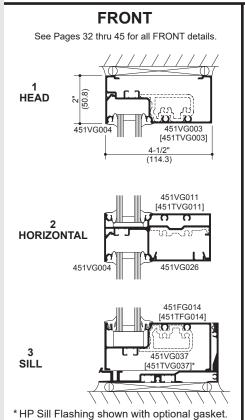
#### Additional information and CAD details are available at www.kawneer.com

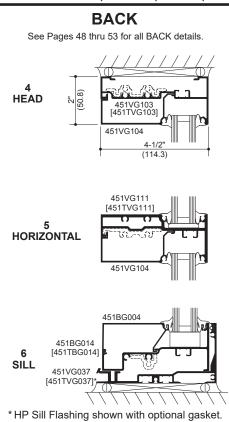


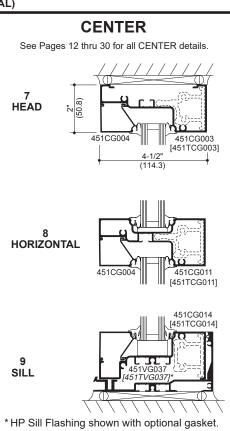


NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS





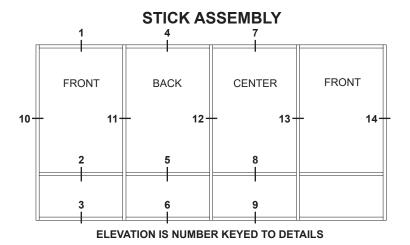


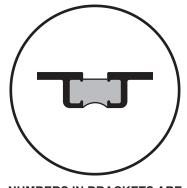




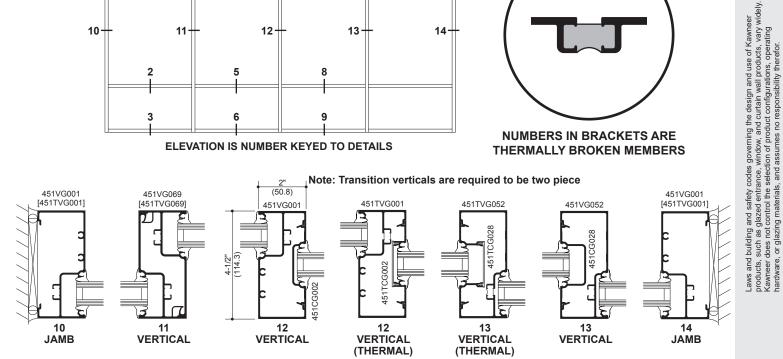
BASIC FRAMING DETAILS (MULTI-PLANE - Inside Glazed - Stops Down)

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



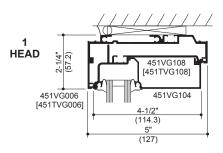


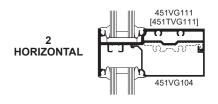
**NUMBERS IN BRACKETS ARE** THERMALLY BROKEN MEMBERS

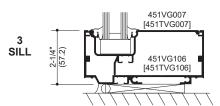




See Pages 32 thru 45 for all FRONT details.

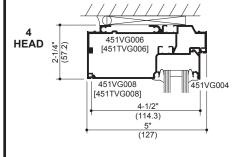


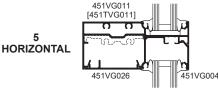


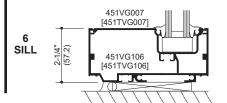


#### **BACK**

See Pages 48 thru 53 for all BACK details.

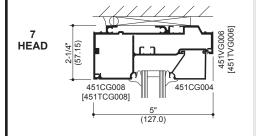


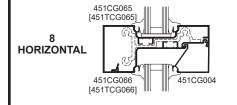


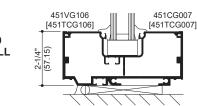


#### **CENTER**

See Pages 12 thru 30 for all CENTER details.







SILL

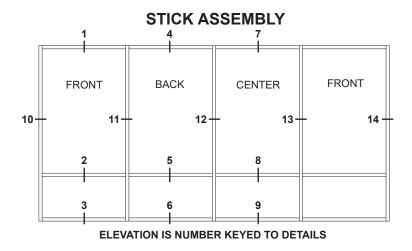
ADMC040EN

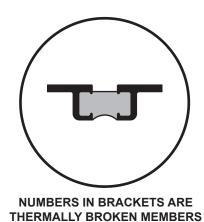
kawneer.com

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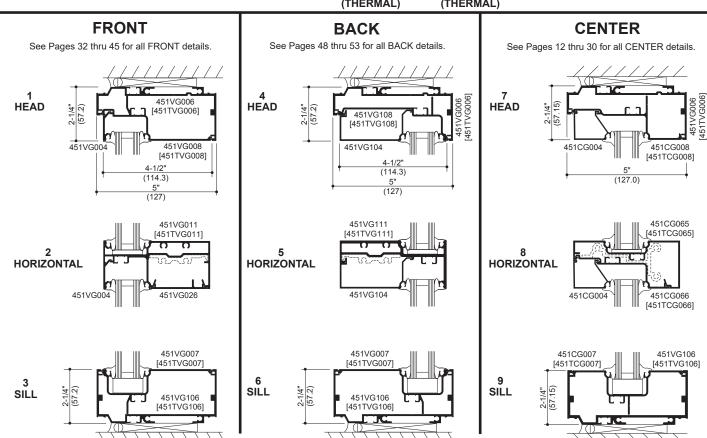
BASIC FRAMING DETAILS (MULTI-PLANE - Outside Glazed - Stops Down)

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





Note: Transition verticals are required to be two piece. (50.8) 451VG001 [451TVG001] 451VG069 [451TVG069] 451VG001 [451TVG001] 451VG00 4-1/2" (114.3) 451TCG002 10 14 11 12 12 13 13 **VERTICAL JAMB VERTICAL VERTICAL VERTICAL VERTICAL JAMB** (THERMAL) (THERMAL)



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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.

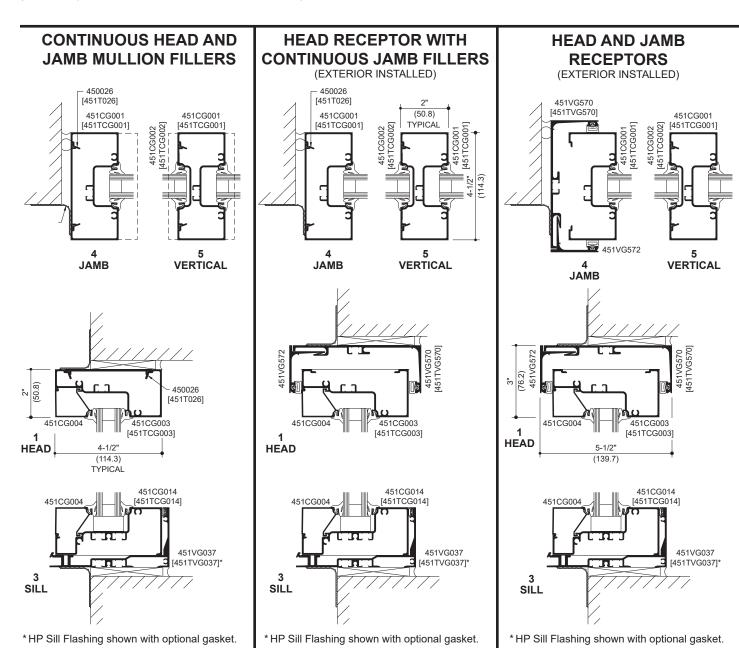
For integration of a silicone engineered transition assembly, the Trifab® storefront system must use continuous head and jamb mullion fillers, a head receptor with continuous jamb fillers or a head receptor with jamb receptors.

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.



EC 97911-262 INDEX (CHARTS)

## WIND LOAD CHARTS (CENTER) TF VG 451 (Non-Thermal)...... 65-69 TF VG 451T (Thermal)......70-74 WIND LOAD CHARTS (FRONT or BACK) TF VG 451 (Non-Thermal).......75-78 TF VG 451T (Thermal)...... 79-81 WIND LOAD CHARTS (FRONT or BACK) TF VG 451/451T (SSG Mullions) ......82 WIND LOAD CHARTS (MULTI PLANE) TF VG 451 (Non-Thermal)......83 TF VG 451T (Thermal).....84 WIND LOAD CHARTS (ENTRANCE FRAMING) TF VG 451/451T ......85-86 **DEADLOAD CHARTS** TF VG 451/451T......87-88 END REACTION CHARTS ......89 THERMAL CHARTS EXAMPLE CALCULATION......90 TF VG 451 Pre-Glazed (CENTER - Non-Thermal)......94-96 TF VG 451T Pre-Glazed (CENTER – Thermal) ...... 100-102 TF VG 451T (FRONT – Thermal) ...... 103-105 TF VG 451T (BACK - Thermal) ...... 106-108 TF VG 451T with Steel (CENTER)......109-111





## 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.

WIND LOAD / DEADLOAD CHARTS

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nd safety codes governing the design and use of Kawneer azed entrance, window, and curtain wall products, vary widely, matriol the selection of product configurations, operating materials, and assumes no responsibility therefor.

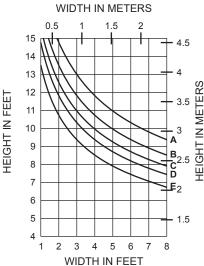


WIND LOAD CHARTS (CENTER) Non-Thermal

CHARTS

EC 97911-262

## WITH HORIZONTALS

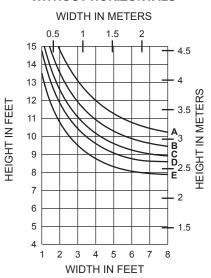


	Allowable Stress	LRFD Ultimate
	Design Load	Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

# 451CG001

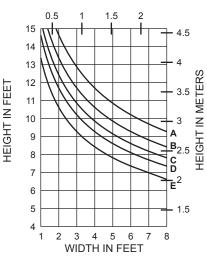
**451CG002** I = 3.237 (134.73 x 10<sup>4</sup>) S = 1.431 (23.45 x 10<sup>3</sup>)

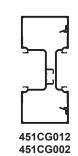
#### WITHOUT HORIZONTALS



#### WITH HORIZONTALS



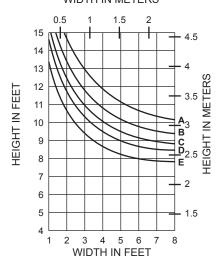




I = 3.137 (130.57 x 10<sup>4</sup>) S = 1.384 (22.68 x 10<sup>3</sup>)

#### WITHOUT HORIZONTALS

#### WIDTH IN METERS

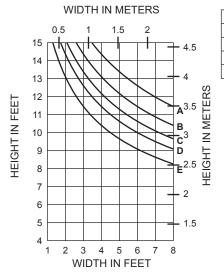


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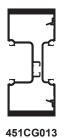
WIND LOAD CHARTS (CENTER) Non-Thermal

#### EC 97911-262

#### WITH HORIZONTALS



Load
1200)
1580)
2000)
2400)
3200)

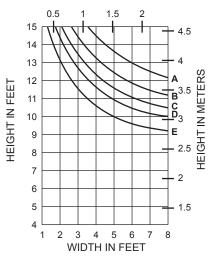


451CG002

 $I = 5.907 (245.86 \times 10^{4})$  $S = 2.615 (42.85 \times 10^3)$ 

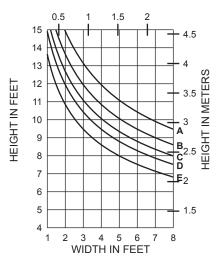
#### WITHOUT HORIZONTALS

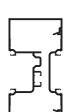




#### WITH HORIZONTALS

#### WIDTH IN METERS



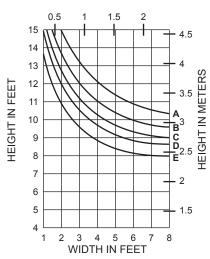


451CG112 451CG002

 $I = 3.346 (139.27 \times 10^4)$  $S = 1.474 (24.15 \times 10^3)$ 

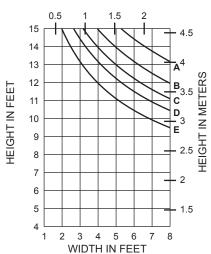
#### WITHOUT HORIZONTALS

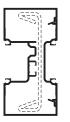
#### WIDTH IN METERS



#### WITH HORIZONTALS

#### WIDTH IN METERS





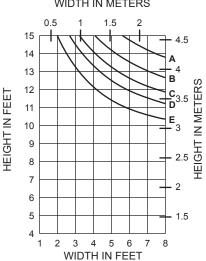
451CG112 451CG002 with 450110 STEEL

= 3.346 (139.27 x 10<sup>4</sup>)  $\hat{S}_{\Delta} = 1.474 (24.15 \times 10^3)$ 

 $I_s = 1.935 (80.54 \times 10^4)$  $S_s = 0.938 (15.37 \times 10^3)$ 

#### WITHOUT HORIZONTALS

#### WIDTH IN METERS



ADMC040EN

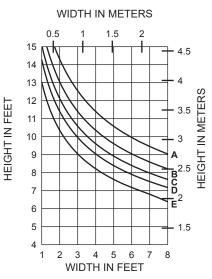
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WIND LOAD CHARTS (CENTER) Non-Thermal

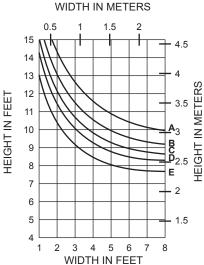
#### WITH HORIZONTALS



	Allowable Stress	LRFD Ultimate
	Design Load	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)

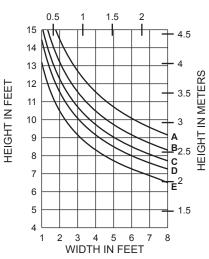
451CG005  $I = 2.907 (120.99 \times 10^4)$  $S = 1.292 (21.17 \times 10^3)$ 

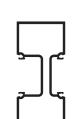
## WITHOUT HORIZONTALS



#### WITH HORIZONTALS

WIDTH IN METERS

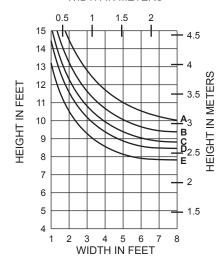




451CG005A I = 3.016 (125.53 x 104)  $S = 1.340 (21.96 \times 10^3)$ 

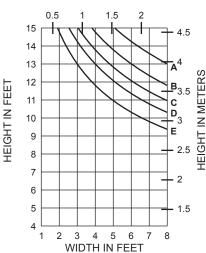
#### WITHOUT HORIZONTALS

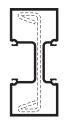
WIDTH IN METERS



#### WITH HORIZONTALS

WIDTH IN METERS



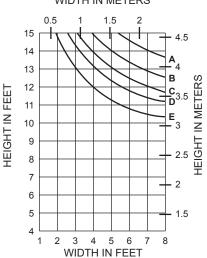


451CG005A with 450110 STEEL

 $I_A = 3.016 (125.53 \times 10^4)$   $S_A = 1.340 (21.96 \times 10^3)$  $I_s = 1.935 (80.54 \times 10^4)$  $S_s = 0.938 (15.37 \times 10^3)$ 

#### WITHOUT HORIZONTALS



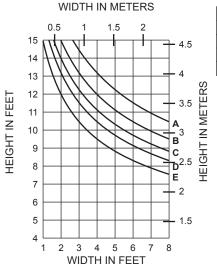




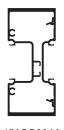
WIND LOAD CHARTS (CENTER) Non-Thermal

EC 97911-262

#### WITH HORIZONTALS



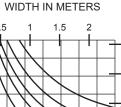
Allowable Stress	LRFD Ultimate
Design Load	Design Load
15 PSF (720)	25 PSF (1200)
20 PSF (960)	33 PSF (1580)
25 PSF (1200)	42 PSF (2000)
30 PSF (1440)	50 PSF (2400)
40 PSF (1920)	67 PSF (3200)
	Design Load 15 PSF (720) 20 PSF (960) 25 PSF (1200) 30 PSF (1440)

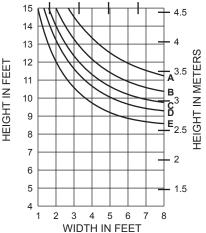


451CG001A 451CG002

 $I = 4.507 (187.59 \times 10^4)$  $S = 1.993 (32.66 \times 10^3)$ 

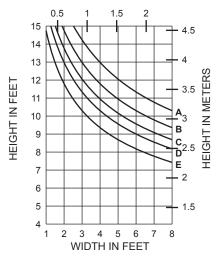
#### WITHOUT HORIZONTALS





#### WITH HORIZONTALS





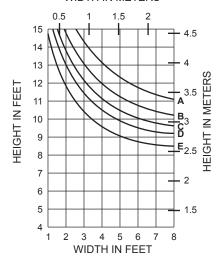


451CG010 451CG540

 $I = 4.301 (179.02 \times 10^4)$  $S = 1.886 (30.91 \times 10^3)$ 

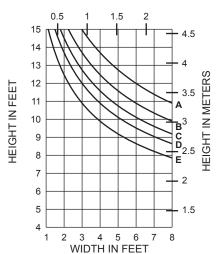
#### WITHOUT HORIZONTALS

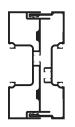
#### WIDTH IN METERS



#### WITH HORIZONTALS

WIDTH IN METERS



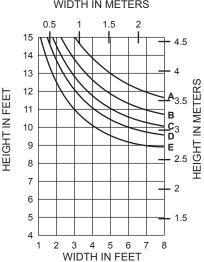


451CG010A 451CG540

 $I = 5.083 (211.57 \times 10^4)$  $S = 2.259 (37.02 \times 10^3)$ 

#### WITHOUT HORIZONTALS

#### WIDTH IN METERS



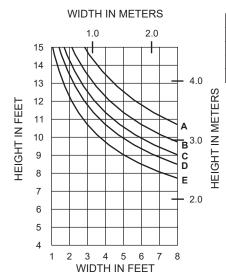
ADMC040EN

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WIND LOAD CHARTS (CENTER) Non-Thermal

#### WITH HORIZONTALS

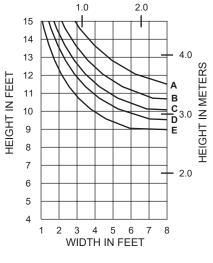


	Allowable Stress	LRFD Ultimate
	Design Load	Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

451CG081 / 451CG082

 $I = 4.829 (201.00 \times 10^4)$  $S = 2.146 (35.17 \times 10^3)$ 

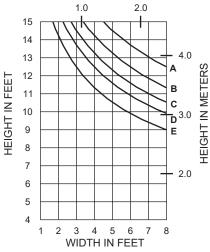
#### WITHOUT HORIZONTALS

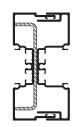


WITHOUT HORIZONTALS WIDTH IN METERS

	WIDTH IN M	ETERS
	1.0	2.0
15	AAAA	$\Box^{\dagger}$

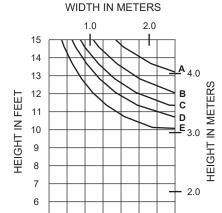
WITH HORIZONTALS





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



3 4 5

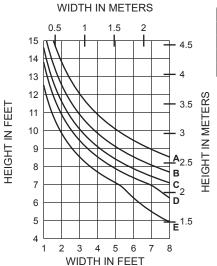
WIDTH IN FEET

5

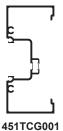


## WITH HORIZONTALS

WIND LOAD CHARTS (CENTER) Thermal

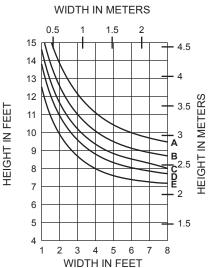


Allowable Stress	LRFD Ultimate
Design Load	Design Load
15 PSF (720)	25 PSF (1200)
20 PSF (960)	33 PSF (1580)
25 PSF (1200)	42 PSF (2000)
30 PSF (1440)	50 PSF (2400)
40 PSF (1920)	67 PSF (3200)
	Design Load 15 PSF (720) 20 PSF (960) 25 PSF (1200) 30 PSF (1440)



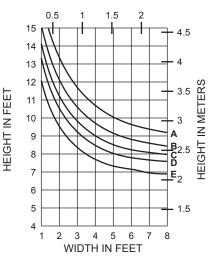
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

#### WITHOUT HORIZONTALS

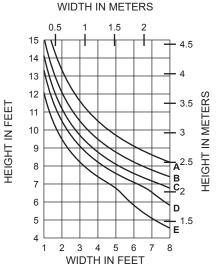


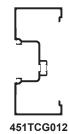
#### WITHOUT HORIZONTALS





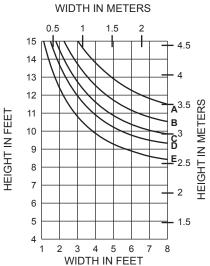
#### WITH HORIZONTALS



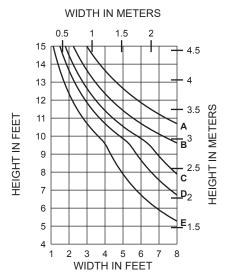


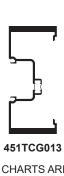
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

#### WITHOUT HORIZONTALS



#### WITH HORIZONTALS





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

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fiety codes governing the design and use of Kawneer entrance, window, and curtain well products, vary widely, if the selection of product configurations, operating rails, and assumes no responsibility therefor.

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WIND LOAD CHARTS (CENTER) Thermal

HEIGHT IN FEET

HEIGHT IN FEET

EC 97911-262

codes governing the design and use of Kawneer arnce, window, and curtain well products, vary widely, selection of product configurations, operating s, and assumes no responsibility therefor.

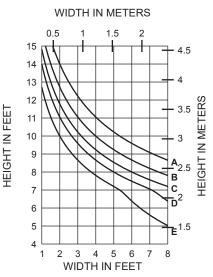
Laws and building and safety codes products, such as glazed entrance, Kawneer does not control the select hardware, or glazing materials, and

Kawneer reserves the right to change configuration without prior necessary for product improvement.

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**JEIGHT IN FEET** 

#### WITH HORIZONTALS



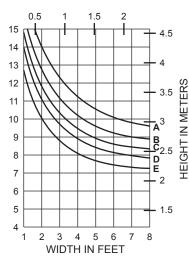
	Allowable Stress	LRFD Ultimate
	Design Load	Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

Trifab® VersaGlaze® 451T Framing System

451TCG112

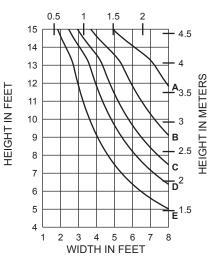
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

### WITHOUT HORIZONTALS WIDTH IN METERS



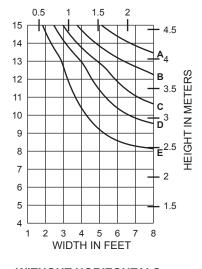
#### WITH HORIZONTALS

WIDTH IN METERS

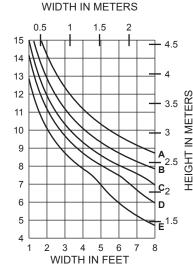


#### WITHOUT HORIZONTALS

WIDTH IN METERS



#### WITH HORIZONTALS

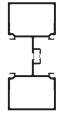


WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

451TCG112

with 450110 STEEL

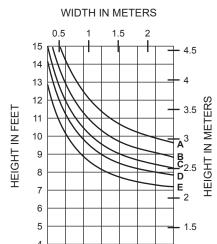




451TCG005

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

#### WITHOUT HORIZONTALS



4

WIDTH IN FEET

5 6

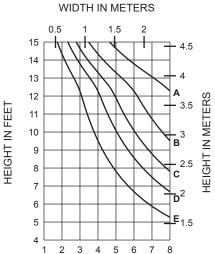
2

3

KAWNEER

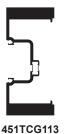
7

#### WITH HORIZONTALS



WIDTH IN FEET

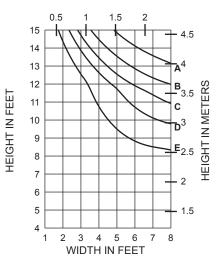
	Allowable Stress	LRFD Ultimate
	Design Load	Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



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

#### WITHOUT HORIZONTALS

WIDTH IN METERS



Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and cutrain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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WIND LOAD CHARTS (CENTER) Thermal

HEIGHT IN FEET

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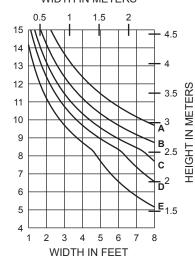
**HEIGHT IN FEET** 

EC 97911-262

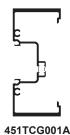
**HEIGHT IN FEET** 

HEIGHT IN FEET

# WITH HORIZONTALS WIDTH IN METERS

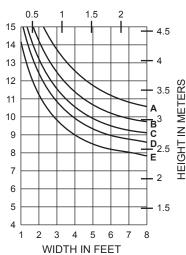


	Allowable Stress	LRFD Ultimate
	Design Load	Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

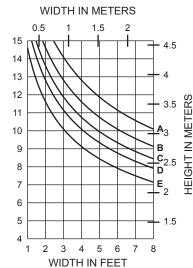


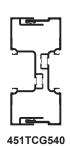
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

WITHOUT HORIZONTALS WIDTH IN METERS



# WITH HORIZONTALS

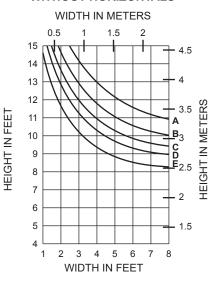




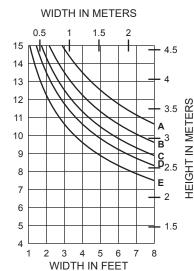
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

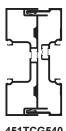
451TCG010

WITHOUT HORIZONTALS



# WITH HORIZONTALS

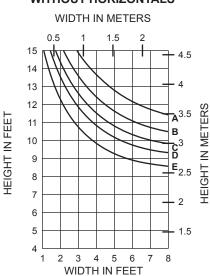




451TCG540 451TCG010A

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

# WITHOUT HORIZONTALS





HEIGHT IN METERS

В

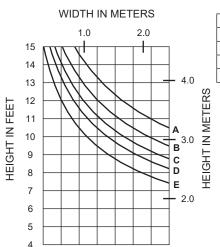
С

D

**E** 3.0

2.0

# WIND LOAD CHARTS (CENTER) Thermal



WITH HORIZONTALS

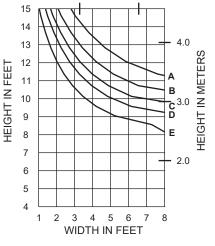
	Allowable Stress	LRFD Ultimate
	Design Load	Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

451TCG081 / 451TCG082

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

# WITHOUT HORIZONTALS

WIDTH IN METERS



WITHOUT HORIZONTALS

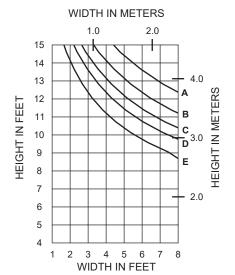
WIDTH IN METERS

				1.0			2.0	
	15	$\Box$		$\vdash$			$\vdash$	ĺ
	14	<b>—</b> `	$\overline{}$	<del>/</del>				
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HEIGHT IN FEET	8							
_	7							
	6							
	5							
	4							
		1 2					5 7	
			٧V	IDT	H II	۱ FE	:E1	

# WITH HORIZONTALS

WIDTH IN FEET

3 4 5 6





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

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0.5

WIND LOAD CHARTS (FRONT/BACK) Non-Thermal

15

14

13

12

11 10

9

8

7 6

5

4

HEIGHT IN FEET

EC 97911-262

# WITH HORIZONTALS Allowable Stress **LRFD Ultimate Design Load Design Load** WIDTH IN METERS A = 15 PSF (720) 25 PSF (1200) 1.5 B = 20 PSF (960) 33 PSF (1580) C = 25 PSF (1200) 42 PSF (2000) 4.5 50 PSF (2400) D= 30 PSF (1440) 67 PSF (3200) E =

HEIGHT IN METERS

3

C,



40 PSF (1920)

 $I = 3.346 (139.27 \times 10^4)$  $S = 1.447 (23.71 \times 10^3)$ 

0.5 1.5 15 - 45 14 13 12 HEIGHT IN METERS HEIGHT IN FEET 11 10 9 g 8 6 5

WITHOUT HORIZONTALS

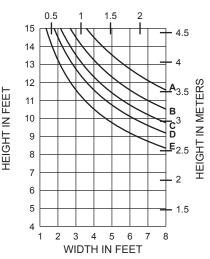
WIDTH IN METERS

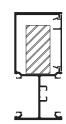
# WITH HORIZONTALS

WIDTH IN FEET

3 4 5 6

WIDTH IN METERS





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

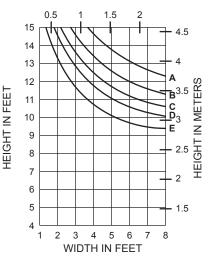
 $I_A = 3.346 (139.27 \times 10^4)$   $S_A = 1.447 (23.71 \times 10^3)$  $I_s = 0.949 (39.50 \times 10^4)$  $S_s = 0.844 (13.83 \times 10^3)$ 

WITHOUT HORIZONTALS

WIDTH IN FEET

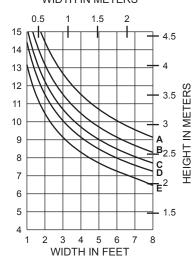
3 4 5 6

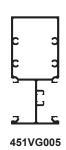




# WITH HORIZONTALS

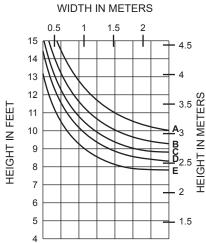
WIDTH IN METERS

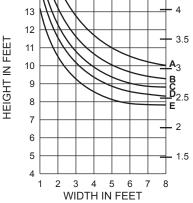




 $I = 3.001 (124.91 \times 10^4)$  $S = 1.323 (21.68 \times 10^3)$ 

# WITHOUT HORIZONTALS





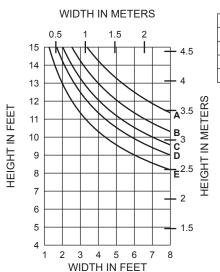


HEIGHT IN FEET

WIND LOAD CHARTS (FRONT/BACK) Non-Thermal

# EC 97911-262

# WITH HORIZONTALS



	Allowable Stress	LRFD Ultimate
	Design Load	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)

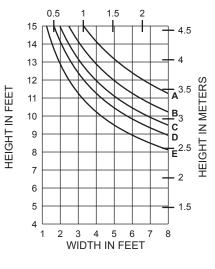
451VG005 with 1" x 2-1/4" STEEL BAR

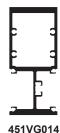
$I_A = 3.001 (124.91 \times 10^4)$ $S_A = 1.323 (21.68 \times 10^3)$
$I_s = 0.949 (39.50 \times 10^4)$ $S_0 = 0.844 (13.83 \times 10^3)$



# WITH HORIZONTALS

WIDTH IN METERS

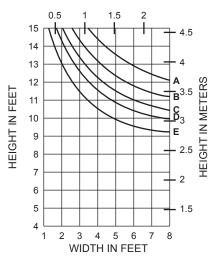




 $I = 5.604 (233.25 \times 10^4)$  $S = 2.397 (39.28 \times 10^3)$ 

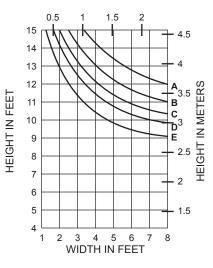
# WITHOUT HORIZONTALS

WIDTH IN METERS



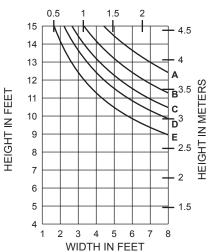
# WITHOUT HORIZONTALS

WIDTH IN METERS



# WITH HORIZONTALS

WIDTH IN METERS





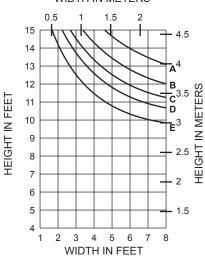
451VG014 with 1" x 2" STEEL BAR

 $I = 5.604 (233.25 \times 10^4)$  $S = 2.397 (39.28 \times 10^3)$ 

 $I_s = 0.667 (27.26 \times 10^4)$  $S_s = 0.667 (10.93 \times 10^3)$ 

# WITHOUT HORIZONTALS

WIDTH IN METERS



ADMC040EN

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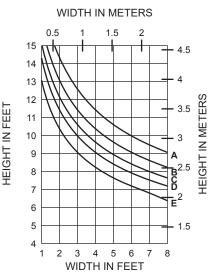
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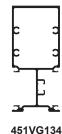
HEIGHT IN FEET

WIND LOAD CHARTS (FRONT/BACK) Non-Thermal EC 97911-262

# WITH HORIZONTALS

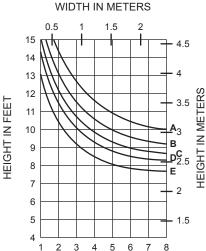


Allowable Stress	LRFD Ultimate
Design Load	Design Load
15 PSF (720)	25 PSF (1200)
20 PSF (960)	33 PSF (1580)
25 PSF (1200)	42 PSF (2000)
30 PSF (1440)	50 PSF (2400)
40 PSF (1920)	67 PSF (3200)
	Design Load 15 PSF (720) 20 PSF (960) 25 PSF (1200) 30 PSF (1440)



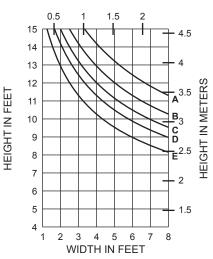
 $I = 2.930 (121.96 \times 10^{4})$  $S = 1.290 (21.13 \times 10^3)$ 

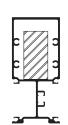
# WITHOUT HORIZONTALS



# WITH HORIZONTALS

WIDTH IN METERS



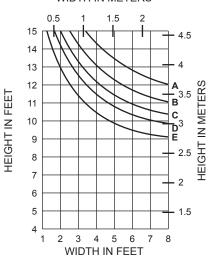


451VG134 with 1" x 2-1/4" STEEL BAR

 $= 2.930 (121.96 \times 10^{4})$  $I_A = 2.930 \text{ (121.00 \times 1.00)}$   $S_A = 1.290 \text{ (21.13 \times 10^3)}$  $I_s = 0.949 (39.50 \times 10^4)$  $S_s = 0.844 (13.83 \times 10^3)$ 

# WIDTH IN FEET WITHOUT HORIZONTALS

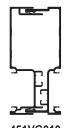
WIDTH IN METERS



# WITH HORIZONTALS

WIDTH IN METERS 15 13 12 IN METERS 11 10 9 HEIGHT 8 Е 7 2 6 5 2 3 4 5 6 7

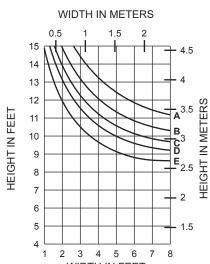
WIDTH IN FEET

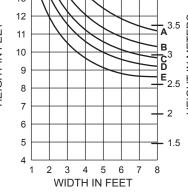


451VG010 451VG540

I = 4.418 (183.89 x 10<sup>4</sup>)  $S = 1.798 (29.46 \times 10^3)$ 

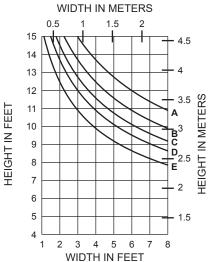
# WITHOUT HORIZONTALS



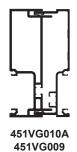




# WITH HORIZONTALS

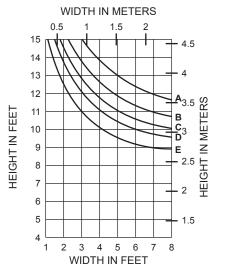


	Allowable Stress	LRFD Ultimate
	Design Load	Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D=	30 PSF (1440)	50 PSF (2400)
E=	40 PSF (1920)	67 PSF (3200)



I = 5.076 (211.27 x 10<sup>4</sup>) S = 2.066 (33.86 x 10<sup>3</sup>)

# WITHOUT HORIZONTALS



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15

13 12

11

10

8

7

6

5

HEIGHT IN FEET

WIND LOAD CHARTS (FRONT/BACK) Thermal

HEIGHT IN FEET

HEIGHT IN FEET

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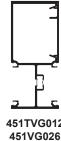
EC 97911-262

Allowable Stress LRFD Ultimate WITH HORIZONTALS **Design Load Design Load** WIDTH IN METERS A = 15 PSF (720) 25 PSF (1200) 1.5 B = 20 PSF (960) 33 PSF (1580) C = 42 PSF (2000) 25 PSF (1200) D = 30 PSF (1440) 50 PSF (2400) E = 40 PSF (1920) 67 PSF (3200)

HEIGHT IN METERS

CD

2



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

451TVG012

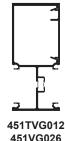
451VG026

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



# 0.5 1.5 15 14 13 12 HEIGHT IN METERS 11 10 В С Р<sub>2.5</sub> 8 Ε 7 2 6 5 1.5

WITHOUT HORIZONTALS

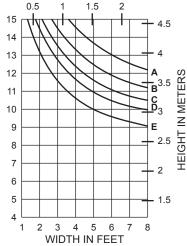
WIDTH IN METERS

# WITHOUT HORIZONTALS

WIDTH IN FEET

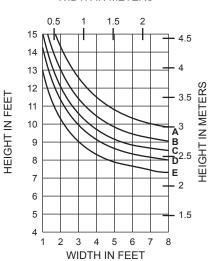
3 4 5 6

WIDTH IN METERS



# WITHOUT HORIZONTALS

WIDTH IN METERS

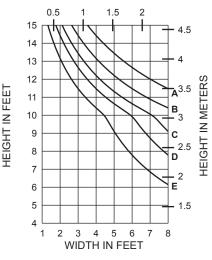


KAWNEER

# WIDTH IN FEET WITH HORIZONTALS

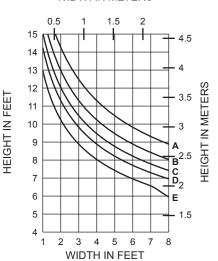
3 4 5 6 7

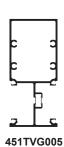
WIDTH IN METERS



# WITH HORIZONTALS

WIDTH IN METERS





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

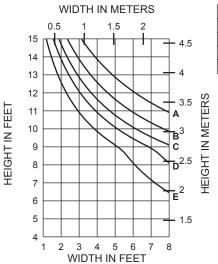
# ADMC040EN

# PRCTI20221793

WIND LOAD CHARTS (FRONT/BACK) Thermal

# EC 97911-262

WITH HORIZONTALS

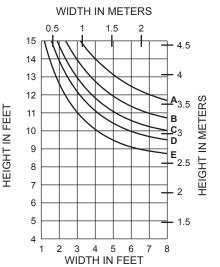


	Allowable Stress	LRFD Ultimate
	Design Load	Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



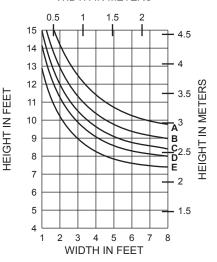
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

# WITHOUT HORIZONTALS



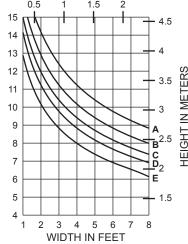
# WITHOUT HORIZONTALS



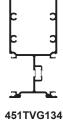


# WITH HORIZONTALS



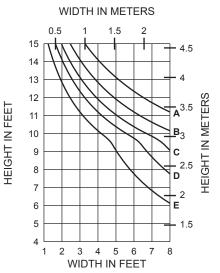


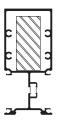
HEIGHT IN FEET



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

# WITH HORIZONTALS

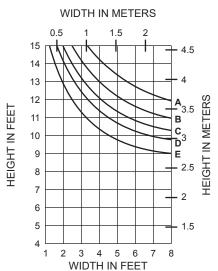




451TVG134 with 1" x 2-1/4" STEEL BAR

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

# WITHOUT HORIZONTALS



ADMC040EN

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HEIGHT IN METERS

3.5

**B**<sub>3</sub>

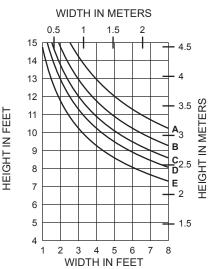
2

B

# EC 97911-262

# WIND LOAD CHARTS (FRONT/BACK) Thermal

# WITH HORIZONTALS



	Allowable Stress	LRFD Ultimate
	Design Load	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)

451TVG010

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

451TVG540

# WIDTH IN FEET WITHOUT HORIZONTALS

3 4 5

WITHOUT HORIZONTALS

WIDTH IN METERS

15

14

13

12

11

10

8

7

6

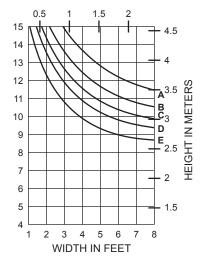
5

HEIGHT IN FEET

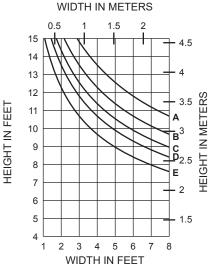
HEIGHT IN FEET

1.5





# WITH HORIZONTALS

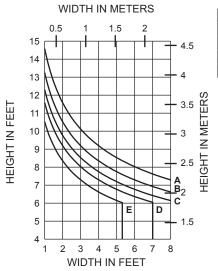




WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

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# WITH HORIZONTALS

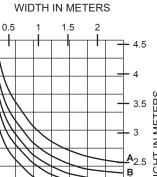


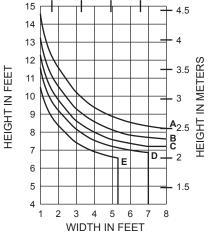
Allowable Stress	LRFD Ultimate
Design Load	Design Load
15 PSF (720)	25 PSF (1200)
20 PSF (960)	33 PSF (1580)
25 PSF (1200)	42 PSF (2000)
30 PSF (1440)	50 PSF (2400)
40 PSF (1920)	67 PSF (3200)
	Design Load 15 PSF (720) 20 PSF (960) 25 PSF (1200) 30 PSF (1440)

# 451SSG005

 $I = 1.527 (63.55 \times 10^4)$  $S = 1.057 (17.32 \times 10^3)$ 

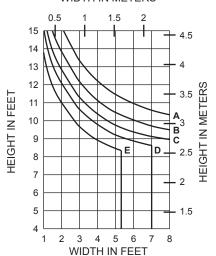
# WITHOUT HORIZONTALS





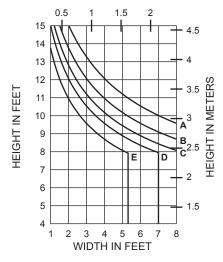
# WITHOUT HORIZONTALS

# WIDTH IN METERS



# WITH HORIZONTALS







# 451SSG005 with 1" x 2" STEEL BAR

 $I_{\Lambda} = 1.527 (63.55 \times 10^{4})$  $S_A = 1.057 (17.32 \times 10^3)$  $I_s = 0.667 (27.76 \times 10^4)$  $S_s = 0.667 (10.93 \times 10^3)$ 



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Laws and building and safety codes governing the design and use of Kawneer products, such as glazade antrannee, window, and ourfain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

# Trifab® VersaGlaze® 451 Framing System

EC 97911-262

HEIGHT IN FEET

5

WIND LOAD CHARTS (MULTI-PLANE) Non-Thermal

codes governing the design and use of Kawneer mere, window, and curtain well products, vary widely, selection of product configurations, operating s, and assumes no responsibility therefor. Laws and building and safety codes products, such as glazed entrance, Kawneer does not control the select hardware, or glazing materials, and

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

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**JEIGHT IN FEET** 

# WITH HORIZONTALS WIDTH IN METERS 0.5 1.5 15 14 13 12 HEIGHT IN METERS 11 10 В 8 Š 7 6

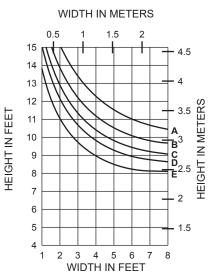
# Allowable Stress **LRFD Ultimate Design Load Design Load** A = 15 PSF (720) 25 PSF (1200) B = 20 PSF (960) 33 PSF (1580) C = 25 PSF (1200) 42 PSF (2000) D = 30 PSF (1440) 50 PSF (2400) E = 40 PSF (1920) 67 PSF (3200)

# 451VG001

 $I = 3.485 (145.05 \times 10^4)$  $S = 1.468 (24.06 \times 10^3)$ 

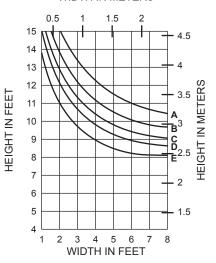
451CG002

WITHOUT HORIZONTALS



# WITHOUT HORIZONTALS

WIDTH IN METERS

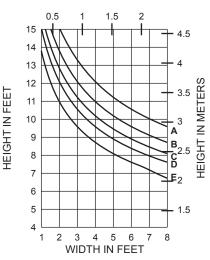


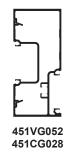
# WITH HORIZONTALS

WIDTH IN FEET

3 4 5 6

WIDTH IN METERS



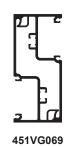


 $I = 3.470 (144.43 \times 10^{4})$  $S = 1.431 (23.45 \times 10^3)$ 

# WITH HORIZONTALS

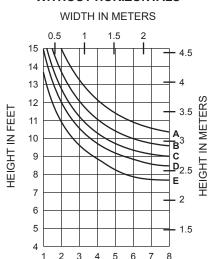
WIDTH IN METERS 0.5 15 14 13 **GHT IN METERS** 12 3.5 11 10 9 В, 8 С 里 7 **D**<sub>2</sub> 6 Ε 3 4 5 6

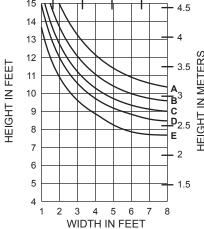
WIDTH IN FEET



451VG069  $I = 3.362 (139.94 \times 10^4)$  $S = 1.181 (19.35 \times 10^3)$ 

# WITHOUT HORIZONTALS

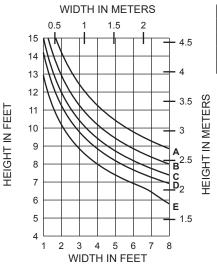






WIND LOAD CHARTS (MULTI-PLANE) Thermal

# WITH HORIZONTALS

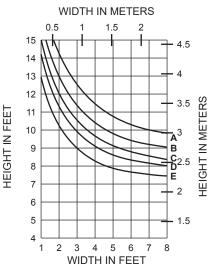


Allowable Stress	LRFD Ultimate
Design Load	Design Load
15 PSF (720)	25 PSF (1200)
20 PSF (960)	33 PSF (1580)
25 PSF (1200)	42 PSF (2000)
30 PSF (1440)	50 PSF (2400)
40 PSF (1920)	67 PSF (3200)
	Design Load 15 PSF (720) 20 PSF (960) 25 PSF (1200) 30 PSF (1440)

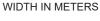


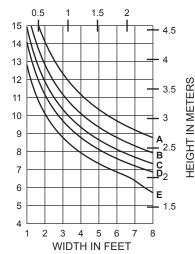
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

# WITHOUT HORIZONTALS

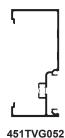


# WITH HORIZONTALS





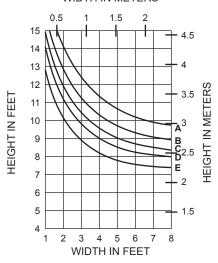
HEIGHT IN FEET



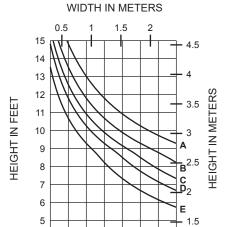
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505

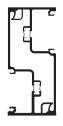
# WITHOUT HORIZONTALS

# WIDTH IN METERS



# WITH HORIZONTALS



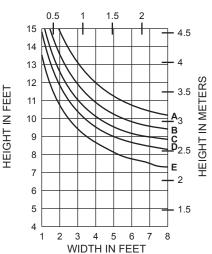


451TVG069 451TVG069

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

# WITHOUT HORIZONTALS

# WIDTH IN METERS



4 5 6

WIDTH IN FEET

ADMC040EN

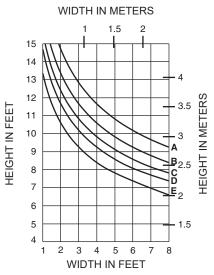
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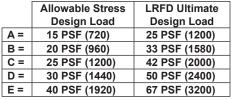
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and cutrain wall products, vary widely, Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

WIND LOAD CHARTS (ENTRANCES) Non-Thermal

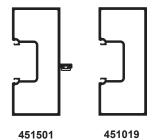
EC 97911-262

# WITH HORIZONTALS



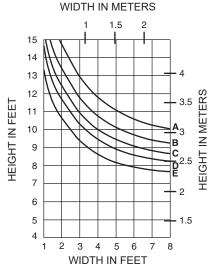


Trifab® VersaGlaze® 451/451T Framing System

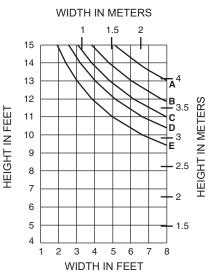


I = 3.116 (129.7 x 10<sup>4</sup>) S = 1.385 (22.7 x 10<sup>3</sup>)

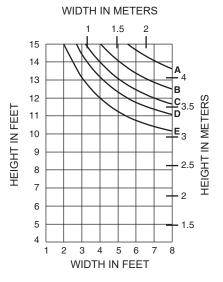
# WITHOUT HORIZONTALS



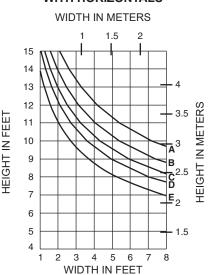
# WITH HORIZONTALS

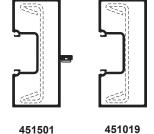


# WITHOUT HORIZONTALS



# WITH HORIZONTALS

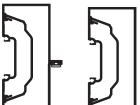




 $I_A = 3.116 (129.70 \times 10^4)$  $S_A = 1.385 (22.70 \times 10^3)$ 

with 450110 STEEL

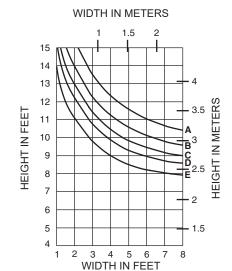
I<sub>s</sub> = 1.935 (80.54 x 10<sup>4</sup>) S<sub>s</sub> = 0.938 (15.37 x 10<sup>3</sup>)



451599 4510 451CG002 451CC

 $I = 3.586 (149.26 \times 10^4)$  $S = 1.594 (26.12 \times 10^3)$ 

# WITHOUT HORIZONTALS



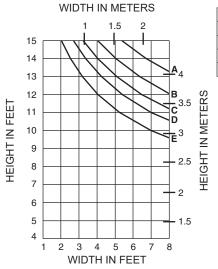
4515 451CG

451064 451CG002

codes governing the design and use of Kawneer arnce, window, and curtain well products, vary widely, selection of product configurations, operating s, and assumes no responsibility therefor.

d building and safety codes of such as glazed entrance, we does not control the selection

# WITH HORIZONTALS



	Allowable Stress	LRFD Ultimate
	Design Load	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)

# 451599

451CG002

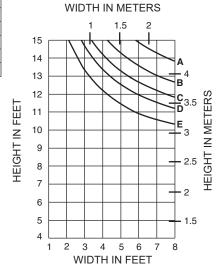
451064 451CG002

with 450110 STEEL

 $I = 3.565 (148.39 \times 10^4)$  $S = 1.622 (26.58 \times 10^3)$ 

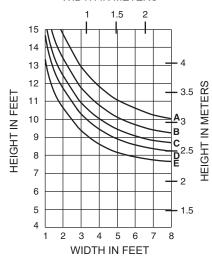
 $I_s = 1.935 (80.54 \times 10^4)$  $S_s = 0.938 (15.37 \times 10^3)$ 

# WITHOUT HORIZONTALS

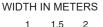


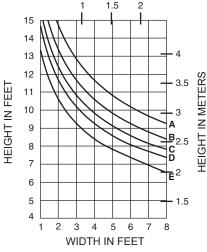
# WITHOUT HORIZONTALS

WIDTH IN METERS



# WITH HORIZONTALS



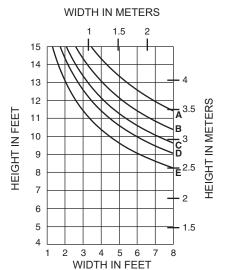


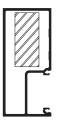


451VG019

 $I = 3.124 (130.03 \times 10^4)$  $S = 1.333 (21.84 \times 10^3)$ 

# WITH HORIZONTALS





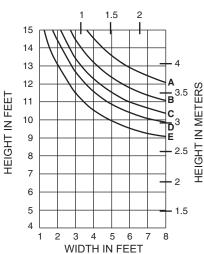
451VG019 with 1" x 2-1/4" STEEL BAR

 $I_{\Lambda} = 3.124 (130.03 \times 10^{4})$  $S_{\Delta} = 1.333 (21.84 \times 10^3)$ 

 $I_s = 0.949 (39.50 \times 10^4)$  $S_s = 0.844 (13.83 \times 10^3)$ 

# WITHOUT HORIZONTALS





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87

EC 97911-262

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**DEADLOAD CHARTS** 

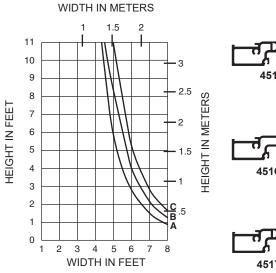
Horizontal or deadload limitations are based upon 1/8" (3.2) maximum allowable deflection at the center of an intermediate horizontal member. The accompanying charts are calculated for 1" (25.4) thick insulating glass supported on two setting blocks at the loading points shown.

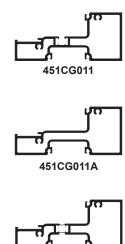
NOTE: Charts are for THERMAL and NON-THERMAL members.

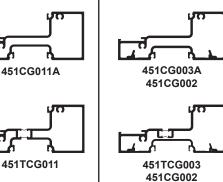
A = (1/4 POINT LOADING)

B = (1/6 POINT LOADING)

C = (1/8 POINT LOADING)

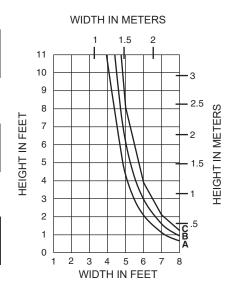


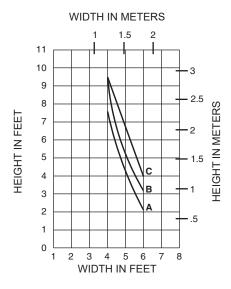


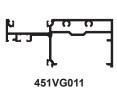


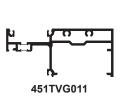
451CG003

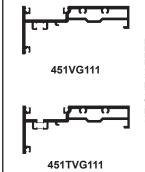
451CG002

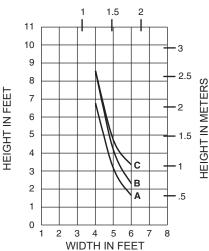












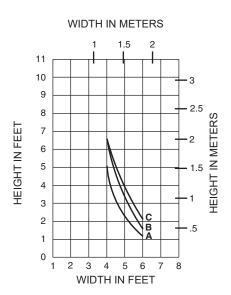
WIDTH IN METERS



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.

**DEADLOAD CHARTS** 

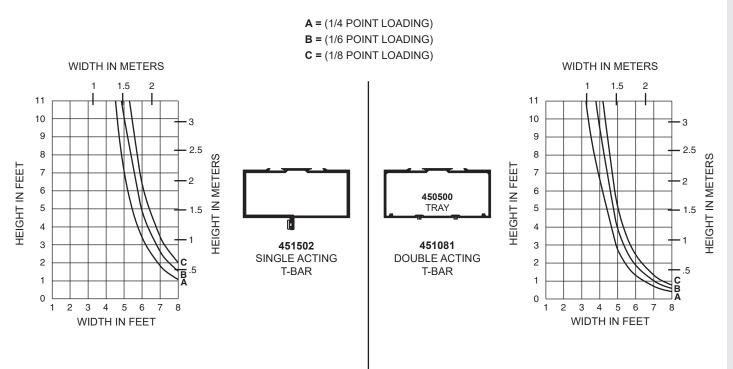


A = (1/4 POINT LOADING) B = (1/6 POINT LOADING) C = (1/8 POINT LOADING)





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.



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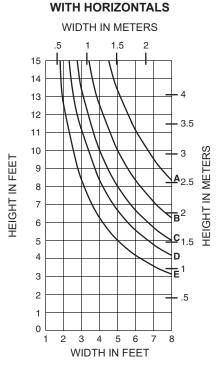
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**END REACTION CHARTS** 

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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.

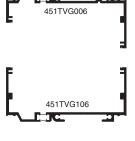


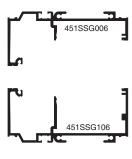


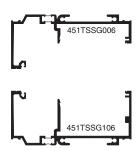
A = 15 PSF (720 Pa) B = 20 PSF (960 Pa) C = 25 PSF (1200 Pa) D = 30 PSF (1440 Pa) E = 40 PSF (1920 Pa)

Trifab® VersaGlaze® 451/451T Framing System



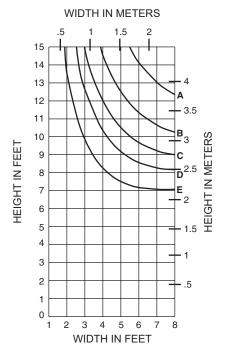






500lbs. Max. End Reaction

# WITHOUT HORIZONTALS

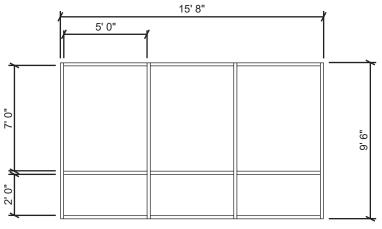




THERMAL CHARTS

EC 97911-262

**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·ft<sup>2</sup>.°F

Total Daylight Opening =  $3(5' \times 7') + 3(5' \times 2') = 135ft^2$ 

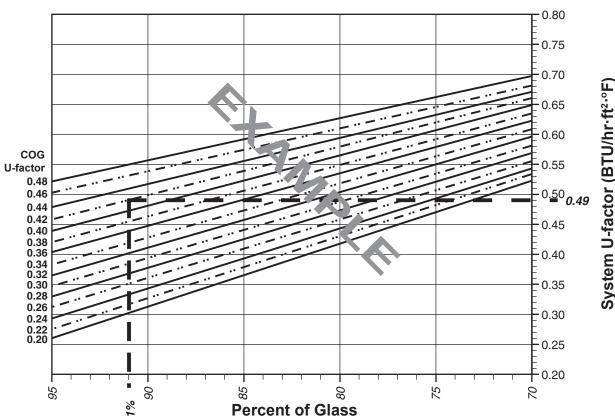
= (Total Daylight Opening + Total Area of Framing System) Total Projected Area

= 15' 8" x 9' 6" = 148.83ft<sup>2</sup>

Percent of Glass = (Total Daylight Opening ÷ Total Projected Area)

 $= (135 \div 148.83)100 = 91\%$ 

# **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

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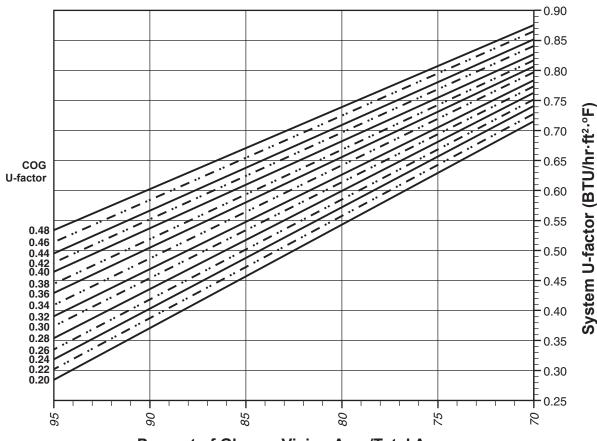
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THERMAL CHARTS

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

# **System U-factor vs Percent of Glass Area**



# Percent of Glass = Vision Area/Total Area (Total Daylight Opening / Projected 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.

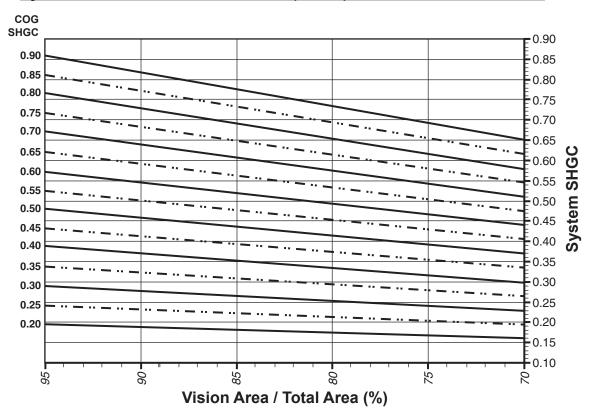


THERMAL CHARTS

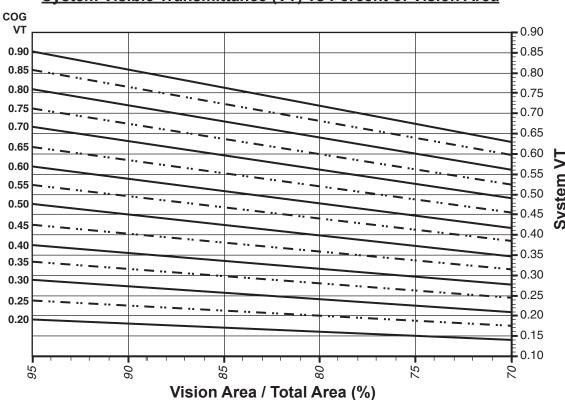
EC 97911-262

# 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





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

Glass U-Factor <sup>3</sup>	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

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

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

THERMAL PERFORMANCE MATRIX

- 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 <sup>2</sup>

Overall SHGC <sup>4</sup>
0.80
0.76
0.71
0.67
0.63
0.58
0.64
0.49
0.45
0.41
0.36
0.32
0.27
0.23
0.18

# Visible Transmittance <sup>2</sup>

Glass VT <sup>3</sup>	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



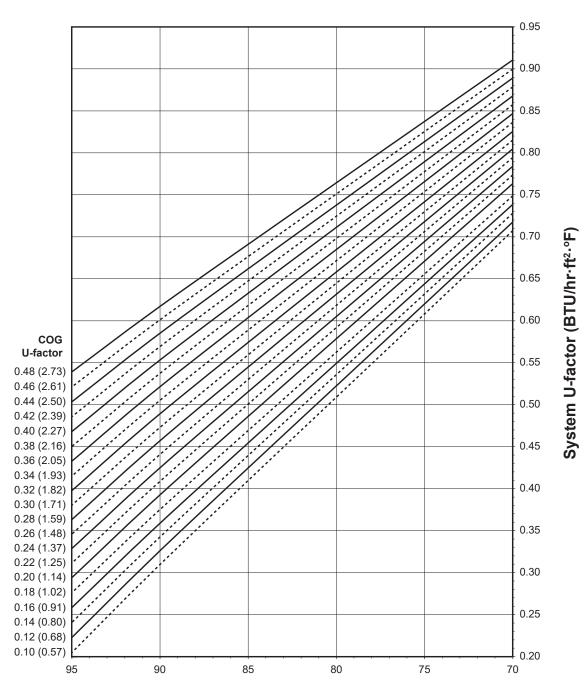
# ouliding and safety codes governing the design and use of Kawneer uch as glazed entrance, window, and curtain wall products, vary widely, ose not control the selection of product configurations, operating the design of product configurations, operating the design of preventing the selection of the selection of

# Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

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

# **System U-factor vs Percent of Glass Area**



Percent of Glass = Vision Area/Total Area (Total Daylight Opening / Projected Area)

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

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

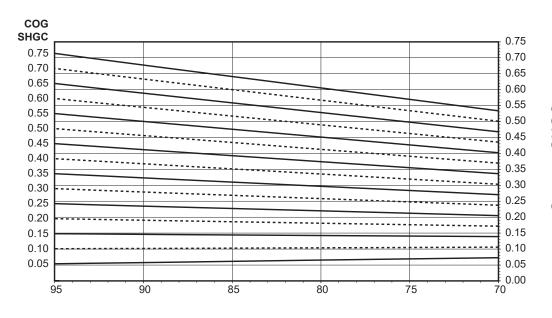
Glass properties are based on center of glass values and are obtained from your glass supplier.

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THERMAL CHARTS

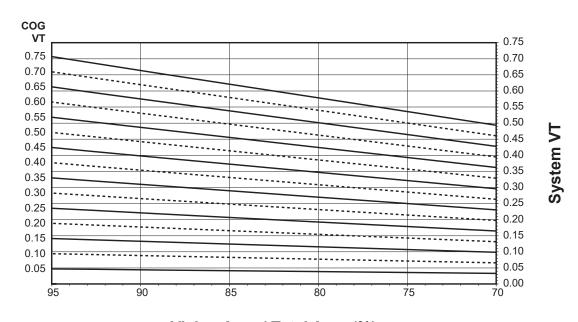
# Trifab® VersaGlaze® 451 Pre-Glazed (CENTER – Non-Thermal)

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



# Vision Area / Total Area (%)

# System Visible Transmittance (VT) vs Percent of Vision Area







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THERMAL PERFORMANCE MATRIX

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

96

Thermal transmittance (B10/III It 1)	
Glass U-Factor <sup>3</sup>	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

# Trifab<sup>®</sup> VersaGlaze<sup>®</sup> 451 Pre-Glazed (CENTER – Non-Thermal)

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

- 1. U-Factors are determined in accordance with NFRC 100.
- 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 <sup>2</sup>

Glass SHGC <sup>3</sup>	Overall SHGC <sup>4</sup>
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** <sup>2</sup>

Glass VT <sup>3</sup>	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



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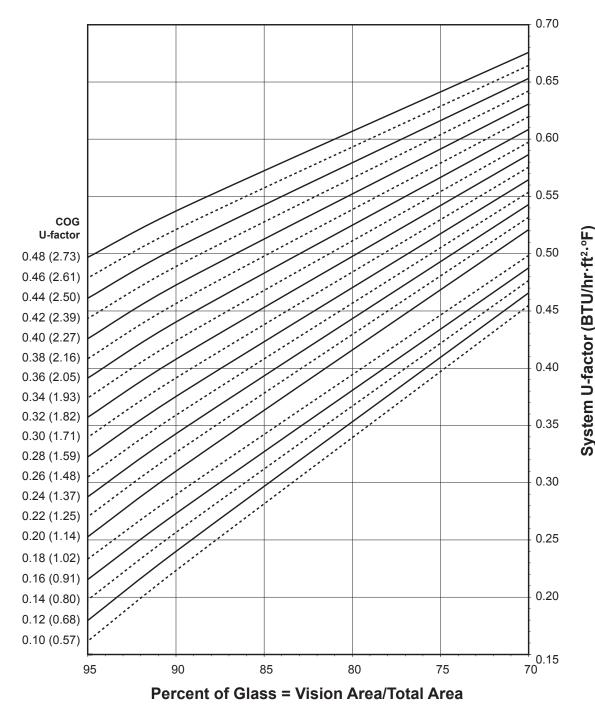
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THERMAL CHARTS

# Trifab® VersaGlaze® 451T (CENTER – Thermal)

# **System U-factor vs Percent of Glass Area**



# (Total Daylight Opening / Projected 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.

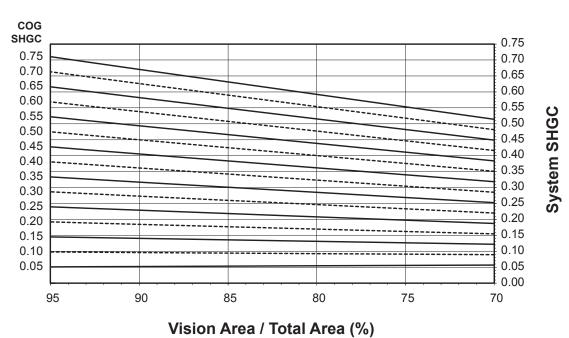


98

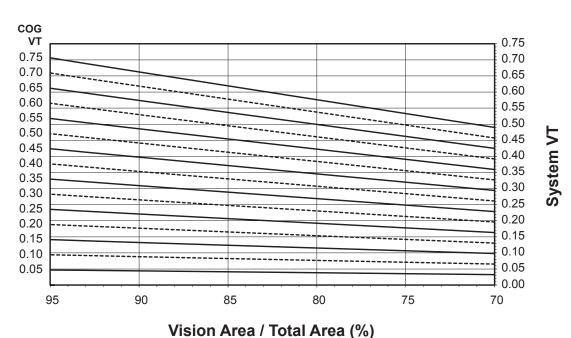
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Trifab® VersaGlaze® 451T (CENTER – Thermal)

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



# System Visible Transmittance (VT) vs Percent of Vision Area





# **Thermal Transmittance** <sup>1</sup> (BTU/hr • ft <sup>2</sup> • °F)

Glass U-Factor <sup>3</sup>	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

# Trifab® VersaGlaze® 451T (CENTER - Thermal)

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

THERMAL PERFORMANCE MATRIX

- 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 <sup>2</sup>

Glass SHGC <sup>3</sup>	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 <sup>2</sup>

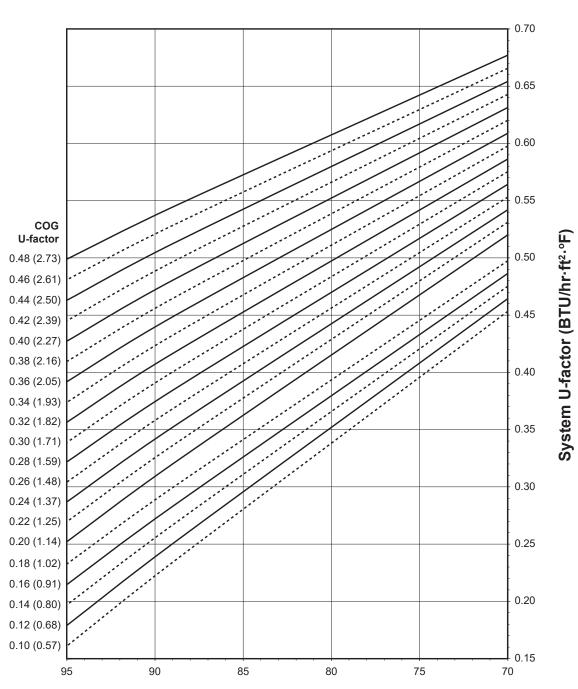
Glass VT <sup>3</sup>	Overall VT 4
0.75	0.66
0.70	0.61
0.65	0.57
0.60	0.53
0.55	0.48
0.50	0.44
0.45	0.39
0.40	0.35
0.35	0.31
0.30	0.26
0.25	0.22
0.20	0.18
0.15	0.13
0.10	0.09
0.05	0.04



THERMAL CHARTS

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

# System U-factor vs Percent of Glass Area



Percent of Glass = Vision Area/Total Area (Total Daylight Opening / Projected 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.



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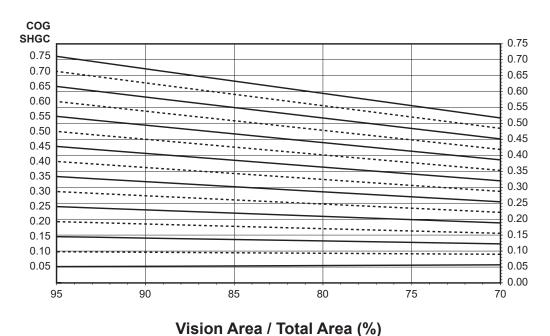
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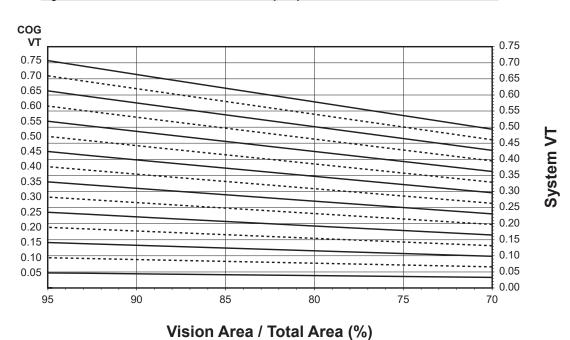
THERMAL CHARTS

# 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 PERFORMANCE MATRIX

# Thermal Transmittance <sup>1</sup> (BTU/hr • ft <sup>2</sup> • °F)

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Glass U-Factor <sup>3</sup>	Overall U-Factor <sup>4</sup>
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 <sup>2</sup>

Glass SHGC <sup>3</sup>	Overall SHGC <sup>4</sup>
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** <sup>2</sup>

Glass VT <sup>3</sup>	Overall VT <sup>4</sup>
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



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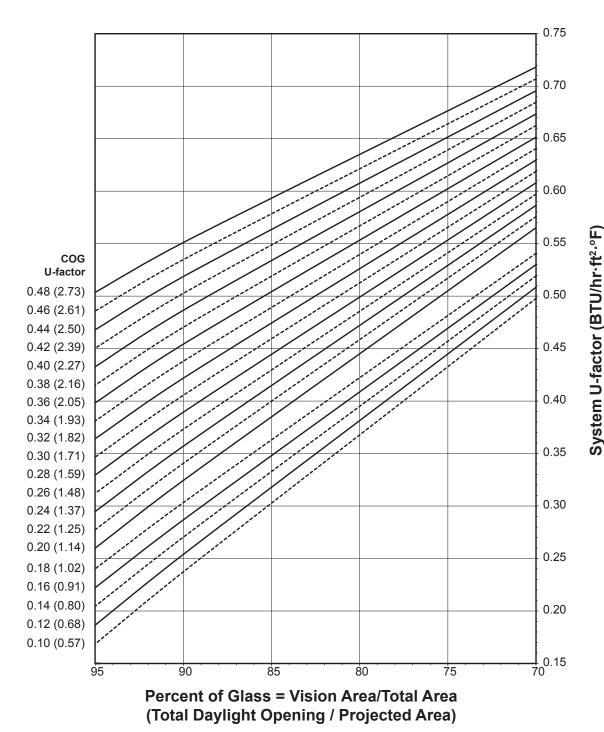
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EC 97911-262 THERMAL CHARTS

# Trifab<sup>®</sup> VersaGlaze<sup>®</sup> 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.

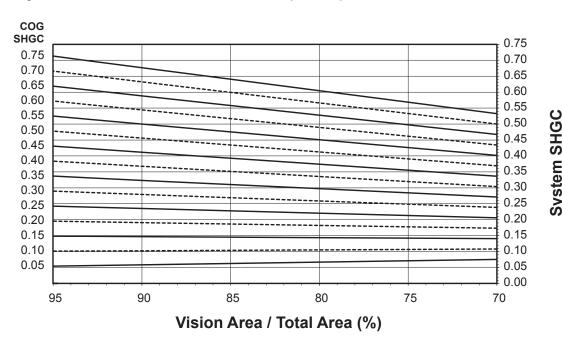


EC 97911-262

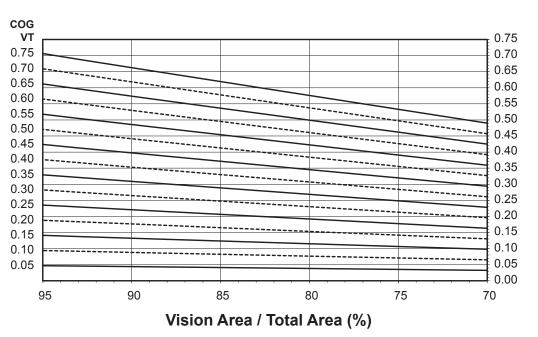
THERMAL CHARTS

# 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



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THERMAL PERFORMANCE MATRIX

Trifab® VersaGlaze® 451T Framing System

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

Glass U-Factor <sup>3</sup>	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

# Trifab® VersaGlaze® 451T (FRONT - 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 <sup>2</sup>

Overall SHGC <sup>4</sup>
0.67
0.63
0.59
0.54
0.50
0.45
0.41
0.37
0.32
0.28
0.23
0.19
0.15
0.10
0.06

# Visible Transmittance <sup>2</sup>

Glass VT <sup>3</sup>	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



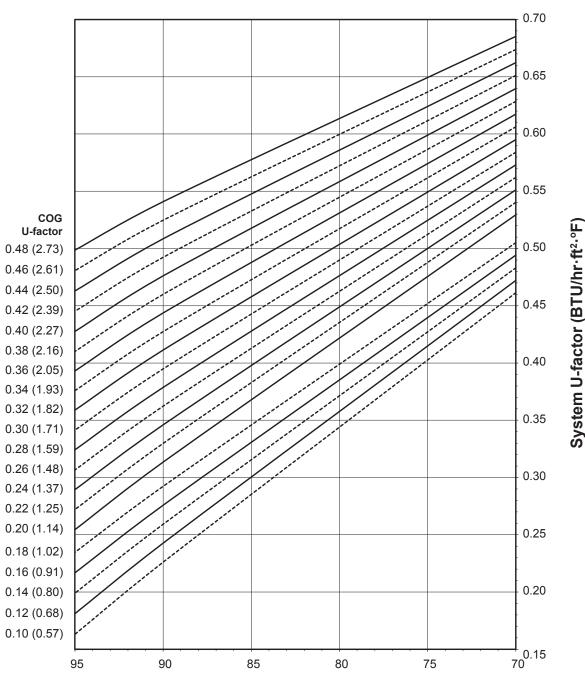
THERMAL CHARTS

# uilding and safety codes governing the design and use of Kawneer Ich as glazed entrance, window, and curtain wall products, vary widely les not control the selection of product condiquations pereating card assumes no resonability, therefore

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# Trifab® VersaGlaze® 451T (BACK – Thermal)

# **System U-factor vs Percent of Glass Area**



Percent of Glass = Vision Area/Total Area (Total Daylight Opening / Projected 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.

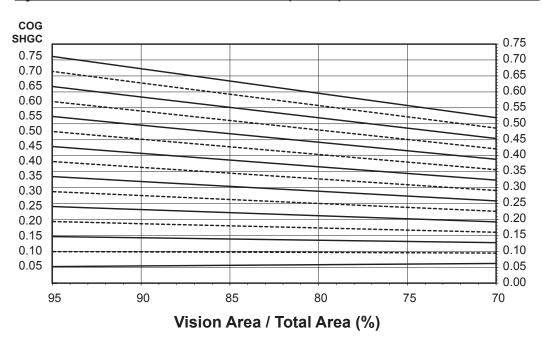


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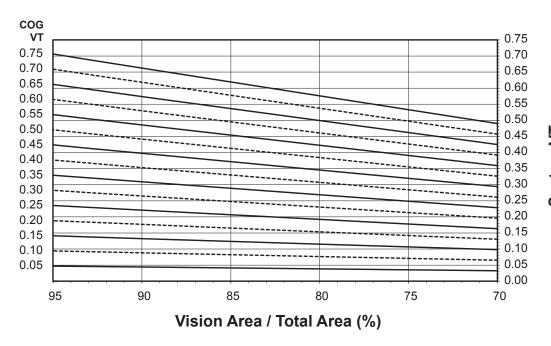
THERMAL CHARTS

# 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 PERFORMANCE MATRIX

# **Thermal Transmittance** <sup>1</sup> (BTU/hr • ft <sup>2</sup> • °F)

Glass U-Factor <sup>3</sup>	Overall U-Factor <sup>4</sup>
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<sup>®</sup> VersaGlaze<sup>®</sup> 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 <sup>2</sup>

Glass SHGC <sup>3</sup>	Overall SHGC <sup>4</sup>
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
0.15 0.10	0.14 0.10

# **Visible Transmittance** <sup>2</sup>

VISIBLE TRAISITIE	
Glass VT <sup>3</sup>	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



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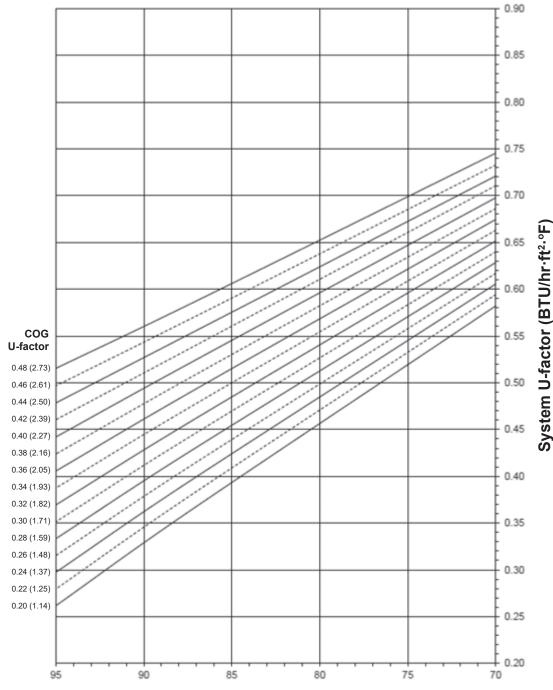
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THERMAL CHARTS

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# Trifab<sup>®</sup> VersaGlaze<sup>®</sup> 451T with Steel (CENTER)

# System U-factor vs Percent of Glass Area



Percent of Glass = Vision Area/Total Area (Total Daylight Opening / Projected Area)

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

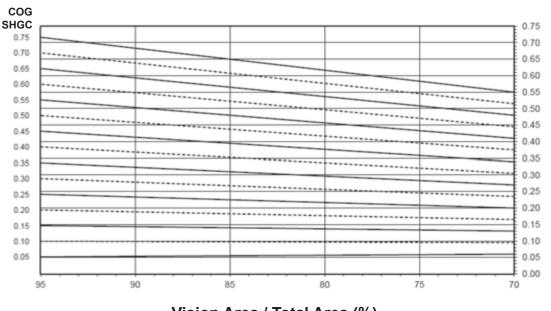
For glass values that are not listed, linear interpolation is permitted. Glass properties are based on center of glass values and are obtained from your glass supplier.



110

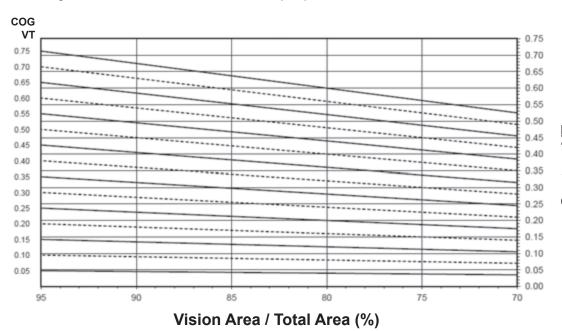
# System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area

Trifab® VersaGlaze® 451T with Steel (CENTER)



**Vision Area / Total Area (%)** 

# System Visible Transmittance (VT) vs Percent of Vision Area



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

Glass U-Factor <sup>3</sup>	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

# Trifab® VersaGlaze® 451T with Steel (CENTER)

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

THERMAL PERFORMANCE MATRIX

- 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 <sup>2</sup>

Glass SHGC <sup>3</sup>	Overall SHGC <sup>4</sup>
0.75	0.66
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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** <sup>2</sup>

Glass VT <sup>3</sup>	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



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