Features
- Trifab™ VG 450 is 4-1/2" (114.3) deep with a 1-3/4" (44.5) sight line
- Front, Center, Back or Multi-Plane glass applications
- Flush glazed from either the inside or outside
- Screw Spline, Shear Block, Stick or Type-B fabrication
- SSG / Weatherseal option
- 1/8" (3.2), 1/4" (6.4), or 3/8" (9.5) infill options
- Permanodic™ anodized finishes in seven choices
- Painted finishes in standard and custom choices

Optional Features
- Profit$Maker™ Plus die sets available

Product Applications
- Storefront, Ribbon Window or Punched Openings
- 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.
PICTORIAL VIEWS ................................................................. 5-9
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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
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 SNAPED TOGETHER TO FORM A COMPLETED FRAME.

THE SHEAR BLOCK SYSTEM OF FABRICATION ALLOWS A FRAME TO BE PRE-ASSEMBLED AND INSTALLED AS A SINGLE UNIT. HORIZONTALS ARE ATTACHED TO THE VERTICALS WITH SHEAR BLOCKS.

THE STICK SYSTEM ALLOWS ON-SITE ASSEMBLY. 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 windload (psf) divided by two) is more than 500 lbs., the optional mullion anchors must be used. (See page 14)

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THE SPLIT VERTICAL IN THE SCREW SPLINE SYSTEM ALLOWS A FRAME TO BE INSTALLED FROM UNITIZED ASSEMBLIES. SCREWS ARE DRIVEN THROUGH THE BACK OF THE VERTICALS INTO SPLINES EXTRUDED IN THE HORIZONTAL FRAMING MEMBERS. THE INDIVIDUAL UNITS ARE THEN SNAPPED TOGETHER TO FORM A COMPLETED FRAME.

THE SHEAR BLOCK SYSTEM OF FABRICATION ALLOWS A FRAME TO BE PRE-ASSEMBLED AND INSTALLED AS A SINGLE UNIT. HORIZONTALS ARE ATTACHED TO THE VERTICALS WITH SHEAR BLOCKS.

SPLINE SCREWS
HEAD
GLASS STOP
HORIZONTAL
FLAT FILLER
GLASS STOP
SILL
SILL FLASHING
MULLION
SNAP-IN FILLER

NOTE:
If the end reaction of the mullion (mullion spacing (ft.) times height (ft.) times specified windload (psf) divided by two) is more than 500 lbs., the optional mullion anchors must be used. (See page 31)

SHEAR BLOCK
HEAD
GLASS STOP
SILL
SILL FLASHING
FLAT FILLER
SHEAR BLOCK

STICK ASSEMBLY

HEAD RECEPTOR
HEAD INSERT
GLASS STOP
SHEAR BLOCK
MULLION
HORIZONTAL
SILL
SILL RECEPTOR
SILL INSERT
THE STICK SYSTEM ALLOWS ON-SITE ASSEMBLY. 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 windload (psf) divided by two) is more than 500 lbs., the optional mullion anchors must be used. (See page 31)
THE 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.

**TYPE-B ASSEMBLY**

**PUNCHED OPENING**

(CAPTURED)

**TYPE-B ASSEMBLY**

**PUNCHED OPENING**

(SSG)

**TYPE-B ASSEMBLY**

**PUNCHED OPENING**

(WEATHERSEAL)

THE 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.
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 COMPLETED FRAME.

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NOTE: If the end reaction of the mullion (mullion spacing (ft.) times height (ft.) times specified windload (psf) divided by two) is more than 500 lbs., the optional mullion anchors must be used. (See page 41)
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Trifab™ VG 450 Framing System 1-3/4" Sightline

BASIC FRAMING DETAILS (CENTER - Outside Glazed)

MAY, 2019

EC 97911-205

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

SCREW SPLINE

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SHEAR BLOCK

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STICK

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<td>VERTICAL</td>
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* HP Sill Flashing shown with optional gasket.

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

* HP Sill Flashing shown with optional gasket.

* HP Sill Flashing shown with optional gasket.
Trifab™ VG 450 Framing System 1-3/4" Sightline

MISCELLANEOUS FRAMING (CENTER)

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

NOTE:
If the end reaction of the mullion (mullion spacing (ft.) times height (ft.) times specified windload (psf) divided by two) is more than 500 lbs., the optional Mullion Anchors must be used.

NOTE:
Mullion Anchor not used with Lightweight Receptor.
Additional information and CAD details are available at www.kawneer.com

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

CURVING DETAILS
(Center Plane Only)

Seal over Stool Trim fasteners to prevent water infiltration.

STOOL TRIM CLIP
WITH HIGH PERFORMANCE FLASHING

STOOL TRIM CLIP
FOR STICK/TYPE-B ASSEMBLY

BRAKE METAL ADAPTOR
AT HORIZONTAL

BRAKE METAL ADAPTOR
AT VERTICAL

BRAKE METAL FILLERS

451VG150

069271

STOOL TRIM

STOOL TRIM CLIP
FOR STICK/TYPE-B ASSEMBLY

BRAKE METAL ADAPTOR
AT HORIZONTAL

BRAKE METAL ADAPTOR
AT VERTICAL

BRAKE METAL FILLERS

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STOOL TRIM

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STOOL TRIM

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AT HORIZONTAL

BRAKE METAL ADAPTOR
AT VERTICAL

BRAKE METAL FILLERS

451VG150
Additional information and CAD details are available at www.kawneer.com

**TRIFAB™ VG 450 FRAMING INCORPORATING KAWNEER “190” DOORS.**

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

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

**SINGLE ACTING**

**DOUBLE ACTING**

**SINGLE ACTING DOOR**

**DOUBLE ACTING DOOR**
Additional information and CAD details are available at www.kawneer.com

TRIFAB™ VG 450 FRAMING INCORPORATING KAWNEER “190” DOORS.

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

TRANSOM AREA FOR BOTH DOUBLE OR SINGLE ACTING DOORS WITH GLASS SURROUND. JAMB ABOVE TRANSOM BAR ARE ROUTED OUT TO ACCEPT GLASS HOLDING INSERT WITH OR WITHOUT STEEL REINFORCING.

SINGLE ACTING DOOR

DOUBLE ACTING DOOR

ELEVATIONS ARE NUMBER KEYED TO DETAILS
Trifab™ VG 450 Framing System 1-3/4" Sightline

OUTSWING CASEMENT VERTICAL SECTION SHOWN

1 450CG001
2 450CG011
3 450CG004

ELEVATION IS NUMBER KEYED TO DETAILS

OUTSWING CASEMENT HORIZONTAL SECTION SHOWN

450CG001
450CG002

PROJECT-OUT VERTICAL SECTION SHOWN

3 450CG011
4 450CG004

PROJECT-OUT HORIZONTAL SECTION SHOWN

5 450CG001
6 450CG002

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

*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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Trifab™ VG 450 Framing System 1-3/4" Sightline

BASIC FRAMING DETAILS (FRONT - Outside Glazed)

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

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

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EC 97911-205

*HP Sill Flashing shown with optional gasket.

*HP Sill Flashing shown with optional gasket.
Additional information and CAD details are available at www.kawneer.com

ELEVATION IS NUMBER KEYED TO DETAILS

SCREW SPLINE

SHEAR BLOCK

STICK

* HP Sill Flashing shown with optional gasket.
Additional information and CAD details are available at www.kawneer.com

STICK SYSTEM (INSIDE GLAZED)
TWO COLOR OPTION
STANDARD RECEPTOR with SSG ADAPTOR

* INSTALLER NOTE: Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.
Trifab™ VG 450 Framing System 1-3/4" Sightline
EC 97911-205
BASIC FRAMING DETAILS (FRONT)

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

* INSTALLER NOTE: Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.
Additional information and CAD details are available at www.kawneer.com

STICK SYSTEM (INSIDE GLAZED)
SSG RECEPTOR
TWO COLOR OPTION

Structural Silicone Sealant (by Others)*

* INSTALLER NOTE: Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.
Trifab™ VG 450 Framing System 1-3/4" Sightline

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

TYPE-B MULTI-LITE PUNCHED OPENINGS
(20 FEET MAXIMUM UNIT WIDTH)

ELEVATION IS NUMBER KEYED TO DETAILS

TYPE-B (INSIDE GLAZED)
PUNCHED OPENING

HEAD

HORIZONTAL

SILL

JAMB

VERTICAL

1

1A

2

3

4

5

4-1/2" (114.3) TYP.

1-3/4" (44.5) TYP.

450VG101

450VG005

450VG104

450VG103

450VG327

450VG104

450VG103

450VG325

450VG111

450VG104

450VG104

450VG101
Additional information and CAD details are available at www.kawneer.com

TYPE-B (INSIDE GLAZED)
SSG/WEATHERSEAL
PUNCHED OPENING

TYPE B: MULTI-LITE PUNCHED OPENINGS
(20 FEET MAXIMUM UNIT WIDTH)

ELEVATION IS NUMBER KEYED TO DETAILS

1 HEAD

1A HEAD

2 HORIZONTAL

3 SILL

Structural Silicone Sealant
(by Others)*

* INSTALLER NOTE: Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.
Additional information and CAD details are available at www.kawneer.com

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.
Trifab™ VG 450 Framing System 1-3/4" Sightline

MISCELLANEOUS FRAMING (FRONT)

MAY, 2019

EC 97911-205

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

NOTE:
If the end reaction of the mullion (mullion spacing (ft.) times height (ft.) times specified windload (psf) divided by two) is more than 500 lbs., the optional Mullion Anchors must be used.

NOTE:
Mullion Anchor not used with Lightweight Receptor.

Seal over Stool Trim fasteners to prevent water infiltration.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
Trifab™ VG 450 Framing System 1-3/4" Sightline

CORNERS (FRONT)

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

* INSTALLER NOTE: Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.
TRIFAB™ VG 450 FRAMING INCORPORATING KAWNEER “190” DOORS.

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

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

ELEVATIONS ARE NUMBER KEYED TO DETAILS
OUTSWING CASEMENT
VERTICAL SECTION SHOWN

PROJECT-OUT
VERTICAL SECTION SHOWN

1

450VG003

2

450VG011

450VG026

ELEVATION IS NUMBER KEYED TO DETAILS

OUTSWING CASEMENT
HORIZONTAL SECTION SHOWN

PROJECT-OUT
HORIZONTAL SECTION SHOWN

5

450VG005

6

450VG005

7

450VG005

8

450VG005

Structural Silicone Sealant
(by Others)*

* 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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<td>BASIC FRAMING DETAILS</td>
<td>38,39</td>
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<tr>
<td>MISCELLANEOUS FRAMING</td>
<td>40,41</td>
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<td>CORNERS</td>
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<td>ENTRANCE FRAMING</td>
<td>43</td>
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Additional information and CAD details are available at www.kawneer.com

SCREW SPLINE

<table>
<thead>
<tr>
<th>4 JAMB</th>
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<tbody>
<tr>
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<td>450VG026</td>
<td>450VG014</td>
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<tr>
<td>450VG103</td>
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<tr>
<td>450VG104</td>
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<tr>
<td>4-1/2&quot; (114.3) TYP.</td>
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<tr>
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<tr>
<td>450BG104</td>
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<tr>
<td>450VG037</td>
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</table>

HEX SILL FLASHING SHOWN WITH OPTIONAL GASKET.

SHEAR BLOCK

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<td>1-3/4&quot; (44.5) TYP.</td>
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<tr>
<td>450BG104</td>
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<tr>
<td>450VG037</td>
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</table>

HEX SILL FLASHING SHOWN WITH OPTIONAL GASKET.

STICK

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<tr>
<td>450VG037</td>
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<tr>
<td>450VG106</td>
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<tr>
<td>2-1/4&quot; (57.15) TYP.</td>
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</table>

ELEVATION IS NUMBER KEYED TO DETAILS.
Trifab™ VG 450 Framing System 1-3/4" Sightline

BASIC FRAMING DETAILS (BACK - Inside Glazed)

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

* HP Sill Flashing shown with optional gasket.

ELEVATION IS NUMBER KEYED TO DETAILS
Trifab™ VG 450 Framing System 1-3/4" Sightline

MISCELLANEOUS FRAMING (BACK)

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

NOTE:
If the end reaction of the mullion (mullion spacing (ft.) times height (ft.) times specified windload (psf) divided by two) is more than 500 lbs., the optional Mullion Anchors must be used.

NOTE:
Mullion Anchor not used with Lightweight Receptor.

Seal over Stool Trim fasteners to prevent water infiltration.

STOOL TRIM CLIP
WITH HIGH PERFORMANCE FLASHING

STOOL TRIM CLIP
FOR STICK ASSEMBLY

MISCELLANEOUS FRAMING (BACK)

Additional information and CAD details are available at www.kawneer.com
Trifab™ VG 450 Framing System 1-3/4" Sightline

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

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

© 2013, Kawneer Company, Inc.
TRIFAB™ VG 450 FRAMING INCORPORATING KAWNEER “190” DOORS.

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

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
BASIC FRAMING DETAILS .................................................. 46-51
(See appropriate Center, Front or Back Section for Miscellaneous Details.)
Additional information and CAD details are available at www.kawneer.com

SCREW SPLINE ASSEMBLY

ELEVATION IS NUMBER KEYED TO DETAILS

FRONT

See Pages 23 thru 35 for all FRONT details.

BACK

See Pages 38 thru 43 for all BACK details.

CENTER

See Pages 12 thru 21 for all CENTER details.
Trifab™ VG 450 Framing System 1-3/4" Sightline

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

SCREW SPLINE ASSEMBLY

ELEVATION IS NUMBER KEYED TO DETAILS

FRONT
See Pages 23 thru 35 for all FRONT details.

1 HEAD
4 HEAD
2 HORIZONTAL
5 HORIZONTAL
3 SILL
6 SILL

BACK
See Pages 38 thru 43 for all BACK details.

7 HEAD
8 HORIZONTAL
9 SILL

CENTER
See Pages 12 thru 21 for all CENTER details.

10 JAMB
11 VERTICAL
12 VERTICAL
13 VERTICAL
14 JAMB

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kawneer.com
Trifab™ VG 450 Framing System 1-3/4" Sightline

BASIC FRAMING DETAILS (MULTI-PLANE - Outside Glazed)

EC 97911-205

MAY, 2019

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

SHEAR BLOCK ASSEMBLY

ELEVATION IS NUMBER KEYED TO DETAILS

Note: Transition verticals are required to be two piece.

See Pages 23 thru 35 for all FRONT details.

See Pages 38 thru 43 for all BACK details.

See Pages 12 thru 21 for all CENTER details.

For more information and CAD details, visit www.kawneer.com
Trifab™ VG 450 Framing System 1-3/4" Sightline

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

SHEAR BLOCK ASSEMBLY

ELEVATION IS NUMBER KEYED TO DETAILS

Note: Transition verticals are required to be two piece

FRONT
See Pages 23 thru 35 for all FRONT details.

BACK
See Pages 38 thru 43 for all BACK details.

CENTER
See Pages 12 thru 21 for all CENTER details.
Trifab™ VG 450 Framing System 1-3/4" Sightline

STICK ASSEMBLY

ELEVATION IS NUMBER KEYED TO DETAILS

Note: Transition verticals are required to be two piece.

See Pages 23 thru 35 for all FRONT details.
See Pages 38 thru 43 for all BACK details.
See Pages 12 thru 21 for all CENTER details.

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

Advisory: Transition verticals are required to be two piece.
Trifab™ VG 450 Framing System 1-3/4" Sightline

BASIC FRAMING DETAILS (MULTI-PLANE - Inside Glazed)

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

STICK ASSEMBLY

ELEVATION IS NUMBER KEYED TO DETAILS

Note: Transition verticals are required to be two piece

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

CENTER .................................................................................... 55-57
FRONT or BACK ......................................................................... 58, 59
FRONT (SSG/WEATHERSEAL) ..................................................... 60
MULTI-PLANE ............................................................................ 61
EXPANSION MULLIONS ............................................................. 62
ENTRANCE FRAMING .................................................................. 63-65
DEADLOAD CHARTS .................................................................. 66, 67
END REACTION CHARTS ............................................................ 68
THERMAL CHARTS ................................................................... 69, 72
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 (104MPa), STEEL 30,000 psi (207MPa). 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 Mullion Anchors must be used. Consult Application Engineering. (*Mullion Anchor not used with Lightweight 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 1/4" (6.4) thick glass supported on two setting blocks at the loading points shown.
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

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<table>
<thead>
<tr>
<th>Allowable Stress Design Load</th>
<th>LRFD Ultimate Design Load</th>
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</thead>
<tbody>
<tr>
<td>A = 15 PSF (720)</td>
<td>25 PSF (1200)</td>
</tr>
<tr>
<td>B = 20 PSF (960)</td>
<td>33 PSF (1580)</td>
</tr>
<tr>
<td>C = 25 PSF (1200)</td>
<td>42 PSF (2000)</td>
</tr>
<tr>
<td>D = 30 PSF (1440)</td>
<td>50 PSF (2400)</td>
</tr>
<tr>
<td>E = 40 PSF (1920)</td>
<td>67 PSF (3200)</td>
</tr>
</tbody>
</table>

Trifab™ VG 450 Framing System 1-3/4” Sightline

WITH HORIZONTALS
WIDTH IN METERS

WITHOUT HORIZONTALS
WIDTH IN METERS

WITH HORIZONTALS
WIDTH IN METERS

WITHOUT HORIZONTALS
WIDTH IN METERS

I = 2.899 \times 10^4
S = 1.288 \times 10^3

I_A = 2.899 \times 10^4
S_A = 1.288 \times 10^3

I_S = 1.935 \times 10^4
S_S = 0.938 \times 10^3

WITH 450110 STEEL

450CG001
450CG002

WIDTH IN FEET

HEIGHT IN FEET

WINDLOAD CHARTS (CENTER)

Allowable Stress
Design Load
LRFD Ultimate
Design Load

A = 15 PSF (720) 25 PSF (1200)
B = 20 PSF (960) 33 PSF (1580)
C = 25 PSF (1200) 42 PSF (2000)
D = 30 PSF (1440) 50 PSF (2400)
E = 40 PSF (1920) 67 PSF (3200)
Trifab™ VG 450 Framing System 1-3/4" Sightline

WITH HORIZONTALS
WIDTH IN METERS

WITHOUT HORIZONTALS
WIDTH IN METERS

WITH HORIZONTALS
WIDTH IN FEET

WITHOUT HORIZONTALS
WIDTH IN FEET

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

I = 4.481 (186.51 x 10^4)
S = 1.991 (32.63 x 10^3)

450CG013
450CG002

WITH HORIZONTALS
WIDTH IN FEET

WITHOUT HORIZONTALS
WIDTH IN FEET

450CG013
450CG002
with 400110 STEEL

I = 4.481 (186.51 x 10^4)
S = 1.991 (32.63 x 10^3)

I = 0.970 (40.37 x 10^3)
S = 0.535 (8.76 x 10^3)

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Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
Trifab™ VG 450 Framing System 1-3/4" Sightline

**ALLOWABLE STRESS**

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<tbody>
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<td>67 PSF (3200)</td>
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</tbody>
</table>

**WITH HORIZONTALS**

**WIDTH IN METERS**

**HEIGHT IN FEET**

**WITHOUT HORIZONTALS**

**WIDTH IN METERS**

**HEIGHT IN FEET**

**I = 2.978 (123.95 \times 10^4)**

**S = 1.192 (19.53 \times 10^3)**

**WITH HORIZONTALS**

**WIDTH IN METERS**

**HEIGHT IN FEET**

**WITHOUT HORIZONTALS**

**WIDTH IN METERS**

**HEIGHT IN FEET**

**I_a = 2.978 (123.95 \times 10^4)**

**S_a = 1.192 (19.53 \times 10^3)**

**I_s = 1.302 (54.19 \times 10^3)**

**S_s = 1.042 (17.08 \times 10^3)**

**WITH HORIZONTALS**

**WIDTH IN METERS**

**HEIGHT IN FEET**

**WITHOUT HORIZONTALS**

**WIDTH IN METERS**

**HEIGHT IN FEET**

**I = 2.978 (123.95 \times 10^4)**

**S = 1.192 (19.53 \times 10^3)**

**WITH HORIZONTALS**

**WIDTH IN METERS**

**HEIGHT IN FEET**

**WITHOUT HORIZONTALS**

**WIDTH IN METERS**

**HEIGHT IN FEET**

**I_a = 2.978 (123.95 \times 10^4)**

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Trifab™ VG 450 Framing System 1-3/4" Sightline

WINDLOAD CHARTS (SSG/WEATHERSEAL)

EC 97911-205

Allowable Stress

Design Load

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</tr>
<tr>
<td>E</td>
<td>40 PSF (1920)</td>
<td>67 PSF (3200)</td>
</tr>
</tbody>
</table>

WITH HORIZONTALS

WIDTH IN METERS

WITH HORIZONTALS

WIDTH IN FEET

450SSG005

I = 2.445 (101.76 x 10^4)
S = 1.352 (22.15 x 10^3)

450SSG005

with 1" x 2-1/2" STEEL BAR

I = 2.445 (101.76 x 10^4)
S = 1.352 (22.15 x 10^3)

Allowable Stress

Design Load

LRFD Ultimate

Design Load

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

WITH HORIZONTALS

WIDTH IN METERS

WITH HORIZONTALS

WIDTH IN FEET

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WIDTH IN FEET

WITH HORIZONTALS

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WIDTH IN METERS
Trifab™ VG 450 Framing System 1-3/4" Sightline

**WINDLOAD CHARTS (MULTI-PLANE)**

**ALLOWABLE STRESS DESIGN LOAD**

<table>
<thead>
<tr>
<th>Category</th>
<th>Allowable Stress Design Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>15 PSF (720)</td>
</tr>
<tr>
<td>B</td>
<td>20 PSF (960)</td>
</tr>
<tr>
<td>C</td>
<td>25 PSF (1200)</td>
</tr>
<tr>
<td>D</td>
<td>30 PSF (1440)</td>
</tr>
<tr>
<td>E</td>
<td>40 PSF (1920)</td>
</tr>
</tbody>
</table>

**LRFD ULTIMATE DESIGN LOAD**

<table>
<thead>
<tr>
<th>Category</th>
<th>LRFD Ultimate Design Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>25 PSF (1200)</td>
</tr>
<tr>
<td>B</td>
<td>33 PSF (1580)</td>
</tr>
<tr>
<td>C</td>
<td>42 PSF (2000)</td>
</tr>
<tr>
<td>D</td>
<td>50 PSF (2400)</td>
</tr>
<tr>
<td>E</td>
<td>67 PSF (3200)</td>
</tr>
</tbody>
</table>

**Allowable Moment:**

- **I = 3.246 (135.10 x 10^3)**
- **S = 1.132 (18.55 x 10^3)**

**Allowable Moment:**

- **I = 3.031 (126.15 x 10^3)**
- **S = 1.239 (23.30 x 10^3)**

**Allowable Moment:**

- **I = 3.031 (126.15 x 10^3)**
- **S = 1.235 (20.24 x 10^3)**

**Allowable Moment:**

- **I = 2.998 (124.79 x 10^3)**
- **S = 1.235 (20.24 x 10^3)**
Trifab™ VG 450 Framing System 1-3/4" Sightline

WINDLOAD CHARTS (EXPANSION MULLIONS)

<table>
<thead>
<tr>
<th>Allowable Stress Design Load</th>
<th>LRFD Ultimate Design Load</th>
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<tbody>
<tr>
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</tr>
<tr>
<td>E = 40 PSF (1920)</td>
<td>67 PSF (3200)</td>
</tr>
</tbody>
</table>

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
Trifab™ VG 450 Framing System 1-3/4" Sightline

WINDLOAD CHARTS (ENTRANCES)

**Allowable Stress Design Load**

<table>
<thead>
<tr>
<th>A</th>
<th>15 PSF (720)</th>
</tr>
</thead>
<tbody>
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**LRFD Ultimate Design Load**

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<tr>
<td>B</td>
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<tr>
<td>E</td>
<td>67 PSF (3200)</td>
</tr>
</tbody>
</table>

**WITH HORIZONTALS**  
**WIDTH IN METERS**

**WIDTH IN FEET**

**HEIGHT IN FEET**

**WITH 450110 STEEL**

\[ I_e = 3.226 \times 10^4 \]
\[ S_e = 1.467 \times 10^3 \]

**HEIGHT IN FEET**

**WIDTH IN FEET**

**WIDTH IN METERS**

**WITH HORIZONTALS**

**WIDTH IN METERS**

**HEIGHT IN FEET**

**WITHOUT HORIZONTALS**

**WIDTH IN METERS**

**HEIGHT IN FEET**

**WIDTH IN FEET**

**WIDTH IN FEET**

**HEIGHT IN FEET**

**HEIGHT IN METERS**

**WIDTH IN FEET**

**WIDTH IN FEET**

**WIDTH IN FEET**

**HEIGHT IN METERS**

**WITH 450064 450CGG02**

\[ I_e = 1.935 \times 10^4 \]
\[ S_e = 0.938 \times 10^3 \]

**HEIGHT IN FEET**

**WIDTH IN FEET**

**WIDTH IN METERS**
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 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.

Trifab™ VG 450 Framing System 1-3/4" Sightline

WITH HORIZONTALS
WIDTH IN METERS

WITHOUT HORIZONTALS
WIDTH IN METERS

450VG019
WITH 1" x 2-1/2" STEEL BAR

Iₚ = 2.985 \(124.24 \times 10^4\)
Sₚ = 1.244 \(20.38 \times 10^3\)

Iₜ = 1.302 \(54.19 \times 10^4\)
Sₜ = 1.042 \(17.08 \times 10^3\)

<table>
<thead>
<tr>
<th>Allowable Stress</th>
<th>LRFD Ultimate</th>
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</thead>
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<td>E = 40 PSF (1920)</td>
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</tr>
</tbody>
</table>

ADMC020EN
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 1/4" (6.4) thick glass supported on two setting blocks at the loading points shown.

A = (1/4 POINT LOADING)
B = (1/6 POINT LOADING)
C = (1/8 POINT LOADING)
Horizontal or deadload limitations are based upon 1/8" (3.2) maximum allowable deflection at the center of an intermediate horizontal member. The accompanying charts are calculated for 1/4" (6.4) thick glass supported on two setting blocks at the loading points shown.

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

DEADLOADS ON ENTRANCE TRANSOM BARS

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 1/4" (6.4) thick glass supported on two setting blocks placed at the loading points shown.

A = (1/4 POINT LOADING)
B = (1/6 POINT LOADING)
C = (1/8 POINT LOADING)
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. (2224 N) or less and will meet the specified windload.

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)

500 lbs. Max. End Reaction
Trifab™ VG 450 Framing System 1-3/4" Sightline

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

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

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

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

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

System U-factor vs Percent of Glass Area

Based on 91% glass and Center of Glass (COG) U-factor of 0.42
System U-factor is equal to 0.49 Btu/hr·ft²·°F
TRIFAB™ VG 450 (CENTER)

System U-factor vs Percent of Glass Area

Notes for System U-Factor, SHGC and VT charts:
For glass values that are not listed, linear interpolation is permitted.
Glass properties are based on center of glass values and are obtained from your glass supplier.
TRIFAB™ VG 450 (CENTER)

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

System Visible Transmittance (VT) vs Percent of Vision Area
TRIFAB™ VG 450 (CENTER)

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 Matrices are based on the standard NFRC specimen size of 2000mm wide by 2000mm high (78-3/4" by 78-3/4").

## Thermal Transmittance

<table>
<thead>
<tr>
<th>Glass U-Factor</th>
<th>Overall U-Factor</th>
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<tbody>
<tr>
<td>0.90</td>
<td>0.99</td>
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<tr>
<td>0.92</td>
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<tr>
<td>0.94</td>
<td>1.02</td>
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<tr>
<td>0.96</td>
<td>1.03</td>
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<tr>
<td>0.98</td>
<td>1.05</td>
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<tr>
<td>1.00</td>
<td>1.07</td>
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<tr>
<td>1.02</td>
<td>1.08</td>
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<tr>
<td>1.04</td>
<td>1.10</td>
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<tr>
<td>10.6</td>
<td>1.11</td>
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## SHGC Matrix

<table>
<thead>
<tr>
<th>Glass SHGC</th>
<th>Overall SHGC</th>
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<tbody>
<tr>
<td>0.90</td>
<td>0.81</td>
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<tr>
<td>0.85</td>
<td>0.77</td>
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<td>0.23</td>
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<tr>
<td>0.20</td>
<td>0.19</td>
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</table>

## Visible Transmittance

<table>
<thead>
<tr>
<th>Glass VT</th>
<th>Overall VT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.90</td>
<td>0.81</td>
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<tr>
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<td>0.75</td>
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<td>0.22</td>
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<tr>
<td>0.20</td>
<td>0.18</td>
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