Features

- Trifab® 400 is 4" (101.6) deep with a 1-3/4" (44.5) sightline
- Center plane glass applications
- Flush glazed from either the inside or outside
- Screw Spline, Shear Block or Stick fabrication
- 1/8" (3.2), 1/4" (6.4), or 3/8" (9.7) infill options
- Permanodic® anodized finishes option
- Painted finishes in standard and custom choices

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.

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

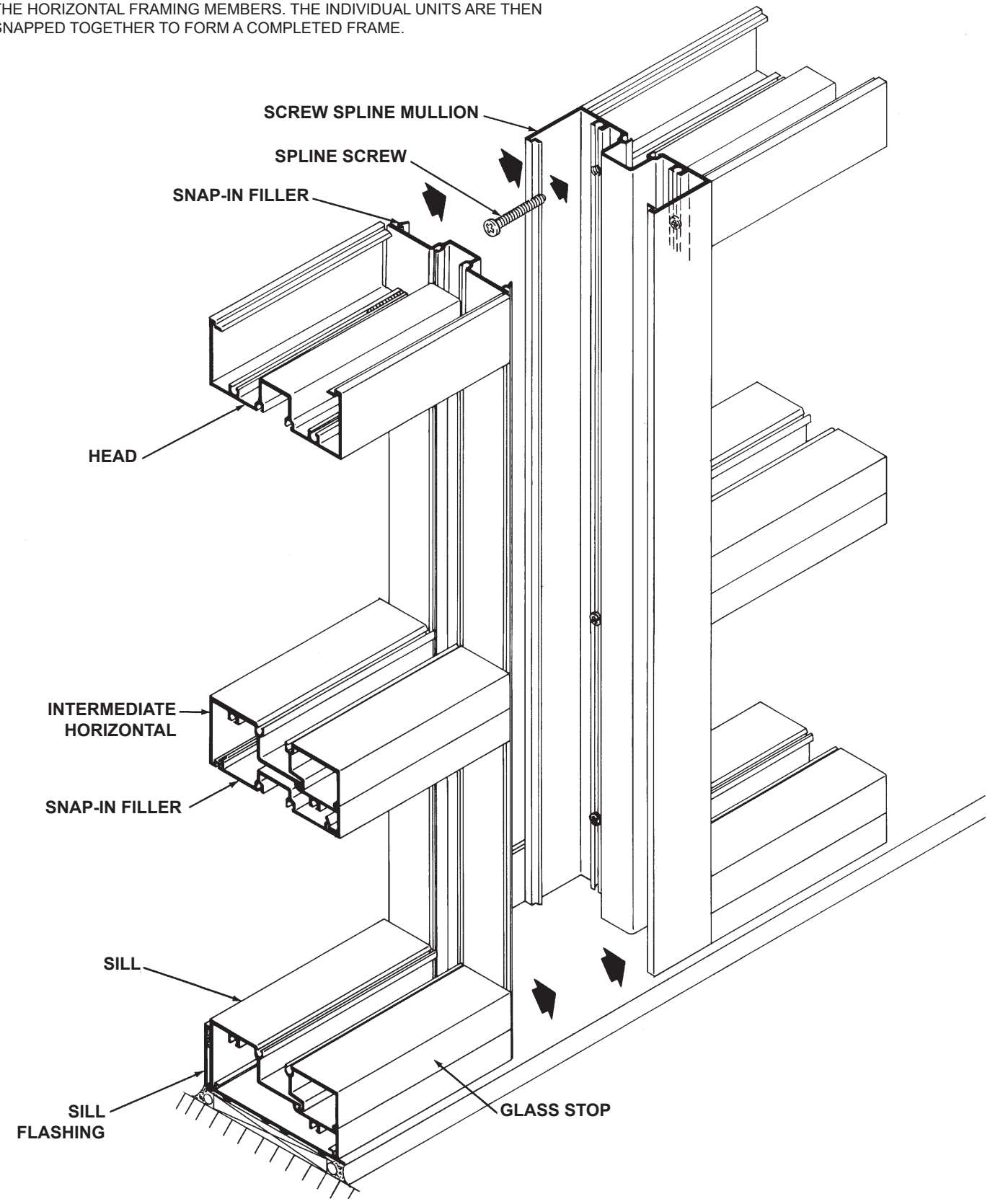
The following metric (SI) units are found in these details:

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

Trifab® 400 Framing System

PICTORIAL VIEW (SCREW SPLINE ASSEMBLY)

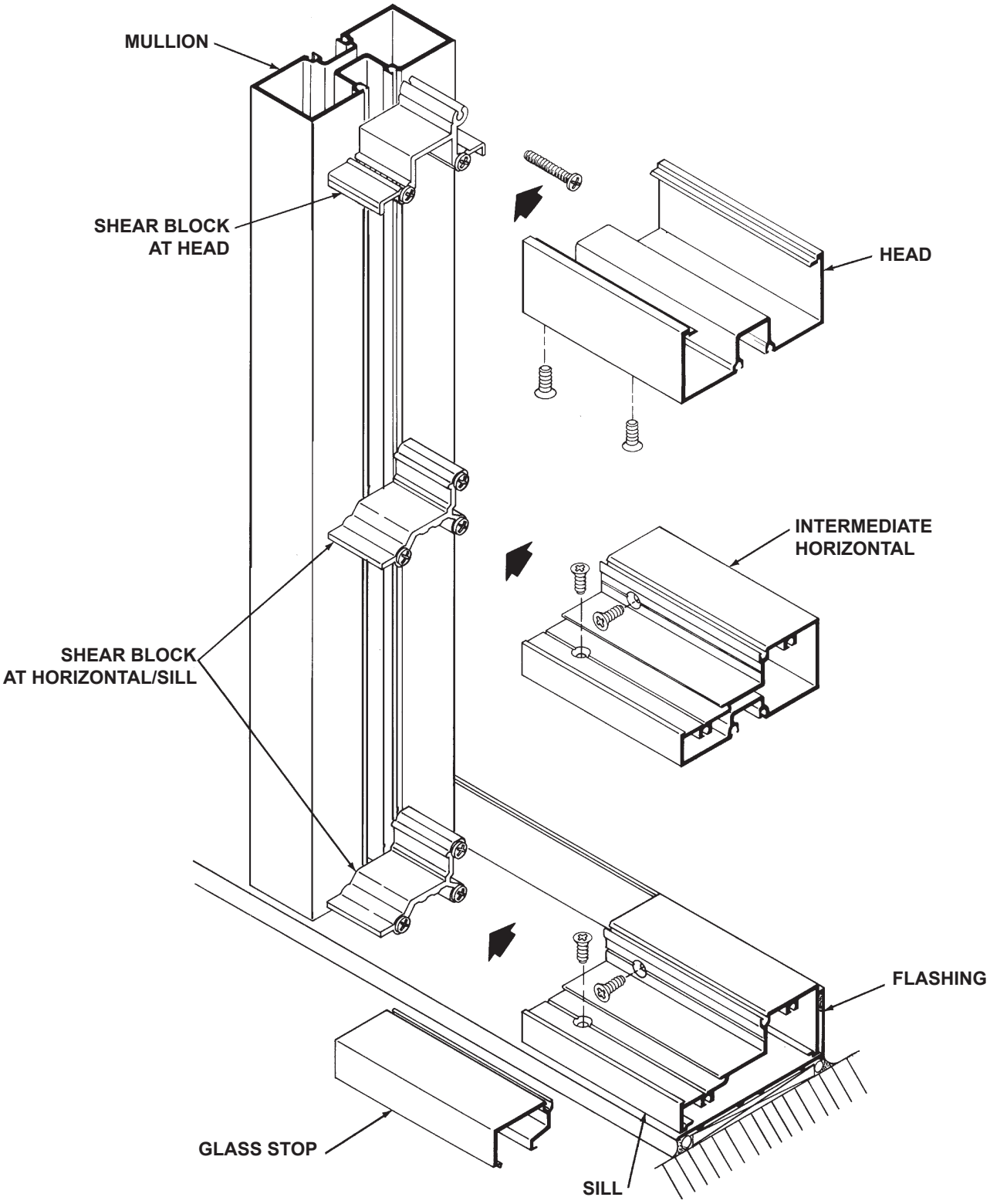
THE SPLIT VERTICAL IN THE SCREW SPLINE SYSTEM ALLOWS A FRAME TO BE INSTALLED FROM UNITIZED ASSEMBLIES. SCREWS ARE DRIVEN THROUGH THE BACK OF THE VERTICALS INTO SPLINES EXTRUDED IN THE HORIZONTAL FRAMING MEMBERS. THE INDIVIDUAL UNITS ARE THEN SNAPPED TOGETHER TO FORM A COMPLETED FRAME.



Trifab® 400 Framing System

PICTORIAL VIEW (SHEAR BLOCK ASSEMBLY)

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.

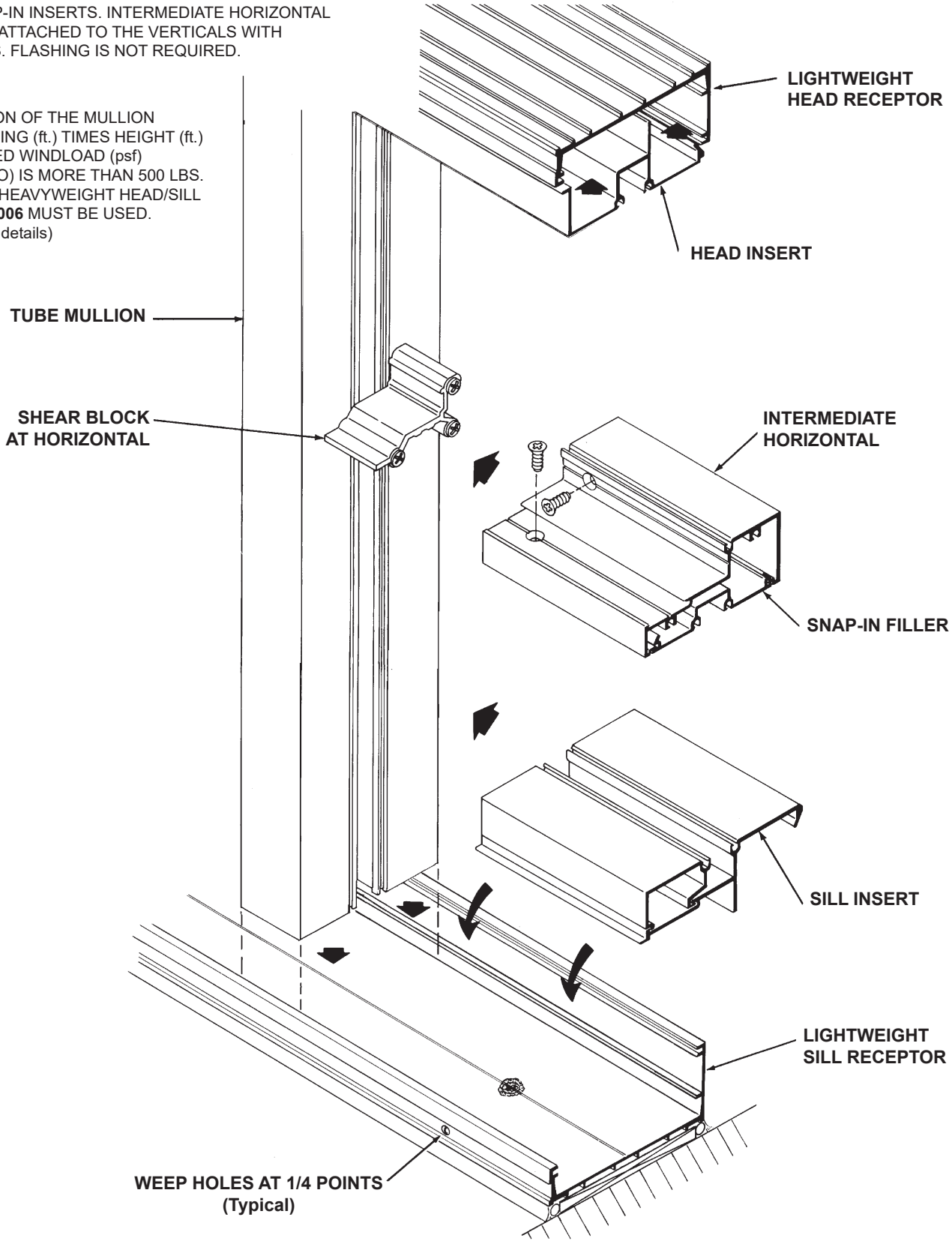


Trifab® 400 Framing System

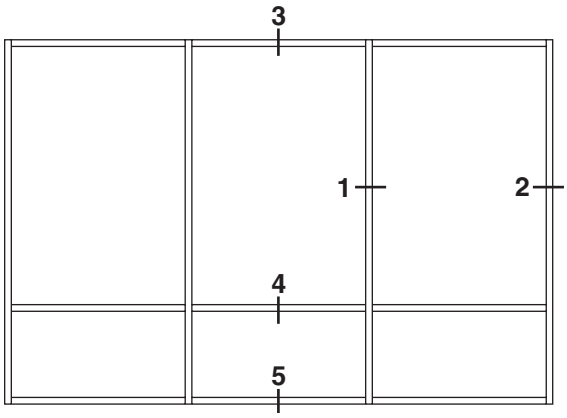
PICTORIAL VIEW (STICK ASSEMBLY)

THE STICK SYSTEM OF FABRICATION 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 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 HEAVYWEIGHT HEAD/SILL RECEPTOR **400006** MUST BE USED.
(See Page 11 for details)

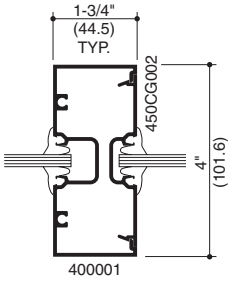


Additional information and CAD details are available at www.kawneer.com

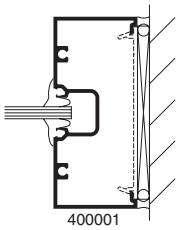


ELEVATION IS NUMBER KEYED TO DETAILS

SCREW SPLINE SYSTEM

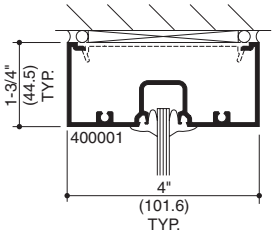


1 VERTICAL MULLION

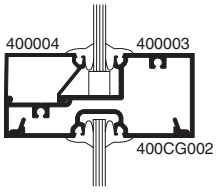


2 JAMB

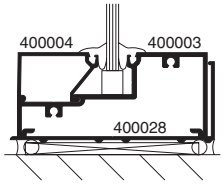
3 HEAD



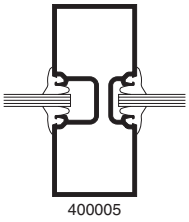
4 INTERMEDIATE HORIZONTAL



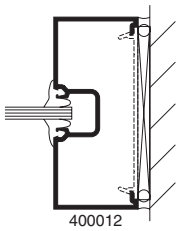
5 SILL



SHEAR BLOCK SYSTEM

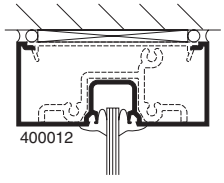


1 VERTICAL MULLION

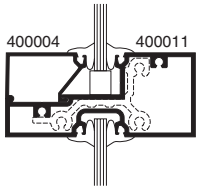


2 JAMB

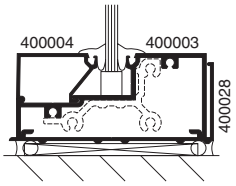
3 HEAD



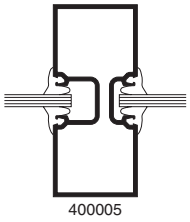
4 INTERMEDIATE HORIZONTAL



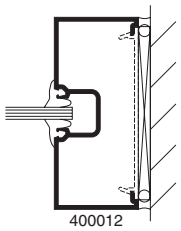
5 SILL



STICK SYSTEM

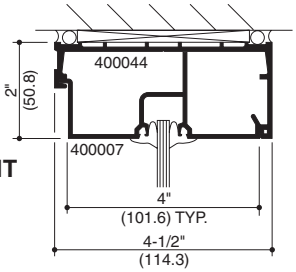


1 VERTICAL MULLION

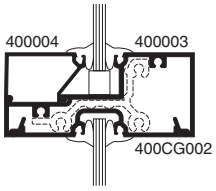


2 JAMB

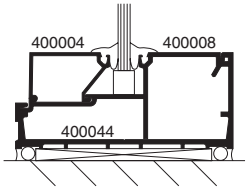
3 LIGHTWEIGHT HEAD



4 INTERMEDIATE HORIZONTAL



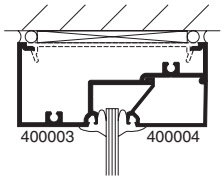
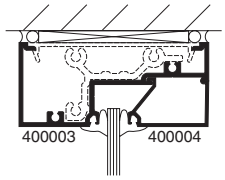
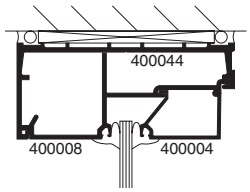
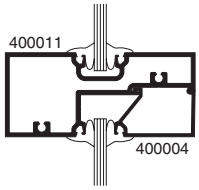
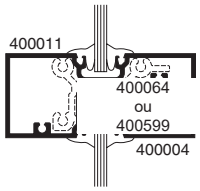
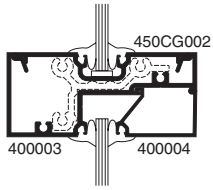
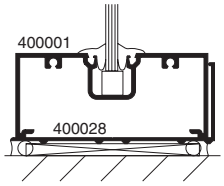
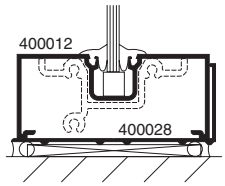
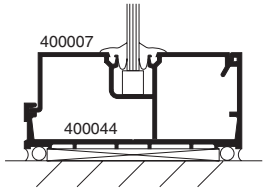
5 LIGHTWEIGHT SILL



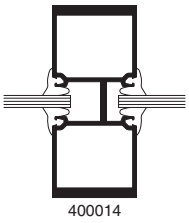
Additional information and CAD details are available at www.kawneer.com

INSIDE GLAZING MEMBERS

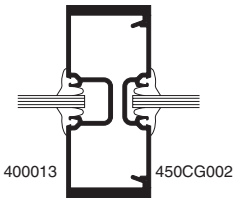
TRIFAB 400 CAN BE INSTALLED FOR INSIDE GLAZING SIMPLY BY REVERSING THE SYSTEM SUCH THAT THE REMOVABLE GLASS STOPS ARE LOCATED AT THE HEAD AND ON THE INTERIOR SIDE.

	SCREW SPLINE SYSTEM	SHEAR BLOCK SYSTEM	STICK SYSTEM
HEAD			
INTERMEDIATE HORIZONTAL			
SILL			

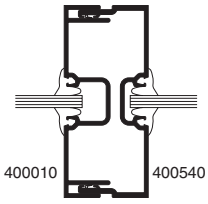
ALTERNATE MULLION & SIDELITE BASE MEMBERS



HEAVY TUBE MULLION

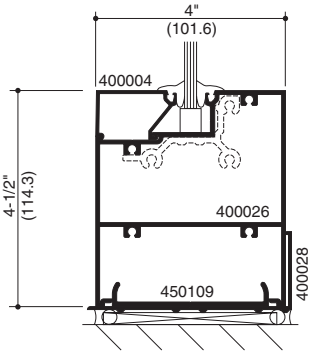


HEAVY SCREW SPLINE MULLION

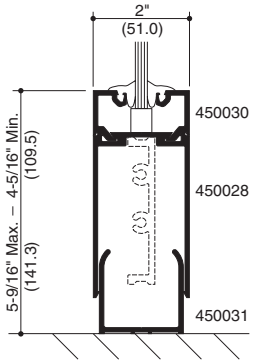


EXPANSION TUBE MULLION

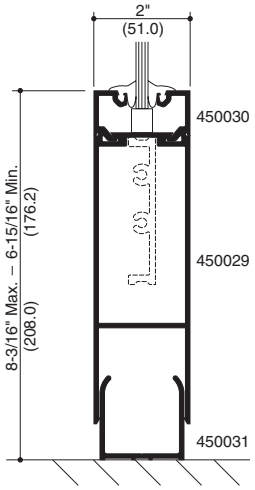
***** SIDELITE BASES SHOWN FOR USE WITH SCREW SPLINE & SHEAR BLOCK SYSTEMS ONLY.



***SIDELITE BASE**



***SIDELITE BASE**

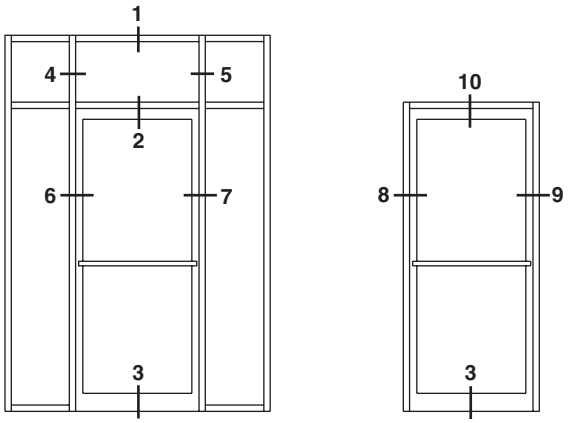


***SIDELITE BASE**

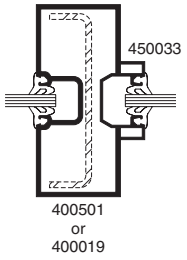
Additional information and CAD details are available at www.kawneer.com

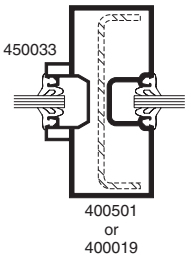
TRIFAB® 400 FRAMING INCORPORATING KAWNEER "190" DOORS.

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



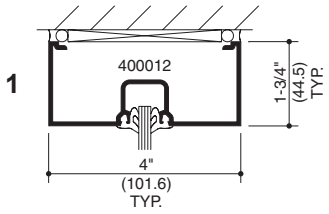
ELEVATIONS ARE NUMBER KEYED TO DETAILS

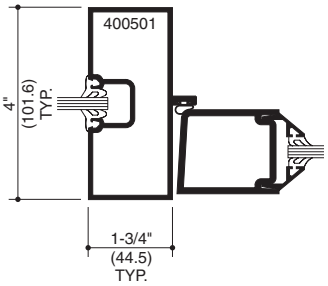


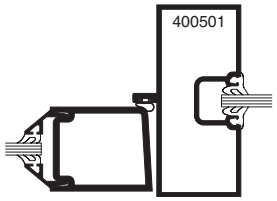


4 **TRANSOM AREA** **5**

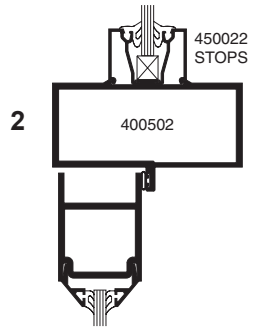
Transom area for both double and single acting doors with glass surround. Jambs above transom bar are routed out to accept glass holding Insert **450033** with or without steel reinforcing. (**400110** Steel Reinforcing shown dashed)

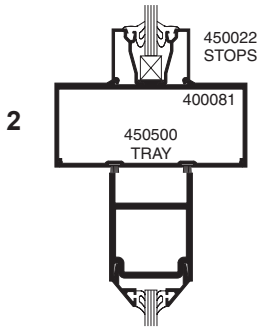


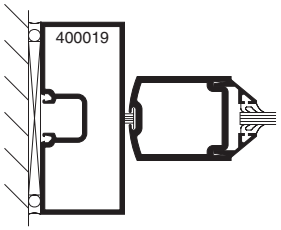


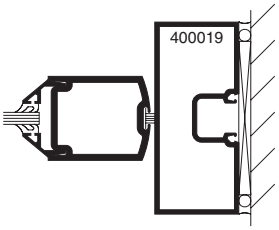


6 **SINGLE ACTING DOOR** **7**

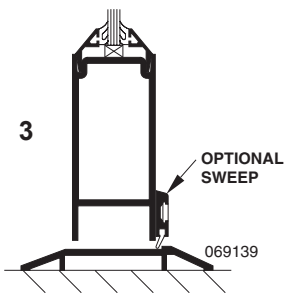


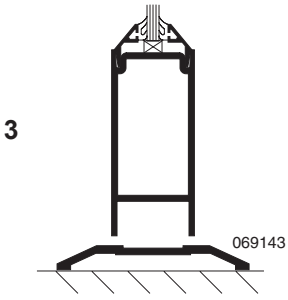






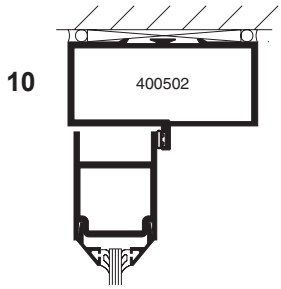
8 **DOUBLE ACTING DOOR** **9**

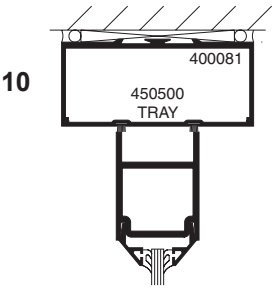




SINGLE ACTING DOOR WITH TRANSOM

DOUBLE ACTING DOOR WITH TRANSOM





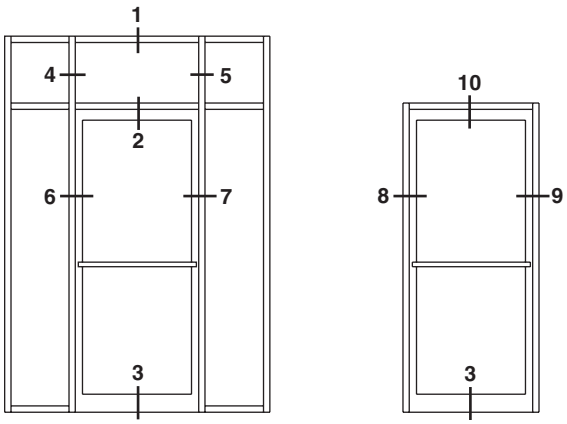
SINGLE ACTING DOOR WITHOUT TRANSOM

DOUBLE ACTING DOOR WITHOUT TRANSOM

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

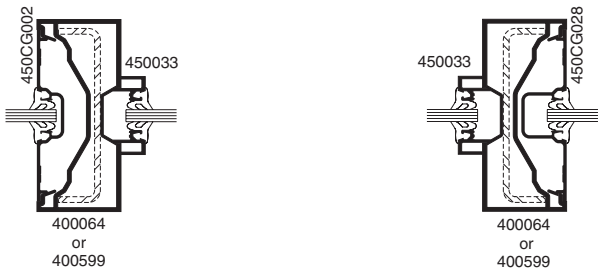
OPEN BACK FRAMING INCORPORATING KAWNEER "190" DOORS

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



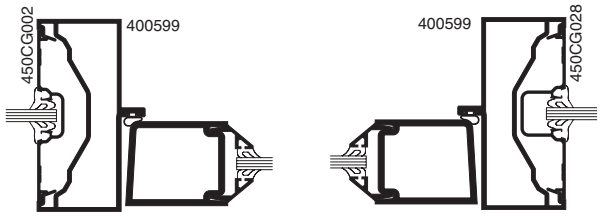
ELEVATIONS ARE NUMBER KEYED TO DETAILS

Transom area for both double and single acting doors with glass surround. Jambs above transom bar are routed out to accept glass holding Insert **450033** with or without steel reinforcing. (**400110** Steel Reinforcing shown dashed)



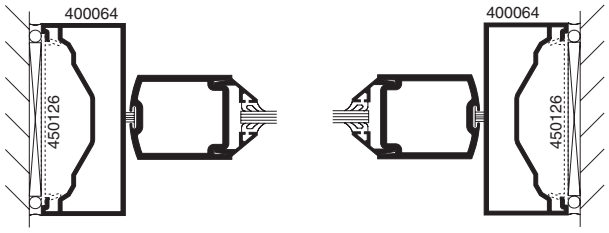
4 **TRANSOM AREA** **5**

NOTE: Sidelite mullions must be orientated to provide at least one deep vertical pocket per lite to facilitate glazing.

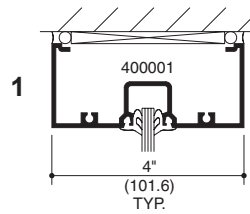


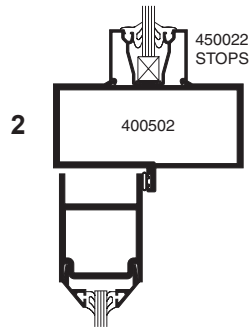
6 **SINGLE ACTING DOOR** **7**

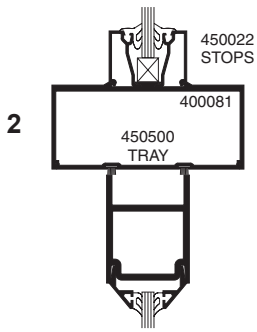
Shim Backer **450126 (3" Long)** used at perimeter fastener locations or Pocket Filler **450CG002, 450CG028** for sidelites.

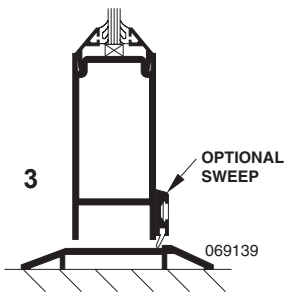


8 **DOUBLE ACTING DOOR** **9**

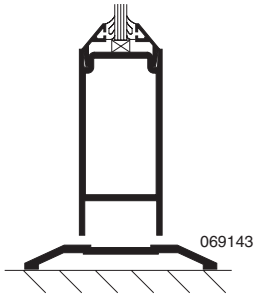




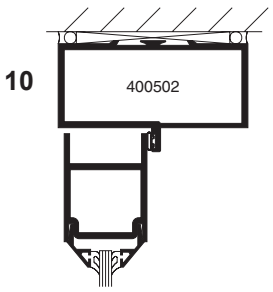




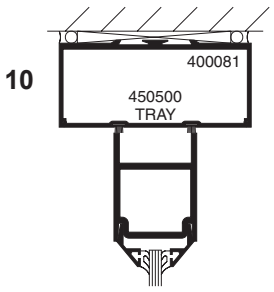
SINGLE ACTING DOOR WITH TRANSOM



DOUBLE ACTING DOOR WITH TRANSOM

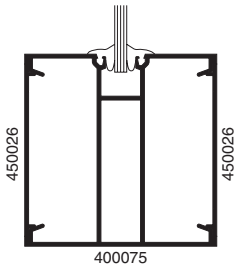


SINGLE ACTING DOOR WITHOUT TRANSOM

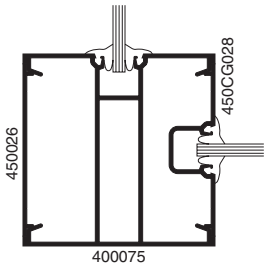


DOUBLE ACTING DOOR WITHOUT TRANSOM

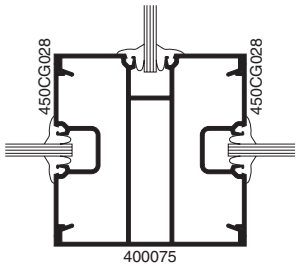
Additional information and CAD details are available at www.kawneer.com



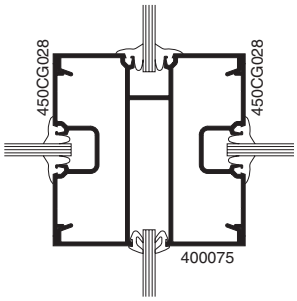
ONE POCKET CORNER



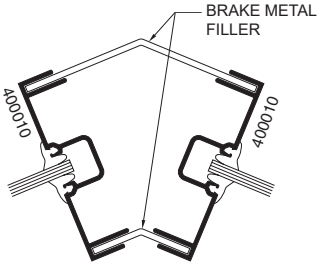
TWO POCKET CORNER



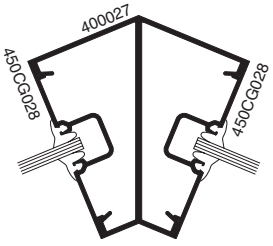
THREE POCKET CORNER



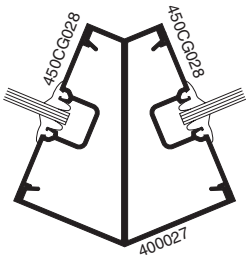
FOUR POCKET CORNER



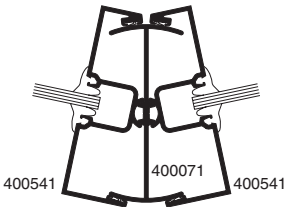
**ADJUSTABLE
BRAKE METAL CORNER**



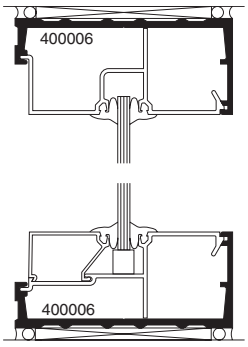
135° INSIDE CORNER



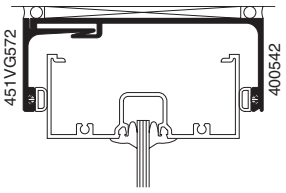
135° OUTSIDE CORNER



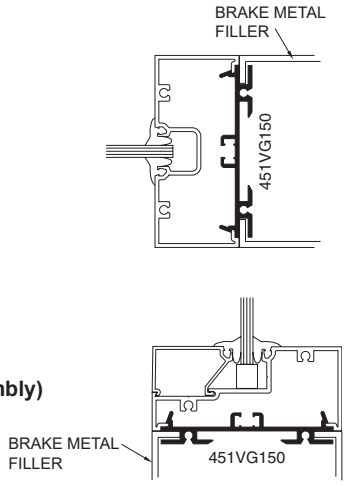
**155° to 180°
PIVOT MULLION**



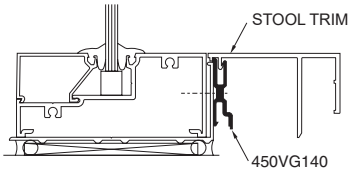
**HEAVYWEIGHT
HEAD and SILL RECEPTOR
(Stick Assembly)**



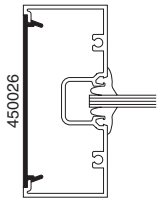
**HEAD and JAMB
COMPENSATING RECEPTOR
EXTERIOR INSTALLED
(Screw Spline or Shear Block Assembly)**



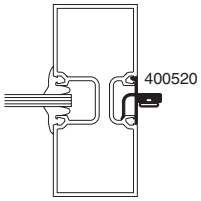
**BRAKE METAL ADAPTOR
(Vertically/Horizontally)**



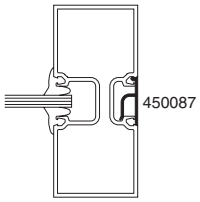
STOOL TRIM CLIP



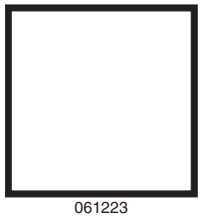
**PERIMETER
FILLER**



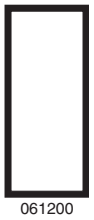
**SNAP-IN
DOOR STOP**



**SNAP-IN
FLUSH POCKET
FILLER**



4" x 4" TUBE

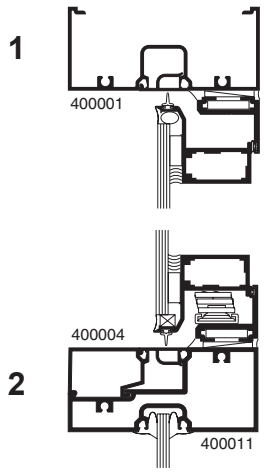


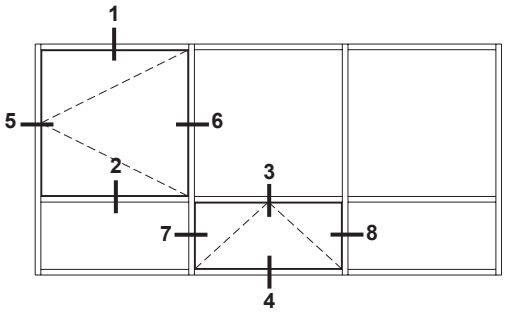
**1-3/4" x 4"
TUBE**

**1-3/4" x 1-3/4"
TUBE**

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

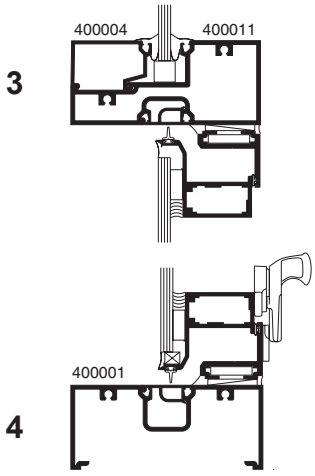
OUTSWING CASEMENT VERTICAL SECTION



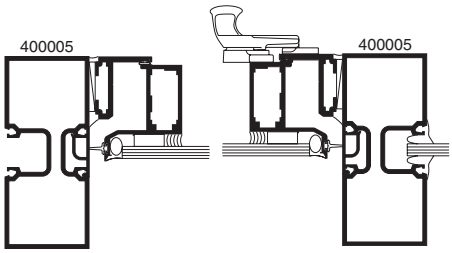


ELEVATION IS NUMBER KEYED TO DETAILS

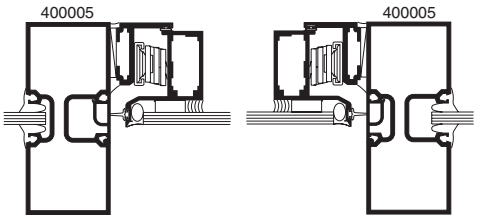
PROJECT-OUT VERTICAL SECTION



OUTSWING CASEMENT HORIZONTAL SECTION



PROJECT-OUT HORIZONTAL SECTION



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.

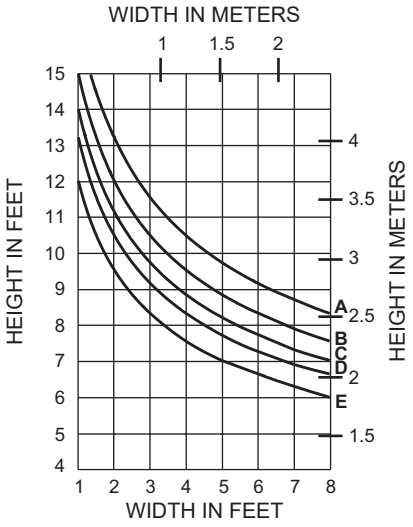
If the end reaction of the mullion [mullion spacing (ft.) times height (ft.) times specified wind load (psf) divided by two] is more than 500 lbs., the optional Mullion Anchors must be used. Consult Application Engineering. *(Mullion Anchor not used with Lightweight Receptor.)*

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.

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

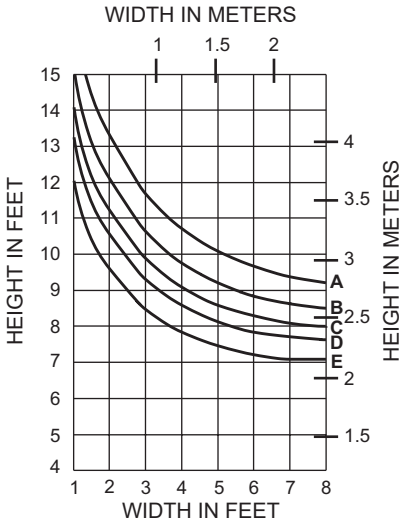
WITH HORIZONTALS



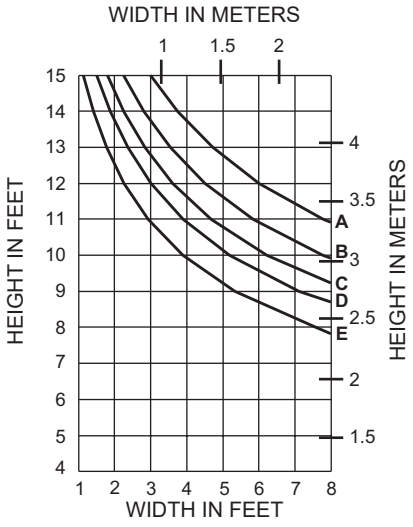
400001
450CG002

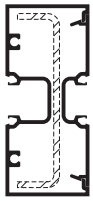
I = 2.291 (95.36. x 10^4)
S = 1.145 (18.76 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS





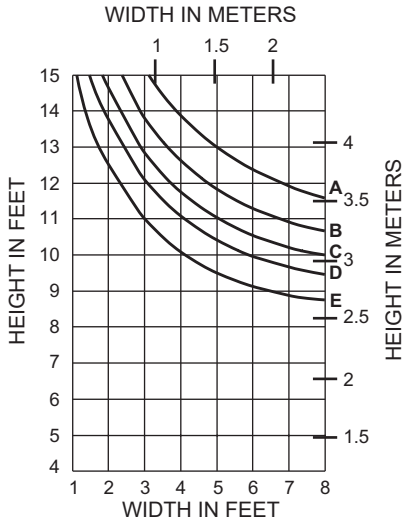
400001
450CG002

I_A = 2.291 (95.36. x 10^4)
S_A = 1.145 (18.76 x 10^3)

400110 STEEL

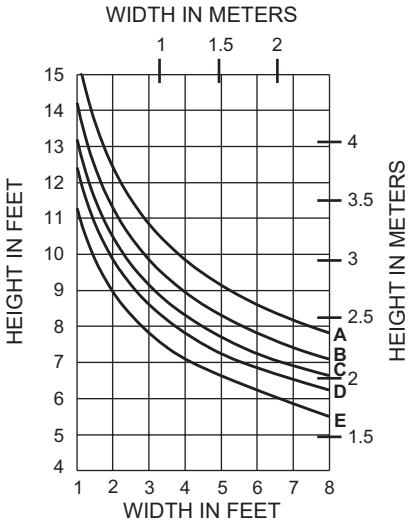
I_S = 0.970 (40.37 x 10^4)
S_S = 0.535 (8.77 x 10^3)

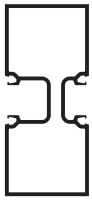
WITHOUT HORIZONTALS



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

WITH HORIZONTALS

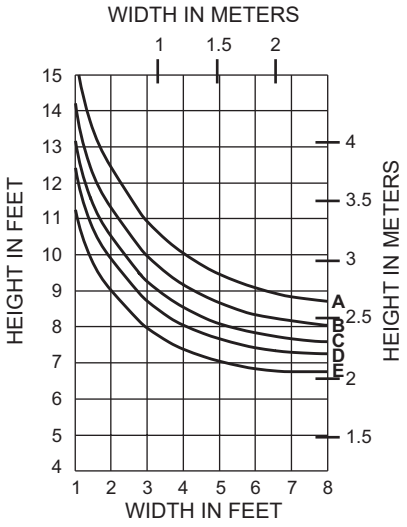




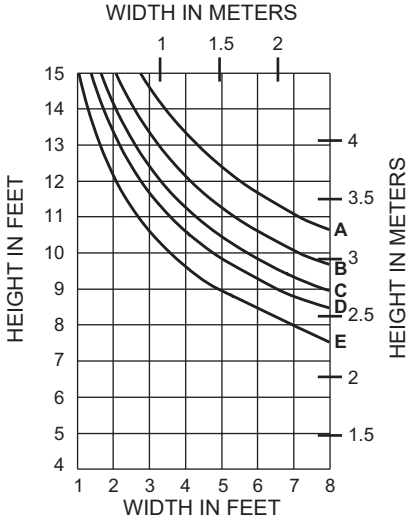
400005

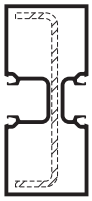
$I = 1.882\ (78.33 \times 10^4)$
$S = 0.941\ (15.42 \times 10^3)$

WITHOUT HORIZONTALS



WITH HORIZONTALS





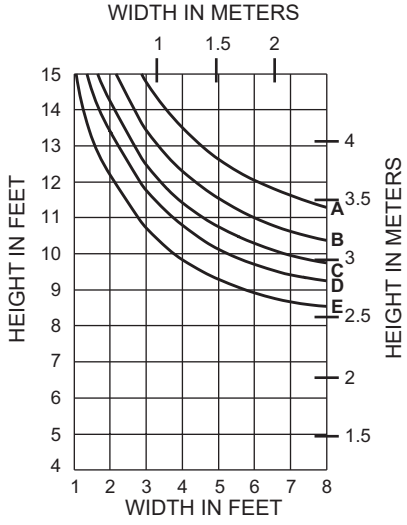
400005

$I_A = 1.882\ (78.33 \times 10^4)$
$S_A = 0.941\ (15.42 \times 10^3)$

400110 STEEL

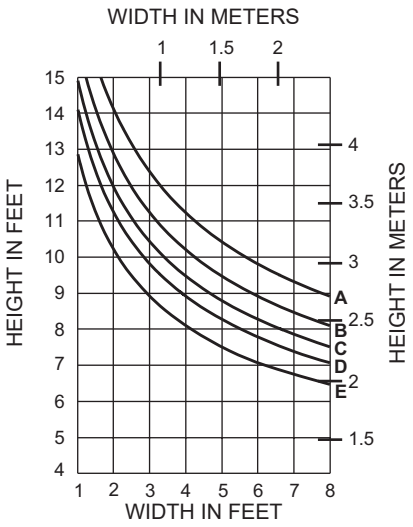
$I_S = 0.970\ (40.37 \times 10^4)$
$S_S = 0.535\ (8.77 \times 10^3)$

WITHOUT HORIZONTALS



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

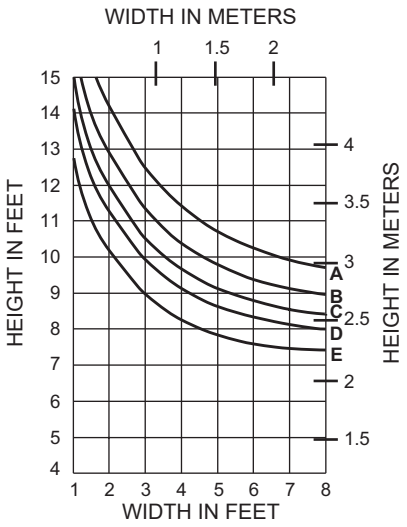
WITH HORIZONTALS



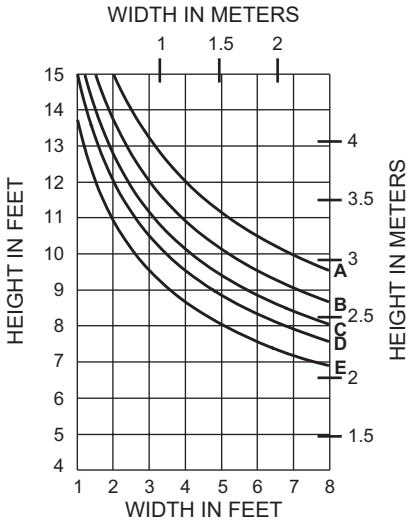
400010
400540

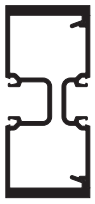
I = 2.791 (116.17 x 10^4)
S = 1.395 (22.86 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS

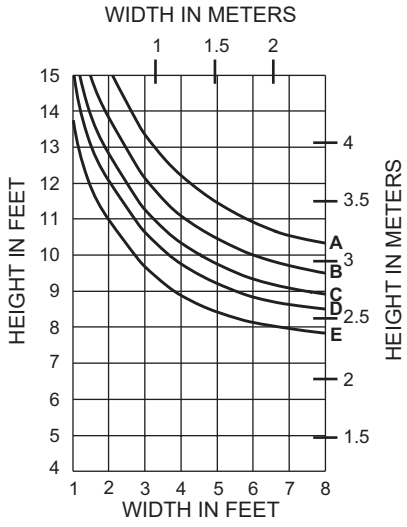




400013
450CG002

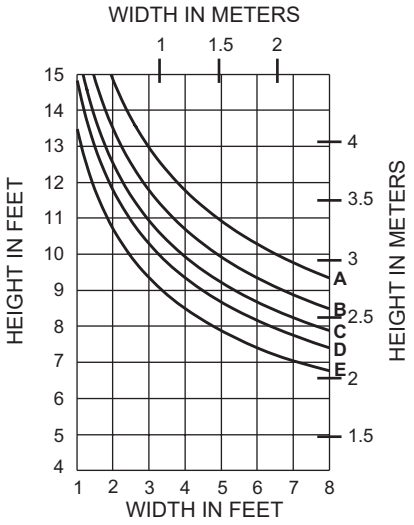
I = 3.432 (142.85 x 10^4)
S = 1.716 (28.12 x 10^3)

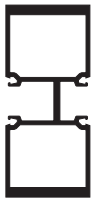
WITHOUT HORIZONTALS



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

WITH HORIZONTALS

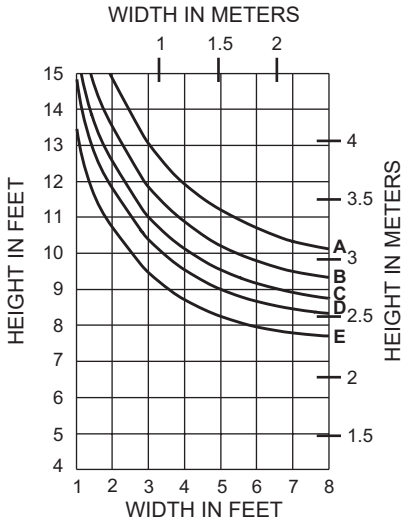




400014

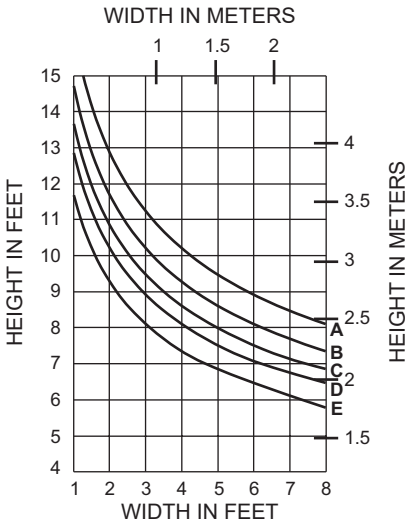
I = 3.212 (133.69 x 10^4)
S = 1.606 (26.32 x 10^3)

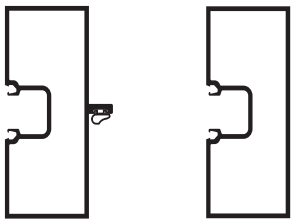
WITHOUT HORIZONTALS



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

WITH HORIZONTALS

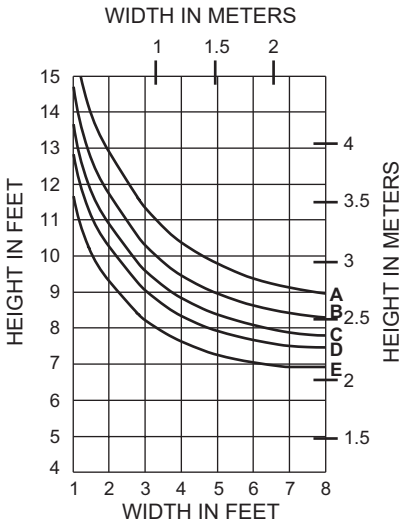




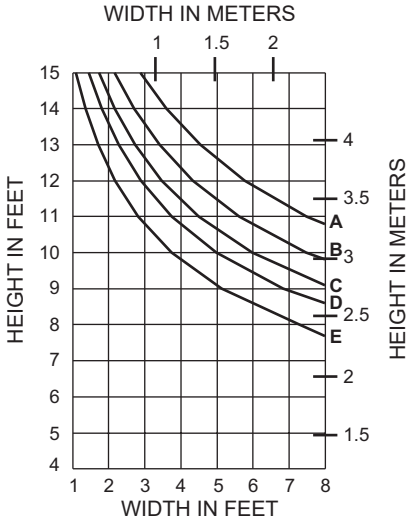
400501 **400019**

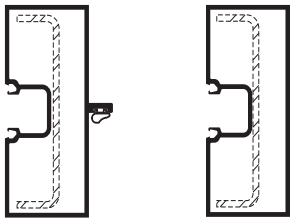
I = 2.093 (87.12 x 10^4)
S = 1.044 (17.11 x 10^3)

WITHOUT HORIZONTALS



WITH HORIZONTALS





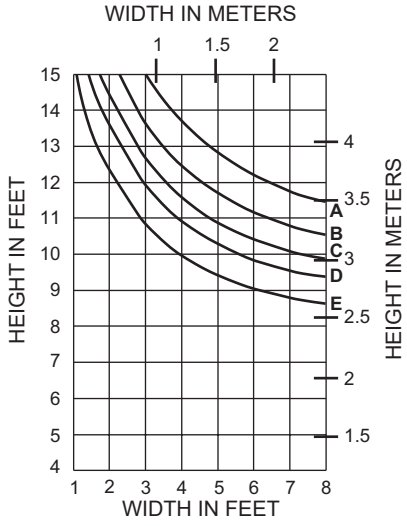
400501 **400019**

I_A = 2.093 (87.12 x 10^4)
S_A = 1.044 (17.11 x 10^3)

400110 STEEL

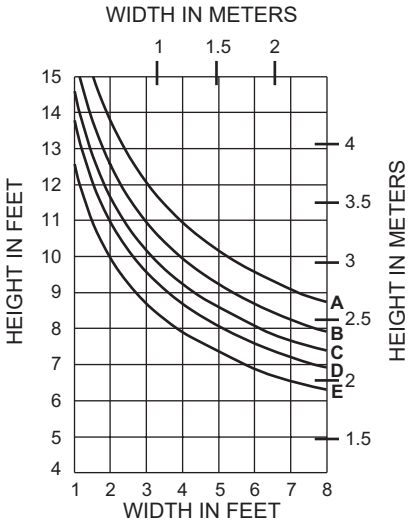
I_S = 0.970 (40.37 x 10^4)
S_S = 0.535 (8.77 x 10^3)

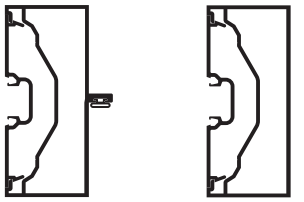
WITHOUT HORIZONTALS



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

WITH HORIZONTALS



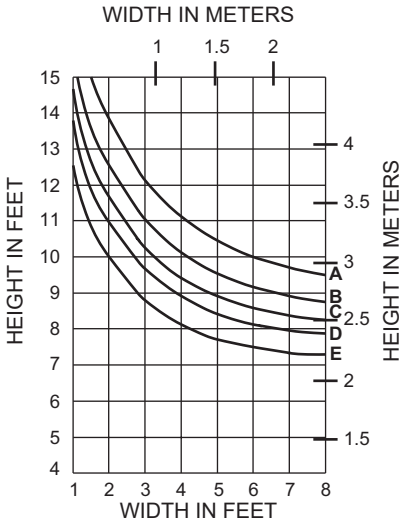


400599
450CG002

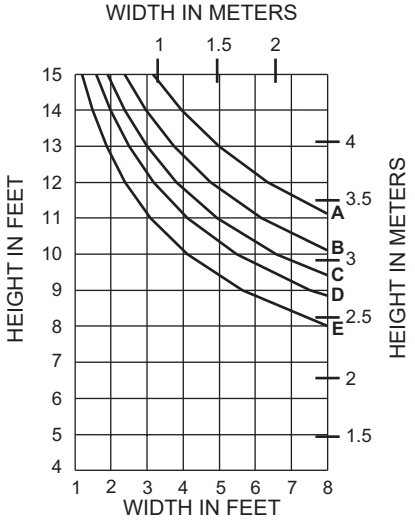
400064
450CG002

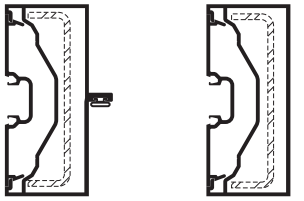
$I = 2.599 (108.18 \times 10^4)$
$S = 1.3 (21.30 \times 10^3)$

WITHOUT HORIZONTALS



WITH HORIZONTALS





400599
450CG002

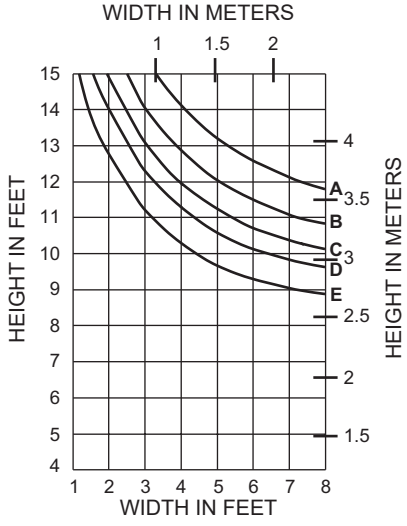
400064
450CG002

$I_A = 2.599 (108.18 \times 10^4)$
$S_A = 1.3 (21.30 \times 10^3)$

400110 STEEL

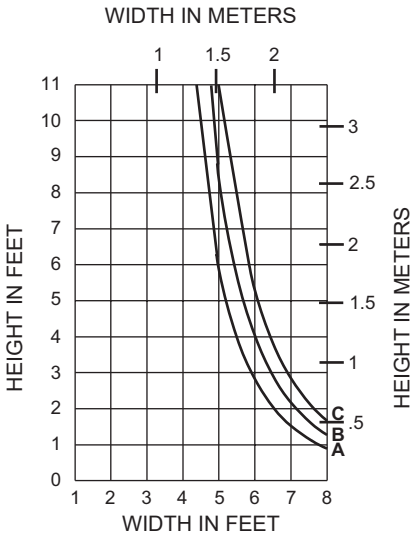
$I_S = 0.970 (40.37 \times 10^4)$
$S_S = 0.535 (8.77 \times 10^3)$

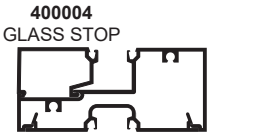
WITHOUT HORIZONTALS



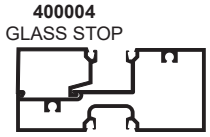
Horizontal or deadload limitations are based upon 1/8" (3.2), maximum allowable deflection at the center of an intermediate horizontal member. The accompanying charts are calculated for 1/4" (6.35) thick glass supported on two setting blocks placed at the loading points shown.

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

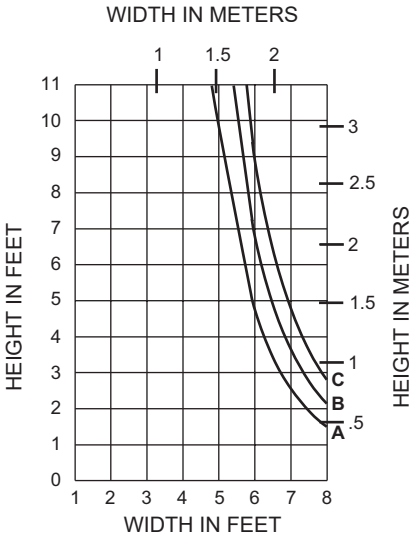




400003
TWO PIECE
HORIZONTAL



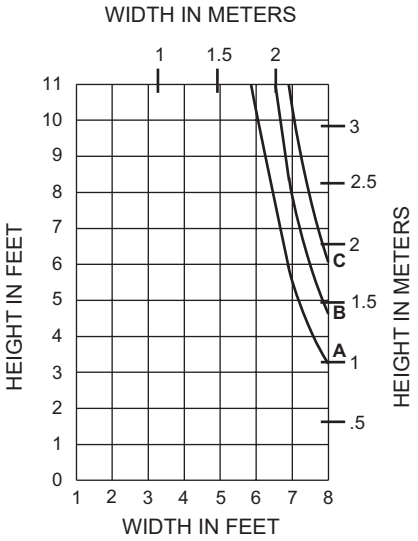
400011
TUBE
HORIZONTAL



DEADLOADS ON ENTRANCE TRANSOM BARS

Height limitations for transom glass over a doorway are based on a 1/16" (1.6) maximum allowable deflection at the center of a transom bar. The accompanying chart is 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)



400502
SINGLE ACTING
T-BAR

400081
DOUBLE ACTING
T-BAR