

511/521/522

ALUMINUM DOOR SYSTEMS



ALUMINUM SECTIONAL DOORS

GARAGE DOOR
MODEL 521/ BLACK

VISUAL ACCESS.
LIGHT INFILTRATION.
CONTEMPORARY LOOK.



INDUSTRY LEADING
COMMERCIAL & INDUSTRIAL SOLUTIONS



Model 511, Brown powder coat finish, Clear glass

General features and benefits – Models 511/521

- 1 3/4" (45 mm) thick, corrosion-resistant 6063-T6 aluminum sections with galvanized fixtures and hinges promotes durability and trouble-free operation
- 1/4" (6 mm) diameter through-rods on all stiles and rails enhances strength and sturdiness
- Top-quality materials, excellent field service and optional maintenance program contribute to extended door life, low maintenance costs and maximum productivity
- Glazing choices include DSB glass, acrylic, tempered glass, clear polycarbonate, multi-wall polycarbonate, wire glass, Low E, Lexan and laminate
- Standard clear anodized finish for low-maintenance and corrosion-resistance
- Optional finishes include a wide range of powder coat colors offering an attractive and durable finish
- Manual pull rope operation with optional chain hoist or electric motor operator
- Available in approximately 200 RAL powder coat colors to match the aesthetic and design of your project. This color optional upgrade includes a hardening additive that provides an attractive and durable finish and easy-to-clean surface.

Cover image: Model 521, Clear anodized finish with Clear glass.



Model 522, Mirrored Gray glass

General features and benefits – Model 522

- **Frameless design** – the ultimate sleek and modern aluminum full-view door
- **Vinyl seals** between the sections and the flexible bottom seal help to minimize air flow
- **Large glass panels**, mounted to the front of the door, allow maximum light and visibility
- **1 3/8" thick aluminum section** with patent pending design for long life and durability
- **2 1/4" integrated reinforcing rib** on upper intermediate rail for doors 10'3" wide and over
- **Meets ASHRAE 90.1 and IECC® air infiltration requirements** with a third-party tested value of less than 0.4 cfm/ft²
- **Meets California Code of Regulation, Title 24 air infiltration requirements** with a third-party tested value of less than 0.3 cfm/ft²



ALUMINUM DOOR SYSTEMS

MODELS 511/521/522 offer an attractive solution for commercial and industrial applications where visual access, light infiltration and aesthetics are key design considerations.

Model 521, Clear anodized finish with Clear glass



Glass options for Models 511/521

Specialty Glass

- Laminated White – privacy
- Low E Glass** – thermal efficiency
- Tempered Glass – enhanced safety
- Tinted Glass** – color options:
Green, Gray, Bronze

Glass alternatives

- Clear Lexan® Polycarbonate** – shatter resistant
- Multi Wall Polycarbonate – superior strength with UV protection; color options: Clear, White, Bronze
- Plexiglas® Acrylic** – shatter resistant
- Impact Clear and Frosted Polycarbonate - 0.250" minimum



Double Strength DSB** (Standard)

Obscure

Satin Etched

Gray Tint

Green Tint

Bronze Tint

Impact Frosted Polycarbonate

Actual glass may vary from brochure photos due to fluctuations in the printing process. Check with your Overhead Door™ Distributor to view a glass sample.

** Insulated options available.



Model 511, Clear Anodized finish with Clear glass

ALUMINUM DOOR SYSTEMS MODEL 511

doors are designed in sizes up to 16'2" wide and 16'1" high (4928 mm and 4902 mm). Featuring a narrow center stile width of 21/32" (17 mm), these doors are sleek, attractive and permit maximum visibility. An array of glazing choices, top and bottom rail widths, finishes and special options customizes the 511 Model to satisfy nearly any project requirement.

Model 511, Black powder coat finish, Clear glass.



Standard features at a glance

Panel thickness	1 3/4" (45 mm)
Maximum standard height	16'1" (4902 mm)
Maximum standard width	16'2" (6147 mm)
Material	6063-T6 aluminum
Standard finish	204R-1 clear anodized
Center stile width	2 1/32" (17 mm)
End stile width	2 3/4" (70 mm)
Top rail width	2 3/8" (60 mm) or 3 3/4" (95 mm)
Top intermediate rail width	3/4" (19 mm)
Bottom intermediate rail width	5/8" (16 mm)
Bottom rail width	2 3/8" (60 mm) or 3 3/4" (95 mm) or 4 1/2" (114 mm)
Weatherseals	Bottom, flexible PVC
Standard springs	10,000 cycle
Track	2" (51 mm)
Mounting	Angle
Operation	Manual pull rope
Hinges and fixtures	Galvanized steel
Lock	Galvanized, interior-mounted single unit
Warranty	1-Year Limited; 3-Year Limited powder coat finish

Options

Glazing options*:
 1/8" (3 mm) DSB;
 1/8" (3 mm) or 1/4" (6 mm) acrylic;
 1/8" (3 mm) or 1/4" (6 mm) tempered;
 1/8" (3 mm) or 1/4" (6 mm) clear polycarbonate;
 1/4" (6mm) and 3/8" twin-wall polycarbonate, 5/8" triple-wall polycarbonate;
 1/4" (6 mm) 3/8" (10 mm) and 5/8" (16 mm) twin-wall polycarbonate, triple-wall polycarbonate 1/4" (6 mm) wire glass;
 1/2" (12 mm) insulated glass

Electric operator or chain hoist

Bottom sensing edge

3" track

Bracket mounting (not available on full vertical door tracks)

Higher-cycle springs in 25k, 50k, 75k, 100k cycles

Chain hoist

Posi-tension drums

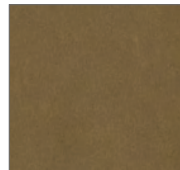
*Contact your local Overhead Door™ Distributor for special glazing requirements. Verify 1/4" (6 mm) glass applications with factory.

Structure options

Anodized finishes



Clear (standard)



Light Bronze



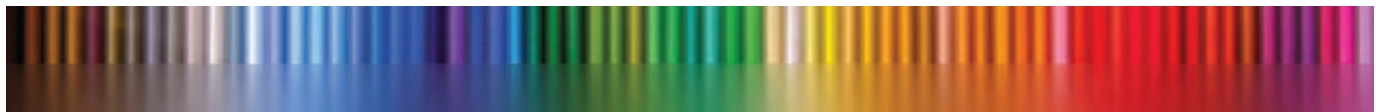
Medium Bronze



Dark Bronze

Powder coat finishes

Select from approximately 200 RAL powder coat color options to best match your home.



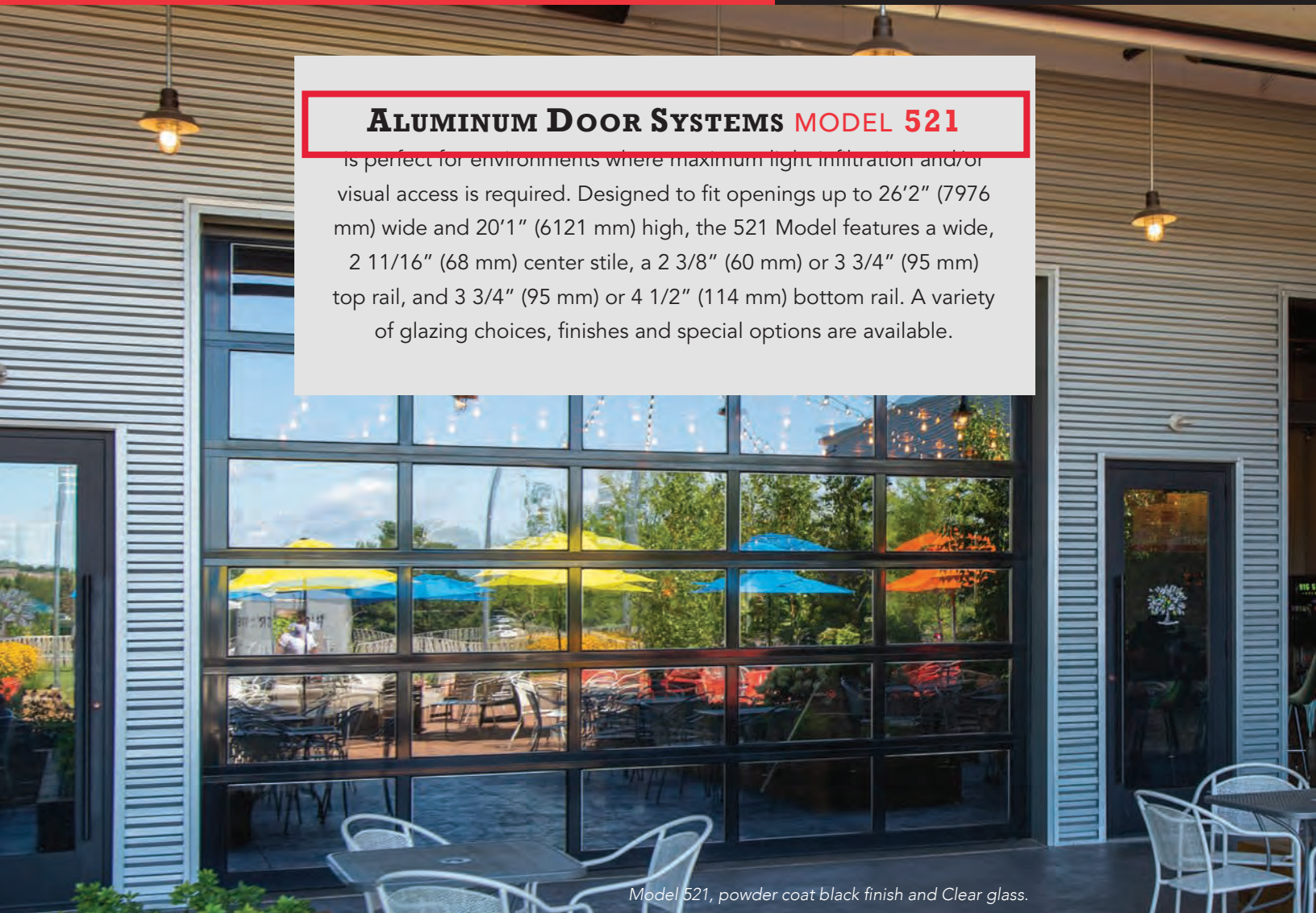
Actual door colors may vary from brochure photos due to fluctuations in the printing process. Always request a color sample from your Overhead Door™ Distributor for accurate color matching.

Panel layout	
Door width	Number of panels
to 11'11" (3632 mm)	3
12'0" to 14'11" (3658 mm to 4547 mm)	4
15'0" to 16'2" (4572 mm to 4928 mm)	5

Section stack	
Door height	Number of sections
to 8'6" (2591 mm)	4
8'7" to 10'1" (2616 mm to 3073 mm)	5
10'2" to 12'1" (3099 mm to 3683 mm)	6
12'2" to 14'1" (3708 mm to 4293 mm)	7
14'2" to 16'1" (4318 mm to 4902 mm)	8

ALUMINUM DOOR SYSTEMS MODEL 521

is perfect for environments where maximum light infiltration and/or visual access is required. Designed to fit openings up to 26'2" (7976 mm) wide and 20'1" (6121 mm) high, the 521 Model features a wide, 2 11/16" (68 mm) center stile, a 2 3/8" (60 mm) or 3 3/4" (95 mm) top rail, and 3 3/4" (95 mm) or 4 1/2" (114 mm) bottom rail. A variety of glazing choices, finishes and special options are available.



Model 521, powder coat black finish and Clear glass.

Optional polyurethane insulation for stiles and rails up to 18'2" wide

1/2" insulated glazing unit	Door R-value (K m²/W)
DSB- clear, tempered, obscure	2.87
Clear polycarbonate	2.93
DSB - Solar Bronze	3.17
DSB - Low E coating	3.43
SolarBan 70XL argon filled	4.09
Multi-wall polycarbonate	Door R-value (K m²/W)
1/4" thick unit	2.75
3/8" thick unit	3.21
5/8" thick unit	3.48
Insulated panels	Door R-value (K m²/W)
3/8" EPS solid panels	2.60



Polyurethane filled rails and stiles

*R-value: Overhead Door Corporation uses a calculated door section R-value for our insulated doors.



Standard features at a glance

Section thickness	1 3/4" (45 mm)
Maximum standard height	20'1" (6121 mm)
Maximum standard width	26'2" (7976 mm)
Material	Extruded 6061-T6 aluminum
Standard finish	204R-1 clear anodized (painted white at no charge)
Center stile width	2 11/16" (68 mm)
End stile width	3 5/16" (85 mm)
Top rail width	2 3/8" (60 mm) or 3 3/4" (95 mm)
Top intermediate rail width	2 1/8" (54 mm)
Bottom intermediate rail width	1 19/32" (40 mm)
Bottom rail width	3 3/4" (95 mm) or 4 1/2" (114 mm)
Weatherseals	Bottom, flexible PVC
Standard springs	10,000 cycle
Track	2" (51 mm)
Mounting	Angle
Operation	Manual pull rope
Hinges and fixtures	Galvanized steel
Lock	Galvanized, interior-mounted single unit
Warranty	1-Year Limited; 3-Year Limited on powder coat finish

Options

Glazing options[†]: 1/8" (3 mm) DSB; 1/8" (3 mm) or 1/4" (6 mm) acrylic; 1/8" (3 mm) or 1/4" (6 mm) tempered; 1/8" (3 mm) or 1/4" (6 mm) clear polycarbonate; 1/4" (6mm) and 3/8" twin-wall polycarbonate, 5/8" triple-wall polycarbonate; 1/4" (6 mm) 3/8" (10 mm) and 5/8" (16 mm) twin-wall polycarbonate, triple-wall polycarbonate 1/4" (6 mm) wire glass; 1/2" (12 mm) insulated glass

Electric operator or chain hoist

Bottom sensing edge

3" track

Bracket mounting (not available on full vertical door tracks)

Higher-cycle springs in 25k, 50k, 75k, 100k cycles

Exhaust ports

Four-section pass door

Wind load and impact rated door available

Posi-tension drums

Bronze anodization

Powder coat finish

Pass door

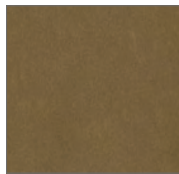
[†]Contact your local Overhead Door™ Distributor for special glazing requirements. Verify 1/4" (6 mm) glass applications with factory.

Structure options

Anodized finishes



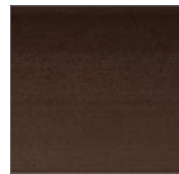
Clear (standard)



Light Bronze



Medium Bronze



Dark Bronze

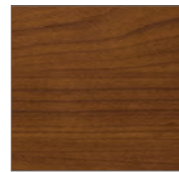
Wood grain powder coat finishes*



Knotty Pine



Cherry



Cherry with Flame



Dark Walnut

Powder coat finishes

Select from approximately 200 RAL powder coat color options to best match your home.



BLACK FINISH

*Wood grain availability dependent upon location.

Actual door colors may vary from brochure photos due to fluctuations in the printing process. Always request a color sample from your Overhead Door™ Distributor for accurate color matching.

Panel layout	
Door width	Number of panels
to 9'2" (to 2794 mm)	2 or 3 (standard)
9'3" to 12'2" (2819 mm to 3708 mm)	3
12'3" to 16'2" (3734 mm to 4953 mm)	4
16'3" to 18'2" (4978 mm to 5537 mm)	4 or 5 (standard)
18'3" to 19'2" (5562 mm to 5842 mm)	5
19'3" to 20'11" (5867 mm to 6375 mm)	6**
21'0" to 23'11" (6401 mm to 7290 mm)	8**
24'0" to 26'2" (7315 mm to 7976 mm)	10**

Section stack	
Door height	Number of sections
to 8'6" (2591 mm)	4
8'7" to 10'1" (2616 mm to 3073 mm)	5
10'2" to 12'1" (3099 mm to 3683 mm)	6
12'2" to 14'1" (3708 mm to 4293 mm)	7
14'2" to 16'1" (4318 mm to 4902 mm)	8
16'2" to 18'1" (4928 mm to 5512 mm)	9
18'2" to 20'1" (5537 mm to 6121 mm)	10

**Special construction. Consult your local Overhead™ Door Distributor for additional information.

ALUMINUM DOOR SYSTEMS MODEL 522

This aluminum full-view door is ideal for restaurants, auto dealerships and any application where the door needs to integrate seamlessly with the aesthetics of the building.

Model 522, Mirrored Bronze glass



Standard features at a glance

Section thickness	1 3/8" (35 mm)
Maximum standard height	14'1" (4318 mm)
Maximum standard width	18'2" (5486 mm)
Material	6063-T6 aluminum
Standard finish	White, Black or Bronze Powder Coat
Center stile width	3" (76 mm)
End stile width	3 1/2" (89 mm)
Top rail width	3 1/2" (89 mm)
Top intermediate rail width	1 5/8" (41 mm)
Bottom intermediate rail width	1 3/8" (35 mm)
Bottom rail width	3 1/2" (89 mm)
Standard springs	10,000 cycle
Track	Provide track as recommended by manufacturer to suit loading required and clearances available
Mounting	Angle
Operation	Manual pull rope
Hinges and fixtures	Galvanized steel
Lock	Galvanized, interior-mounted single unit
Warranty	1-Year Limited

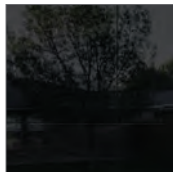
Options

- Springs: 25,000, 50,000, 75,000 or 100,000 cycles
- Weather stripping: jamb and header seals
- White or Black powder coat track

Glass options



Opaque White



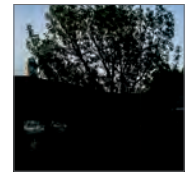
Opaque Black



Mirrored Gray



Mirrored Bronze



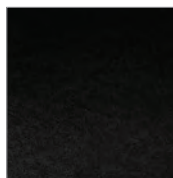
Translucent Black

Structure options

Powder Coat Finishes



White



Black



Bronze

Anodized Finishes



Black



Bronze

Actual colors may vary from brochure due to fluctuations in the printing process. Always request a color sample from your Overhead Door™ Distributor for accurate color matching.

Aluminum and glass pairing

Aluminum options

White Powder Coat

Black Powder Coat / Bronze Powder Coat /
Black Anodized / Bronze Anodized

Glass color

Opaque White

Opaque Black / Mirrored Gray / Mirrored Bronze /
Translucent Black

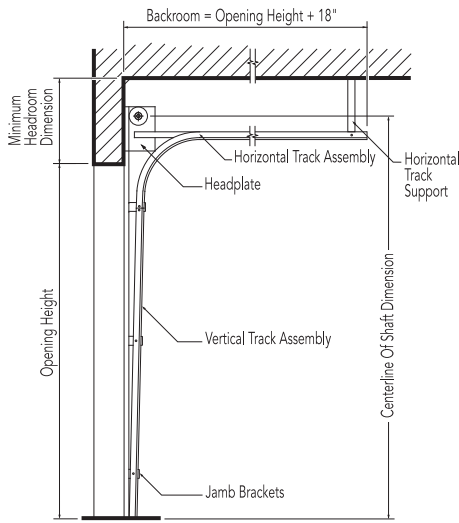
Each door is unique and built to order, therefore a slight deviation in glass alignment is possible. These doors may become hot to the touch in sustained hot weather. See website for door sizes, section selection and other details.

Track detail

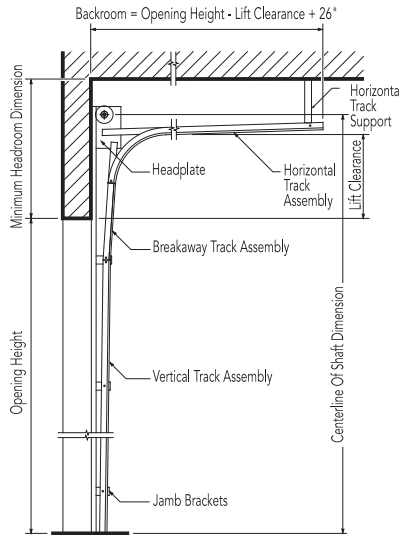
Any of the following track configurations can be selected for 511, 521 and 522 Aluminum door models.

O.H.=Opening height L.C.=Lift clearance D.H.=Door height

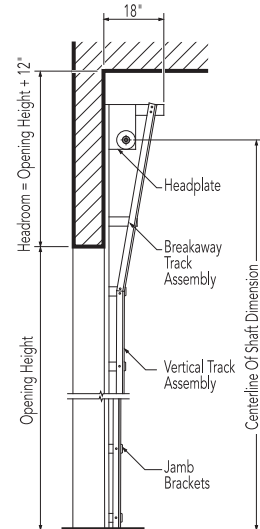
Standard lift track



Lift clearance track Standard



Full vertical track



2" (51 mm) Track [15" (381 mm) radius]

Door height	Centerline of shaft	Minimum headroom
Thru 12'0" (3658 mm)	O.H. + 11 5/8" (295 mm)	14 1/4" (362 mm)
Thru 16'0" (4877 mm)	O.H. + 12 5/8" (321 mm)	20 1/2" (521 mm)

2" (51 mm) Track [15" (381 mm) radius]

Door height	Centerline of shaft	Minimum headroom
Thru 12'0" (3658 mm)	O.H. + L.C. + 5 5/8" (143 mm)	L.C. + 8 3/4" (222 mm)
Thru 16'0" (4877 mm)	O.H. + L.C. + 5 5/8" (143 mm)	L.C. + 11 1/4" (286 mm)

2" (51 mm) Track [15" (381 mm) radius]

Door height	Centerline of shaft	Minimum headroom
Thru 11'0" (3353 mm)	O.H. + O.H. + 3/8" (10 mm)	O.H. + 10 1/4" (260 mm)
Thru 16'0" (4877 mm)	O.H. + O.H. + 3/8" (10 mm)	O.H. + 10 1/4" (260 mm)

3" (76 mm) Track [15" (381 mm) radius]

Thru 18'0" (5486 mm)	O.H. + 14 5/8" (372 mm)	18" (457 mm)
Thru 32'0" (9754 mm)	O.H. + 16 7/8" (429 mm)	21 1/2" (546 mm)

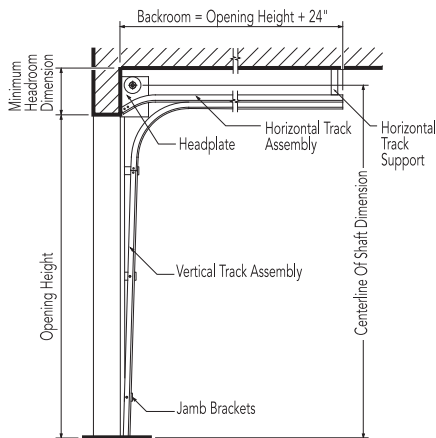
3" (76 mm) Track [15" (381 mm) radius]

Thru 22'0" (6706 mm)	O.H. + L.C. + 6 5/8" (168 mm)	L.C. + 11 1/2" (292 mm)
Thru 32'0" (9754 mm)	O.H. + L.C. + 6 5/8" (168 mm)	L.C. + 12 1/4" (311 mm)

3" (76 mm) Track [15" (381 mm) radius]

Thru 18'0" (5486 mm)	O.H. + O.H. + 3/8" (10 mm)	O.H. + 10 1/4" (260 mm)
----------------------	----------------------------	-------------------------

Low headroom track Springs to front



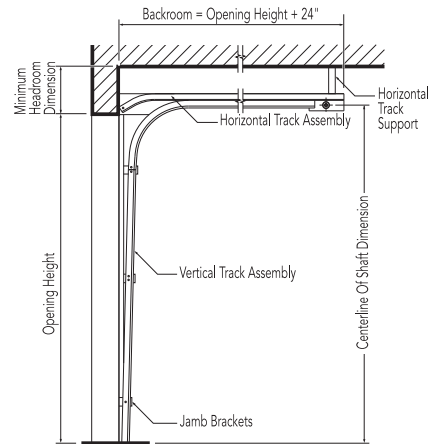
2" (51 mm) Track [15" (381 mm) radius]

Door height	Centerline of shaft	Minimum headroom
Thru 12'0" (3658 mm)	D.H. + 8" (203 mm)	11 3/4" (299 mm)
Thru 16'0" (4877 mm)	D.H. + 8" (203 mm)	12 1/2" (318 mm)

3" (76 mm) Track [15" (381 mm) radius]

Thru 12'0" (3658 mm)	D.H. + 9" (229 mm)	13" (330 mm)
Thru 32'0" (5486 mm)	D.H. + 9" (229 mm)	13 3/4" (349 mm)

Low headroom track Springs to rear



2" (51 mm) Track [15" (381 mm) radius]

Door height	Centerline of shaft	Minimum headroom
Thru 12'0" (3658 mm)	O.H. + 2" (51 mm)	7 1/2" (191 mm)
Thru 16'0" (4866 mm)	O.H. 2" (51 mm)	8" (203 mm)

3" (76 mm) Track [15" (381 mm) radius]

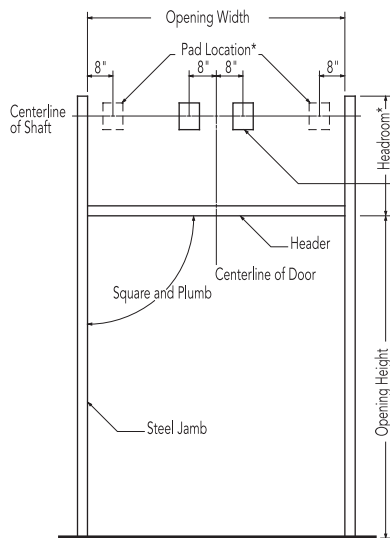
Thru 18'0" (5486 mm)	O.H. 6 3/4" (171 mm)	9 3/4" (248 mm)
----------------------	----------------------	-----------------



Framing and pad detail

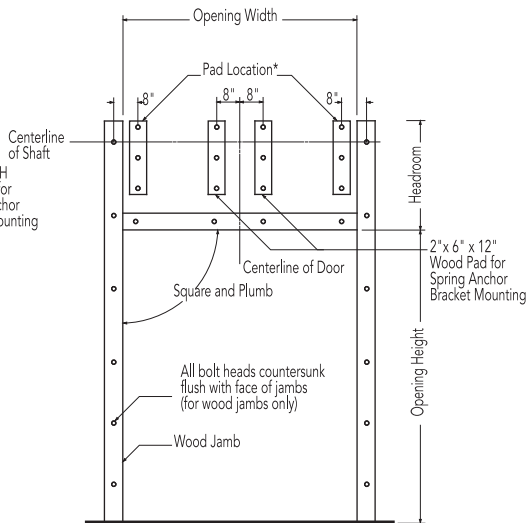
Framing and pad details for common installation of Aluminum doors in steel, wood, concrete and masonry jambs are provided here. If you require additional information or have special project requirements, refer to the Architectural Design Manual, (www.overheaddoor.com/ADM/base.html) or consult with the Applications Engineering Group or your local Overhead Door™ Distributor.

Steel jambs



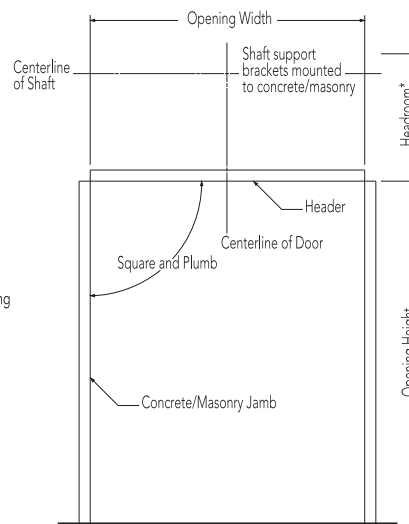
* Pad Location for additional shaft support brackets for doors over 18'3" wide

Wood jambs

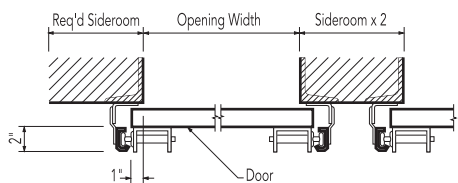


* Pad Location for additional shaft support brackets for doors over 18'3" wide

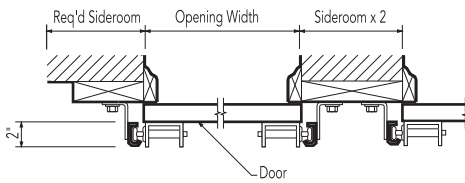
Concrete/masonry jambs



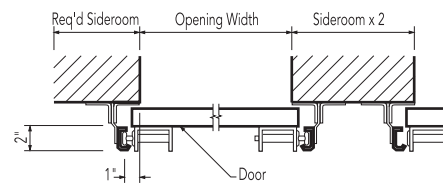
2" (51 mm) track



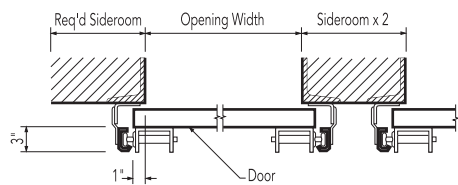
2" (51 mm) track



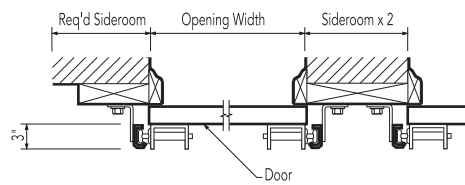
2" (51 mm) track



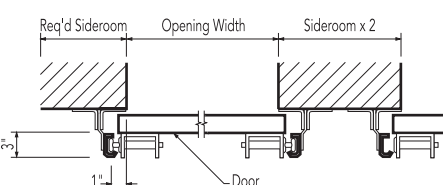
3" (76 mm) track



3" (76 mm) track



3" (76 mm) track



Minimum required sideroom

Track type	2" Track (51 mm)	3" Track (76 mm)
Standard lift	4 1/2" (114 mm)	6 1/2" (165 mm)
Low headroom	9" (229 mm)	10" (254 mm)
Lift clearance	4 1/2" (114 mm)	6 1/2" (165 mm)
Full vertical	4 1/2" (114 mm)	6 1/2" (165 mm)

Minimum required sideroom

Track type	2" Track (51 mm)	3" Track (76 mm)
Standard lift	3 1/2" (89 mm)	5 1/2" (140 mm)
Low headroom	8" (203 mm)	9" (229 mm)
Lift clearance	3 1/2" (89 mm)	5 1/2" (140 mm)
Full vertical	3 1/2" (89 mm)	5 1/2" (140 mm)

Minimum required sideroom

Track type	2" Track (51 mm)	3" Track (76 mm)
Standard lift	4 1/2" (114 mm)	6 1/2" (165 mm)
Low headroom	9" (229 mm)	10" (254 mm)
Lift clearance	4 1/2" (114 mm)	5 1/2" (140 mm)
Full vertical	4 1/2" (114 mm)	5 1/2" (140 mm)

Electric operators

We offer a broad line of electric operators to suit new construction and retrofit applications, as well as unusual or special requirements. In order to improve safety and enhance door and motor life, industry quality assurance guidelines recommend the choice of a single manufacturer for both door and operator applications.

We are one of the only national manufacturers to offer a full line of commercial and industrial doors and operators specifically designed for integral applications.

Model RHX®

Model RHX® is a heavy duty commercial operator designed to operate doors up to 24' (7315 mm) in height and 3696 pounds (1676 kg). Available as either a trolley, sidemount or centermount.



Model RMX®

Model RMX® is our most advanced medium-duty operator. It is designed for quicker installation and hassle-free operation and operates doors up to 14' (4267 mm) in height and 620 pounds (282 kg). It is available as a trolley-type or side-mounted unit.



Model RSX®

Model RSX® is a standard duty commercial operator designed to operate doors up to 24' (7315 mm) in height and 1620 pounds (735 kg). It offers unique features like LimitLock®, SuperBelt™ and 16 digit menu setup.



Operator control options

- Push-button, key or combination stations; surface- or flush-mounted for interior and/or exterior locations
- Vehicle detectors, key card reader, photocell and door timer controls
- Treadle or pull switch stations
- Telephone entry and coded keyboard stations
- Universal programmable door timer
- Radio control systems (24 VAC or 120 VAC)
- Explosion and dust ignition-proof systems

Electric operator selection guide										
	Horsepower/ Newtons	Max. height of door	Max. weight of door	Super Belt™/ Polybelt	Worm gear	Adjustable clutch	Totally enclosed	Continuous duty	Explosion proof	Mounting type
RHX®	1/2 HP, 3/4 HP 1 HP, 3 HP	24' (7315 mm)	3696 lbs (1676 kg)		•	•		•	•	T, S, C
RSX®	1/2 HP, 3/4 HP 1 HP	24' (7315 mm)	1620 (735 kg)	•		•	•	•		T, S, C
RMX®	1/2 HP	14' (4267 mm)	620 (281 kg)	•						T, S

Mounting options:
T=Trolley S=Side mount C= Center mount

Safety recommendations

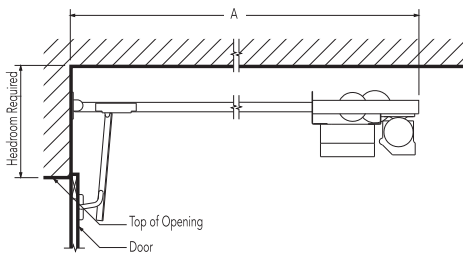
We strongly recommend the use of a primary safety device as defined by UL325 2010. A primary safety device can be approved monitored photo-eyes or an approved monitored sensing edge. If a primary safety device is not installed, a constant contact control switch must be used to close the door. Contact your Overhead Door™ Distributor for more information.



Mounting details

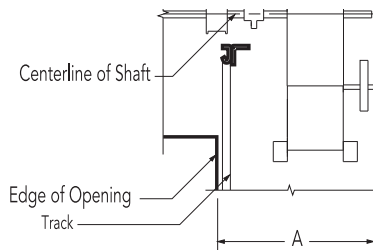
Trolley-type (Drawbar) RMX®, RSX®, RHX®

Trolley-type (Drawbar) operators feature a power unit mounted between, above and to the rear of the horizontal tracks. The drawbar drive provides positive control of the door at all times, making this operator the preferred choice whenever possible. Maximum door width is 20' per drawbar. Door width over 20' requires dual drawbar installation. Available on Models RMX®, RSX® and RHX®.



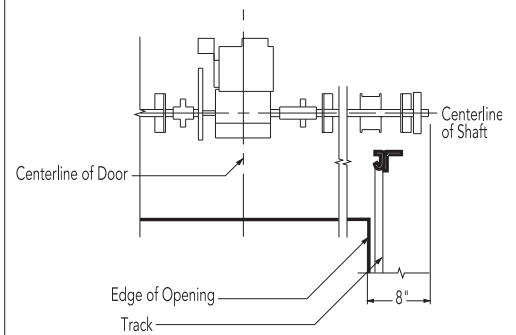
Side mount type (Jackshaft) RMX®, RSX®, RHX®

Side-mounted (Jackshaft) RMX®, RSX®, and RHX® operators feature a power unit mounted on the inside front wall and connected to the crosshead shaft, with an adjustable coupling or drive chain and sprockets.



Center mount type/Jackshaft RSX®, RHX®

Center-mounted (Jackshaft) operators feature a power unit on the front wall above the door opening. No additional backroom is required. Available on models RSX® and RHX®.



Minimum headroom requirements		"A" dimension - minimum (sideroom)		Minimum headroom requirements	
RMX®	Track requirements +4 1/2" (114 mm)	2" track (51 mm)	3" track (76 mm)	RSX®	Track requirements +14" (356 mm)
RSX®	Track requirements +5" (127 mm)	RMX®	18 1/2" (470 mm) 19 1/2" (495 mm)	RHX®	Track requirements +23 5/8" (600 mm)
RHX®	Track requirements +5" (127 mm)	RSX®	21" (533 mm) 22" (559 mm)		
		RHX®	21" (533 mm) 22" (559 mm)		
Depth requirements - "A" dimension (backroom)					
RMX®	Door height +4' 0" (1219 mm)				
RSX®	Door height +4' 0" (1219 mm)				
RHX®	Door height +4' 10" (1219 mm)				



Model 521, solid panel, custom powder coat finish



**Tools to help you
get the job done.**

Architect's Corner

A resource for architects, containing comprehensive technical and resource materials to support your project, including drawings and specifications for commercial doors.

www.overhaddoor.com

The original, innovative choice for unequalled quality and service.

Overhead Door Corporation pioneered the sectional garage door industry, inventing the first sectional garage door in 1921 and the first electric door operator in 1926. Today, we continue to be the industry leader through the strength of our product innovation, superior craftsmanship and outstanding customer support, underscoring a legacy of quality, expertise and integrity. That's why design and construction professionals specify Overhead Door™ products more often than any other brand. Our family of over 400 Overhead Door™ Distributors across the U.S. and Canada not only share our name and logo, but also our commitment to excellence.



INDUSTRY LEADING
COMMERCIAL & INDUSTRIAL SOLUTIONS

2501 S. State Hwy. 121 Bus., Suite 200, Lewisville, TX 75067
1-800-929-DOOR • sales@overhaddoor.com
overhaddoor.com

TRIFAB® VG (VERSAGLAZE®)
TRIFAB® VG 450, 451 & 451T (THERMAL) FRAMING SYSTEMS &
TRIFAB® 451UT (ULTRA THERMAL) FRAMING SYSTEM



Design + Performance

Versatility with Unmatched Fabrication Flexibility

KAWNEER SYSTEM
451T FRONT SET,
BLACK



Geisinger Professional Building
Jenkins Township, Pennsylvania
ARCHITECT
Mericle Commercial Real Estate Services
Wilkes-Barre, Pennsylvania
GLAZING CONTRACTOR
Sterling Glass, Inc., Scranton, Pennsylvania
PHOTOGRAPHER
© Perzel Photography Group

Trifab® VersaGlaze® is built on the proven and successful Trifab® platform – with all the versatility its name implies. There are enough framing system choices, fabrication methods, design options and performance levels to please the most discerning building owner, architect and installer. The 4.5" depth Trifab® VersaGlaze® Framing System family is available with non-thermal, thermal and ultra-thermal performance levels. The ultra-thermal Trifab® 451UT Framing System, is designed for the most demanding thermal performance and employs a dual Isolock® thermal break.

AESTHETICS

Trifab® VersaGlaze® Framing Systems offer designers a choice of front-, center-, back- or multi-plane glass applications. Structural silicone

glazing (SSG) and weatherseal glazing options further expand designers' choices, allowing for a greater range of possibilities for specific project requirements and architectural styles. All systems have a 4-1/2" frame depth; Trifab® VersaGlaze® 450 has 1-3/4" sightlines, while Trifab® VersaGlaze® 451/451T and Trifab® 451UT have 2" sightlines.

With seamless incorporation of Kawneer entrances or windows, including GLASSvent® visually frameless ventilators, Trifab® framing can be used on almost any project. These framing systems can also be packaged with Kawneer curtain walls and overhead glazing, thereby providing a full range of proven, and tested, quality products for the owner, architect and installer from a single-source supplier.

ECONOMY

Trifab® VersaGlaze® 450/451/451T/451UT Framing Systems offer a variety of fabrication choices to suit your project:

- **Screw Spline** – for economical continuous runs utilizing two-piece vertical members that provide the option to pre-assemble units with controlled shop labor costs and smaller field crews for handling and installation. (available for all systems)
- **Shear Block** – for punched openings or continuous runs using tubular moldings with shear block clips that provide tight joints for transporting large pre-assembled multi-lite units. (available for 450/451/451T systems)
- **Stick** – for fast, easy field fabrication. Field measurements and material cuts can be done when metal is on the jobsite. (available for 450/451/451T systems)
- **Pre-glazed** – The combination of screw spline construction with pre-glazing in the shop accelerates installation and reduces field labor time while minimizing disruption to the surrounding area or existing tenants. Making it an exceptional choice for new or retrofit applications, particularly in urban areas or where space is limited. (available for 451/451T/451UT framing)



**Brighton Landing
Cambridge, Massachusetts**

ARCHITECT

ADD Inc., Cambridge, Massachusetts

GLAZING CONTRACTOR

Ipswich Bay Glass Company, Inc., Rowley, Massachusetts

PHOTOGRAPHER

© Gordon Schenck, Jr.

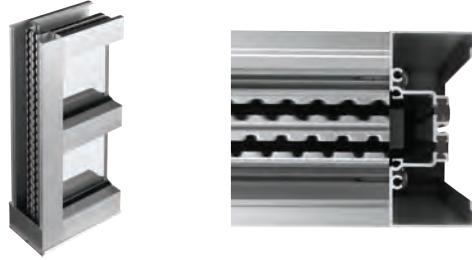
All systems can be flush glazed from either the inside or outside. The weatherseal option provides an alternative to SSG vertical mullions for Trifab® VersaGlaze® 450/451/451T. This ABS/ASA rigid polymer extrusion allows complete inside glazing and creates a flush glass appearance on the building exterior without the added labor of scaffolding or swing stages. Additionally, high-performance flashing options are engineered to eliminate perimeter sill fasteners and associated blind seals.

FOR THE FINISHING TOUCH

Architectural Class I anodized aluminum and painted finishes in fluoropolymer (AAMA 2605) and solvent-free powder coatings (AAMA 2604) offer a variety of color choices.

PERFORMANCE

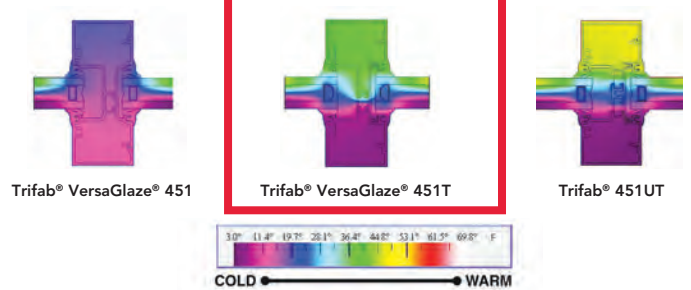
Kawneer's IsoLock® thermal break technology creates a composite section, prevents dry shrinkage and is available on Trifab® VersaGlaze® 451T. For even greater thermal performance, a dual IsoLock® thermal break is used on Trifab® 451UT.



Trifab® 451UT uses a dual IsoLock® thermal break (right) and features a new high-performance sill design, which incorporates a screw-applied end dam (left), ensuring positive engagement and tight joints between the sill flashing and end dam.

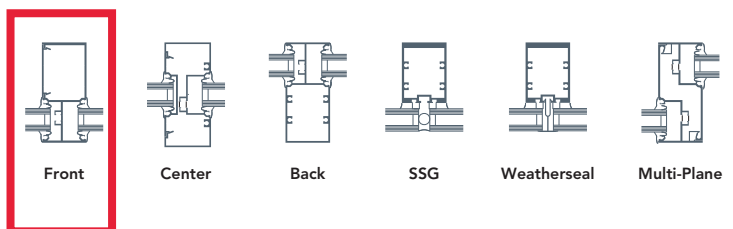
U-factor, CRF values and STC ratings for Trifab® framing systems vary depending upon the glass plane application. Project-specific U-factors can be determined for each individual project. (See the Kawneer Architectural Manual or Kawneer.com for additional information.)

Thermal simulations showing temperature variations from exterior/cold side to interior/warm side.



PERFORMANCE TEST STANDARDS

Air Infiltration	ASTM E283
Water	AAMA 501, ASTM E331
Structural	ASTM E330
Thermal	AAMA 1503
Thermal Break	AAMA 505, AAMA TIR-A8
Acoustical	AAMA 1801, ASTM E1425



Features

- 190 narrow stile has 2-1/8" (54) vertical stile, 2-1/4" (57.2) top and 3-7/8" (98.4) bottom rail
- 350 medium stile has 3-1/2" (88.9) vertical stile, 3-1/2" (88.9) top and 6-1/2" (165.1) bottom rail
- 500 wide stile has 5" (127) vertical stile, 5" (127) top and 6-1/2" (165.1) bottom rail
- Door is 1-3/4" (44.5) deep
- Dual moment welded corner construction
- Single or double acting
- Infills range from 1/4" (6.4) to 1" (25.4)
- Offset pivots, butt hinges, continuous geared hinge or center pivots
- MS locks or panic hardware
- Surface mounted or concealed closers
- Architects Classic push/pulls
- Adjustable astragal utilizing pile weathering with polymeric fin at meeting stiles
- Polymeric bulb weatherstripping in door frames
- Permanodic™ anodized finishes in seven choices
- Painted finishes in standard and custom choices

10" BOTTOM
RAIL FOR ADA
COMPLIANCE

Optional Features

- Paneline™ exit device or Paneline™ MEL exit device
- Wide variety of bottom rail and cross rail

Product Applications

- 190 narrow stile - engineered for moderate traffic in applications such as offices and stores
- 350 medium stile - provides extra strength for schools, institutions and other high traffic applications
- 500 wide stile - creates a monumental visual statement for banks, libraries or buildings that experience heavy traffic conditions

For specific product applications,
consult your Kawneer representative.

Laws and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

PICTORIAL VIEW5

DOOR TYPES/SECT. DIMENSIONS6

CONSTRUCTION DETAILS7,8

STANDARD ENTRANCE PACKAGES10, 11

ENTRANCE OFFERINGS.....12, 13

APPLICATION CRITERIA.....13

PUSH PULL HARDWARE14

PANELINE™/PANELINE™ MEL EXIT DEVICE.....15, 16

AUTO SHOWROOM DOOR17, 18

INTERMEDIATE RAILS19

INFILL OPTIONS19

ACCESSORIES19

HANDICAP ACCESSIBLE ITEMS.....20

BOTTOM RAILS21

THERMAL CHARTS 22-40

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

Laws and building and safety codes governing the design and use of 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.

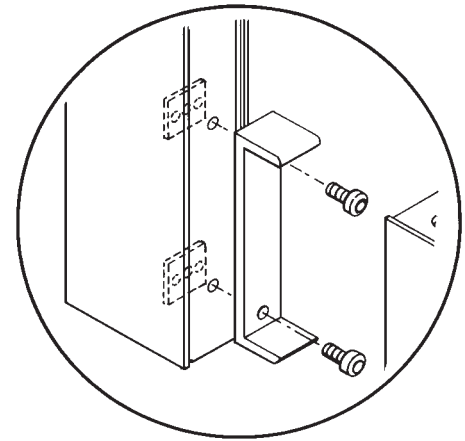
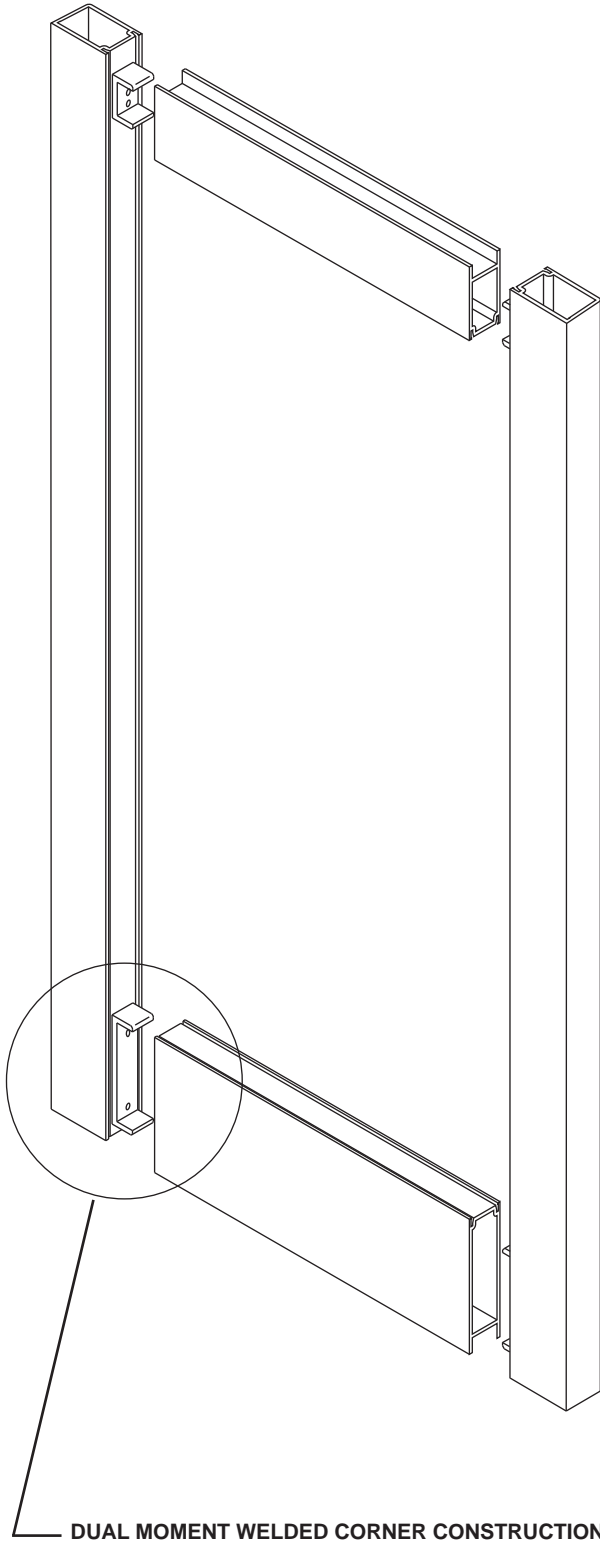
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2015

Laws and building and safety codes governing the design and use of 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.

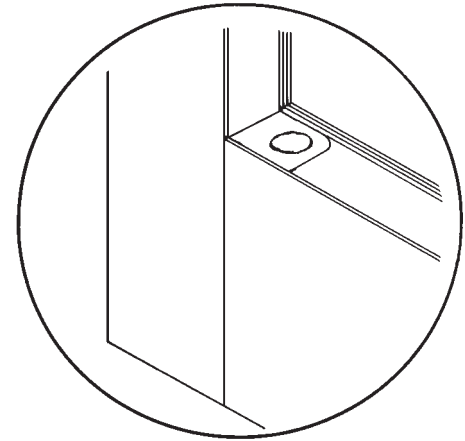
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2015

Laws and building and safety codes governing the design and use of 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.

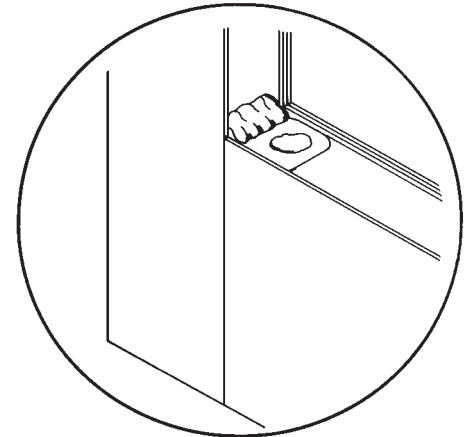
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2015



#1 MECHANICAL FASTENING is accomplished by attaching a 5/16" (7.9) thick extruded aluminum channel clip to the vertical stile with 1/4"-20 heat strengthened bolts and 3/16" thick steel nut plates for a high strength welding base for attachment horizontal member.



#2 SIGMA* DEEP PENETRATION PLUG WELDS are made top and bottom after the horizontal is properly positioned over the channel clip to help provide the strongest door corner joint currently available.



#3 SIGMA* FILLET WELDS along both top and bottom webs of the rail extrusion complete the welded corner construction.

* An arc welding process known as Shielded Inert Gas Metal Arc (SIGMA) or also known as Metal Inert Gas (MIG).

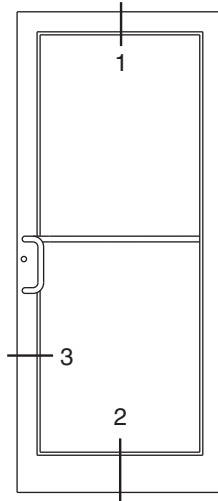
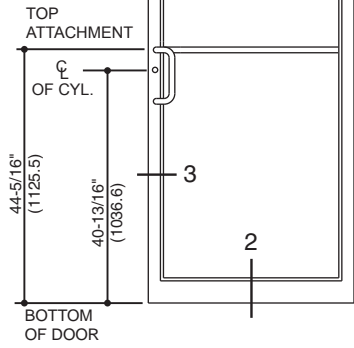
Additional information and CAD details are available at www.kawneer.com

190 NARROW STILE

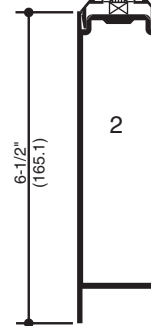
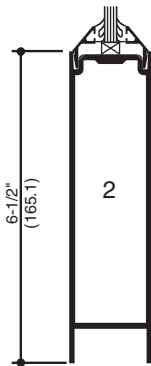
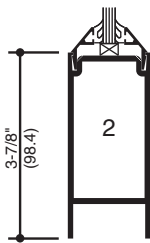
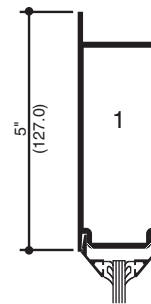
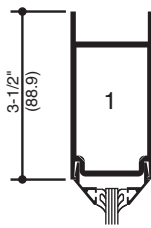
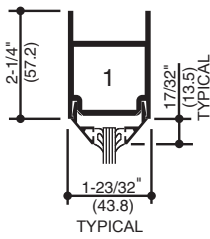
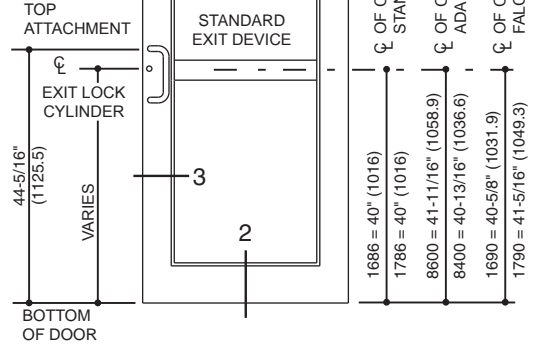
350 MEDIUM STILE

500 WIDE STILE

STANDARD LOCATIONS



STANDARD LOCATIONS



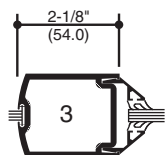
SINGLE ACTING



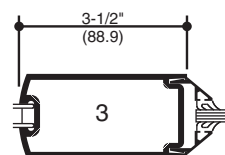
SINGLE ACTING



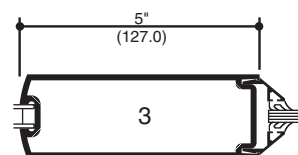
SINGLE ACTING



DOUBLE ACTING



DOUBLE ACTING



DOUBLE ACTING

Laws and building and safety codes governing the design and use of 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.

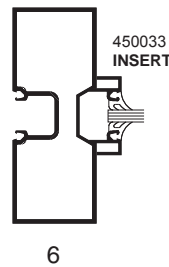
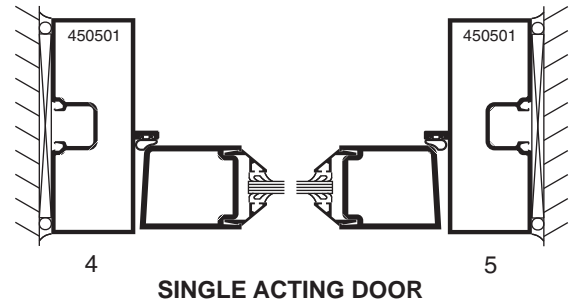
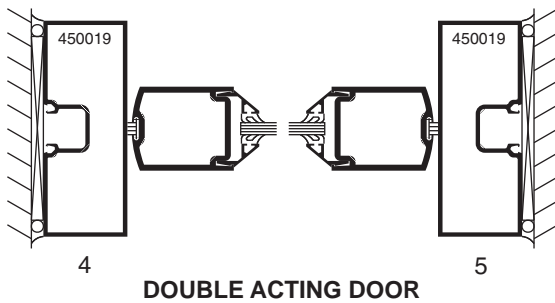
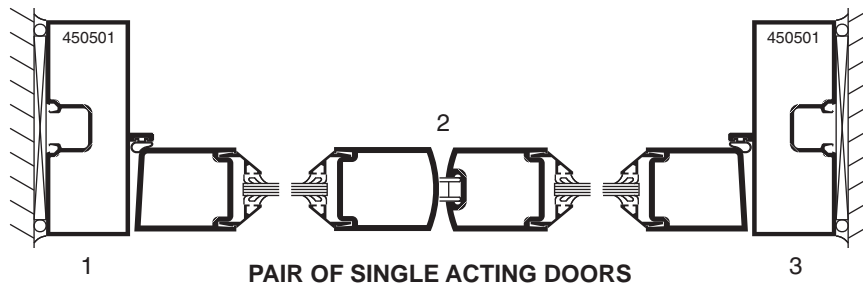
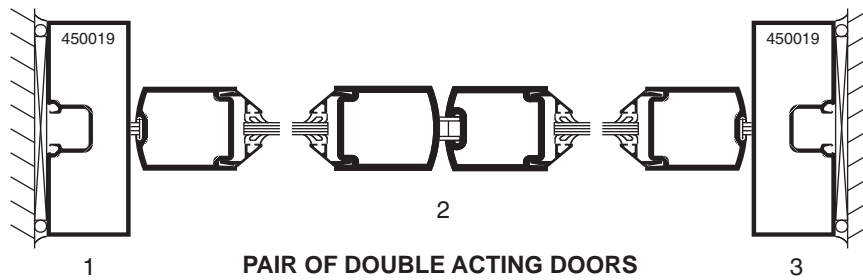
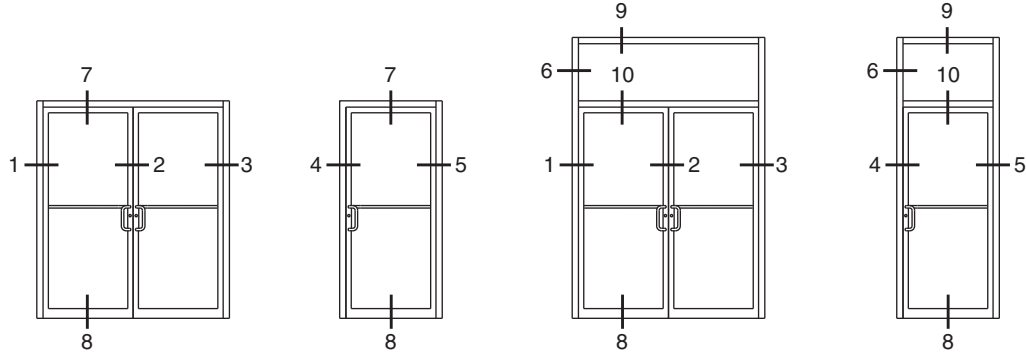
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

© Kawneer Company, Inc., 2015

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

NOTE:

- 1. SERIES 190 NARROW STILE DOORS ARE DETAILED, MEDIUM STILE 350 DOORS AND WIDE STILE 500 DOORS ALSO MAY BE USED.
- 2. TRIFAB™ VG 450 CENTER, 1-3/4" X 4-1/2" (44.5 X 114.3) FRAMING IS DETAILED WITH THE DOORS FOR REFERENCE. OTHER KAWNEER FRAMING SERIES OR CURTAIN WALL SYSTEMS MAY BE USED. REFER TO THE CATALOG INDEX FOR THE APPROPRIATE DETAIL SECTION.

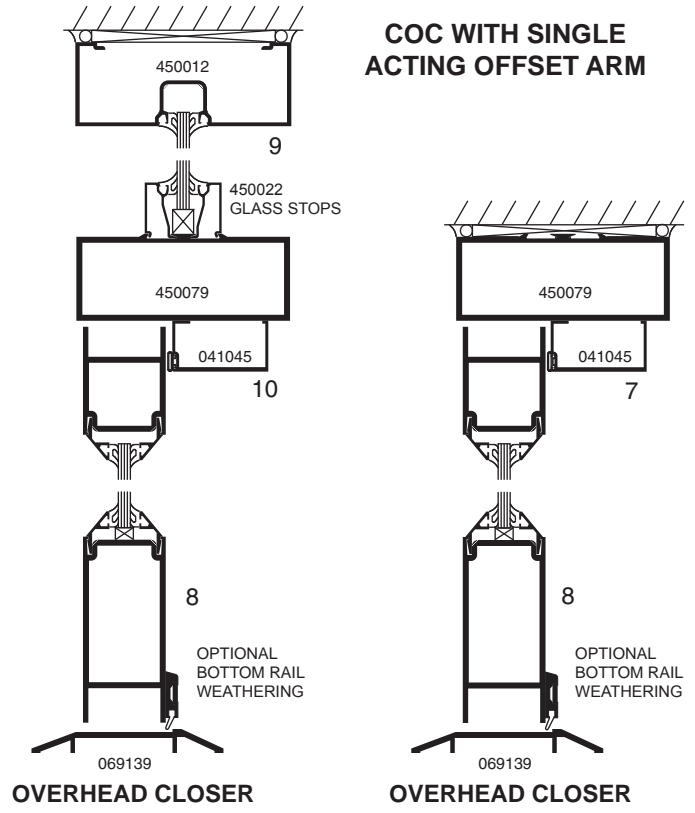
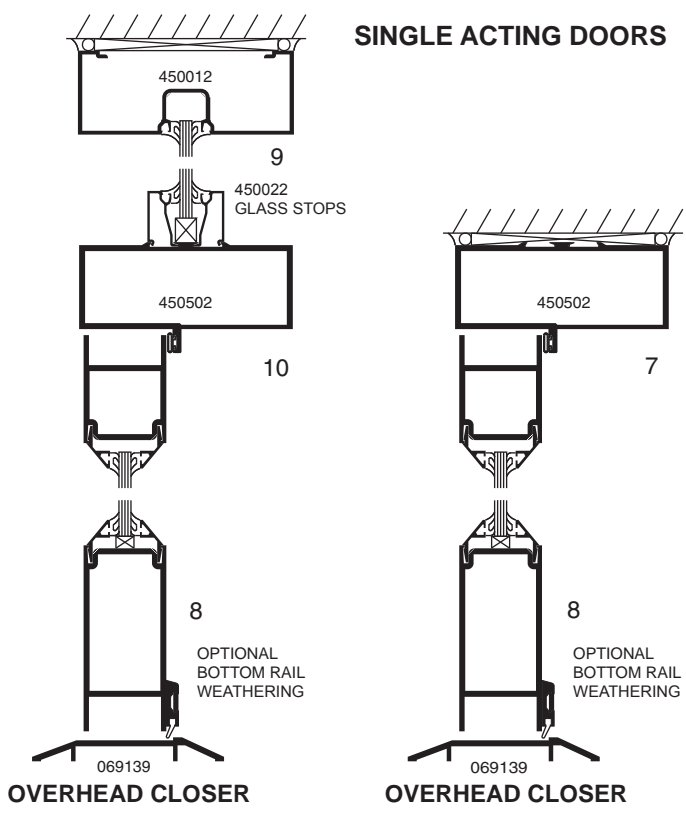
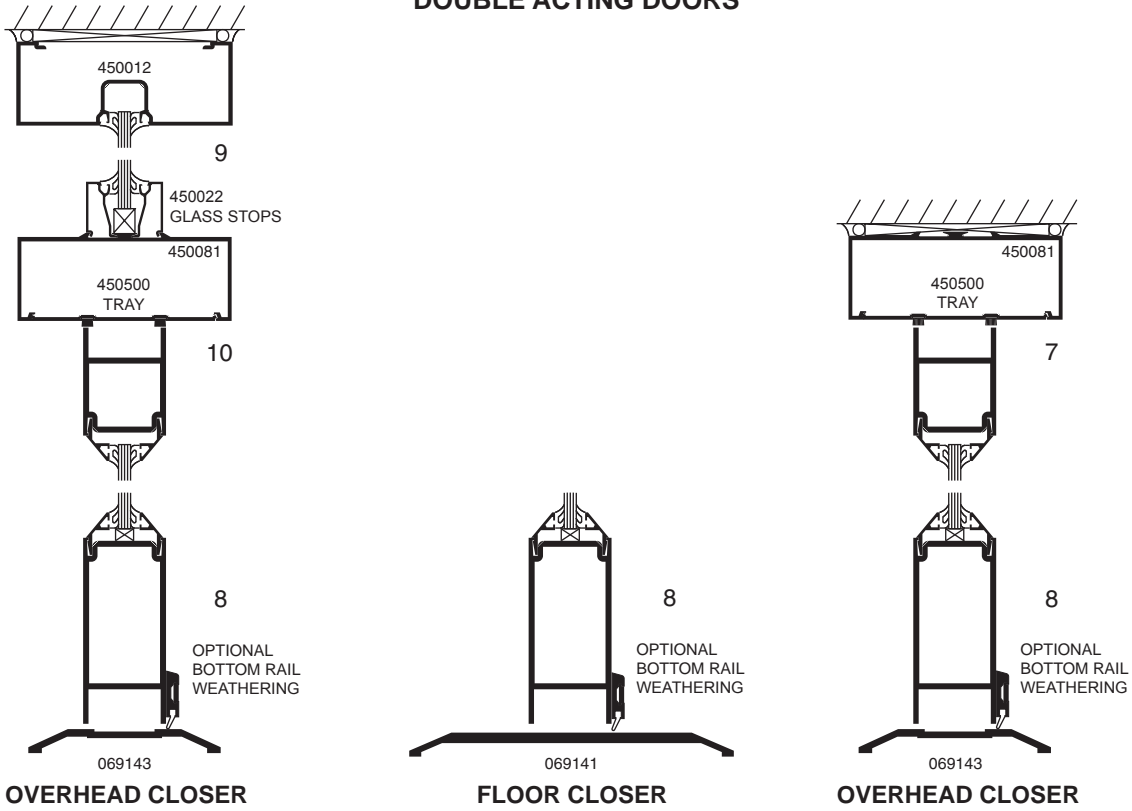


Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2015

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

DOUBLE ACTING DOORS



Law and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

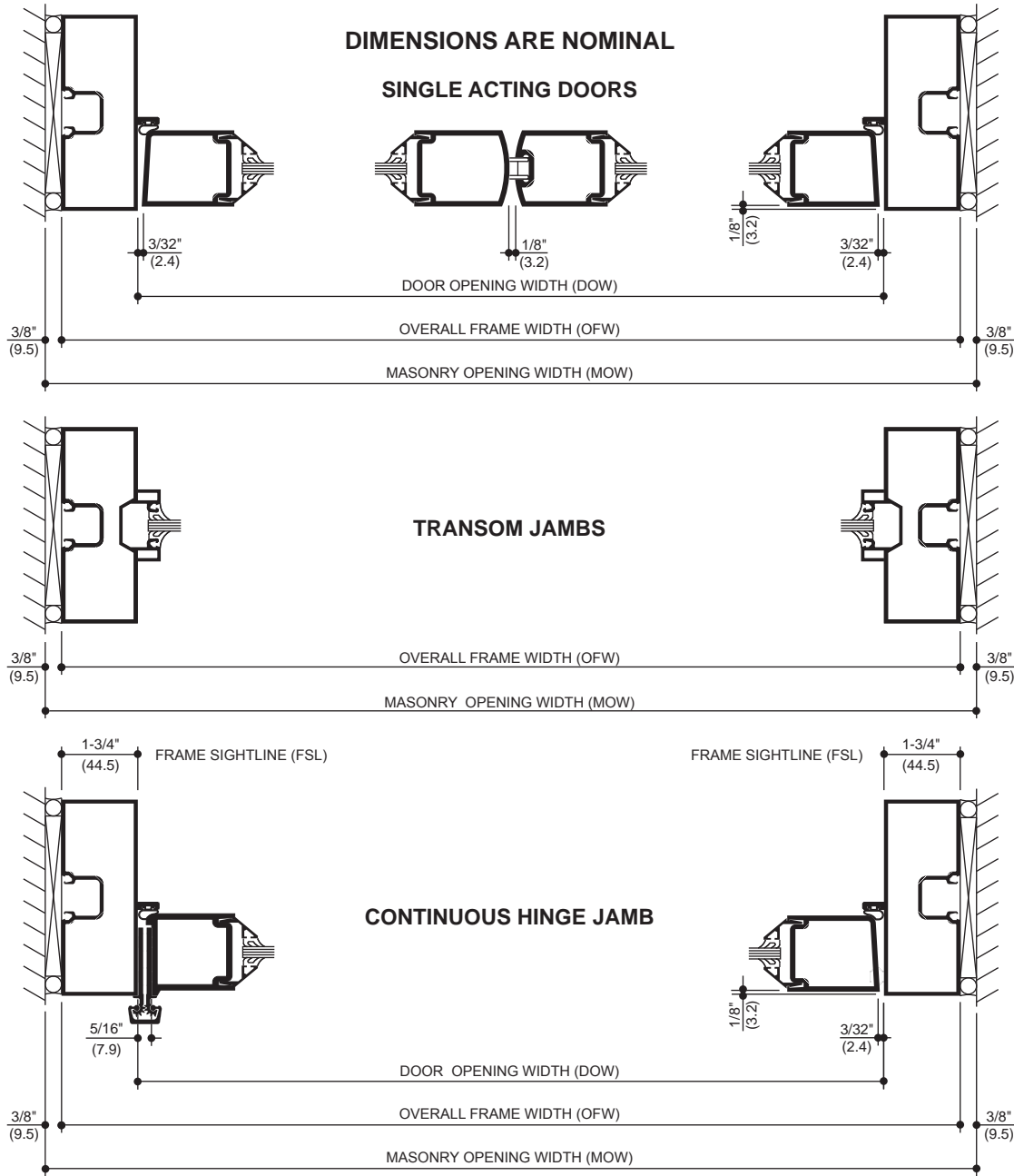
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

**LEFT BLANK
INTENTIONALLY**

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2015

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

Trifab™ VG 450 center door frames shown, Trifab™ VG 451 center door frames similar.



STANDARD SIZES (TRIFAB™ 400 & TRIFAB™ VG 450 CENTER FRAMES)

WITH AND WITHOUT TRANSOM

Door Opening Dimension (DOW)	Overall Frame Dimension (OFW)	Masonry Opening Dimension (MOW)
3' 0" (914)	3' 3-1/2" (1,003)	3' 4-1/4" (1,022)
3' 6" (1,067)	3' 9-1/2" (1,156)	3' 10-1/4" (1,175)
6' 0" (1,829)	6' 3-3/4" (1,924)	6' 4-1/4" (1,937)

STANDARD SIZES (TRIFAB™ VG 451 CENTER FRAMES)

WITH AND WITHOUT TRANSOM

Door Opening Dimension (DOW)	Overall Frame Dimension (OFW)	Masonry Opening Dimension (MOW)
3' 0" (914)	3' 4" (1,016)	3' 4-3/4" (1,035)
3' 6" (1,067)	3' 10" (1,168)	3' 10-3/4" (1,187)
6' 0" (1,829)	6' 4" (1,930)	6' 4-3/4" (1,949)

WITH AND WITHOUT TRANSOM

OFW = DOW + 2 FSL

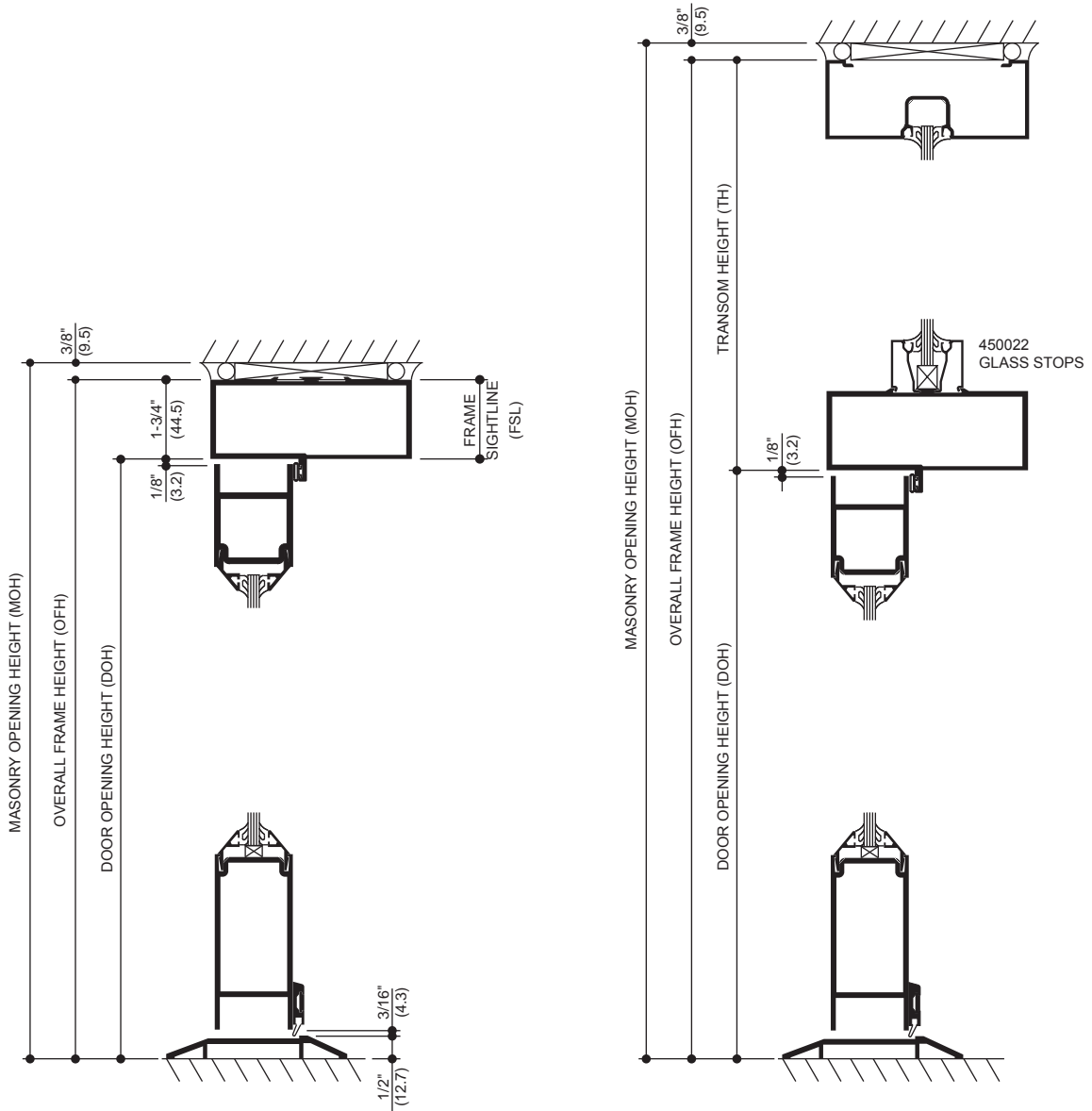
MOW = OFW + 3/4"

Note: Dimensions shown above reflect A1 Price Book standard stock door frame height with transom at 10' 3-1/2" (3,137).

Laws and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

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



STANDARD SIZES (TRIFAB™ 400 & TRIFAB™ VG 450 CENTER FRAMES)

WITHOUT TRANSOM

Door Opening Dimension (DOH)	Overall Frame Dimension (OFH)	Masonry Opening Dimension (MOH)
7' 0" (2,134)	7' 1-3/4" (2,178)	7' 2-1/8" (2,188)
7' 0" (2,134)	7' 1-3/4" (2,178)	7' 2-1/8" (2,188)
7' 0" (2,134)	7' 1-3/4" (2,178)	7' 2-1/8" (2,188)

STANDARD SIZES (TRIFAB™ VG 451 CENTER FRAMES)

WITHOUT TRANSOM

Door Opening Dimension (DOH)	Overall Frame Dimension (OFH)	Masonry Opening Dimension (MOH)
7' 0" (2,134)	7' 2" (2,184)	7' 2-3/8" (2,194)
7' 0" (2,134)	7' 2" (2,184)	7' 2-3/8" (2,194)
7' 0" (2,134)	7' 2" (2,184)	7' 2-3/8" (2,194)

WITHOUT TRANSOM

OFH = DOH + FSL
 MOH = OFH + 3/8"

WITH TRANSOM

OFH = DOH + TH
 MOH = OFH + 3/8"

Note: Dimensions shown above reflect A1 Price Book standard stock door frame height with transom at 10' 3-1/2" (3,137).

Laws and building and safety codes governing the design and use of 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.

© Kawneer Company, Inc., 2015

	STANDARD	OPTIONAL
Doors	Narrow stile 190 doors prepared for attachment hardware.	Medium stile 350 or wide stile 500.
Door Sizes Std.	Standard sizes shown on pages 10 and 11.	Any size up to 4'-0" x 8'-0" (1,219 x 2,438).
Glass Stops	Beveled glass stops for 1/4" (6.4) or 3/16" (4.0) infill.	Square glass stops for 3/16" (4.0) or 1/4" (6.4) infill. Also 1" (25.4) stops.
Door Frames	Trifab™ 400 - 1-3/4" x 4" (44.5 x 101.6) for single glazing. Trifab™ VG 450 Center - 1-3/4" x 4-1/2" (44.5 x 114.3) for single glazing or Trifab™ VG 451 Center - 2" x 4-1/2" (50.8 x 114.3) for double glazing.	Any Kawneer framing system suitable for door frames may be selected, but manufactured per order.
Push-Pulls	Single Acting: Architects Classic Hardware CO-9 Pull and CP-II Push Bar. Architects Classic Hardware CO-9 Pull and CP Push Bar. Double Acting: Architects Classic Hardware CP Push Bars.	Single Acting: Architects Classic Hardware CO-12 and CP-II push bar. Architects Classic Hardware CO-12 and CP push bar. Architects Classic Hardware CO-9/CO-9 Pulls. Architects Classic Hardware CO-12/CO-12 Pulls. Double Acting: Architects Classic Hardware CO-9/CO-9 Pulls. Architects Classic Hardware CO-12/CO-12 Pulls.
Door Closers	Single Acting: Norton 1601 adjustable or 1601 BF adjustable surface closer with back-check and with or without adjustable hold-open. Standard concealed overhead closer with single acting offset arm. Double Acting: Standard concealed overhead closer with 90 degree or 105 degree hold-open or without hold open. For heavy traffic & high wind applications, a supplemental door stop is recommended.	Single Acting: LCN 4040 surface closer with or without adjustable hold-open. LCN 2010, 2030 or 5010 concealed overhead closers with or without hold-open. LCN 1260 adjustable surface closer. Norton 8100 surface closer with a 50% spring power adjustment (for opening forces of less than 8 pounds). Closer is available with standard back-checks and with or without the hold-open feature. International single acting concealed overhead closer. Falcon SC 60 Surface closer. Double Acting: International overhead concealed closer.
Hinging	Single Acting: Kawneer top and bottom offset pivots (or) Kawneer top and bottom 4 1/2" x 4" (114.3 x 101.6) ball bearing butt hinge with non-removable pin (NRP) (or) Kawneer continuous gear hinge. Double Acting: Kawneer bottom center pivots for use with concealed overhead closer.	Double Acting: Kawneer top center (walking beam) pivot for use with floor closers.
Intermediate Pivots/Butts	Single Acting: Kawneer intermediate offset pivot (or) Kawneer 4-1/2" x 4" (114.3 x 101.6) ball bearing butt hinge with non-removable pin (NRP).	Single Acting: Rixson M-19 or IVES #7215-INT intermediate offset pivot.
Power Transfers	Single Acting: Kawneer EL intermediate offset pivot (or) Kawneer EL 4 1/2" x 4" (114.3 x 101.6) ball bearing butt hinge with wire transfer (or) EPT (Electric Power Transfer).	
Power Supply	SP-1000X Power Supply: For use with Paneline™ EL exit devices. For use with Falcon EL 1690 and EL 1790 exit devices. SP-2000 Power Supply: For use with Paneline™ MEL exit devices.	NP1 Power Supply: For use with Kawneer 1686 MEL and 1786 MEL exit devices only.
Locks - Active Leaf	Adams-Rite MS 1850A deadlock with two 1-5/32" (29.4) diameter 5 pin cylinders.	Adams-Rite #4510 latch lock. Adams-Rite #1850A-500 short throw deadlock. Adams-Rite #1850A-505 hookbolt lock. Adams-Rite #4015 two-point Lock. Adams-Rite #4085 three-point Lock. Adams-Rite #4089 exit indicator. Kawneer cylinder guard. Kawneer thumbturn (in lieu of cylinder).

Laws and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

	STANDARD	OPTIONAL
Locks - Inactive Leaf	One pair of Kawneer flush bolts in the inactive leaf of a pair of doors.	Controller™ is a 3-point locking system consisting of a two point locking device in the inactive leaf in lieu of flush bolts, working in conjunction with the MS 1850A deadlock in the active leaf. This combination provides for greater security than possible with flush bolts and complies with the life safety considerations of building codes which prohibit the use of flush bolts.
Thresholds	A 1/2" x 4" (12.7 x 101.6) aluminum mill finish threshold.	A 1/2" x 6-3/4" (12.7 x 171.5) aluminum mill finish threshold.
Weathering	<p>Single Acting: Weathering system in the door and frame consisting of a dense, bulb polymeric material, which remains resilient and retains its weathering ability under temperature extremes. (The system is complete with an optional EPDM blade gasket sweep strip applied to the bottom door rail with concealed fasteners).</p> <p>Double Acting: Pile cloth weathering in the door and frame.</p>	Bottom Door Sweep
Exit Device	<p>Kawneer 1686 Concealed Rod Exit Device with or without a mortised type cylinder.</p> <p>Kawneer 1786 Rim Exit Device is a rim type exit device with or without a rim type cylinder. Pairs of doors require a Kawneer RM-86 removable mullion.</p> <p>Paneline™ exit device is a concealed rod exit device applicable to single or pairs of doors. It features an activating panel contained within the door cross rail.</p>	<p>Kawneer 1686 MEL Concealed Rod Exit Device electric modification is available.</p> <p>Kawneer 1786 MEL Rim Exit Device electric modification is available.</p> <p>Kawneer 1686 CD Concealed Rod Exit Device available with cylinder dogging.</p> <p>Kawneer 1786 CD Rim Exit Device available with cylinder dogging.</p> <p>Kawneer 1686 Lever Handle is available for the Kawneer 1686 concealed rod exit device.</p> <p>Kawneer 1786 Lever Handle is available for the Kawneer 1786 rim type exit device.</p> <p>Falcon 1690 Concealed Rod Exit Device with or without a mortised type cylinder.</p> <p>Falcon 1790 Rim Exit Device is a rim type exit device with or without a rim type cylinder.</p> <p>Falcon EL 1690 electric modification is also available.</p> <p>Falcon EL 1790 electric modification is also available</p> <p>Paneline™ MEL electric modification is also available.</p> <p>Falcon 1990 is a concealed rod exit device with or without a rim type cylinder.</p> <p>Falcon 2090 is a rim type exit device with or without a rim type cylinder. Pairs of doors require a removable aluminum mullion. RM-70 with the Falcon 2090 exit device.</p>
	<p>Exit Device Pulls: Architects Classic CO-9 Pull with Kawneer 1686 and 1786 exit devices. Architects Classic CPN Pull for Paneline™ and Paneline™ MEL exit devices.</p>	<p>Optional Exit Device Pulls: Architects Classic CO-12 Pull with Kawneer 1686 and 1786 exit devices.</p>

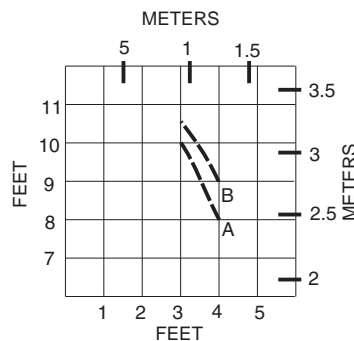
APPLICATION CRITERIA

As indicated on Page 10, the standard sizes of swing doors are 3'-0" x 7'-0" (914.4 x 2,133.6) or 3'-6" x 7'-0" (1,067 x 2,134) for single doors and 6'-0" x 7'-0" (1,828.8 x 2,133.6) for pairs of doors. When these sizes are exceeded the following criteria should be administered.

1. Larger doors should not be subject to heavy traffic or strong prevailing wind conditions.
2. Larger doors should use a door closer with a good back check action.
3. When a door exceeds 9'-0" (2,743.2) in height, a cross rail or push bar is recommended to reinforce the vertical stiles.
4. When an offset hung door exceeds 7'-6" (2,286.0) in height, an intermediate butt or offset pivot should be used.
5. Tall doors should be prevented from racking by proper utilization of hardware, including door closers, door holders and door stops.

NOTE:

SOME OF THESE CRITERIA ARE OF A SUBJECTIVE NATURE, CONTACT YOUR FACTORY REPRESENTATIVE FOR APPLICATION ASSISTANCE.



A = NARROW STILE 190
B = MEDIUM STILE 350
OR
WIDE STILE 500

MAXIMUM DOOR HEIGHT FOR PANELINE™ MEL = 8'-0"

MAXIMUM SIZE DOOR LEAFS GLAZED WITH 1/4" (6.4) GLASS

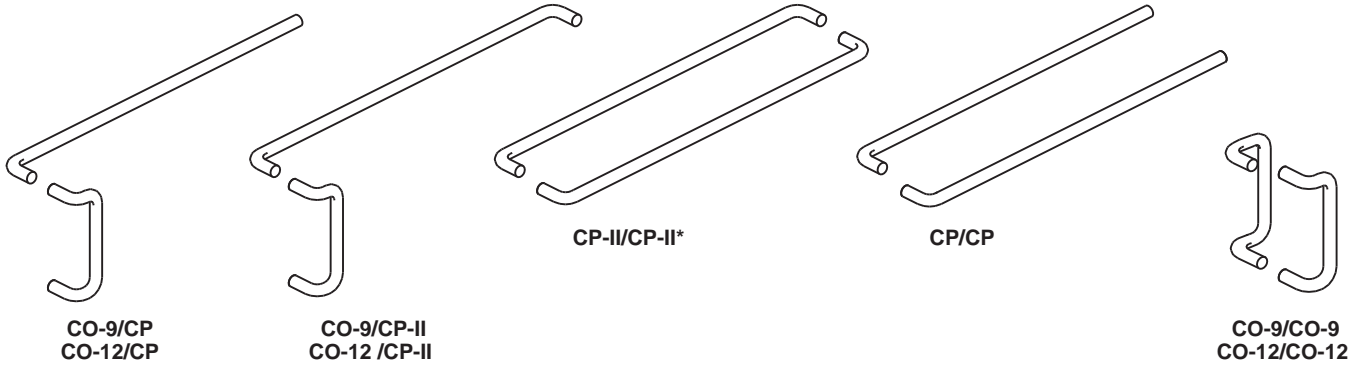
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2015

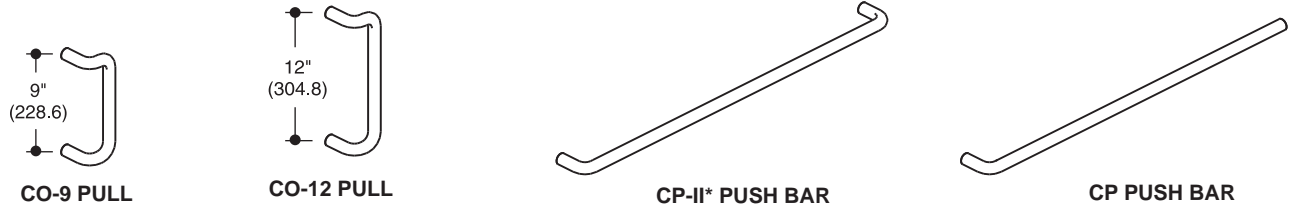
REFER TO HARDWARE SECTION FOR COMPLETE HARDWARE INFORMATION.

ARCHITECTS CLASSIC (PUSH PULL SETS)

SINGLE ACTING DOORS USE A PULL HANDLE AND PUSH BAR AS STANDARD
 DOUBLE ACTING DOORS USE CP PUSH BARS BACK TO BACK AS STANDARD.



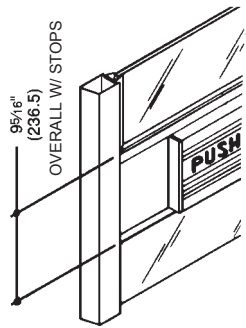
ARCHITECTS CLASSIC (COMPONENTS)



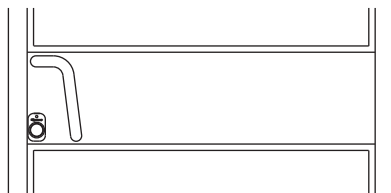
* CP-II PUSH BAR IS NOT TO BE USED FOR BACK TO BACK MOUNTING ON D/A DOORS.

EXIT DEVICES

KAWNEER PANELINE™ / PANELINE™ MEL



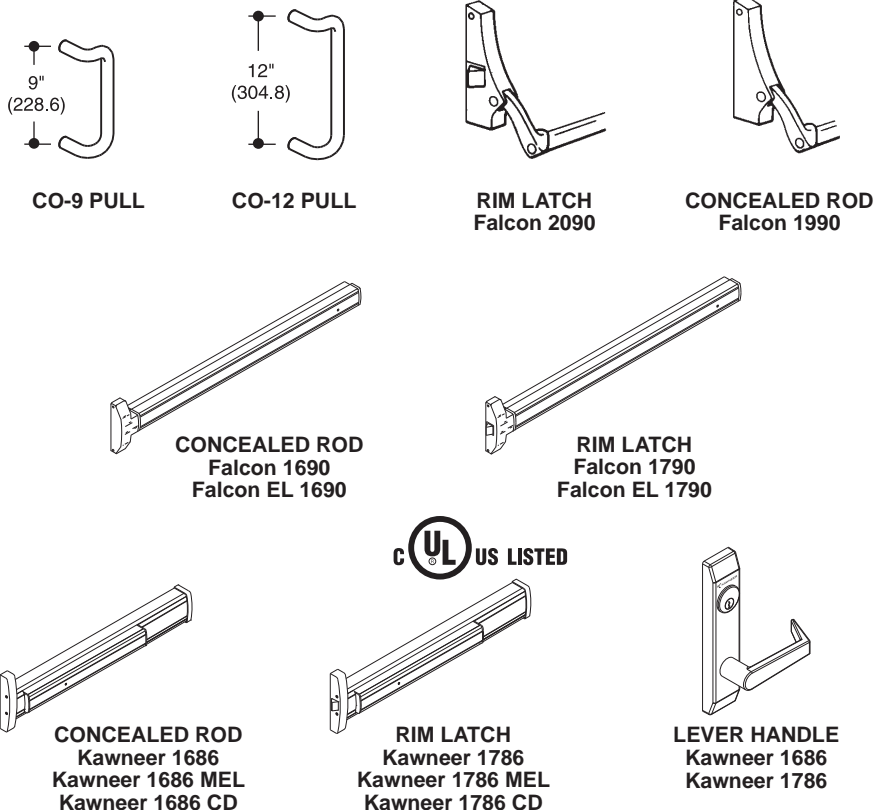
CPN PULL ON EXTERIOR OF DOOR



EXTERIOR VIEW OF 190 DOOR (350/500 SIMILAR)
 CPN PULL AND OPTIONAL CYLINDER GUARD SHOWN.

SEE PAGE 15 AND 16 FOR COMPLETE
 PANELINE™ INFORMATION

EXIT DEVICES AND PULLS



The Paneline™ concealed rod exit device for 190, 350 and 500 doors will accommodate variations in stile width and door width as shown in the following illustrations. Sidelites adjacent to Paneline™ equipped doors not requiring exit devices may be fitted with fixed panels as detailed below to match the general appearance of the Paneline™ cross rail.



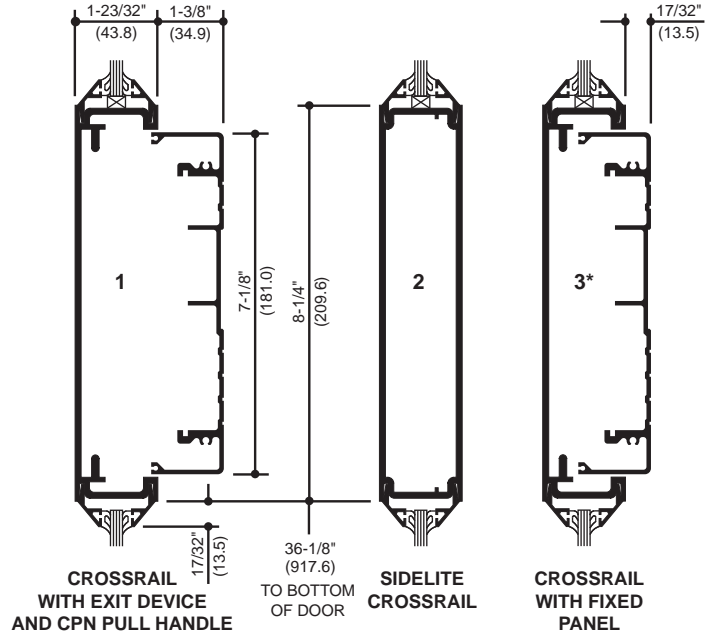
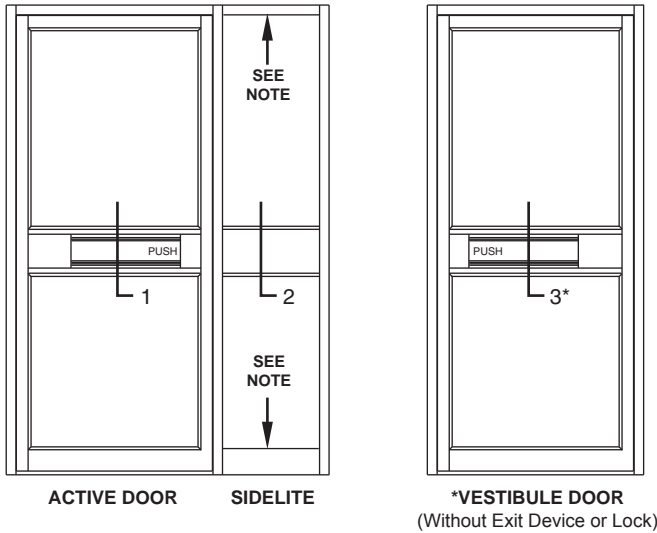
The Optional Paneline™ MEL device is designed for electrified access control and is compatible with most key pad and card reader systems.

See **Hardware Section** for complete description of Paneline™ hardware, including finish of units.

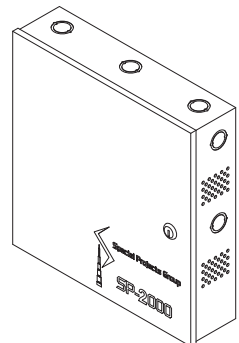
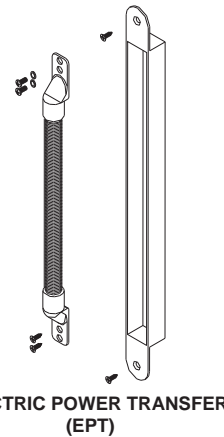
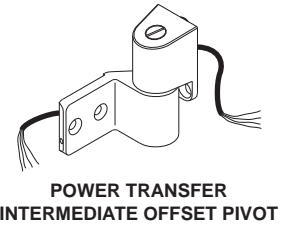
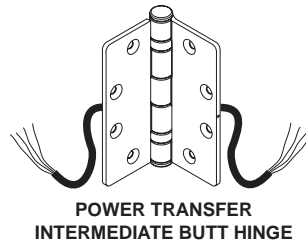
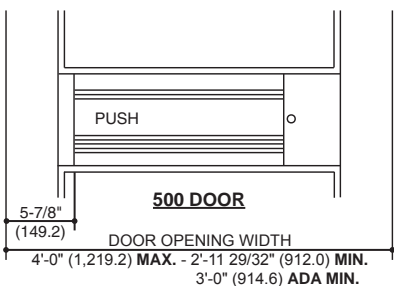
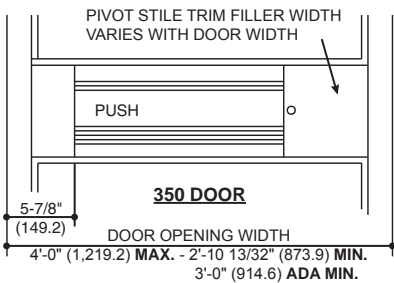
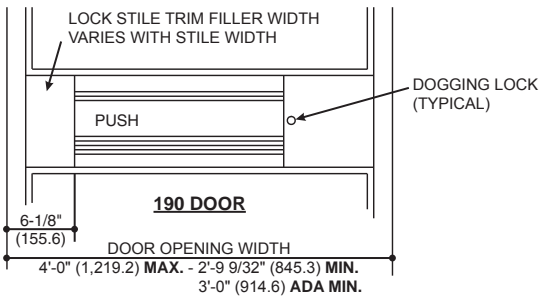
Paneline™ uses mortise cylinder in lieu of the normal rim-type. Dummy Paneline™ units are not for use with any type of lock.

INTERIOR ELEVATIONS

NOTE: Sidelites must be stop glazed above and below rail.



PANELINE™ MEL COMPONENTS



Laws and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

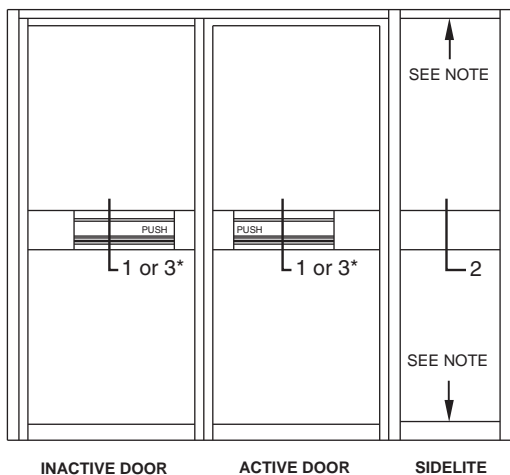
Sidelites adjacent to Paneline™ equipped doors not requiring exit devices may be fitted with fixed panels as detailed below to match the general appearance of the Paneline™ cross rail.

See **Hardware Section** for complete description of Paneline™ hardware, including finish of units.

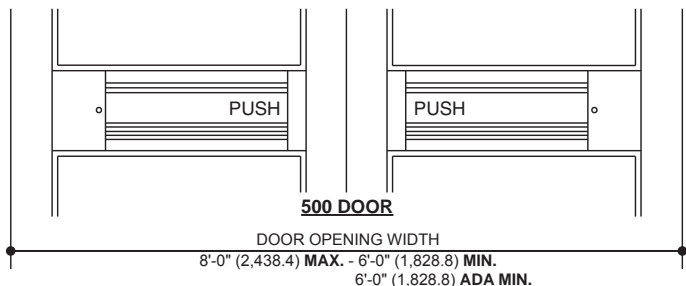
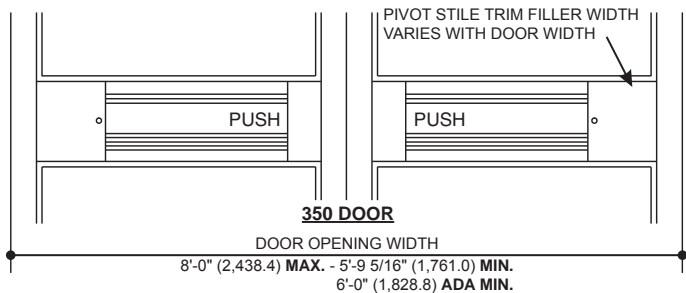
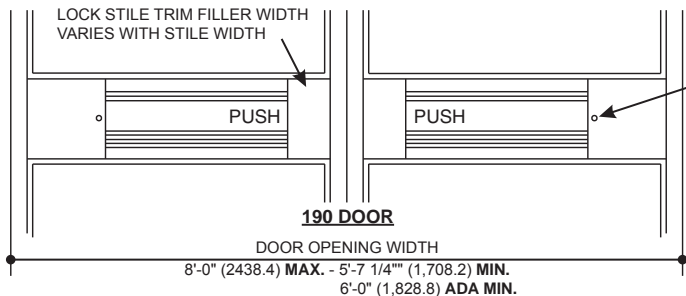
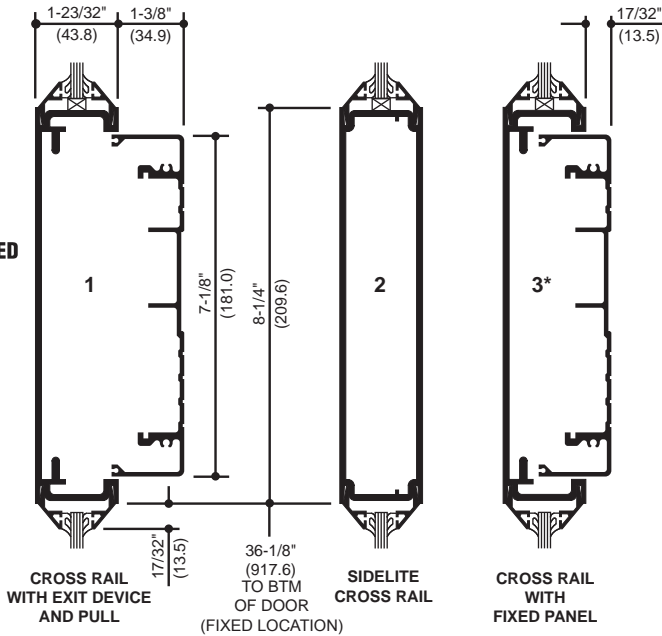
Paneline™ uses mortise cylinder in lieu of the normal rim-type. Dummy Paneline™ units should not use any type of lock.

INTERIOR ELEVATION

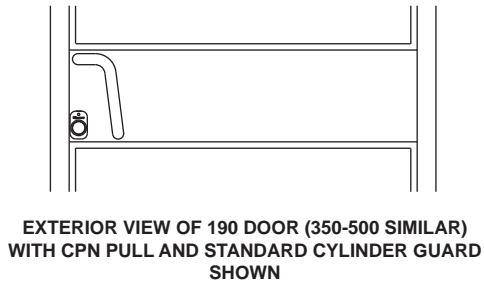
NOTE: Sidelites must be stop glazed above and below rail.



*** ALTERNATE CROSSRAIL FOR VESTIBULE DOORS (Without Exit Device or Lock)**



CPN PULL ON EXTERIOR OF DOOR



UL US LISTED

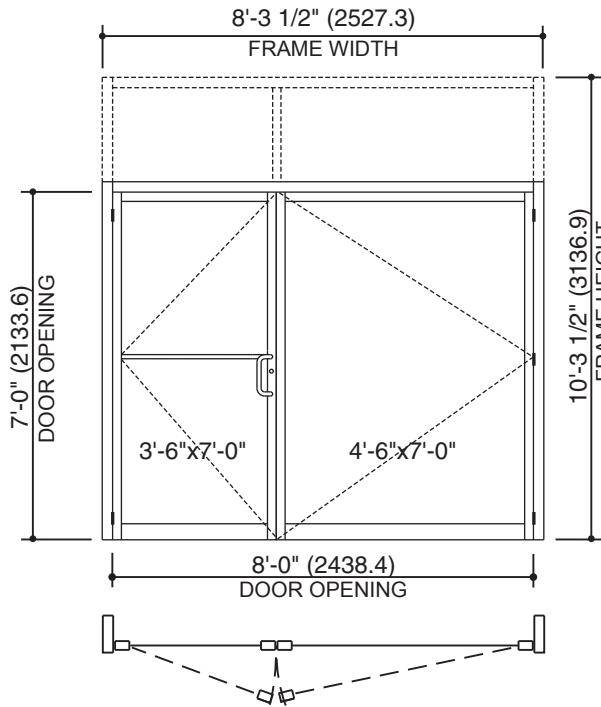
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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

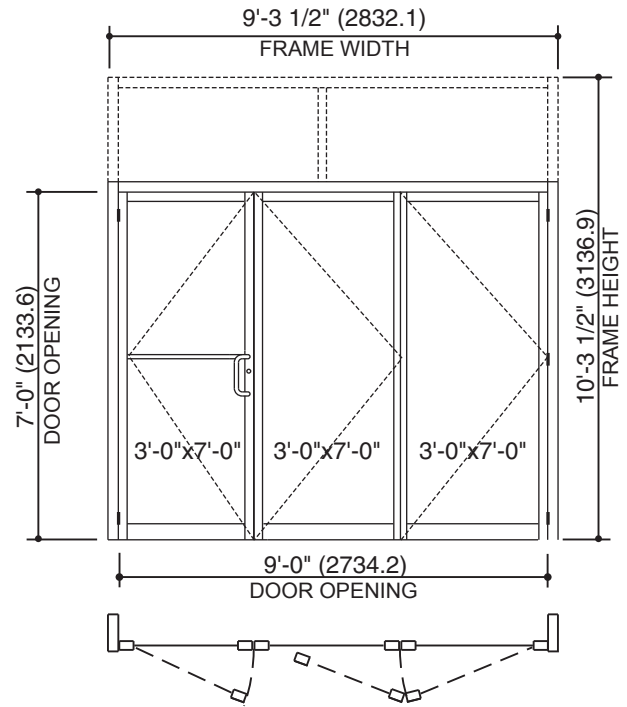
© Kawneer Company, Inc., 2015

NOTE: 1/4" GLAZING INFILL ONLY

SWING TYPE



BIFOLD TYPE



MAXIMUM ALLOWABLE SIZES

- DOOR OPENING WIDTH TO 9'-0" (2,743.2)
- DOOR OPENING HEIGHT TO 8'-0" (2,438.4)
- OVERALL FRAME HEIGHT TO 8'-1 3/4" (2,482.9) W/O TRANSOM
- OVERALL FRAME HEIGHT TO 12'-0" (3,657.6) WITH TRANSOM

AUTO SHOWROOM PACKAGE

DOORS 190 NARROW STILE, 350 MEDIUM STILE AND 500 WIDE STILE DOORS.

FRAME..... TRIFAB™ VG 450 CENTER.

CLOSER..... NORTON 1601 ADJUSTABLE OR 1601 BF ADJUSTABLE SURFACE CLOSER (ACTIVE LEAF ONLY).

BUTT HINGES ONE PAIR 4-1/2" x 4" (114.3 x 101.6) BALL BEARING BUTTS ON ACTIVE LEAF, ONE AND ONE HALF PAIR ON INACTIVE LEAVES AT HINGE JAMB. CONTINUOUS HINGE ON INACTIVE LEAVES.

LOCKS..... ADAMS-RITE MS1850A WITH (2) CYLINDERS ON ACTIVE LEAF.

FLUSHBOLTS..... ONE PAIR EDGE MOUNTED FOR INACTIVE LEAVES (FACE MOUNTED ON #2 INACTIVE LEAF OF BIFOLD TYPE).

THRESHOLD 1/2" x 4" (12.7 x 101.6) ALUMINUM.

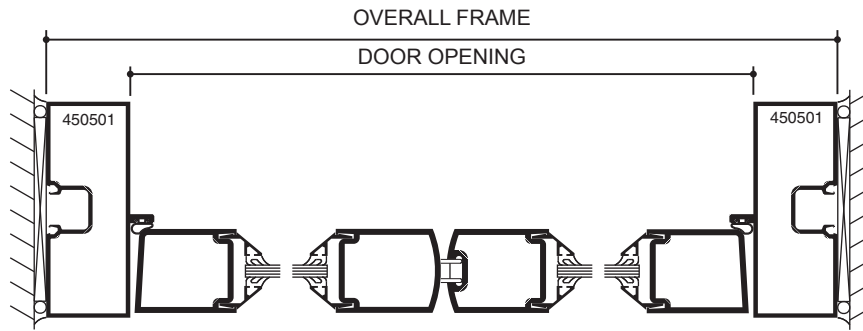
RISER BLOCK..... EXTRUDED ALUMINUM BLOCK APPLIED TO BOTTOM RAIL OF EACH INACTIVE LEAF.

OPTIONAL CASTER IN LIEU OF RISER BLOCK, FACE APPLIED CASTER TO LEADING STILE OF INACTIVE LEAF.

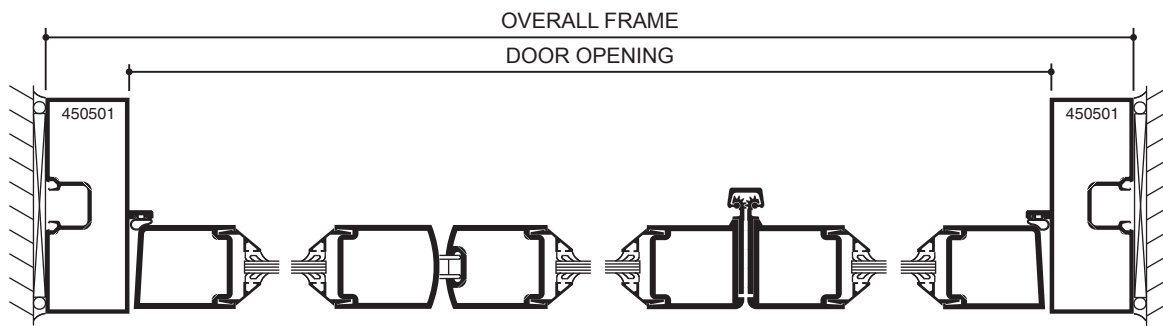
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2015

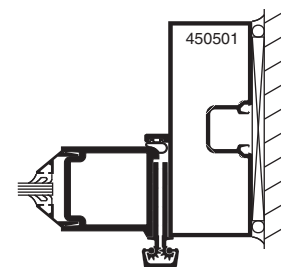
Additional information and CAD details are available at www.kawneer.com



SWING TYPE



BIFOLD TYPE



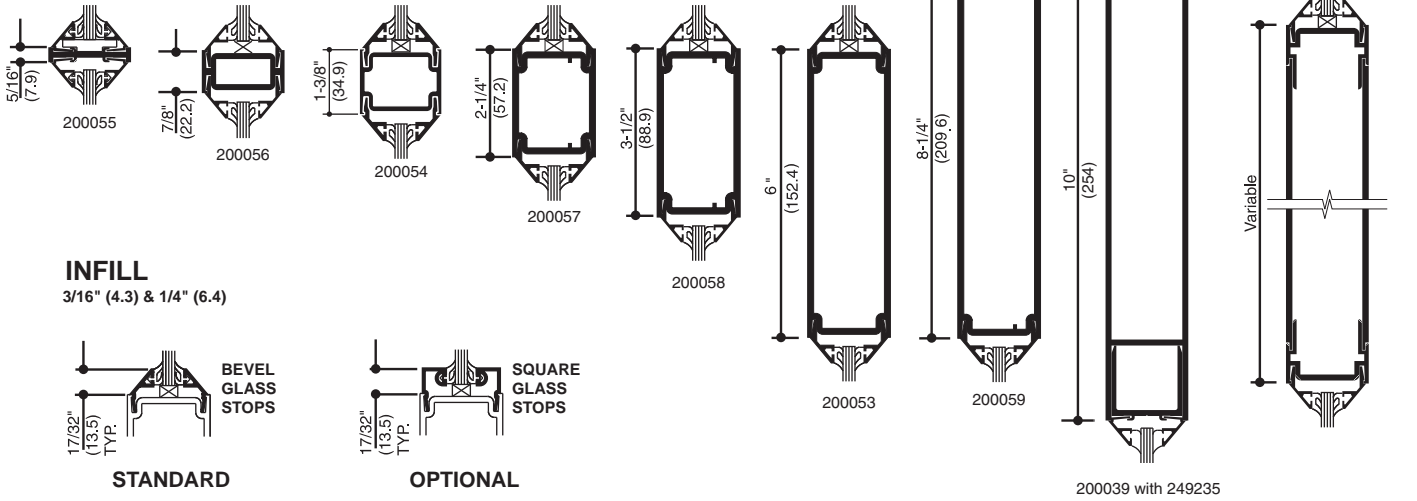
**OPTIONAL
CONTINUOUS HINGE
JAMB**

Laws and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

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

HORIZONTAL / VERTICAL CROSS RAILS



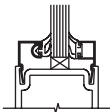
INFILL

3/16" (4.3) & 1/4" (6.4)

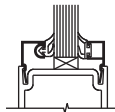


INFILL OPTIONS

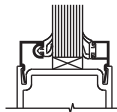
5/16" (7.9) & 3/8" (9.5)



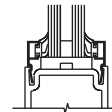
7/16" (11.1) & 1/2" (12.7)



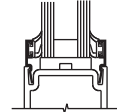
9/16" (14.3) & 5/8" (15.9)



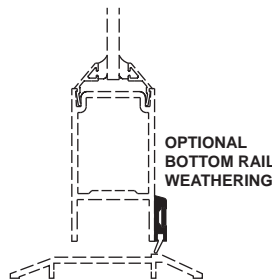
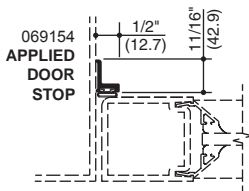
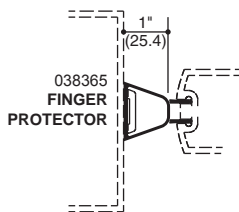
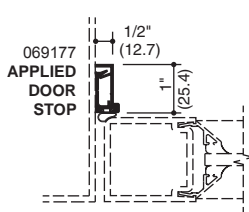
11/16" (17.5) & 3/4" (19.0)



15/16" (23.8) & 1" (25.4)



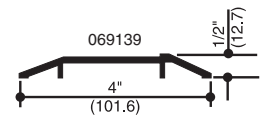
ACCESSORY ITEMS



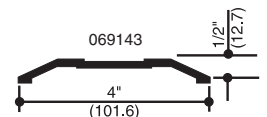
THRESHOLDS

APPLICATION

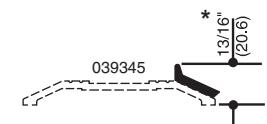
FOR SINGLE ACTING DOOR



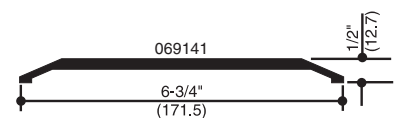
FOR CENTER HUNG CONCEALED CLOSER



APPLIED STOP FOR SINGLE ACTING DOOR



FOR CENTER HUNG FLOOR CLOSERS



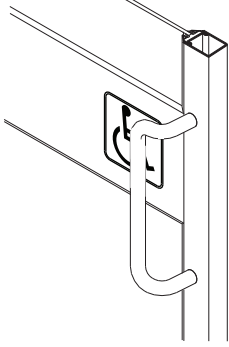
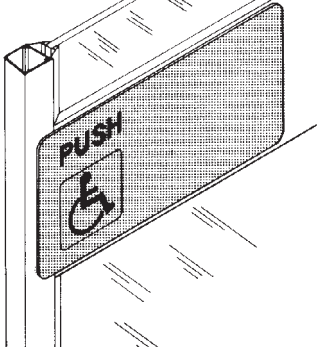
*SOME BUILDING CODES LIMIT THRESHOLD HEIGHT TO 1/2" (12.7) MAX.

Laws and building and safety codes governing the design and use of 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.

© Kawneer Company, Inc., 2015

PUSH-PULLS

		
Description	Architects Classic CO-12 Pull	BF3 Push Shield with symbol
Application	Door with or without exit device	Door cross rail (omit w/exit device)
Length/Size	12" OC Pull attachment	15-7/8" x 7-7/8" (403.2 x 200.0) 1/8" (3.2) Thick
Height Location	44-5/16" from Top Mounting Hole to Btm. of Door	
Total Projection	3-1/4" (82.6)	1/8" (3.2)
Material / Finish	See Hardware Section	Black Plastic Pebble Finish

Note: The symbol of access is an adhesive backed decal applied to the surface of the optional cross rail. Letters and symbols on plastic push shield are engraved and filled with white epoxy enamel.

Laws and building and safety codes governing the design and use of 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.

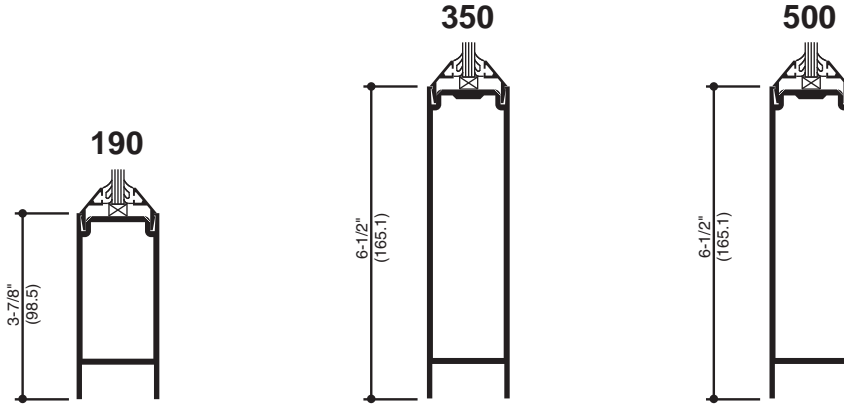
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2015

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

STANDARD BOTTOM RAILS

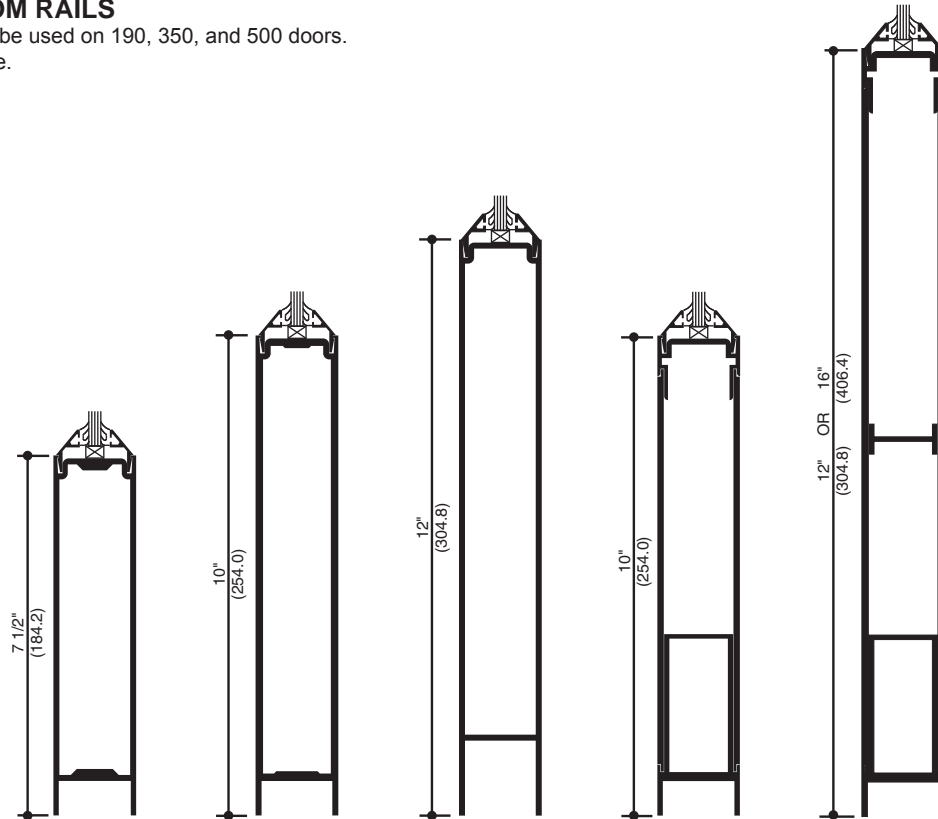
Rail heights shown may be used on 190, 350, and 500 doors.

NOTE:
See Page 19 for available
Horizontal Intermediate Members.



OPTIONAL BOTTOM RAILS

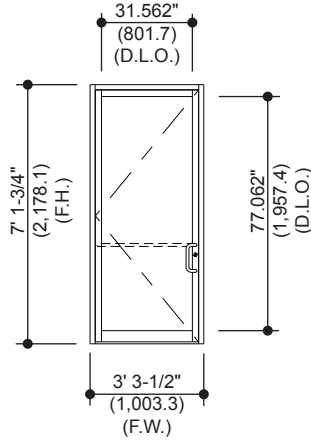
Rail heights shown may be used on 190, 350, and 500 doors.
Custom heights available.



Laws and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

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



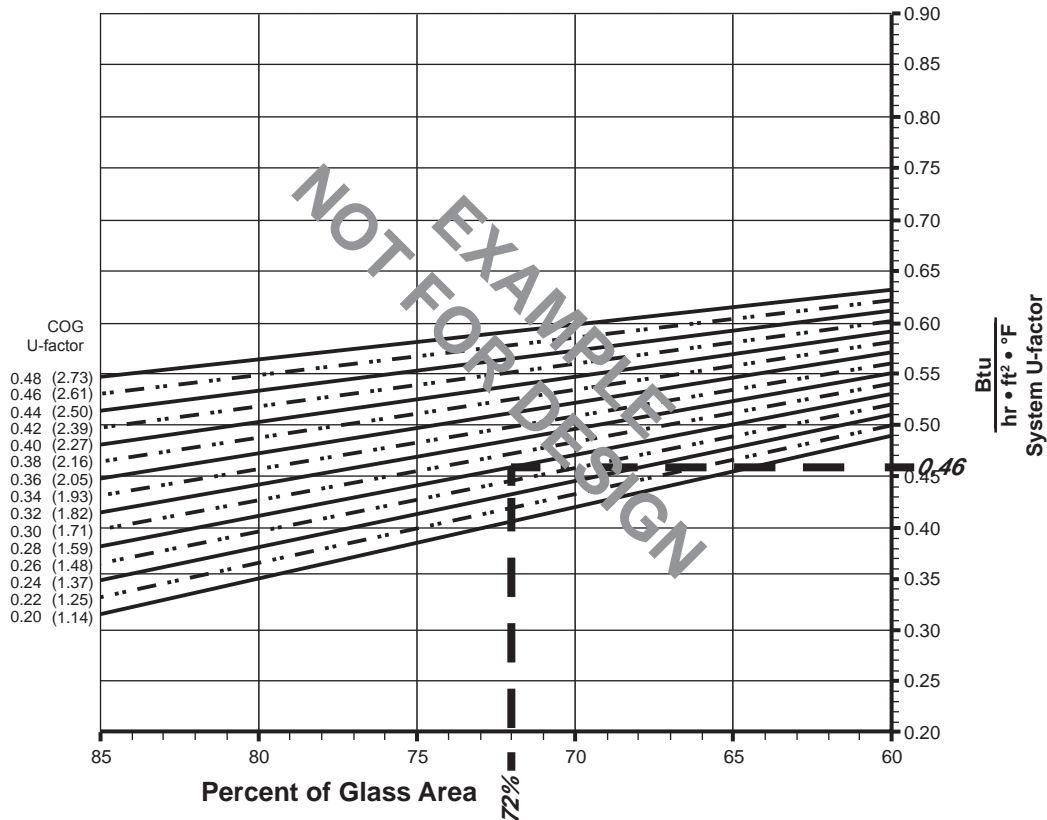
Example Glass U-Factor = 0.28 Btu/hr • ft² • °F

Total Daylight Opening = 31.562" x 77.062" = 16.89 ft²

Total Projected Area = 3' 3-1/2" x 7' 1-3/4" = 23.52 ft²

Percent of Glass = (Total Daylight Opening ÷ Total Projected Area)100
 = (16.89 ÷ 23.52)100 = 72%

System U-factor vs Percent of Glass Area



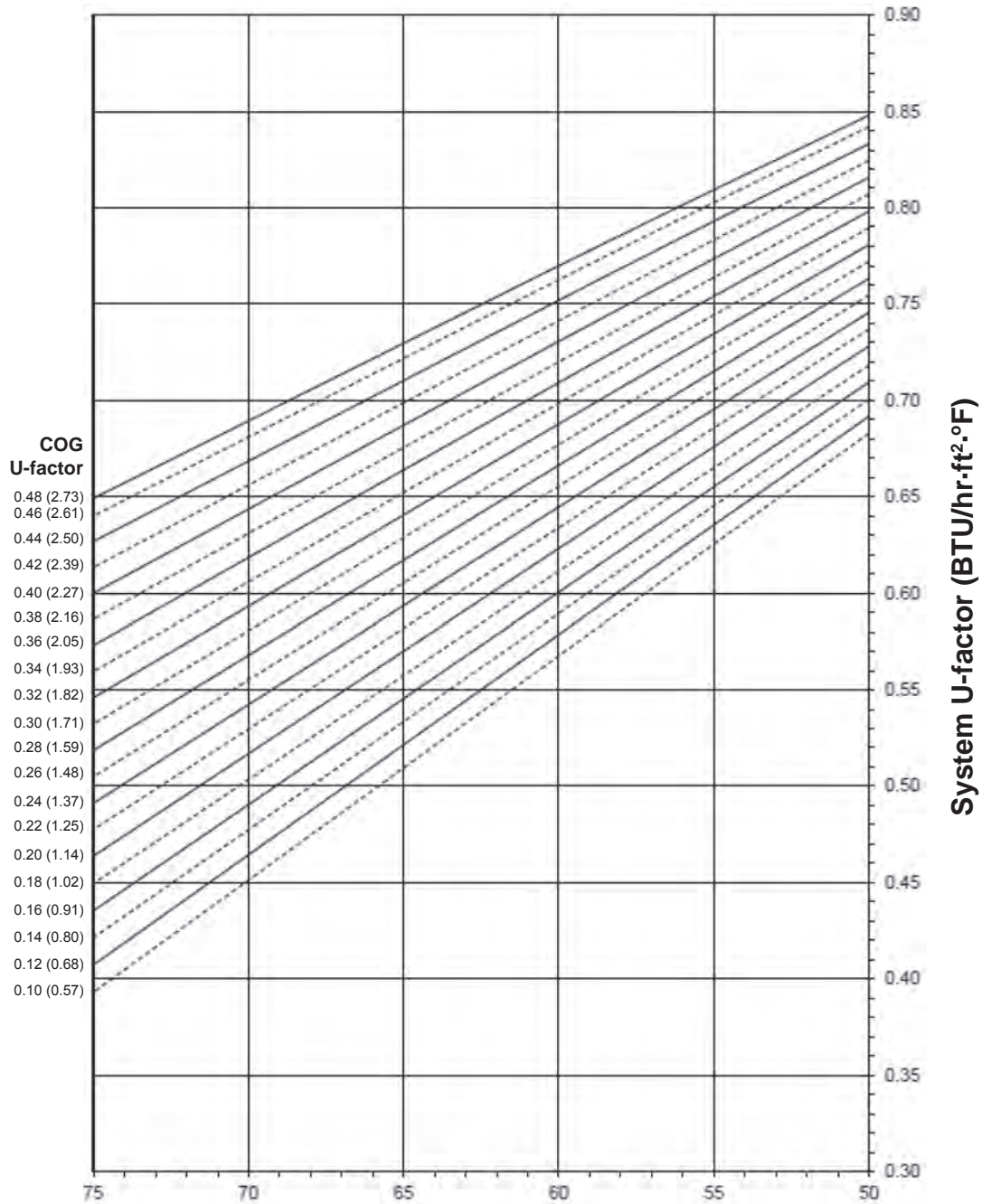
Based on 72% glass and center of glass (COG) U-factor of 0.28
 System U-factor is equal to 0.46 Btu/hr • ft² • °F

Laws and building and safety codes governing the design and use of 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.
 © Kawneer Company, Inc., 2015

190 (SINGLE DOOR)

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:

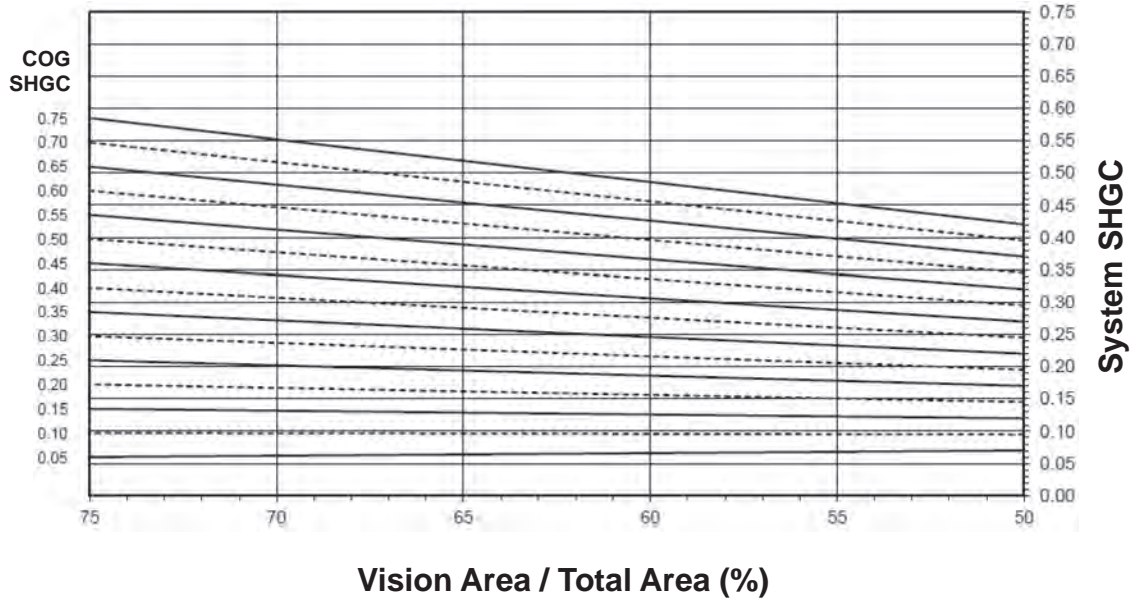
- For glass values that are not listed, linear interpolation is permitted.
- Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

Laws and building and safety codes governing the design and use of 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.

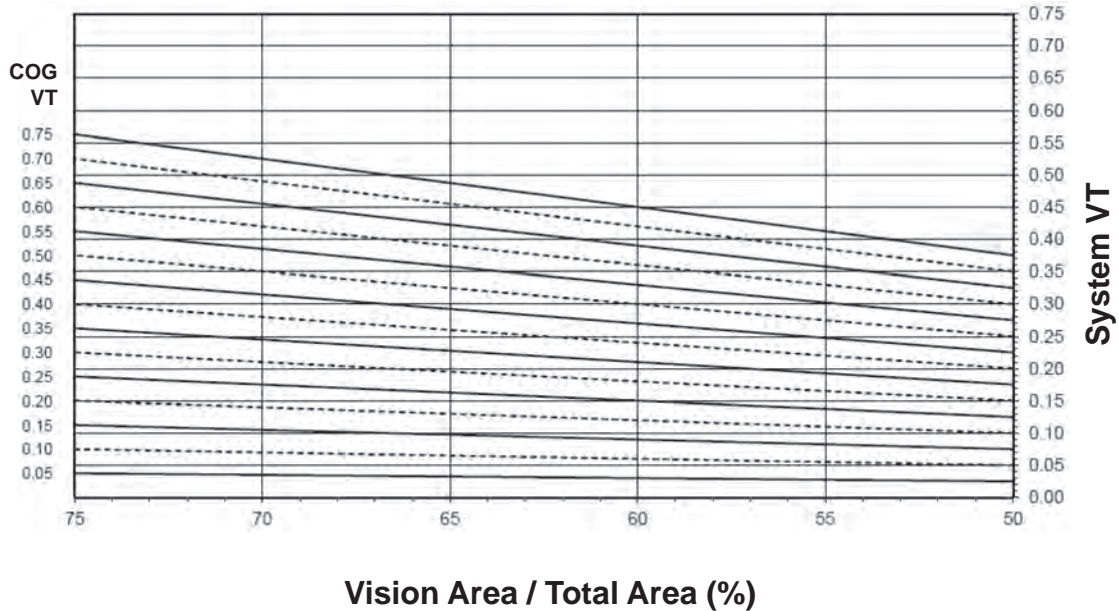
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2015

190 (SINGLE DOOR)

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



System Visible Transmittance (VT) vs Percent of Vision Area



Laws and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

Thermal Transmittance ¹ (BTU/hr • ft² • °F)

190 (SINGLE DOOR)

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.78
0.46	0.77
0.44	0.76
0.42	0.75
0.40	0.74
0.38	0.73
0.36	0.72
0.34	0.71
0.32	0.70
0.30	0.69
0.28	0.68
0.26	0.67
0.24	0.66
0.22	0.65
0.20	0.65
0.18	0.63
0.16	0.61
0.14	0.60
0.12	0.59
0.10	0.58

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 960 mm wide by 2,090 mm high (37-3/4" by 82-3/8").

SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.75	0.48
0.70	0.45
0.65	0.42
0.60	0.39
0.55	0.36
0.50	0.33
0.45	0.30
0.40	0.27
0.35	0.24
0.30	0.21
0.25	0.18
0.20	0.15
0.15	0.13
0.10	0.10
0.05	0.07

Visible Transmittance ²

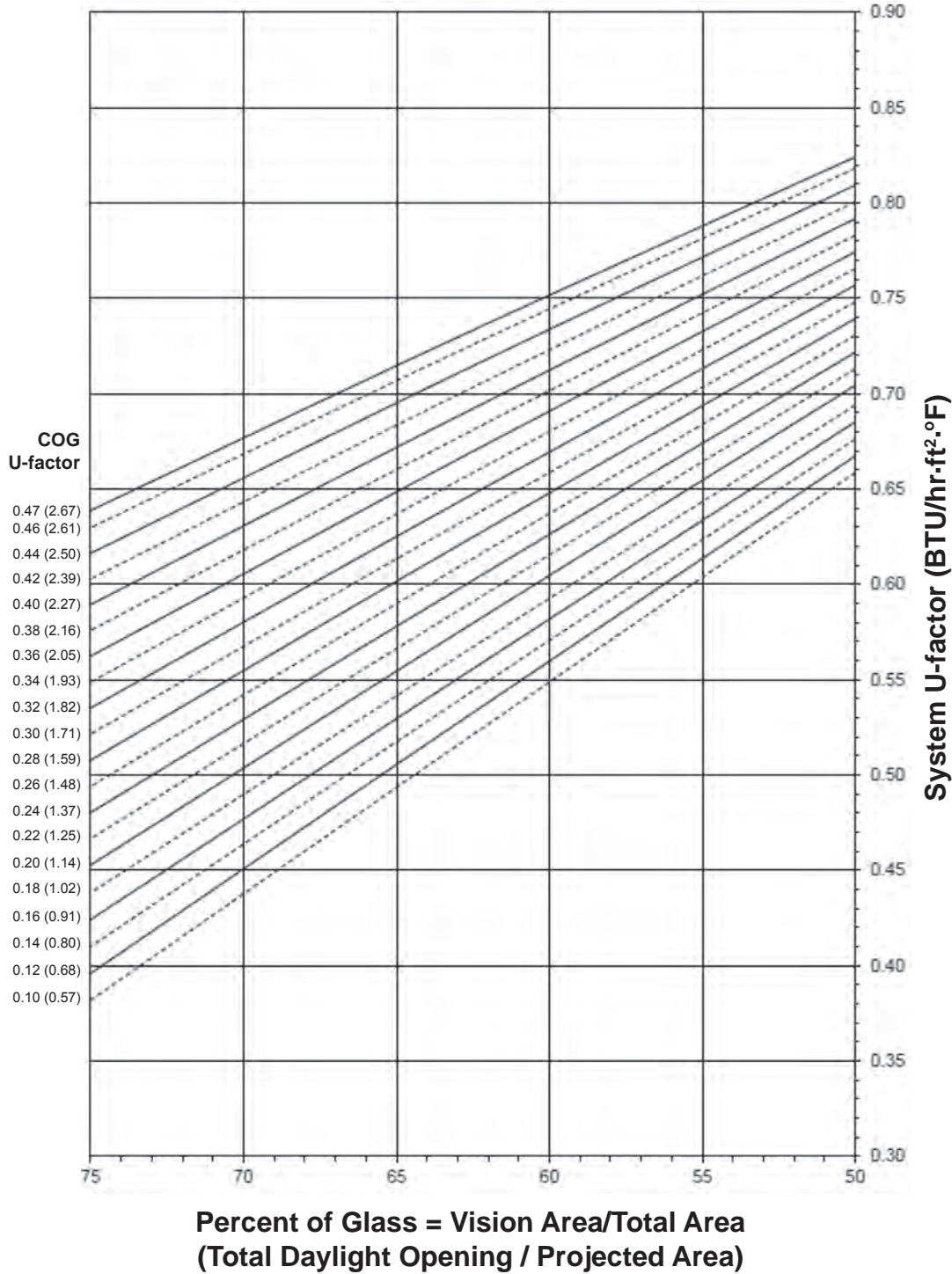
Glass VT ³	Overall VT ⁴
0.75	0.44
0.70	0.41
0.65	0.38
0.60	0.35
0.55	0.32
0.50	0.29
0.45	0.26
0.40	0.23
0.35	0.21
0.30	0.18
0.25	0.15
0.20	0.12
0.15	0.09
0.10	0.06
0.05	0.03

Laws and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

190 (PAIR OF DOORS)

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 (winter conditions) and are obtained from your glass supplier.

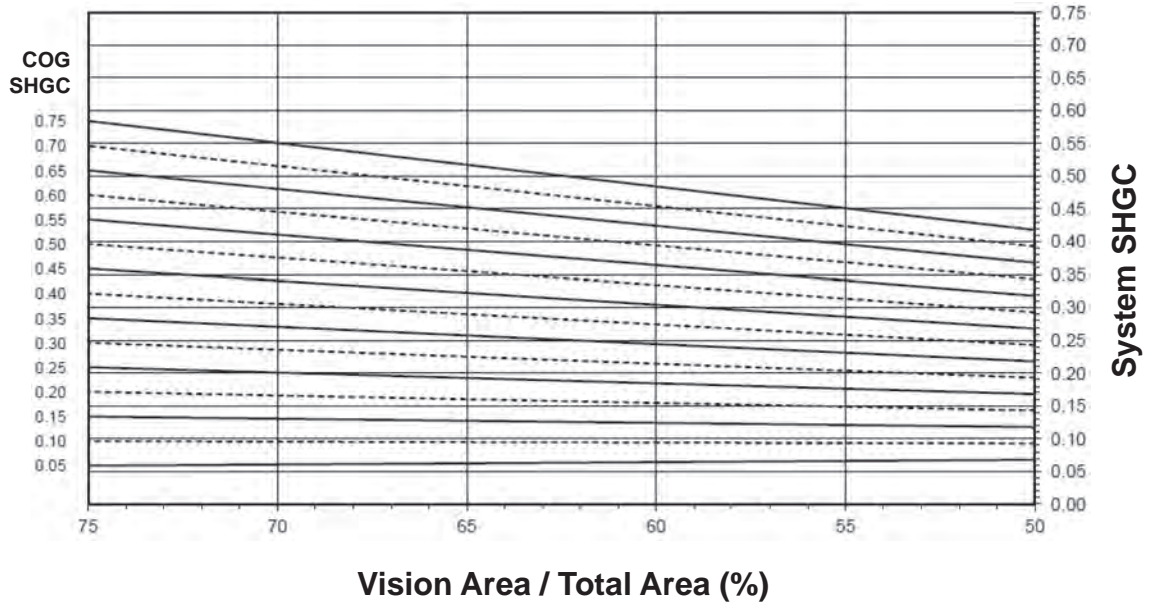
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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

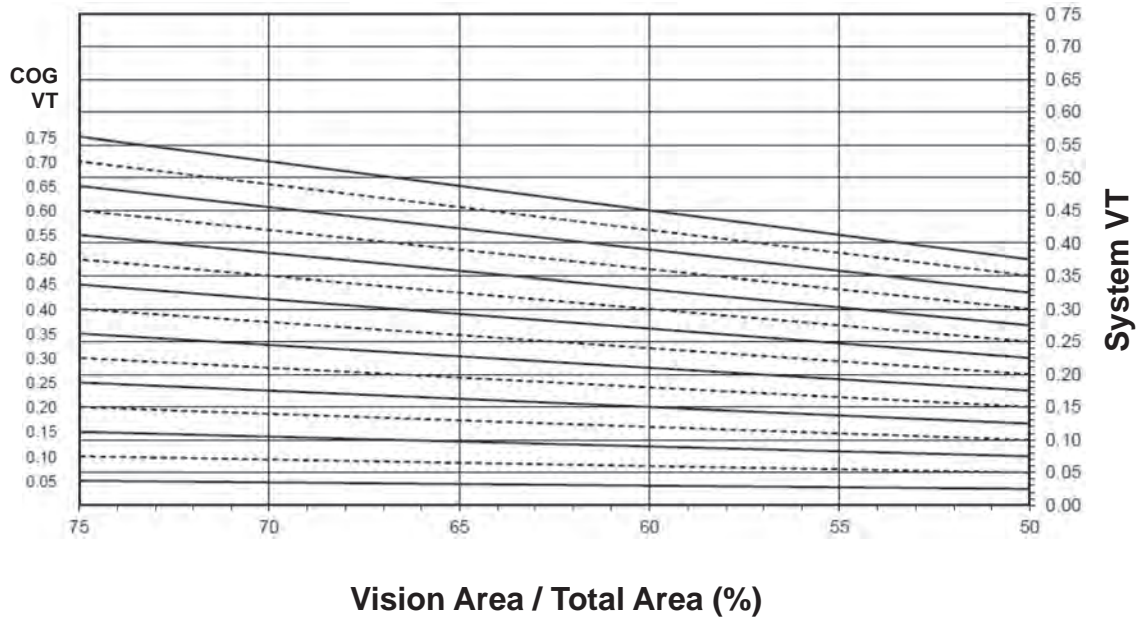
© Kawneer Company, Inc., 2015

190 (PAIR OF DOORS)

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



System Visible Transmittance (VT) vs Percent of Vision Area



Laws and building and safety codes governing the design and use of 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.
 © Kawneer Company, Inc., 2015

Thermal Transmittance ¹ (BTU/hr • ft² • °F)

Glass U-Factor ³	Overall U-Factor ⁴
0.47	0.73
0.46	0.72
0.44	0.71
0.42	0.70
0.40	0.69
0.38	0.68
0.36	0.67
0.34	0.66
0.32	0.64
0.30	0.63
0.28	0.62
0.26	0.61
0.24	0.60
0.22	0.59
0.20	0.58
0.18	0.56
0.16	0.55
0.14	0.54
0.12	0.53
0.10	0.52

190 (PAIR OF DOORS)

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 1,920 mm wide by 2,090 mm high (75-1/2" by 82-3/8").

SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.75	0.50
0.70	0.47
0.65	0.44
0.60	0.41
0.55	0.38
0.50	0.35
0.45	0.31
0.40	0.28
0.35	0.25
0.30	0.22
0.25	0.19
0.20	0.16
0.15	0.13
0.10	0.09
0.05	0.06

Visible Transmittance ²

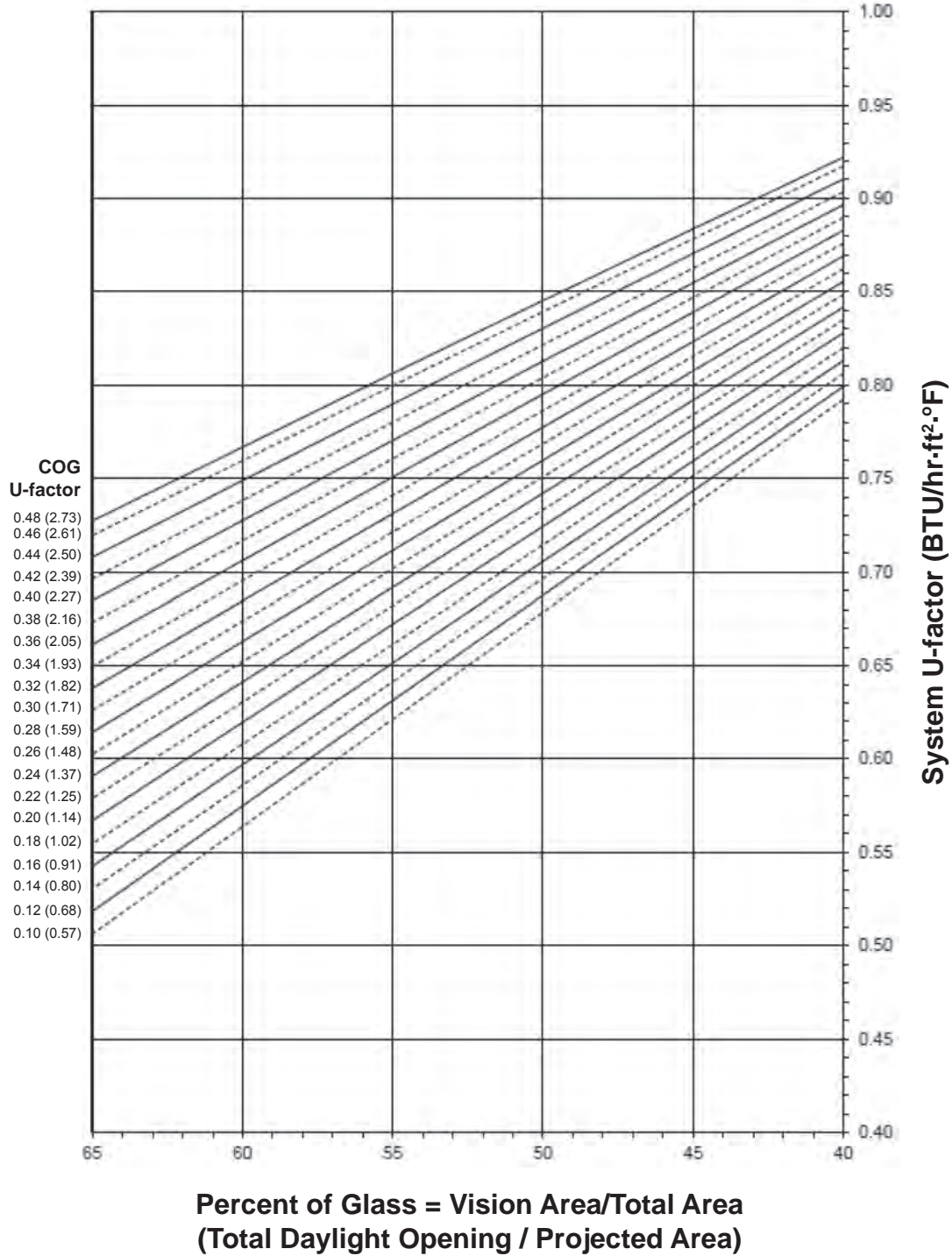
Glass VT ³	Overall VT ⁴
0.75	0.47
0.70	0.44
0.65	0.41
0.60	0.38
0.55	0.35
0.50	0.31
0.45	0.28
0.40	0.25
0.35	0.22
0.30	0.19
0.25	0.16
0.20	0.13
0.15	0.09
0.10	0.06
0.05	0.03

Laws and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

350 (SINGLE DOOR)

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.

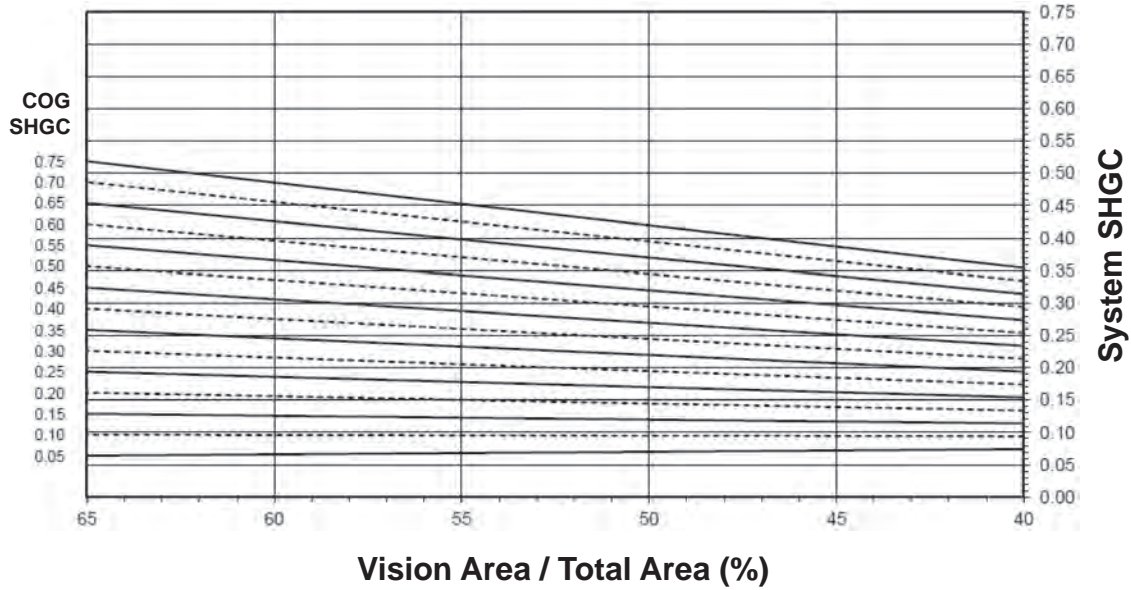
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

Laws and building and safety codes governing the design and use of 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.

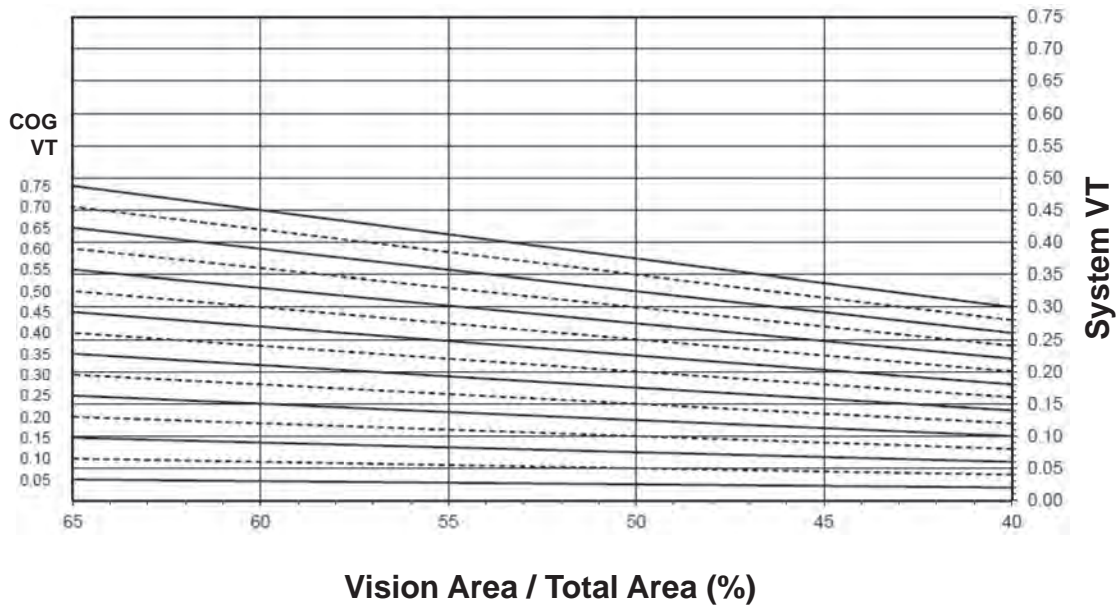
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2015

350 (SINGLE DOOR)

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



System Visible Transmittance (VT) vs Percent of Vision Area



Laws and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

Thermal Transmittance ¹ (BTU/hr • ft² • °F)

350 (SINGLE DOOR)

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.83
0.46	0.82
0.44	0.81
0.42	0.81
0.40	0.80
0.38	0.79
0.36	0.78
0.34	0.77
0.32	0.76
0.30	0.75
0.28	0.74
0.26	0.73
0.24	0.72
0.22	0.71
0.20	0.70
0.18	0.69
0.16	0.68
0.14	0.68
0.12	0.67
0.10	0.66

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 960 mm wide by 2,090 mm high (37-3/4" by 82-3/8").

SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.75	0.43
0.70	0.41
0.65	0.38
0.60	0.36
0.55	0.33
0.50	0.30
0.45	0.28
0.40	0.25
0.35	0.23
0.30	0.20
0.25	0.17
0.20	0.15
0.15	0.12
0.10	0.10
0.05	0.07

Visible Transmittance ²

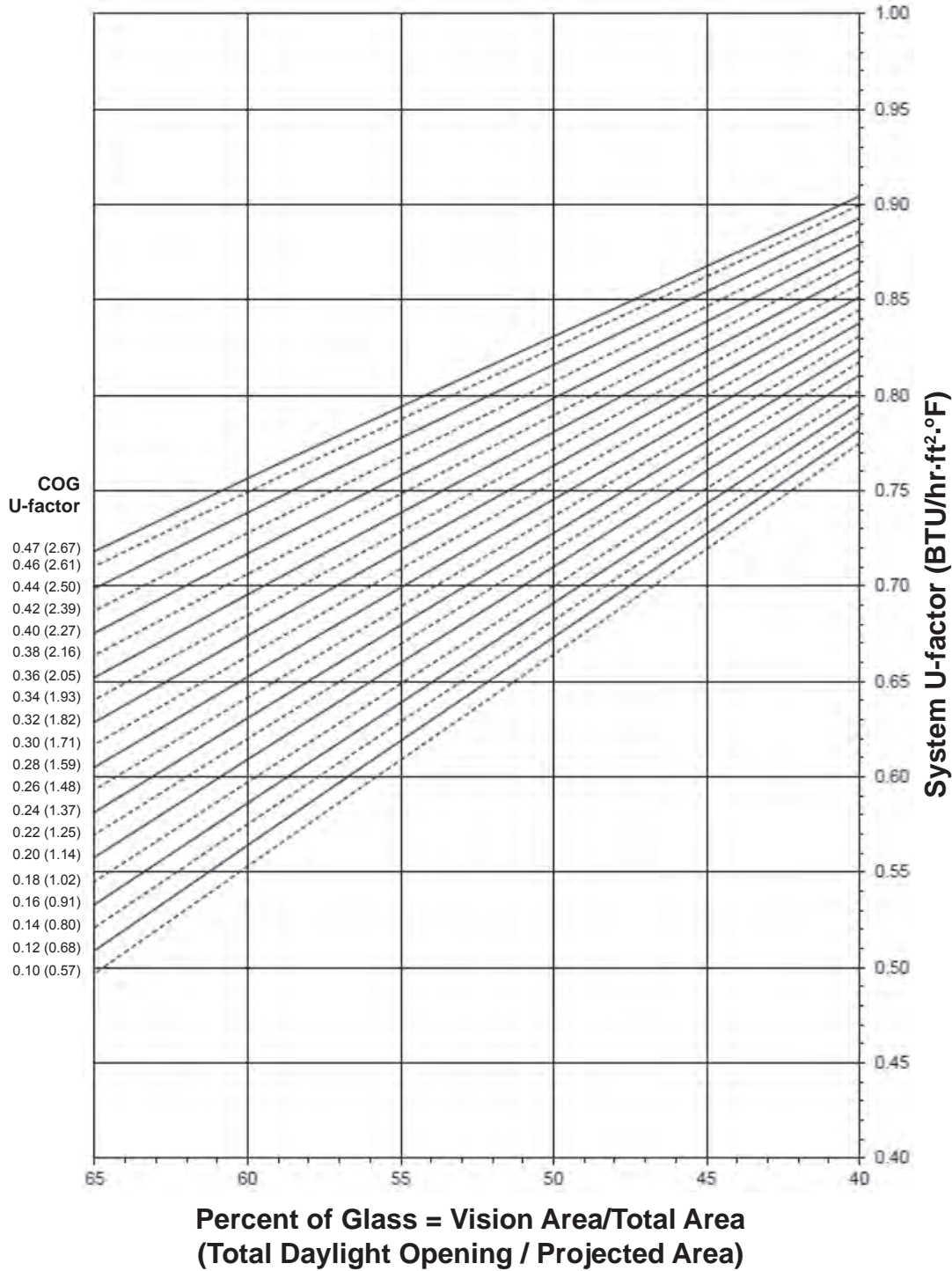
Glass VT ³	Overall VT ⁴
0.75	0.39
0.70	0.36
0.65	0.34
0.60	0.31
0.55	0.29
0.50	0.26
0.45	0.23
0.40	0.21
0.35	0.18
0.30	0.16
0.25	0.13
0.20	0.10
0.15	0.08
0.10	0.05
0.05	0.03

Laws and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

350 (PAIR OF DOORS)

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 (winter conditions) and are obtained from your glass supplier.

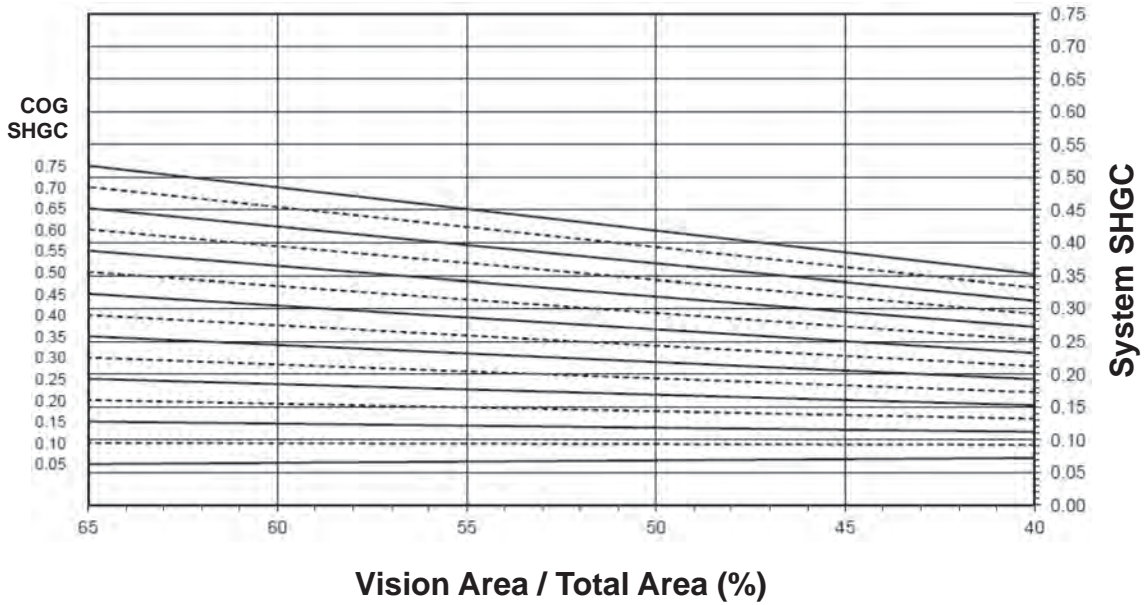
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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

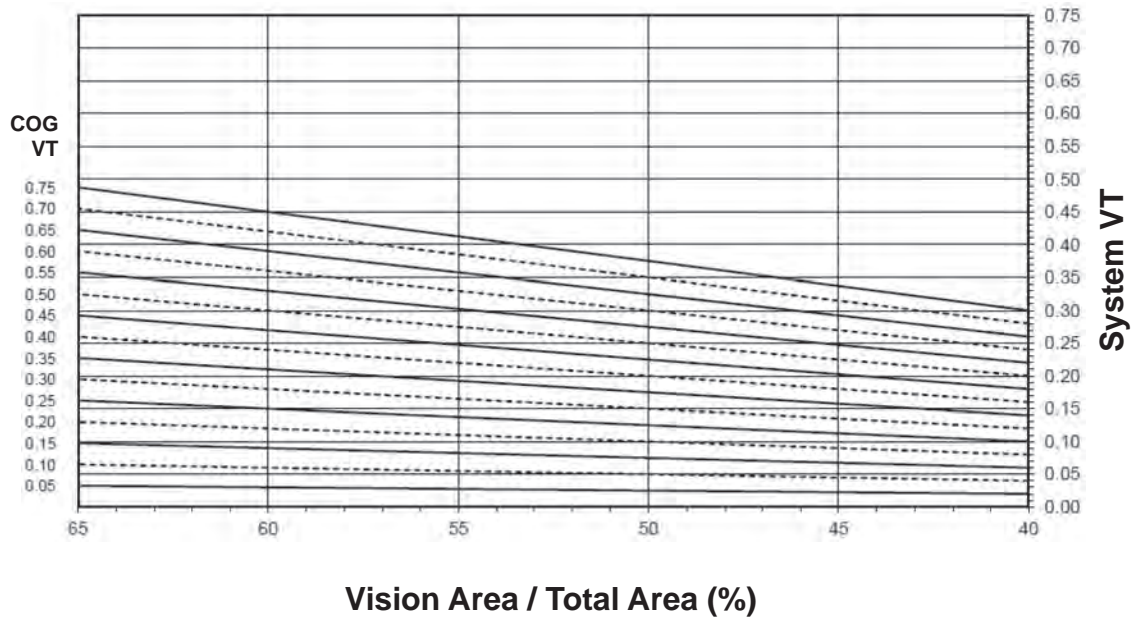
© Kawneer Company, Inc., 2015

350 (PAIR OF DOORS)

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



System Visible Transmittance (VT) vs Percent of Vision Area



Laws and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

Thermal Transmittance ¹ (BTU/hr • ft² • °F)

Glass U-Factor ³	Overall U-Factor ⁴
0.47	0.79
0.46	0.78
0.44	0.77
0.42	0.76
0.40	0.75
0.38	0.74
0.36	0.73
0.34	0.72
0.32	0.71
0.30	0.70
0.28	0.69
0.26	0.68
0.24	0.67
0.22	0.66
0.20	0.65
0.18	0.64
0.16	0.63
0.14	0.62
0.12	0.61
0.10	0.60

350 (PAIR OF DOORS)

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 1,920 mm wide by 2,090 mm high (75-1/2" by 82-3/8").

SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.75	0.46
0.70	0.43
0.65	0.40
0.60	0.37
0.55	0.35
0.50	0.32
0.45	0.29
0.40	0.26
0.35	0.23
0.30	0.21
0.25	0.18
0.20	0.15
0.15	0.12
0.10	0.09
0.05	0.07

Visible Transmittance ²

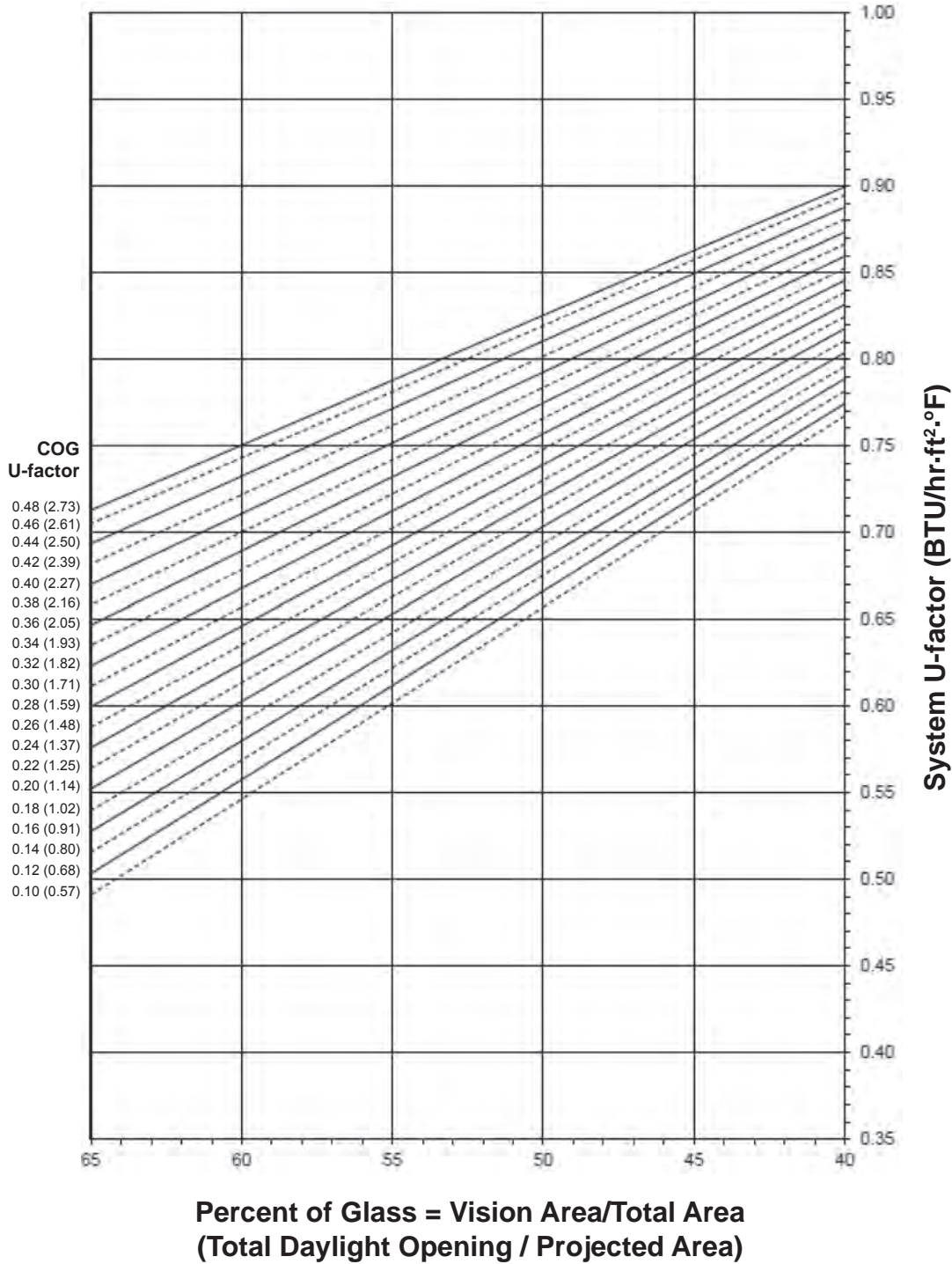
Glass VT ³	Overall VT ⁴
0.75	0.42
0.70	0.39
0.65	0.36
0.60	0.34
0.55	0.31
0.50	0.28
0.45	0.25
0.40	0.22
0.35	0.20
0.30	0.17
0.25	0.14
0.20	0.11
0.15	0.08
0.10	0.06
0.05	0.03

Laws and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

500 (SINGLE DOOR)

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.

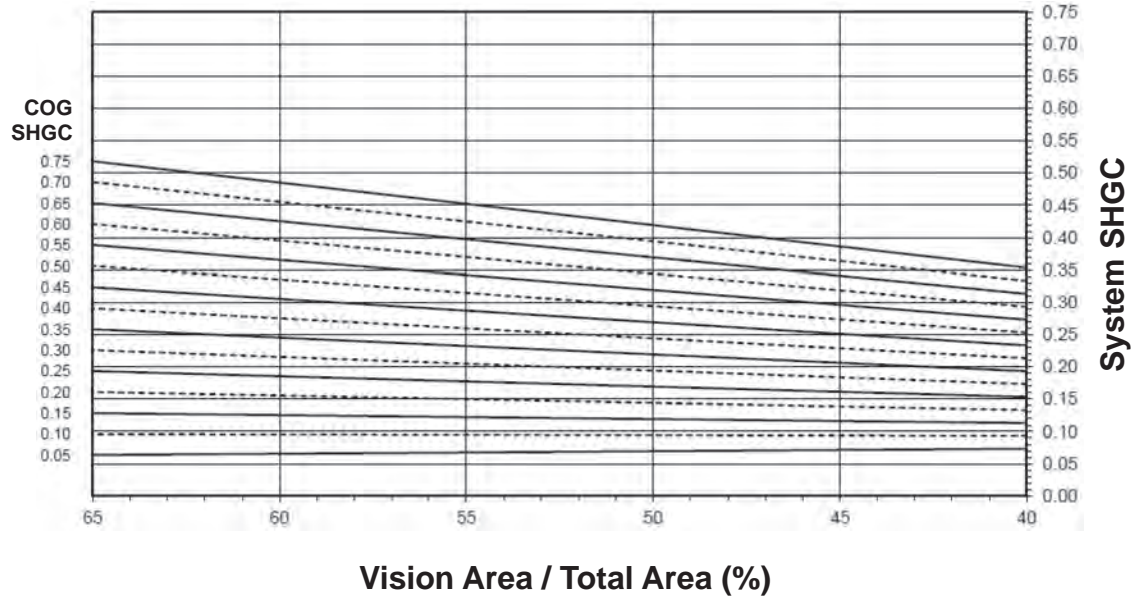
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

Laws and building and safety codes governing the design and use of 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.

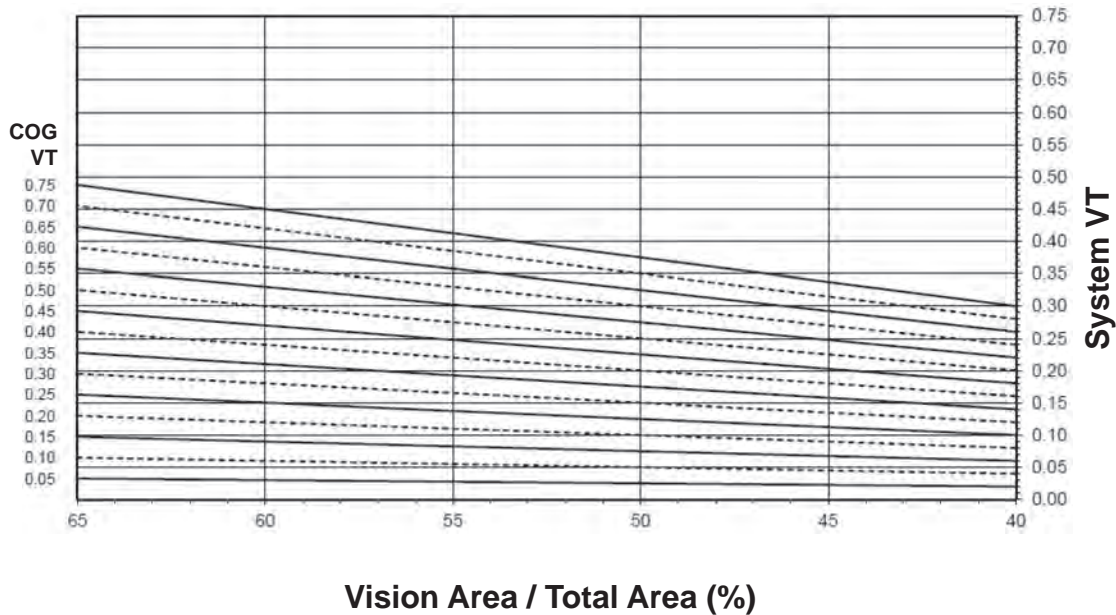
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2015

500 (SINGLE DOOR)

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



System Visible Transmittance (VT) vs Percent of Vision Area



Laws and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

Thermal Transmittance ¹ (BTU/hr • ft² • °F)

500 (SINGLE DOOR)

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.87
0.46	0.86
0.44	0.85
0.42	0.84
0.40	0.84
0.38	0.83
0.36	0.82
0.34	0.81
0.32	0.81
0.30	0.80
0.28	0.79
0.26	0.78
0.24	0.77
0.22	0.77
0.20	0.76
0.18	0.75
0.16	0.74
0.14	0.73
0.12	0.73
0.10	0.72

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 960 mm wide by 2,090 mm high (37-3/4" by 82-3/8").

SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.75	0.38
0.70	0.36
0.65	0.34
0.60	0.32
0.55	0.29
0.50	0.27
0.45	0.25
0.40	0.23
0.35	0.21
0.30	0.18
0.25	0.16
0.20	0.14
0.15	0.12
0.10	0.09
0.05	0.07

Visible Transmittance ²

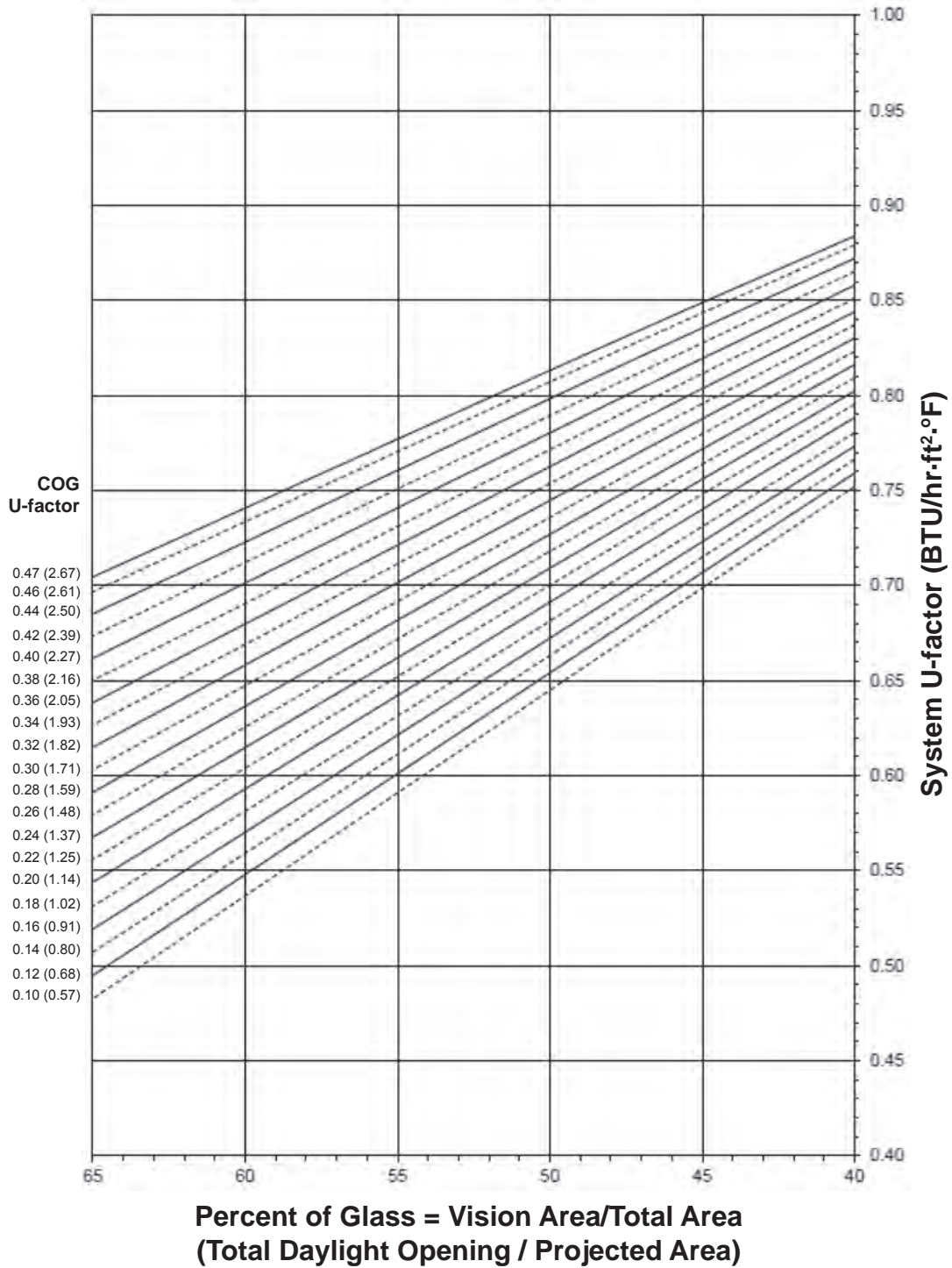
Glass VT ³	Overall VT ⁴
0.75	0.33
0.70	0.31
0.65	0.29
0.60	0.27
0.55	0.25
0.50	0.22
0.45	0.20
0.40	0.18
0.35	0.16
0.30	0.13
0.25	0.11
0.20	0.09
0.15	0.07
0.10	0.04
0.05	0.02

Laws and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

500 (PAIR OF DOORS)

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 (winter conditions) and are obtained from your glass supplier.

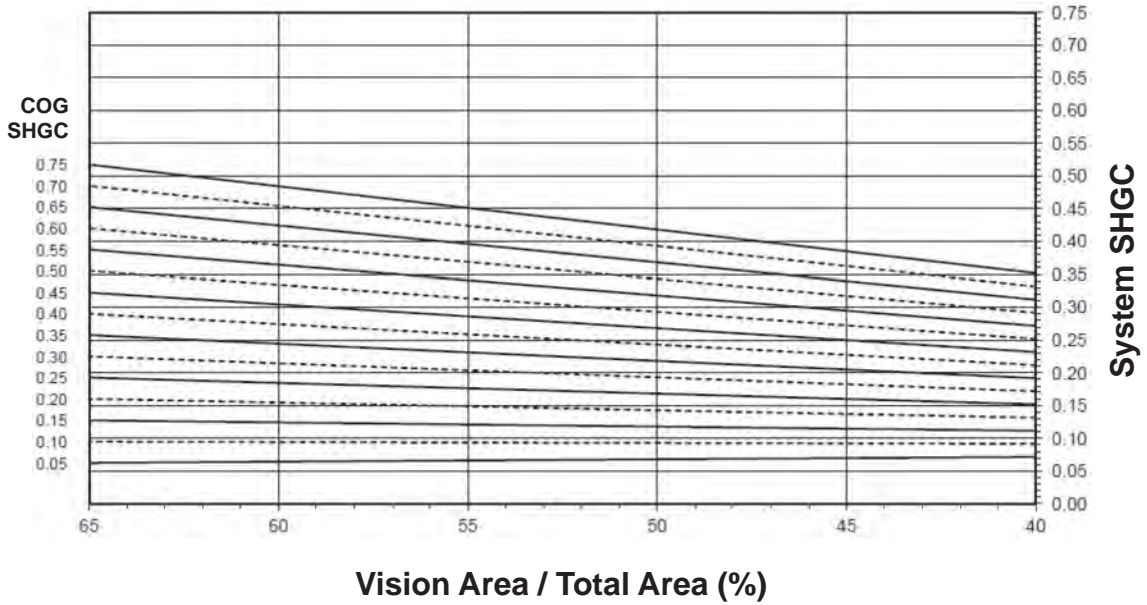
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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

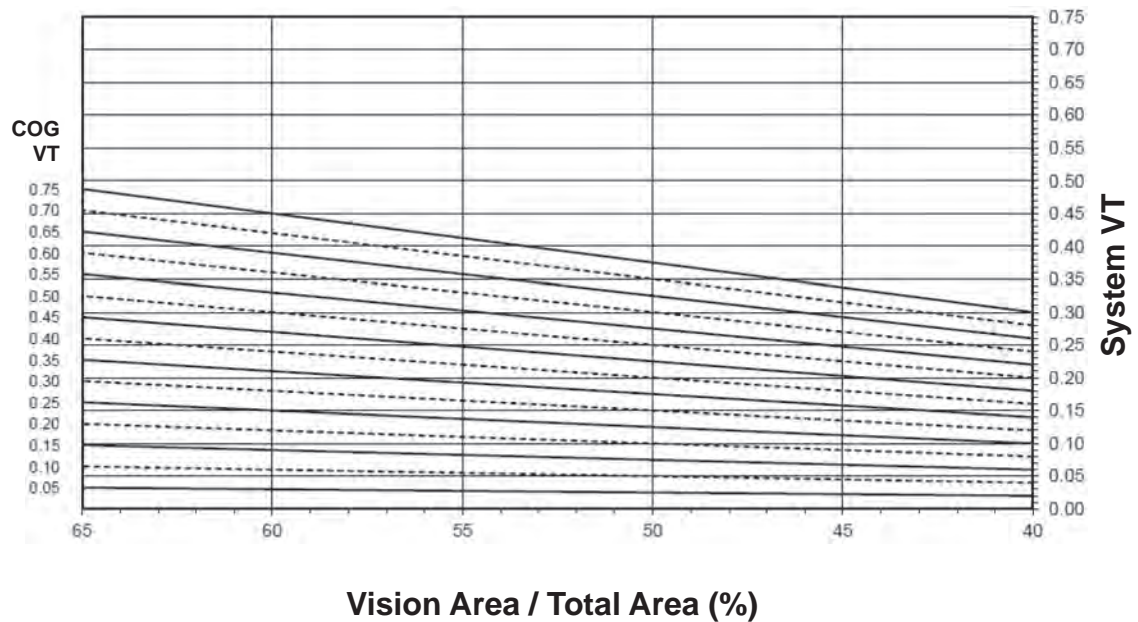
© Kawneer Company, Inc., 2015

500 (PAIR OF DOORS)

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



System Visible Transmittance (VT) vs Percent of Vision Area



Laws and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

Thermal Transmittance ¹ (BTU/hr • ft² • °F)

Glass U-Factor ³	Overall U-Factor ⁴
0.47	0.82
0.46	0.82
0.44	0.81
0.42	0.80
0.40	0.79
0.38	0.78
0.36	0.77
0.34	0.77
0.32	0.76
0.30	0.75
0.28	0.74
0.26	0.73
0.24	0.72
0.22	0.71
0.20	0.70
0.18	0.70
0.16	0.69
0.14	0.68
0.12	0.67
0.10	0.66

500 (PAIR OF DOORS)

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 1,920 mm wide by 2,090 mm high (75-1/2" by 82-3/8").

SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.75	0.41
0.70	0.38
0.65	0.36
0.60	0.34
0.55	0.31
0.50	0.29
0.45	0.26
0.40	0.24
0.35	0.21
0.30	0.19
0.25	0.17
0.20	0.14
0.15	0.12
0.10	0.09
0.05	0.07

Visible Transmittance ²

Glass VT ³	Overall VT ⁴
0.75	0.36
0.70	0.34
0.65	0.32
0.60	0.29
0.55	0.27
0.50	0.24
0.45	0.22
0.40	0.19
0.35	0.17
0.30	0.15
0.25	0.12
0.20	0.10
0.15	0.07
0.10	0.05
0.05	0.02

Laws and building and safety codes governing the design and use of 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.
© Kawneer Company, Inc., 2015

Features

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

Optional Features

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

Product Applications

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

For specific product applications,
consult your Kawneer representative.

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.
© 2018, Kawneer Company, Inc.

PICTORIAL VIEWS..... 5-10

CENTER11-25

CENTER (LARGE MISSILE IMPACT)..... 26-28

FRONT 29-44

BACK 45-52

MULTI-PLANE 53-59

AIR/VAPOR BARRIER TIE-IN OPTION60

CHARTS (WIND LOAD, DEADLOAD, END REACTION & THERMAL) .. 61-109

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.
© 2018, Kawneer Company, Inc.

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

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.

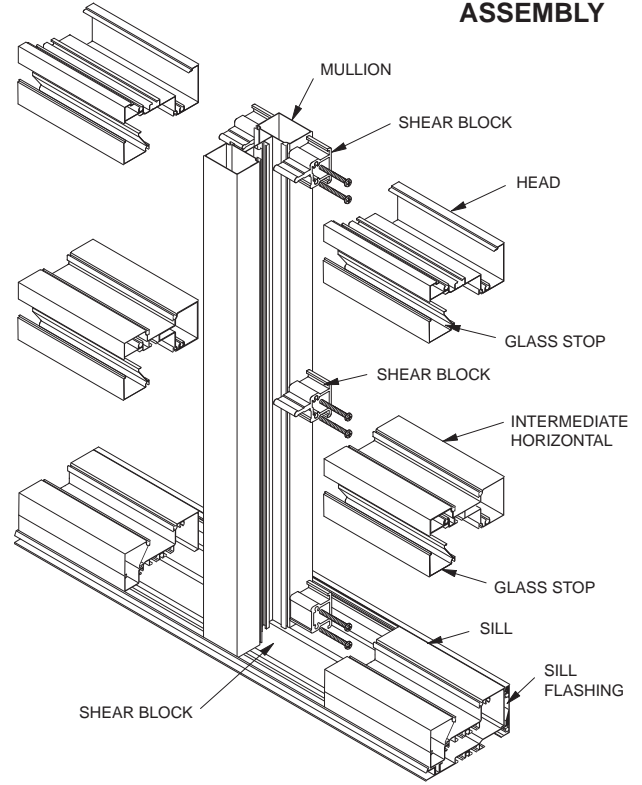
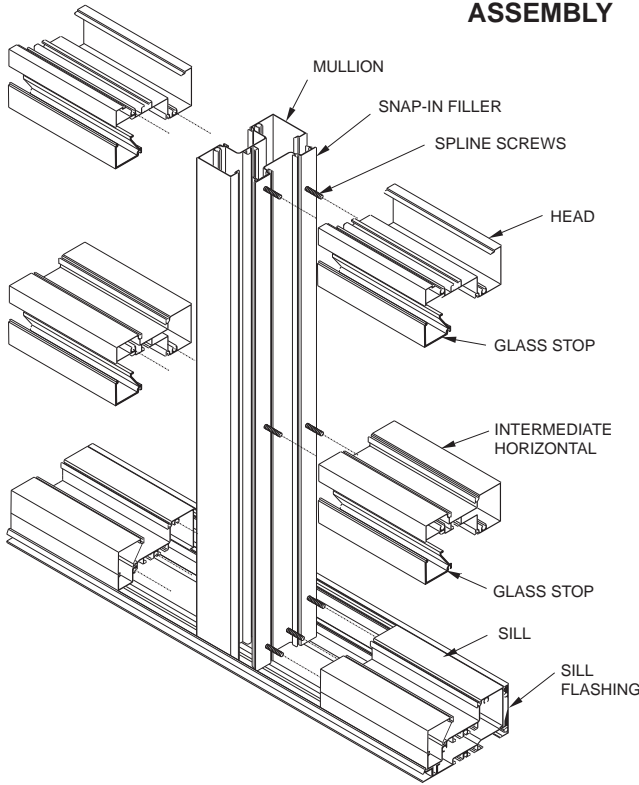
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

The split vertical in the **Screw Spine** 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 pre-assembled as a single unit. Horizontals are attached to the verticals with shear blocks.

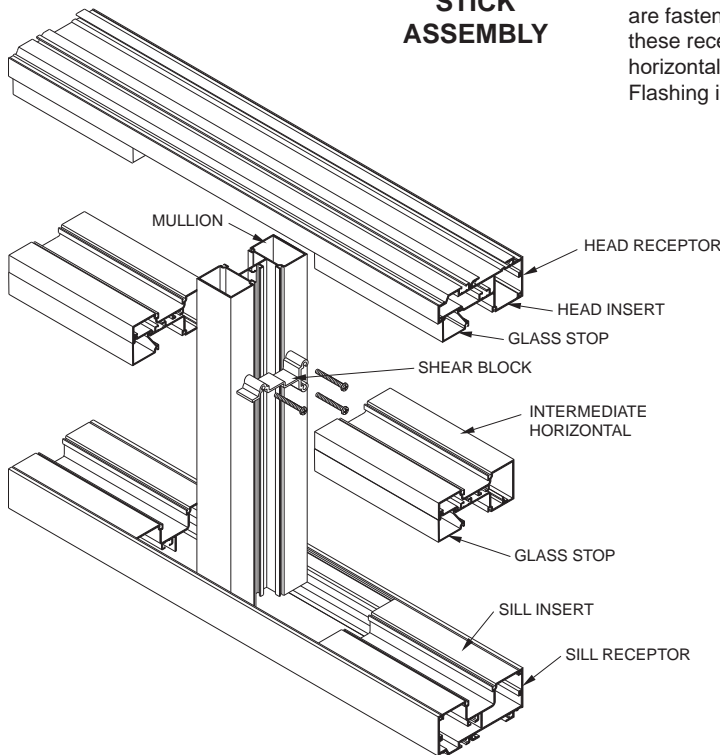
SCREW SPLINE ASSEMBLY

SHEAR BLOCK ASSEMBLY



STICK ASSEMBLY

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



NOTE:

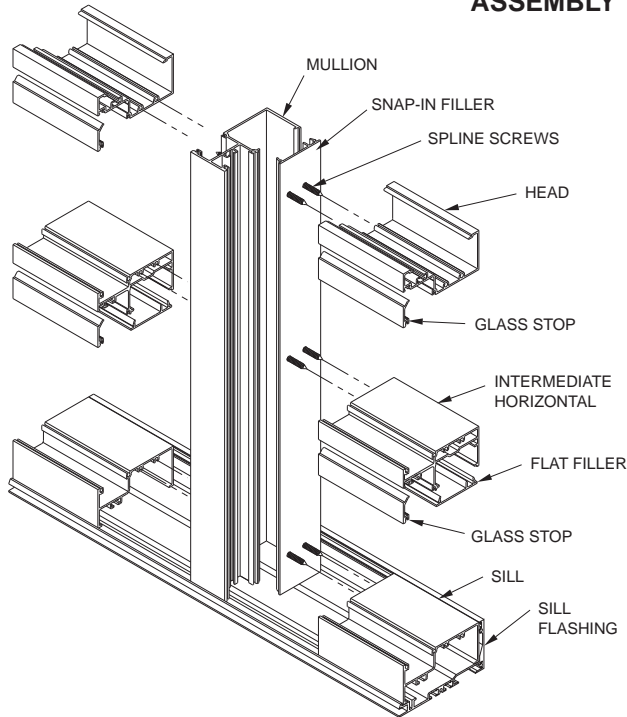
If the end reaction of the mullion (mullion spacing (ft.) times height (ft.) times specified wind load (psf) divided by two) is more than 500 lbs., the optional mullion anchors must be used. (See page 16)

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.
© 2018, Kawneer Company, Inc.

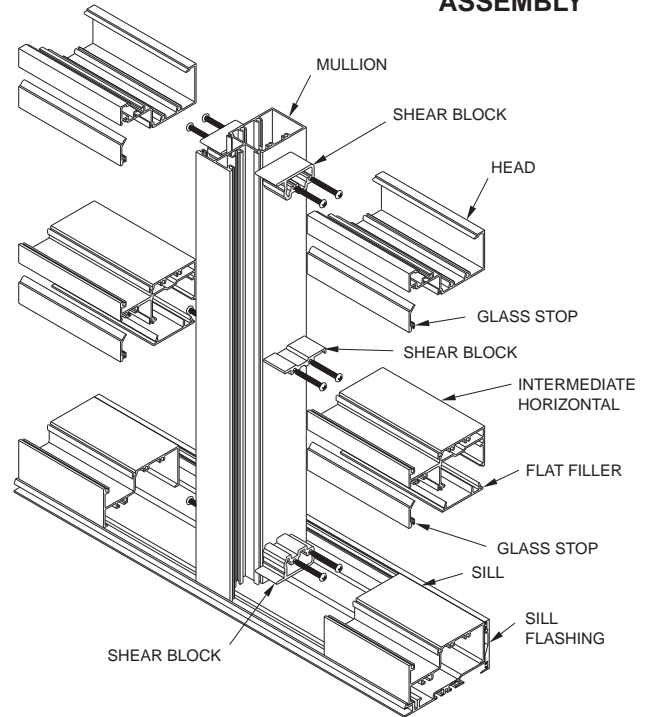
The split vertical in the **Screw Spine** system allows a frame to be installed from unitized assemblies. Screws are driven through the back of the verticals into splines extruded in the horizontal framing members. The Individual units are then snapped together to form a complete frame.

SCREW SPLINE ASSEMBLY

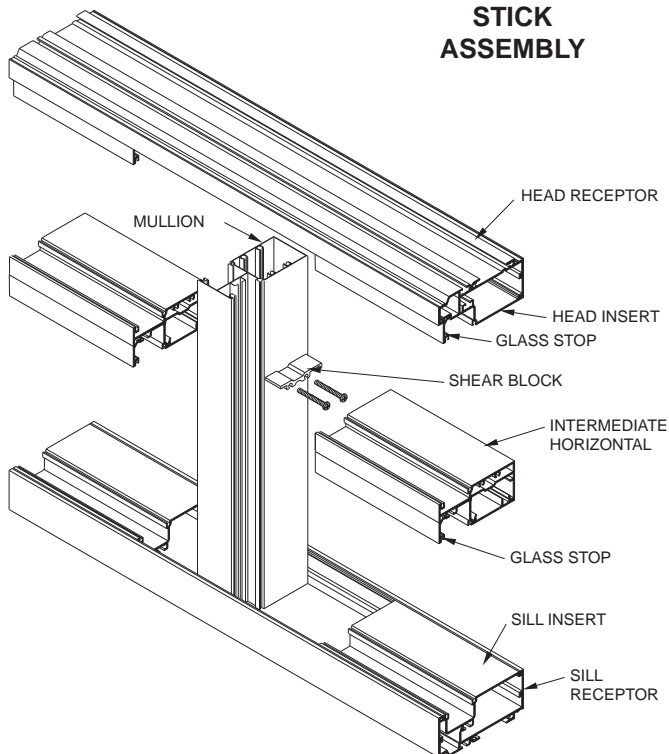


The **Shear Block** system of fabrication allows a frame to be pre-assembled as a single unit. Horizontals are attached to the verticals with shear blocks.

SHEAR BLOCK ASSEMBLY



STICK ASSEMBLY



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

NOTE:

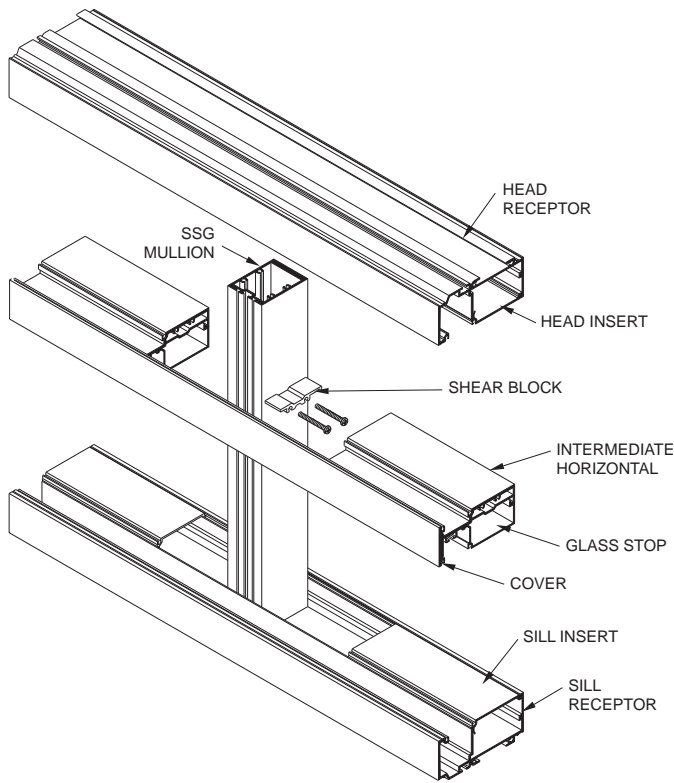
If the end reaction of the mullion (mullion spacing (ft.) times height (ft.) times specified wind load (psf) divided by two) is more than 500 lbs., the optional mullion anchors must be used. (See page 38)

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.

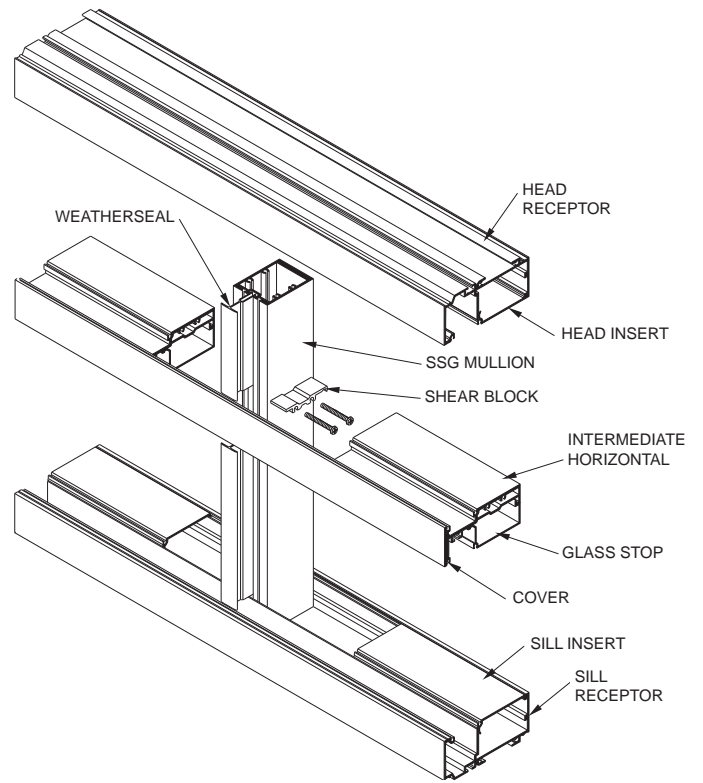
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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

STICK ASSEMBLY (SSG)



STICK ASSEMBLY (WEATHERSEAL)



NOTE:

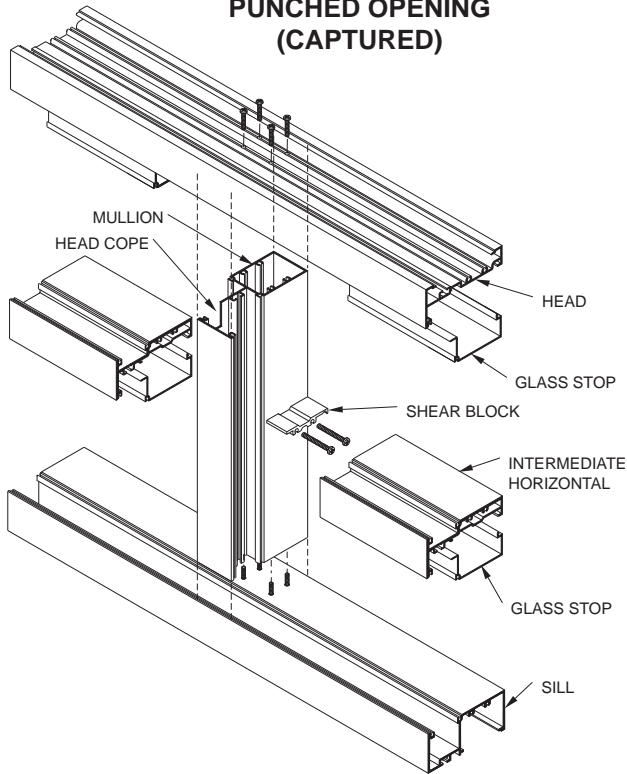
If the end reaction of the mullion (mullion spacing (ft.) times height (ft.) times specified wind load (psf) divided by two) is more than 500 lbs., the optional mullion anchors must be used. (See page 38)

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.

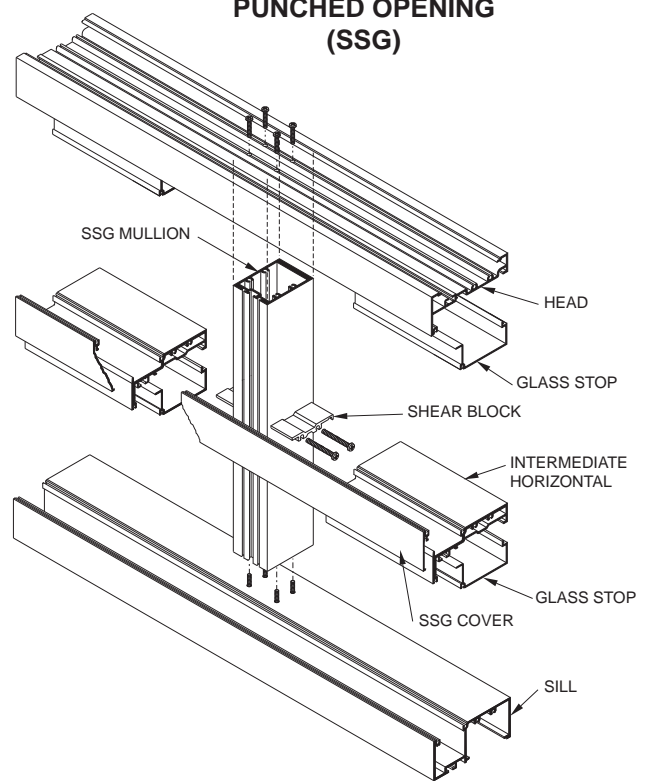
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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

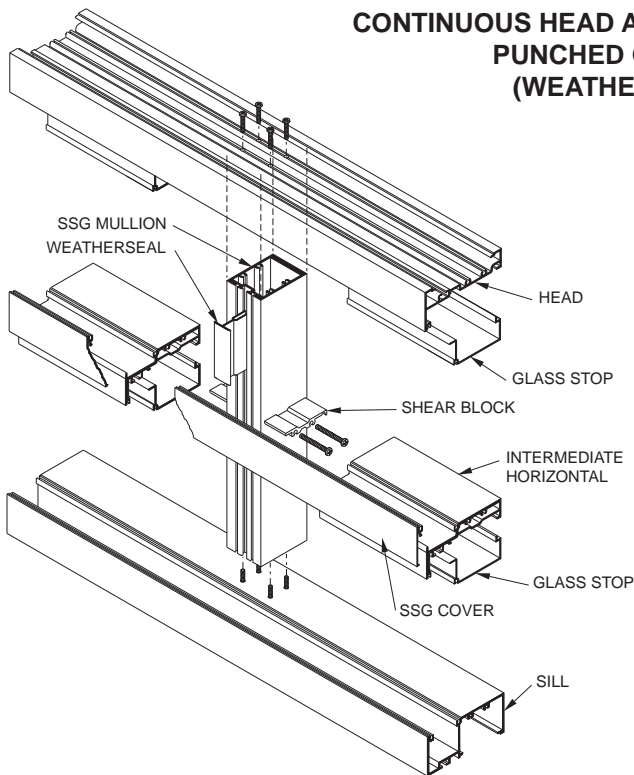
**CONTINUOUS HEAD AND SILL ASSEMBLY
PUNCHED OPENING
(CAPTURED)**



**CONTINUOUS HEAD AND SILL ASSEMBLY
PUNCHED OPENING
(SSG)**



**CONTINUOUS HEAD AND SILL ASSEMBLY
PUNCHED OPENING
(WEATHERSEAL)**



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

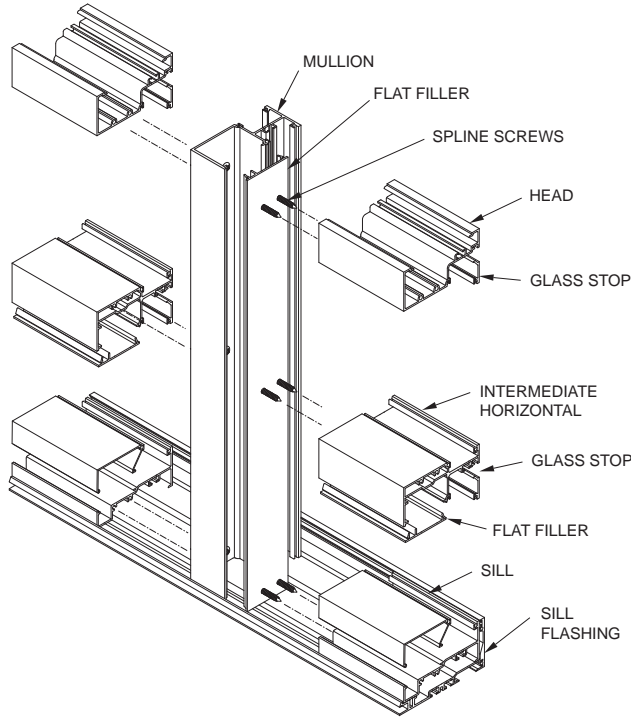
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

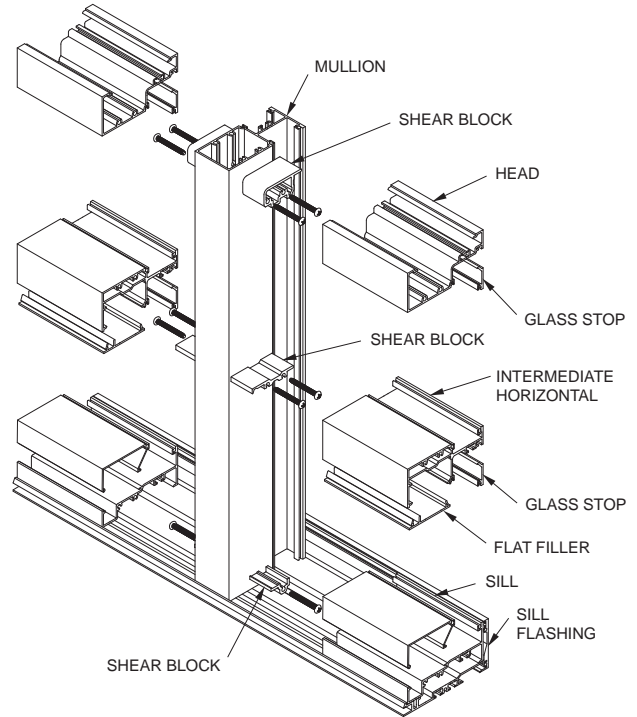
The split vertical in the **Screw Spine** system allows a frame to be installed from unitized assemblies. Screws are driven through the back of the verticals into splines extruded in the horizontal framing members. The Individual units are then snapped together to form a complete frame.

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

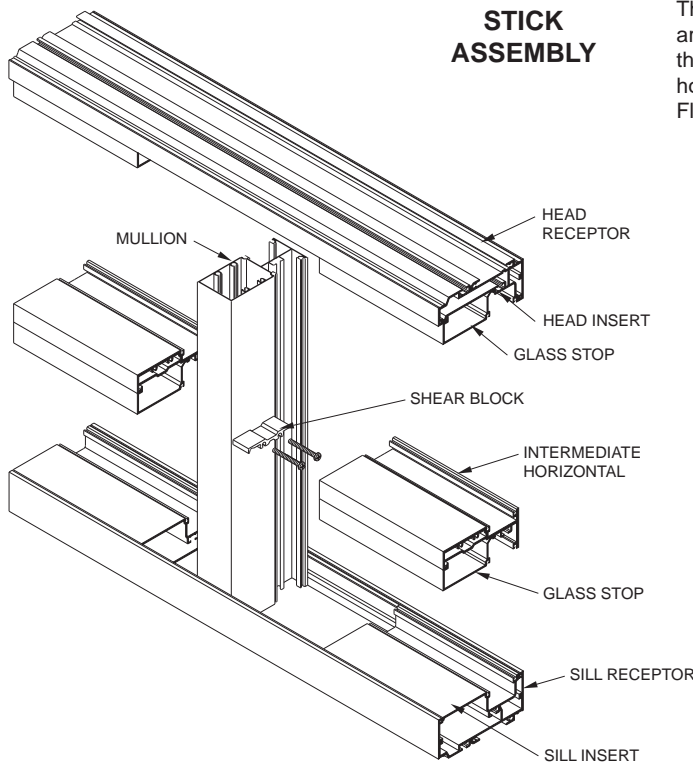
SCREW SPLINE ASSEMBLY



SHEAR BLOCK ASSEMBLY



STICK ASSEMBLY



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

NOTE:

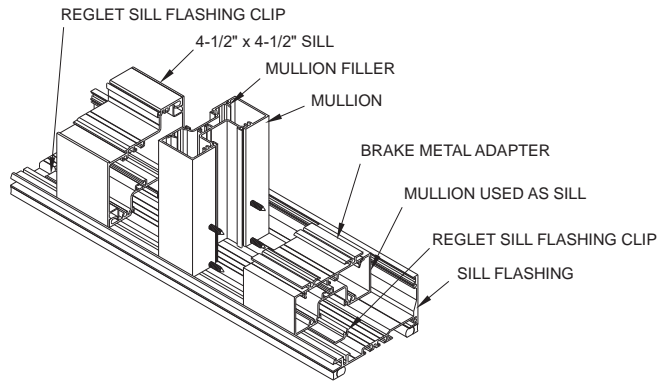
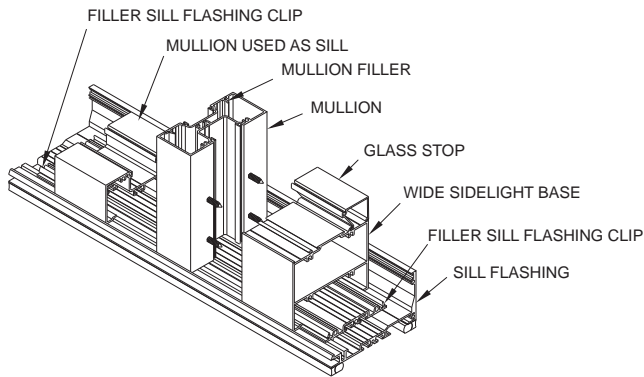
If the end reaction of the mullion (mullion spacing (ft.) times height (ft.) times specified wind load (psf) divided by two) is more than 500 lbs., the optional mullion anchors must be used. (See page 49)

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.
© 2018, Kawneer Company, Inc.

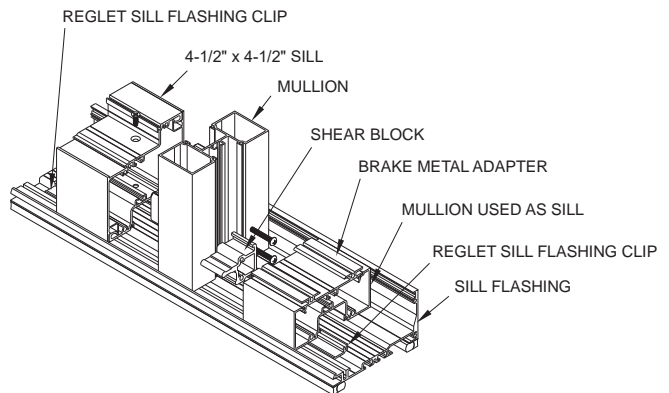
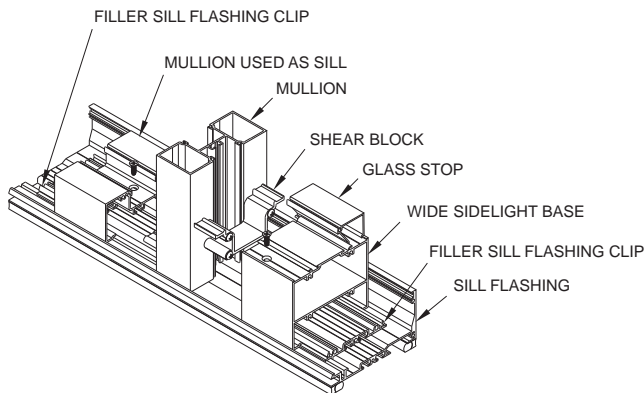
SCREW SPLINE ASSEMBLY

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.



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.
© 2018, Kawneer Company, Inc.

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.
© 2018, Kawneer Company, Inc.

BASIC FRAMING DETAILS

 (CENTER - Outside Glazed - Stops Down).....12

 (CENTER - Inside Glazed - Stops Down).....13

PRE-GLAZED FRAMING DETAILS

 (CENTER - Outside Glazed - Stops Up).....14

 (CENTER - Inside Glazed - Stops Down).....15

MISCELLANEOUS FRAMING..... 16-17

CORNERS.....18

CURVING & TRIM DETAILS19

ENTRANCE FRAMING20

ENTRANCE FRAMING (OPEN BACK).....21

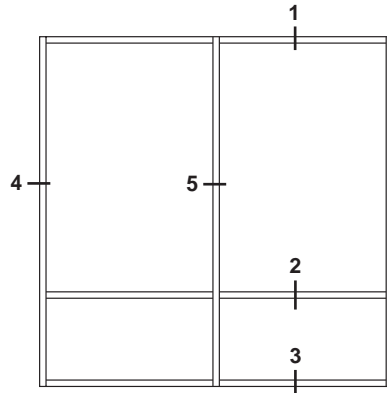
250T/350T/500T INSULPOUR® THERMAL ENTRANCES 22-23

GLASSvent® WINDOW for STOREFRONT FRAMING24

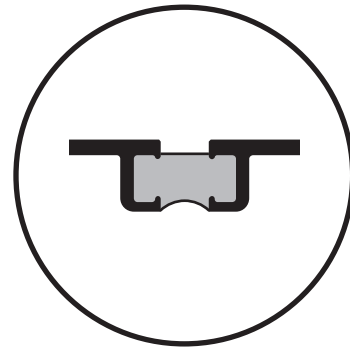
8225TL THERMAL WINDOW DETAILS.....25

LARGE MISSILE IMPACT 26-28

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

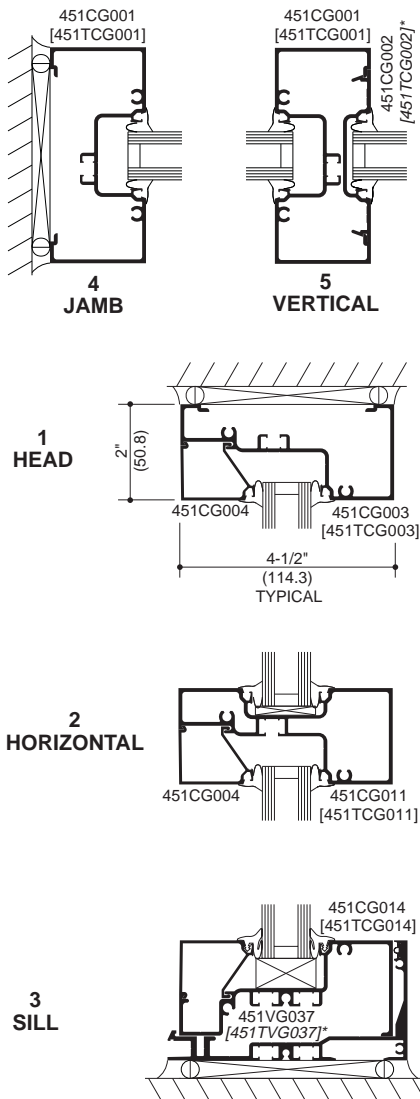


ELEVATION IS NUMBER KEYED TO DETAILS

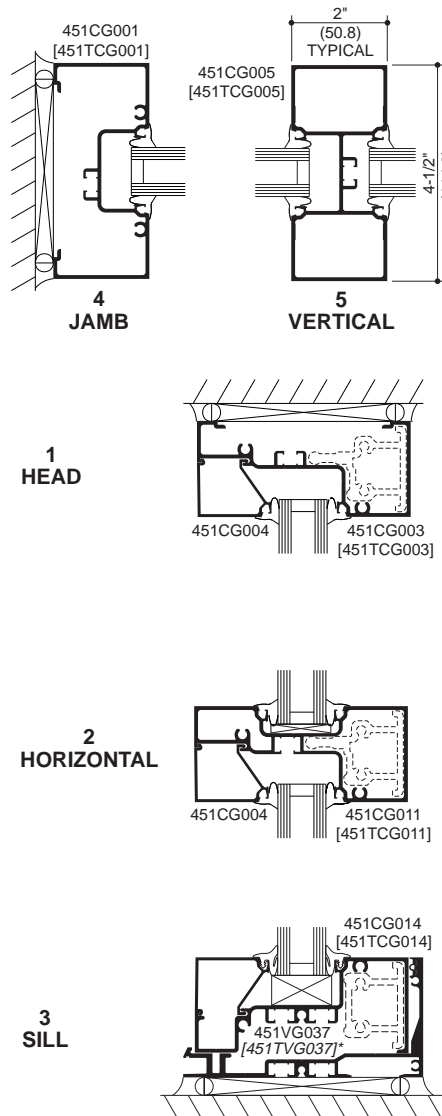


NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

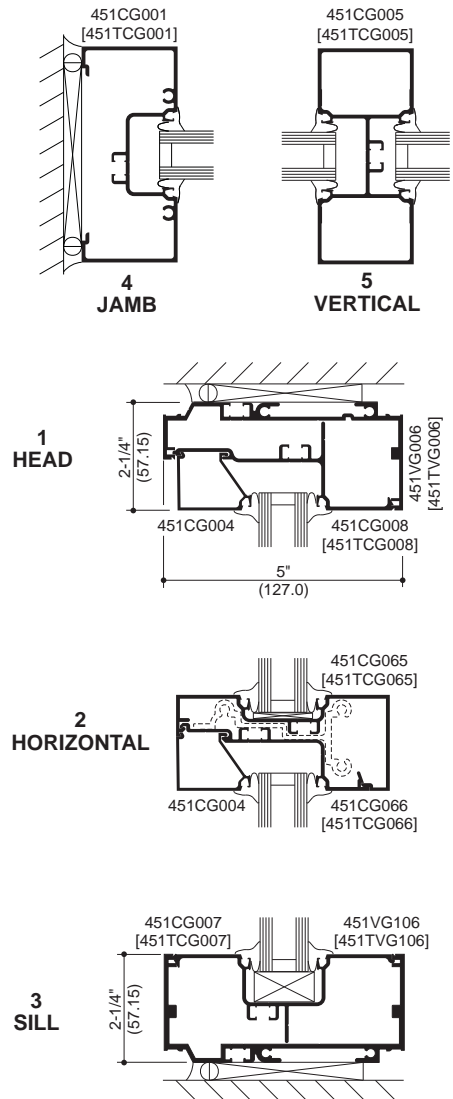
SCREW SPLINE



SHEAR BLOCK



STICK



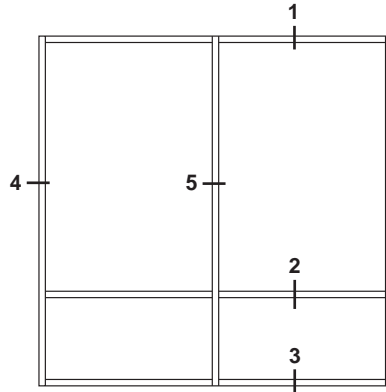
* HP Sill Flashing shown with optional gasket.

* HP Sill Flashing shown with optional gasket.

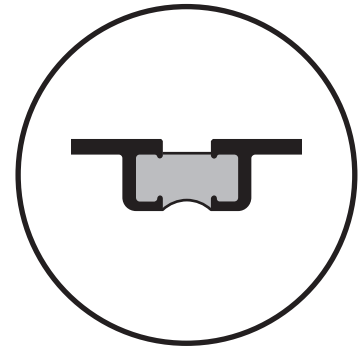
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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

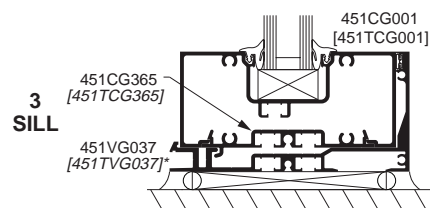
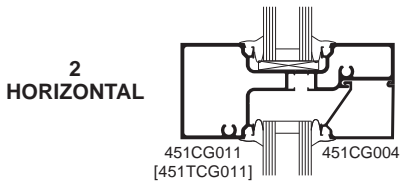
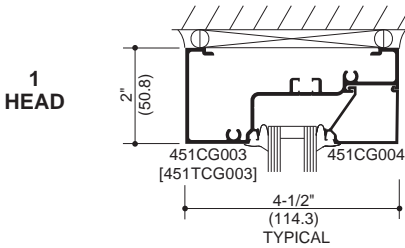
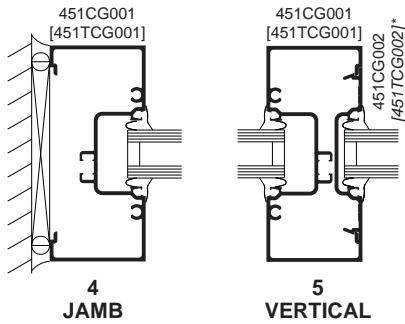


ELEVATION IS NUMBER KEYED TO DETAILS



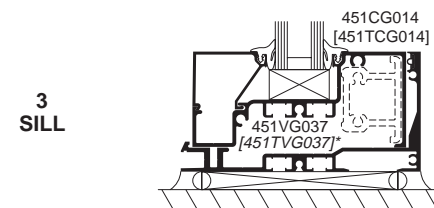
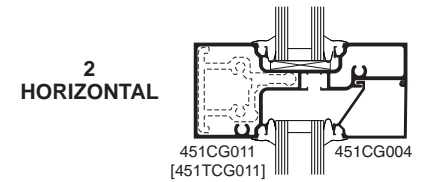
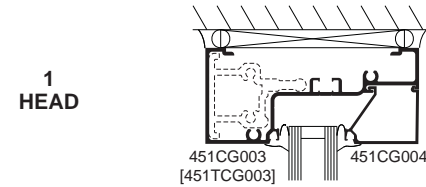
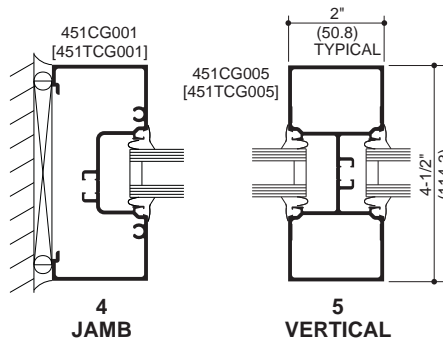
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

SCREW SPLINE



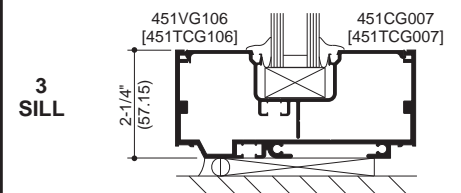
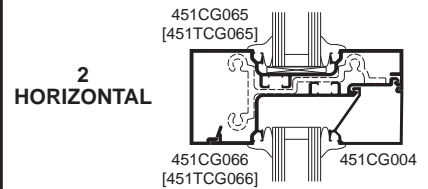
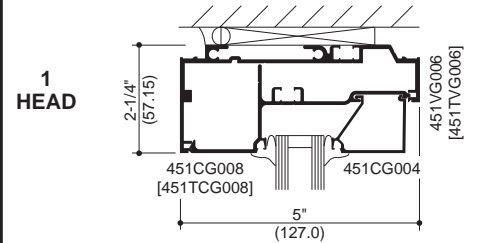
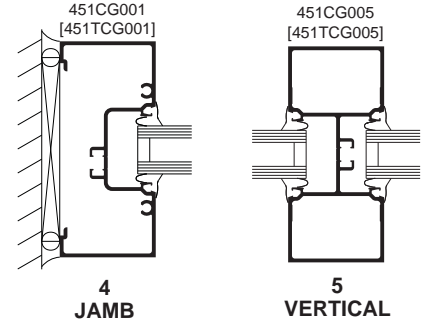
* HP Sill Flashing shown with optional gasket.

SHEAR BLOCK



* HP Sill Flashing shown with optional gasket.

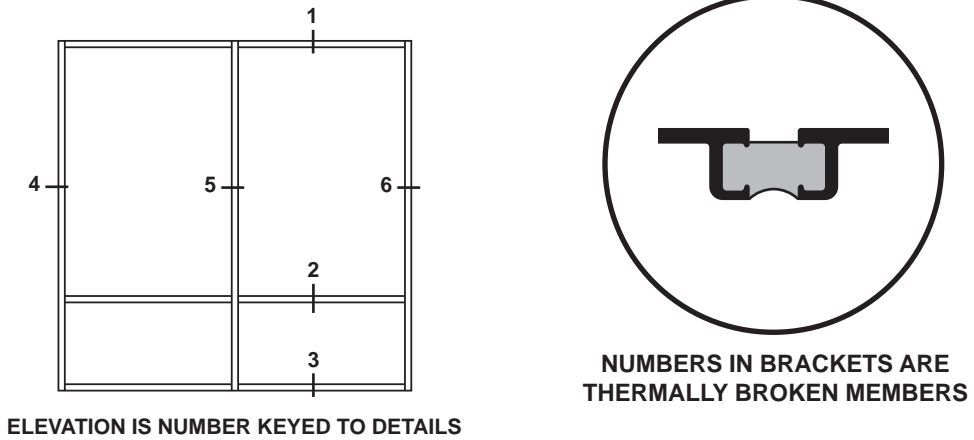
STICK



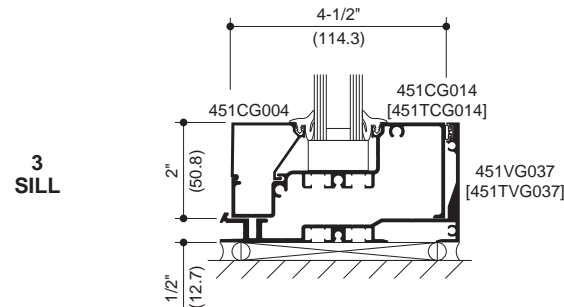
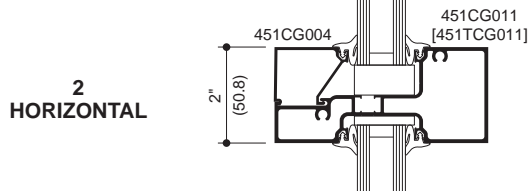
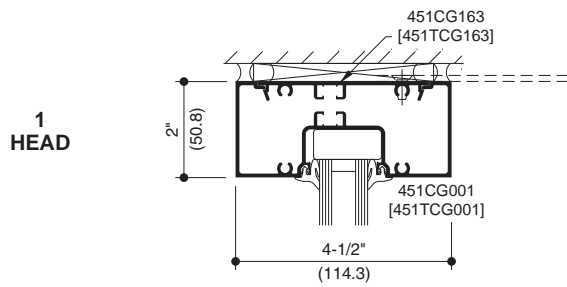
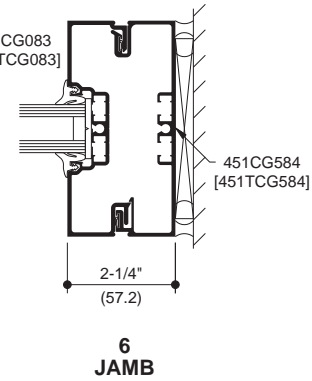
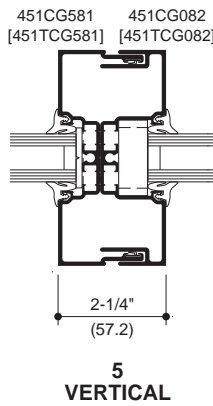
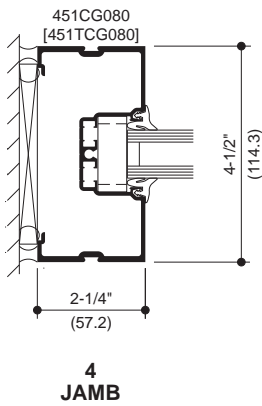
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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



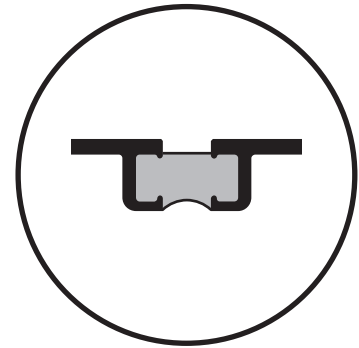
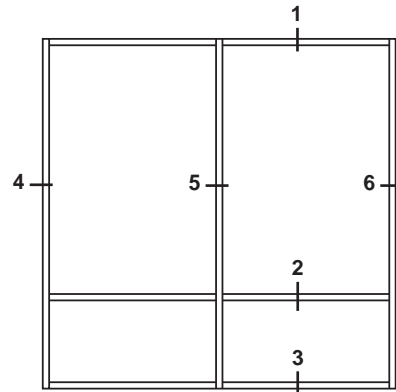
SCREW SPLINE



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.
© 2018, Kawneer Company, Inc.

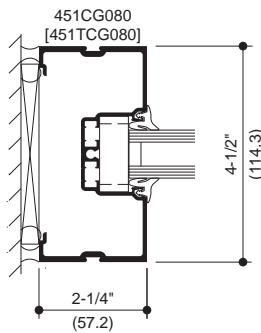
Additional information and CAD details are available at www.kawneer.com



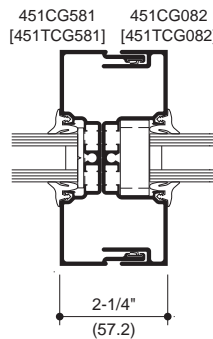
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

ELEVATION IS NUMBER KEYED TO DETAILS

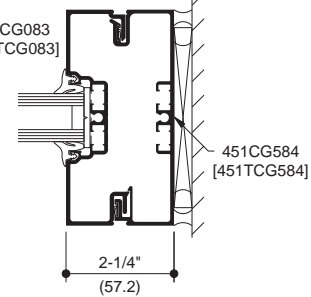
SCREW SPLINE



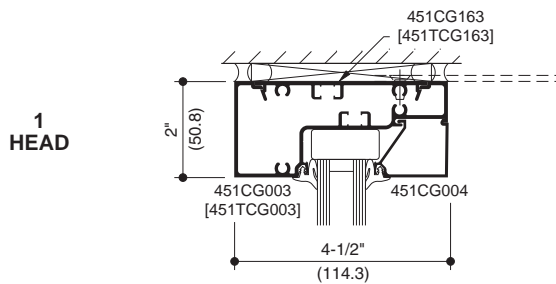
4 JAMB



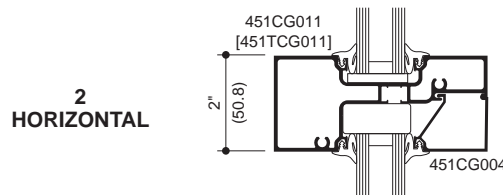
5 VERTICAL



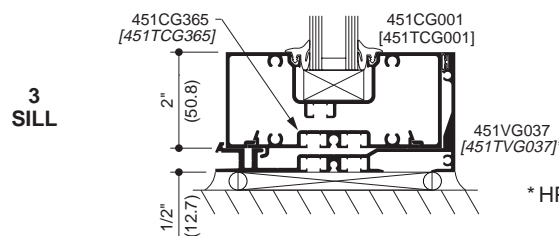
6 JAMB



1 HEAD



2 HORIZONTAL



3 SILL

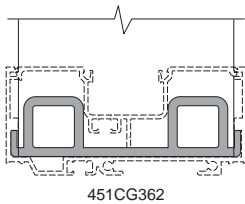
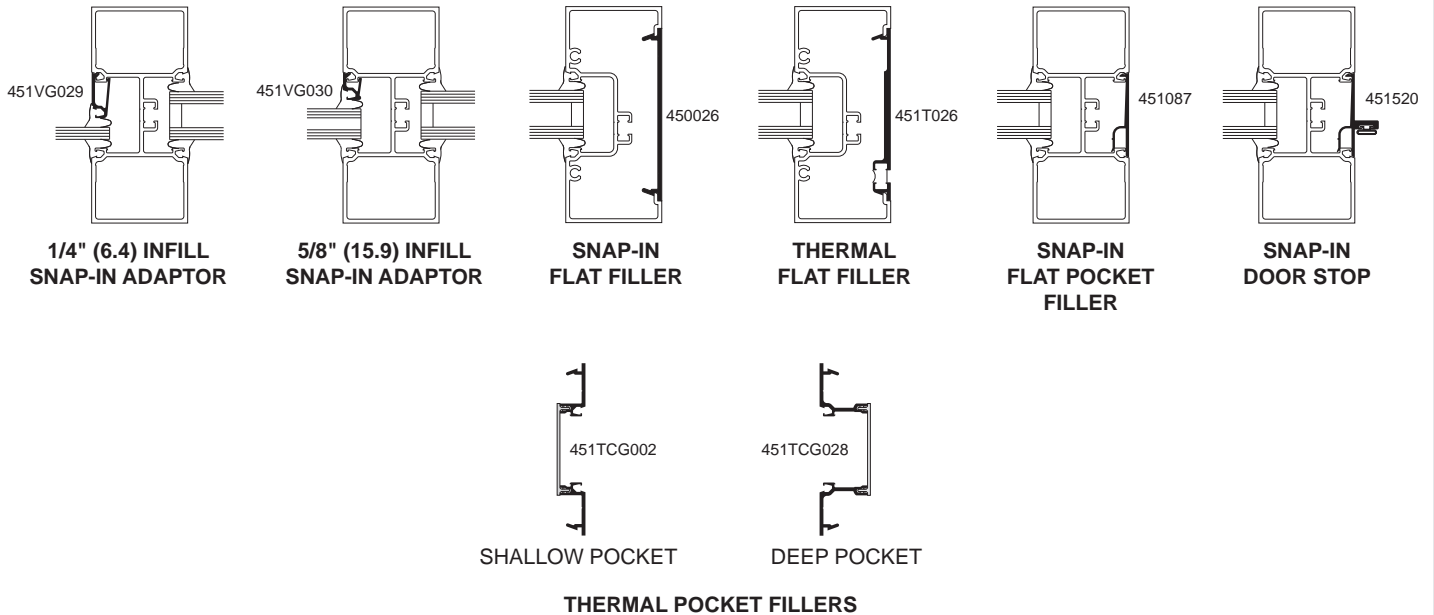
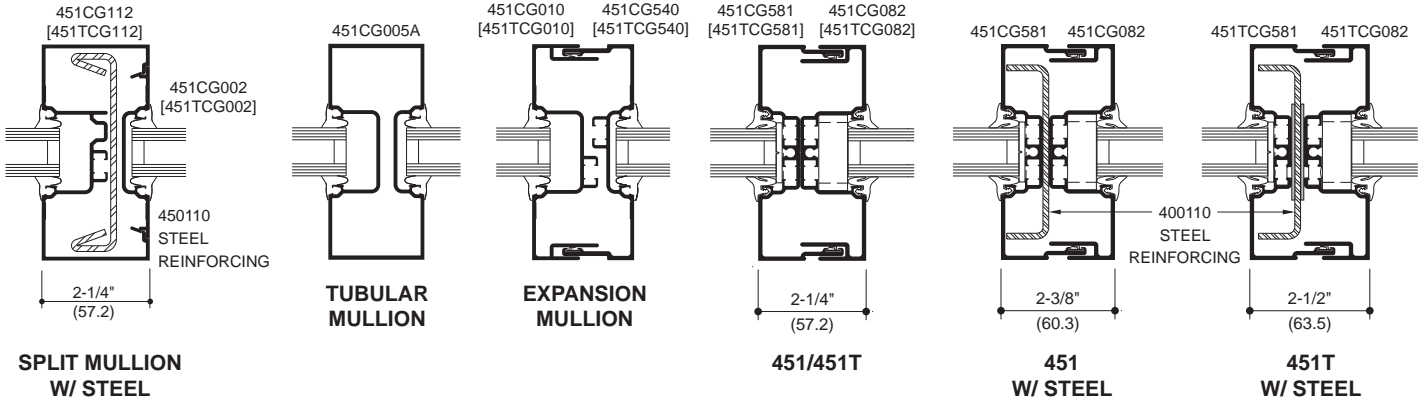
* HP Sill Flashing shown with optional gasket.

Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and 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.
© 2018, Kawneer Company, Inc.

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

PRE-GLAZED EXPANSION MULLIONS



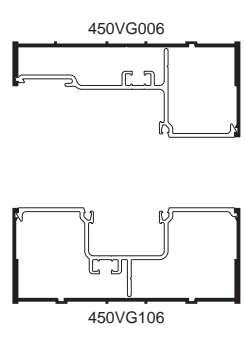
MULLION ANCHOR

NOTE:

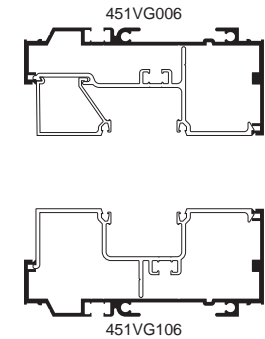
If the end reaction of the mullion (mullion spacing (ft.) times height (ft) times specified wind load (psf), divided by two) is more than 500 LBS., the optional mullion anchor must be used. Consult Application Engineering.

NOTE:

Mullion Anchor not used with Lightweight Receptor.



OPTIONAL LIGHTWEIGHT CAN RECEPTORS



OPTIONAL UNEQUAL LEG CAN RECEPTORS

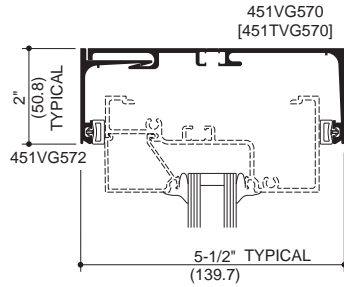
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement. © 2018, Kawneer Company, Inc.

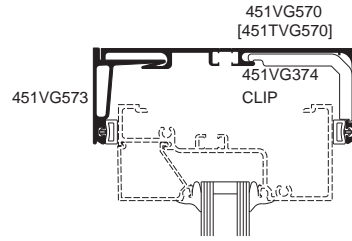
Additional information and CAD details are available at www.kawneer.com

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.

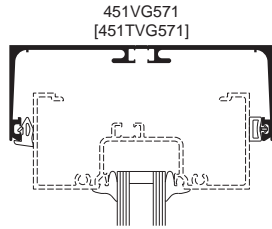
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.



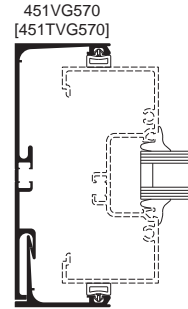
STANDARD HEAD COMPENSATING RECEPTOR (EXTERIOR INSTALLED)



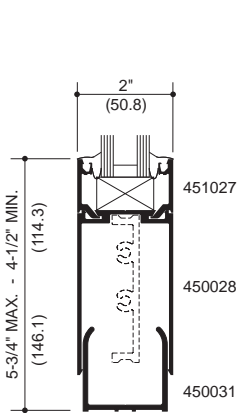
HEAVY WEIGHT HEAD COMPENSATING RECEPTOR (EXTERIOR INSTALLED)



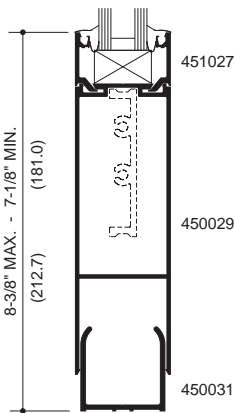
ONE PIECE HEAD COMPENSATING RECEPTOR



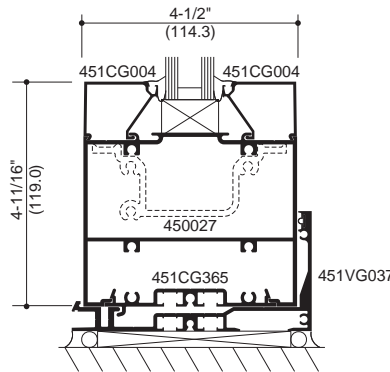
JAMB COMPENSATING RECEPTOR (EXTERIOR INSTALLED)



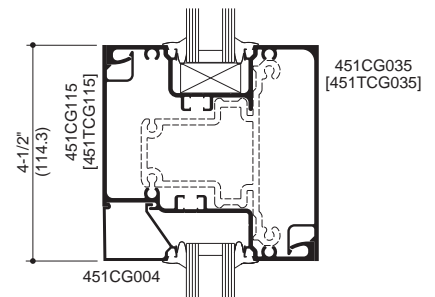
***NARROW SIDELITE BASE**



***NARROW SIDELITE BASE**



SIDELITE BASE



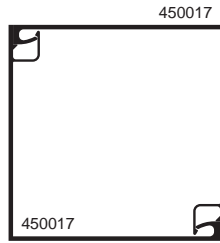
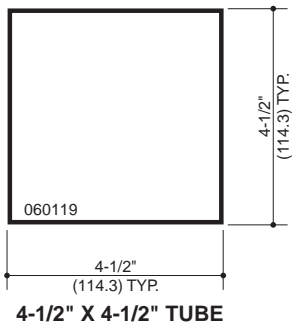
4-1/2" (114.3) x 4-1/2" (114.3) HORIZONTAL

SIDELITE BASES ARE NON-THERMAL APPLICATIONS

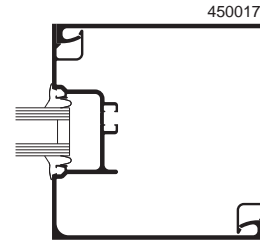
*NARROW SIDELITE BASES REQUIRE THE USE OF NON-THERMAL 2-PIECE VERTICALS ONLY.

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

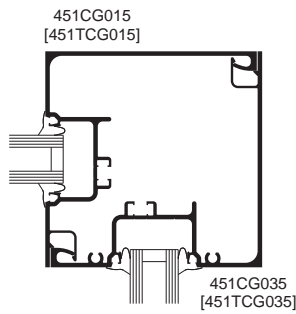
Additional information and CAD details are available at www.kawneer.com



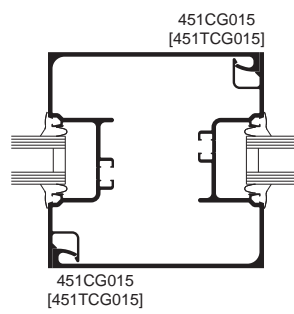
TWO PIECE NO POCKET CORNER



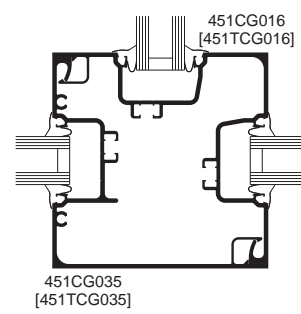
ONE POCKET CORNER



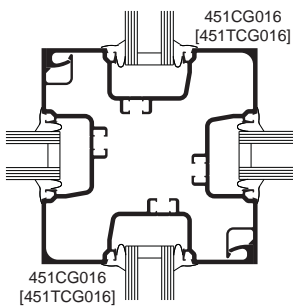
TWO POCKET 90° CORNER



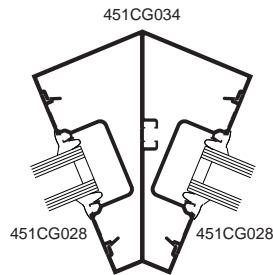
TWO POCKET CORNER POST



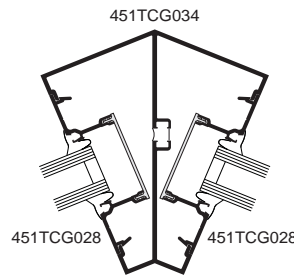
THREE POCKET 90° CORNER



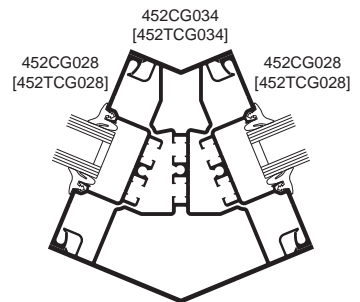
FOUR POCKET 90° CORNER



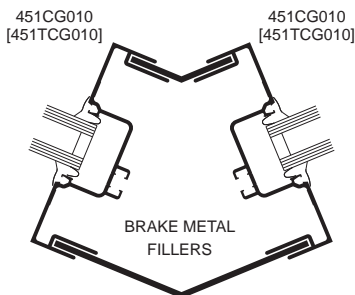
135° CORNER (NON-THERMAL)



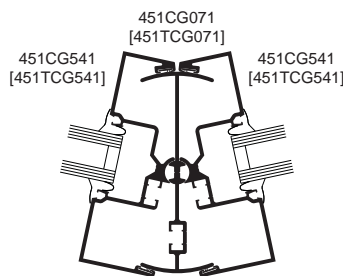
135° CORNER (THERMAL)



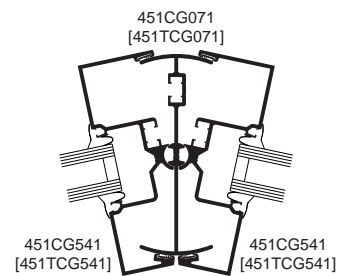
135° CORNER



VARIABLE DEGREE BRAKE METAL CORNER



155° TO 180° PIVOT MULLION (OUTSIDE CORNER)

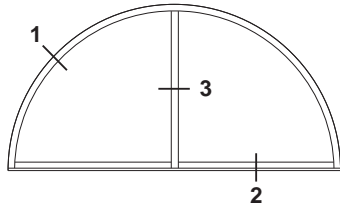


155° TO 180° PIVOT MULLION (INSIDE CORNER)

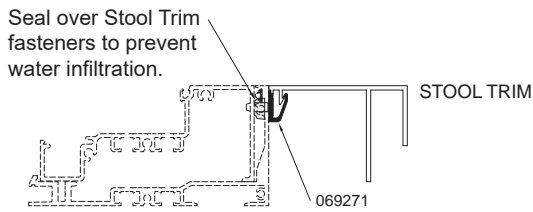
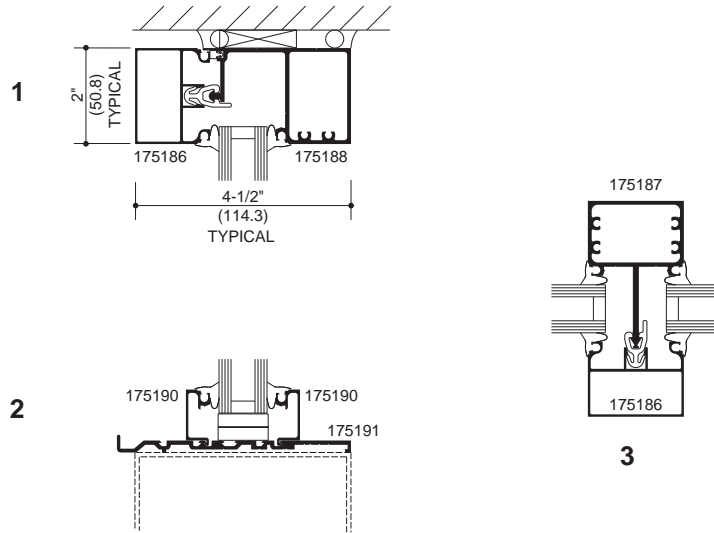
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement. © 2018, Kawneer Company, Inc.

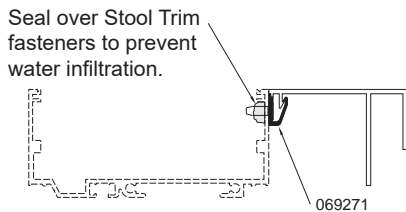
Additional information and CAD details are available at www.kawneer.com



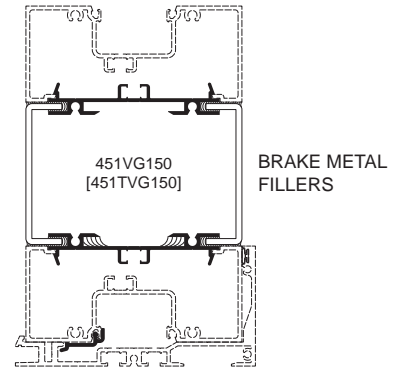
CURVING DETAILS
(Center Plane Only)



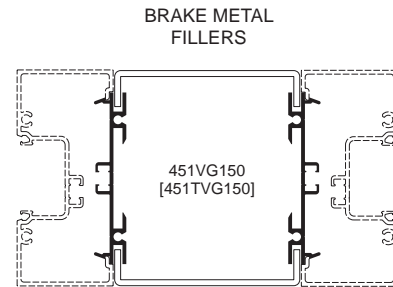
STOOL TRIM CLIP WITH HIGH PERFORMANCE FLASHING



STOOL TRIM CLIP FOR STICK ASSEMBLY



BRAKE METAL ADAPTOR AT HORIZONTAL



BRAKE METAL ADAPTOR AT VERTICAL

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.

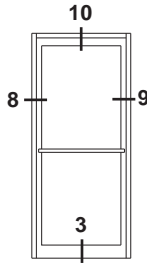
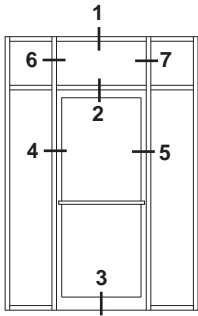
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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

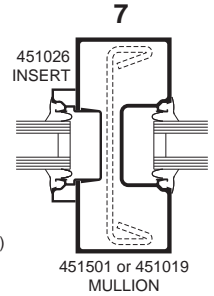
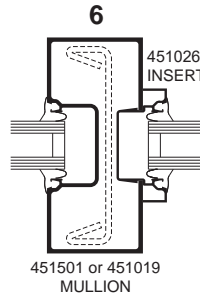
Trifab® VersaGlaze® 451 FRAMING INCORPORATING KAWNEER® “190” DOORS.

DOOR FRAMING NON-THERMAL ONLY

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



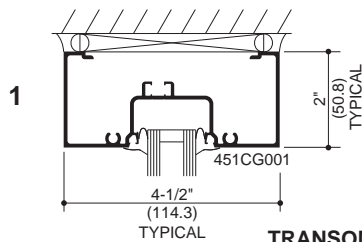
ELEVATIONS ARE NUMBER KEYED TO DETAILS



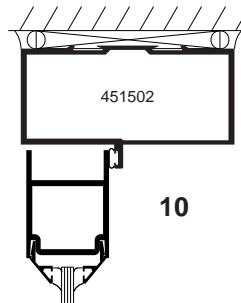
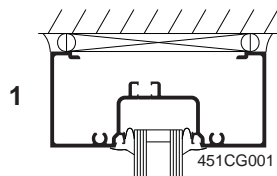
451010 STEEL (AS REQUIRED)

TRANSOM JAMBS

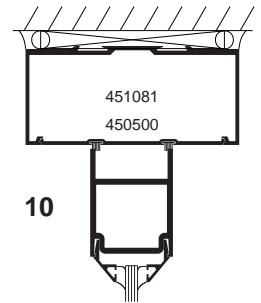
Transom area for both double or single acting doors with glass surround. Jamb above transom bar are routed out to accept glass holding insert with or without steel reinforcing.



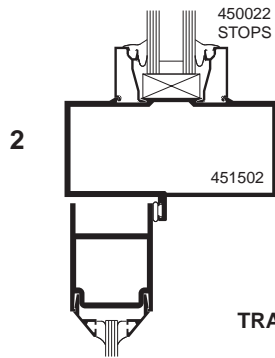
TRANSOM HEAD



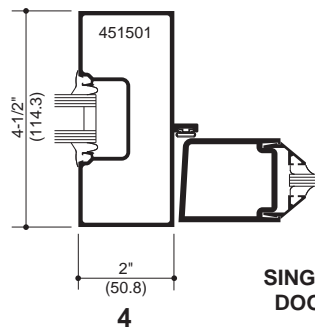
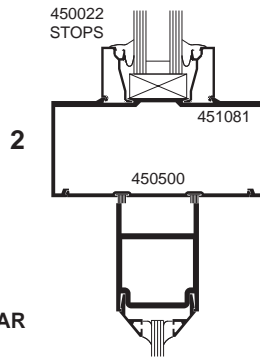
SINGLE ACTING HEADER



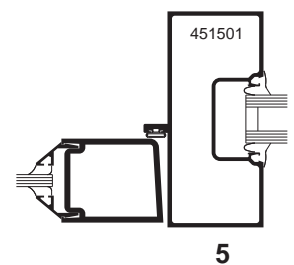
DOUBLE ACTING HEADER



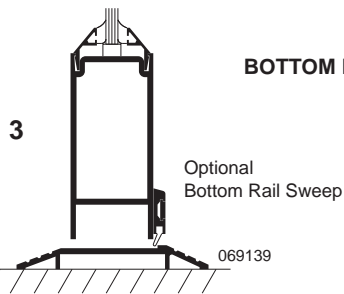
TRANSOM BAR



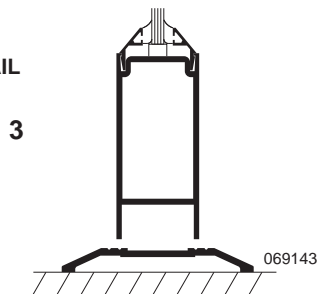
SINGLE ACTING DOOR JAMBS



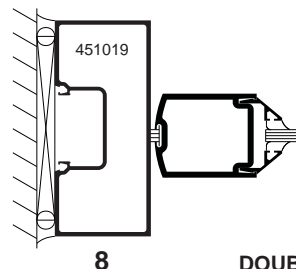
5



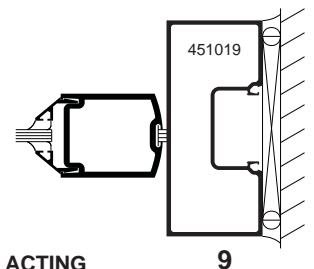
SINGLE ACTING



DOUBLE ACTING



DOUBLE ACTING DOOR JAMBS



9

Law 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.

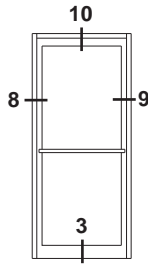
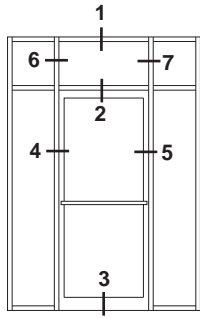
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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

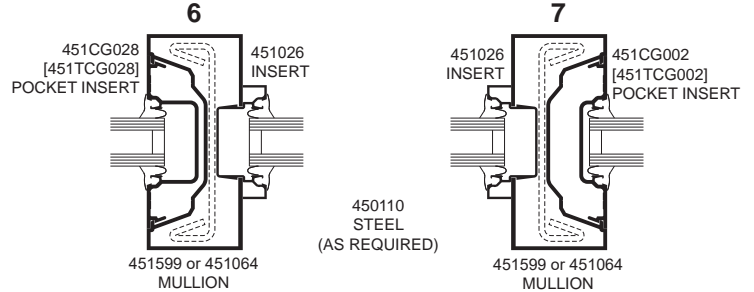
Trifab® VersaGlaze® 451 FRAMING INCORPORATING KAWNEER® “190” DOORS.

DOOR FRAMING NON-THERMAL ONLY

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

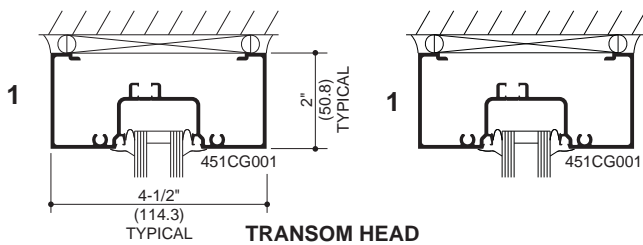


ELEVATIONS ARE NUMBER KEYED TO DETAILS

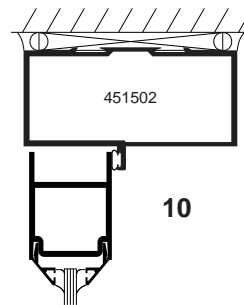


TRANSOM JAMBS

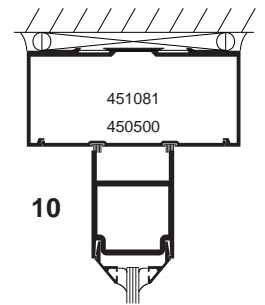
Transom area for both double or single acting doors with glass surround. Jambs above transom bar are routed out to accept glass holding insert with or without steel reinforcing.



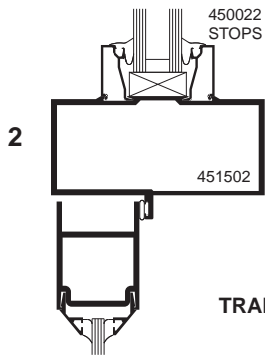
TRANSOM HEAD



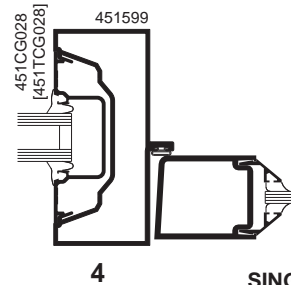
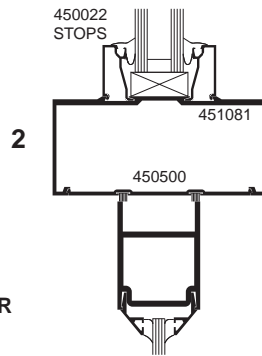
SINGLE ACTING HEADER



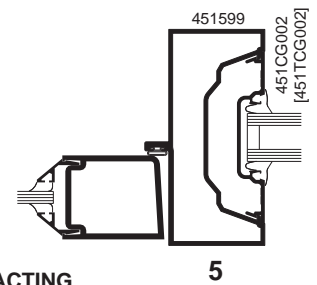
DOUBLE ACTING HEADER



TRANSOM BAR

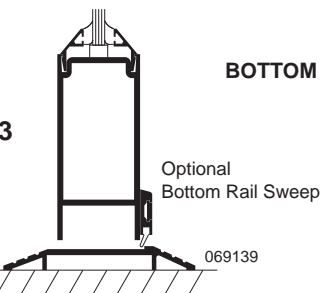


SINGLE ACTING DOOR JAMBS

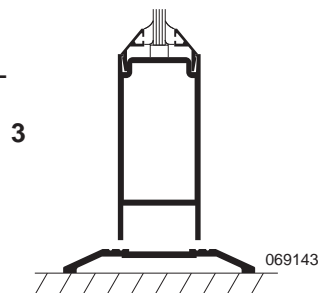


5

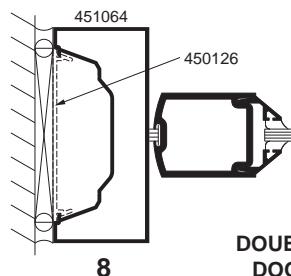
NOTE: Sidelite mullions must be oriented to provide at least one (1) deep vertical pocket per lite to facilitate glazing.



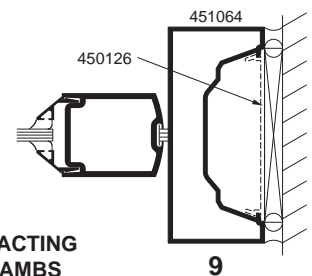
SINGLE ACTING



DOUBLE ACTING



DOUBLE ACTING DOOR JAMBS



9

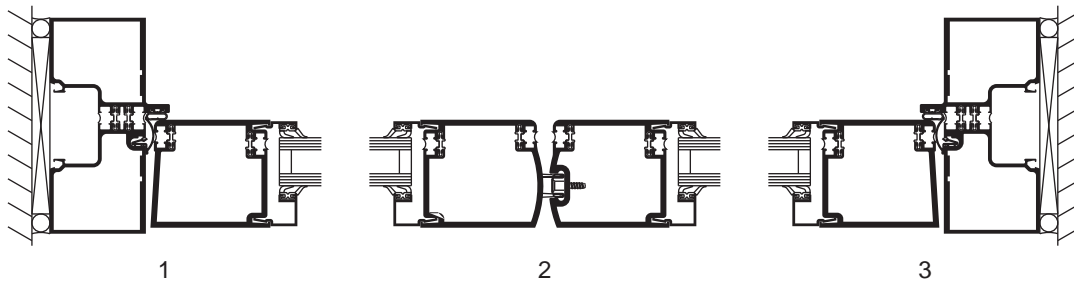
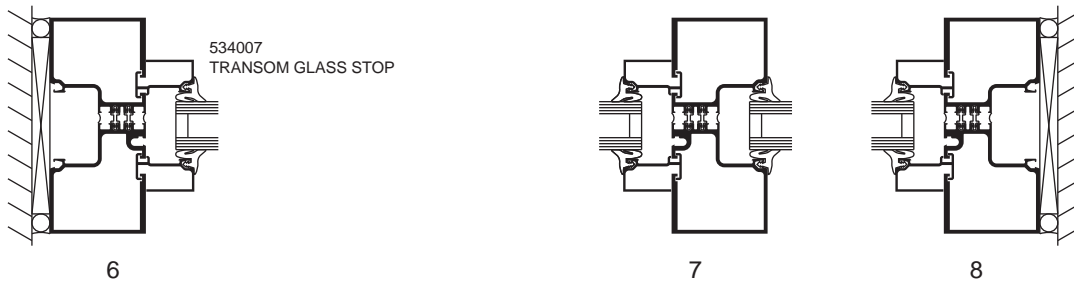
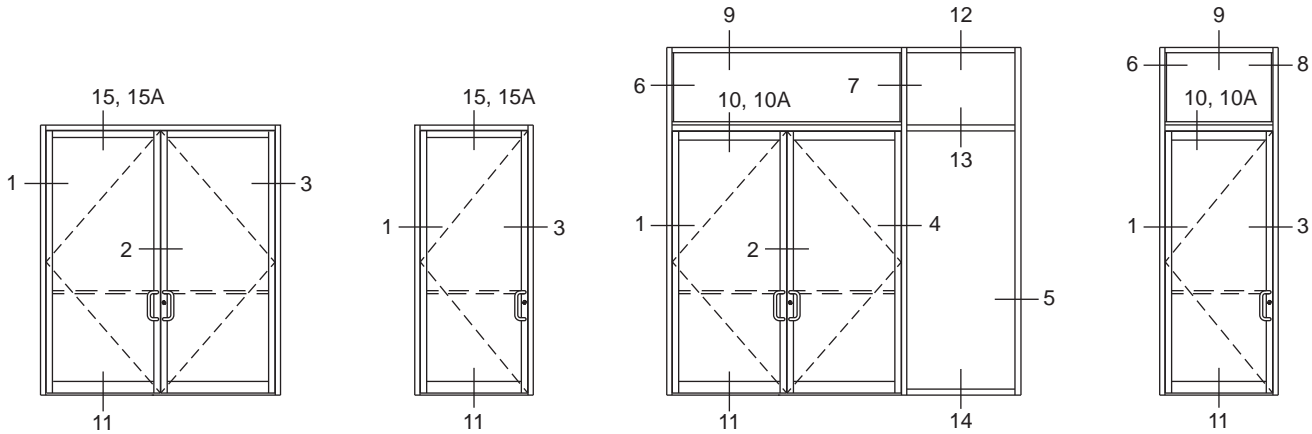
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

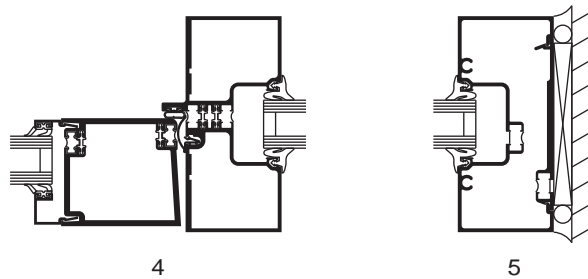
Additional information and CAD details are available at www.kawneer.com

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.



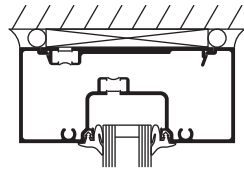
SINGLE ACTING DOORS



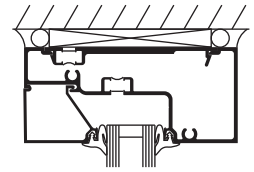
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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



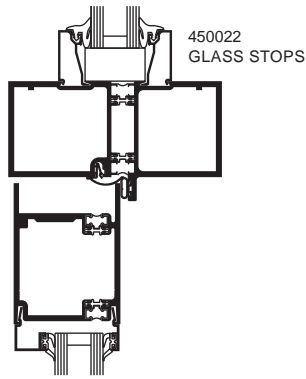
9



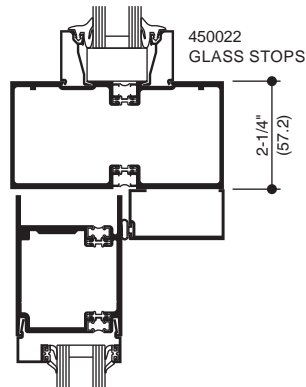
12

SINGLE ACTING DOORS

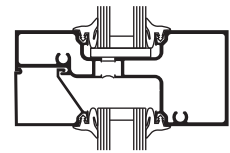
COC WITH SINGLE ACTING OFFSET ARM



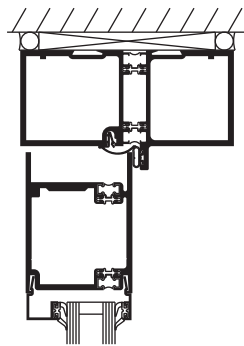
10



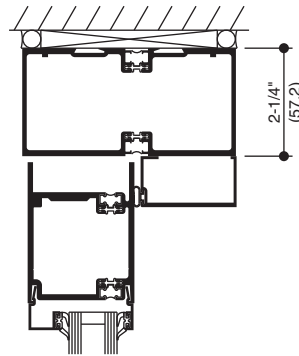
10A



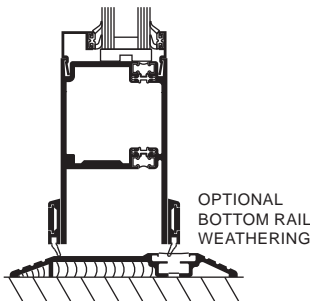
13



15

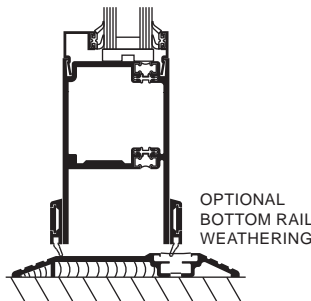


15A



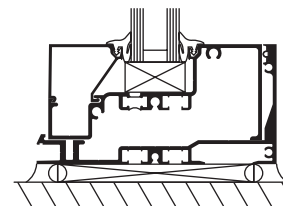
11

SURFACE OVERHEAD CLOSER



11

CONSEALED OVERHEAD CLOSER



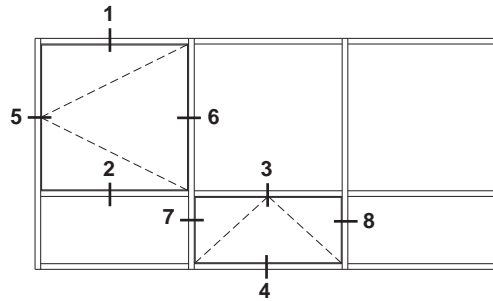
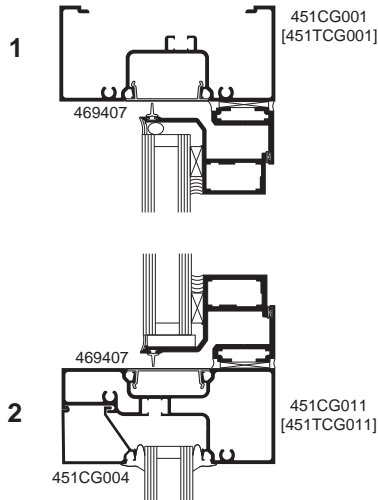
14

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.
© 2018, Kawneer Company, Inc.

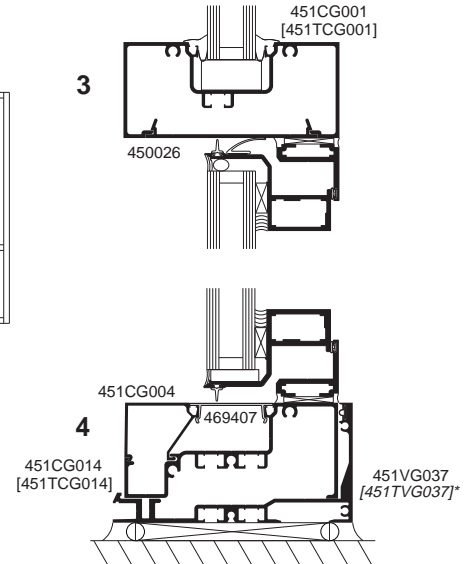
Additional information and CAD details are available at www.kawneer.com

**OUTSWING CASEMENT
VERTICAL SECTION**

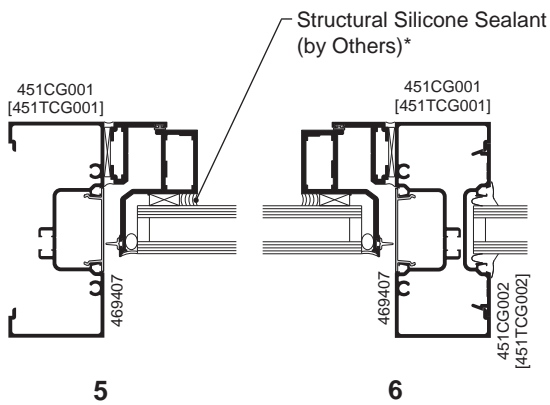


ELEVATION IS NUMBER KEYED TO DETAILS

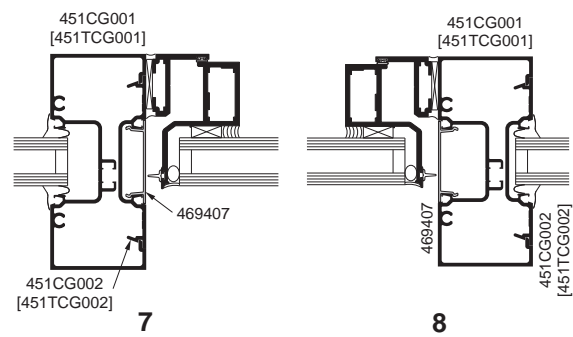
**PROJECT-OUT
VERTICAL SECTION**



**OUTSWING CASEMENT
HORIZONTAL SECTION**



**PROJECT-OUT
HORIZONTAL SECTION**



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

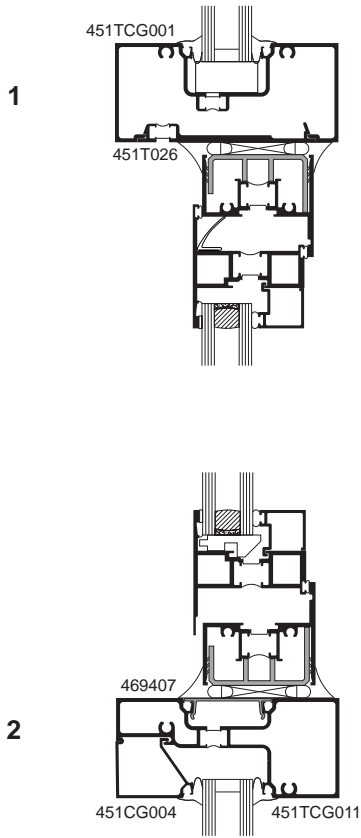
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

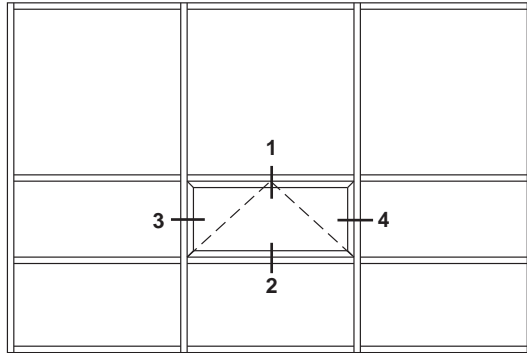
* **INSTALLER NOTE:** Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.

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

PROJECT-OUT VERTICAL SECTION

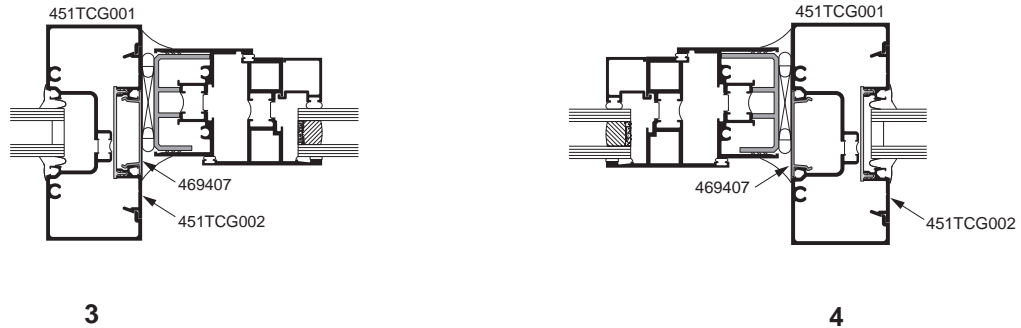


8225TL THERMAL WINDOWS SHOWN
NOTE: OTHER VENT TYPES CAN BE
ACCOMMODATED, CONSULT YOUR KAWNEER
REPRESENTATIVE FOR OTHER OPTIONS



ELEVATION IS NUMBER KEYED TO DETAILS

PROJECT-OUT HORIZONTAL SECTION

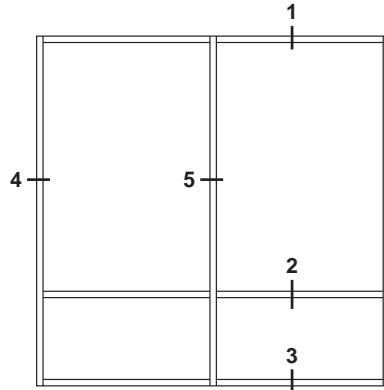


Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

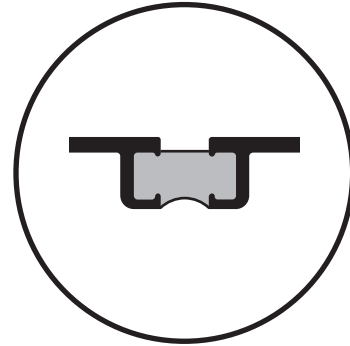
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
 © 2018, Kawneer Company, Inc.



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

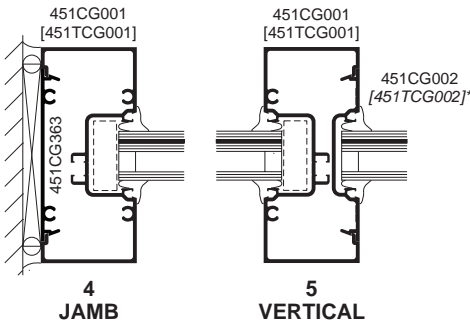


ELEVATION IS NUMBER KEYED TO DETAILS

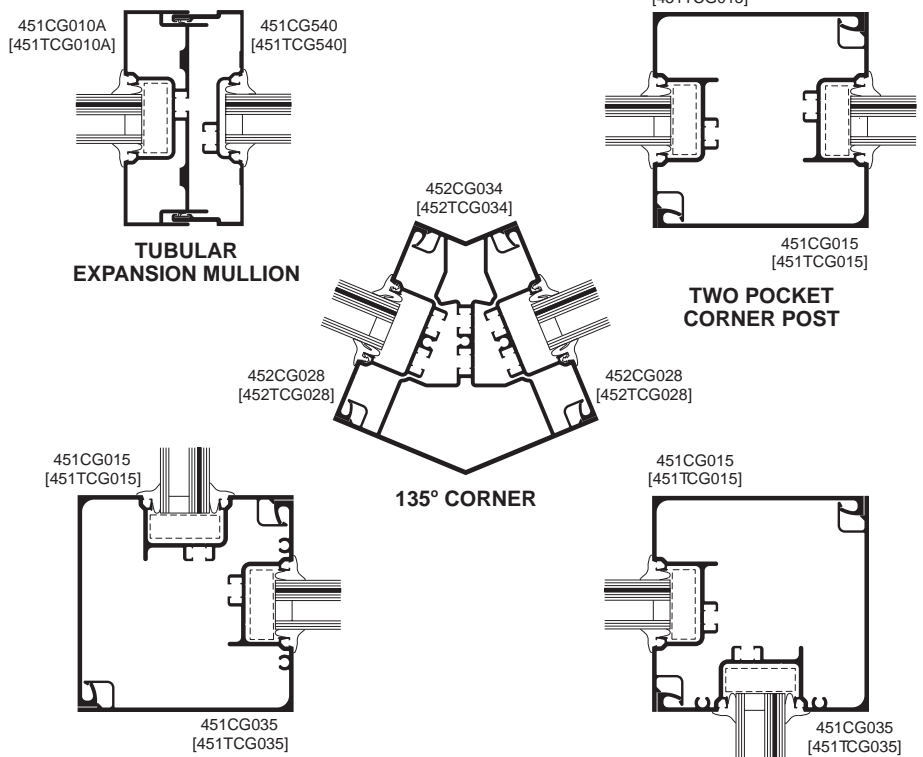
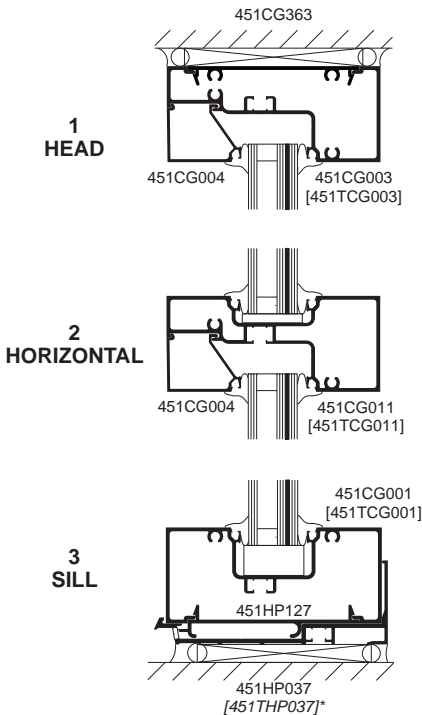
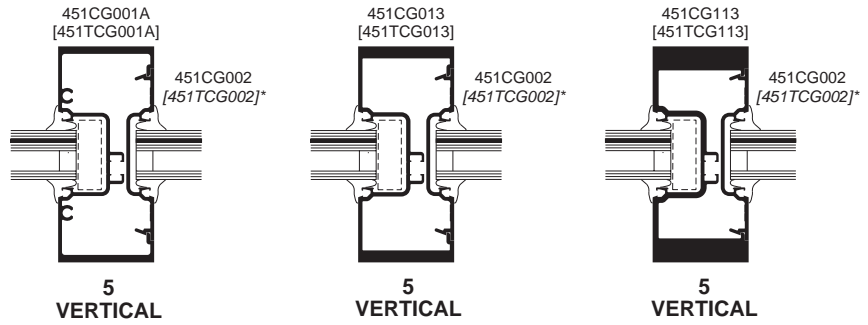


NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

SCREW SPLINE



OPTIONAL FRAMING (CENTER)



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.

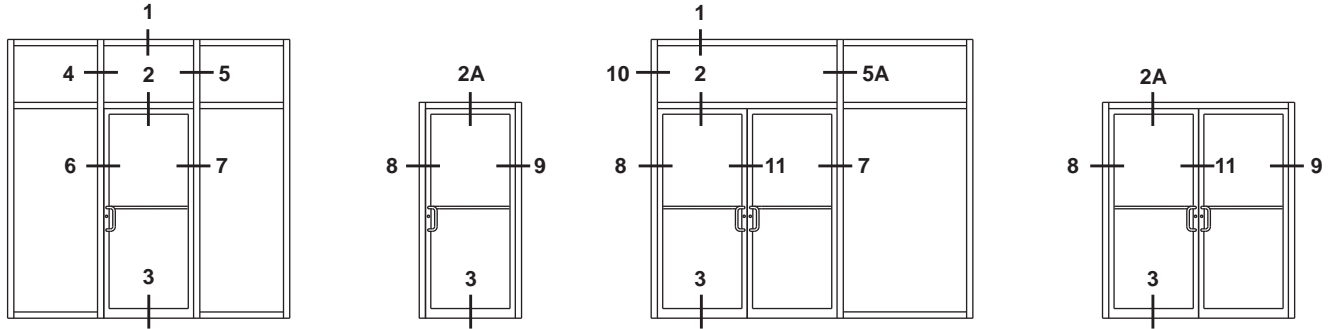
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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

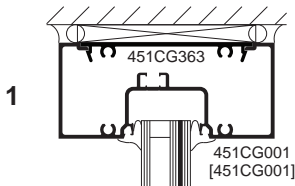
Trifab® VersaGlaze® 451 FRAMING INCORPORATING KAWNEER® “350/500 IR” DOORS (DRY GLAZED).

DOOR FRAMING NON-THERMAL ONLY

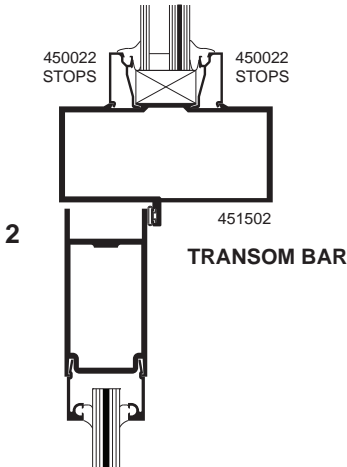
NOTE: OTHER TYPES OF KAWNEER DOORS MAY BE USED WITH THIS FRAMING SYSTEM.
SEE ENTRANCE DETAILS FOR ADDITIONAL INFORMATION.



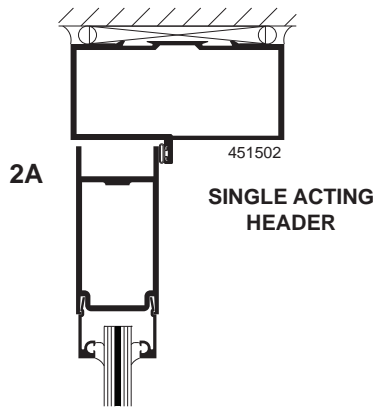
ELEVATIONS ARE NUMBER KEYED TO DETAILS



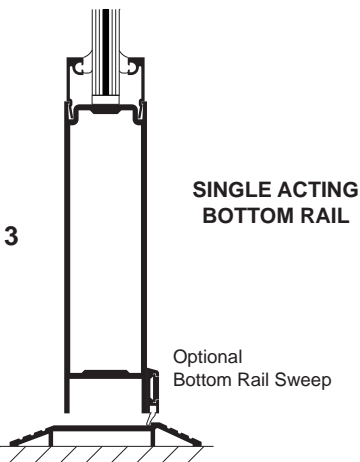
TRANSOM HEAD



TRANSOM BAR

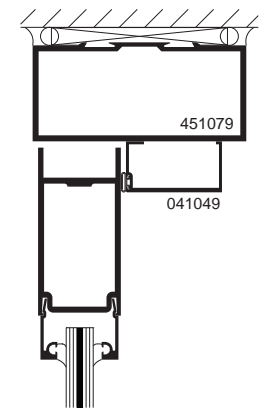
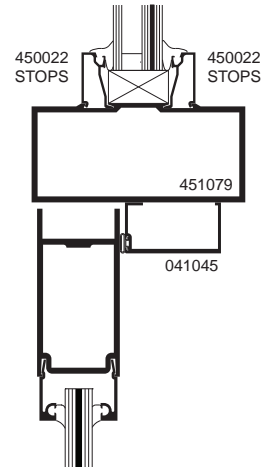


SINGLE ACTING HEADER



SINGLE ACTING BOTTOM RAIL

CONCEALED OVERHEAD CLOSERS



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.

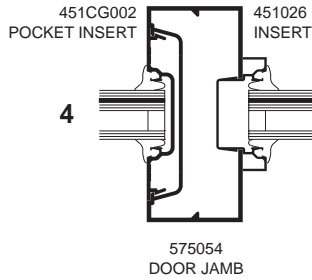
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.



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

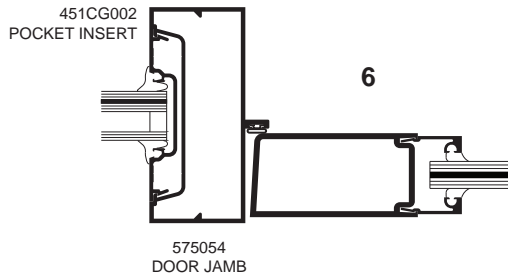
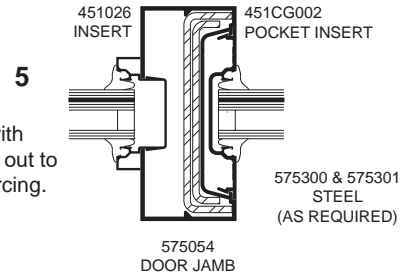
Trifab® VersaGlaze® 451 FRAMING INCORPORATING KAWNEER® “350/500 IR” DOORS (DRY GLAZED). DOOR FRAMING NON-THERMAL ONLY

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

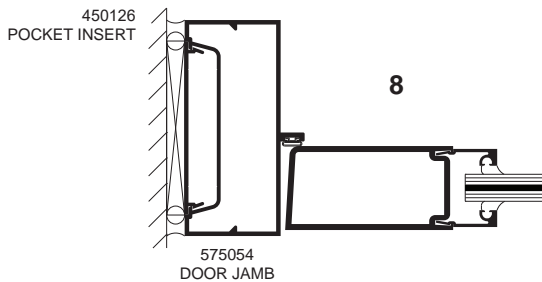
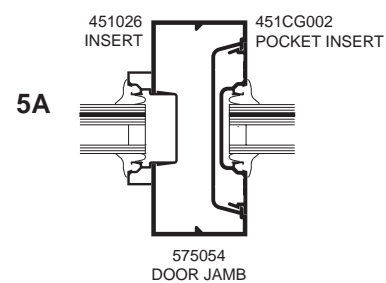
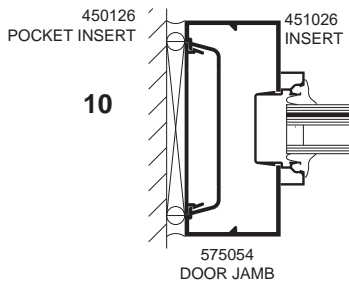
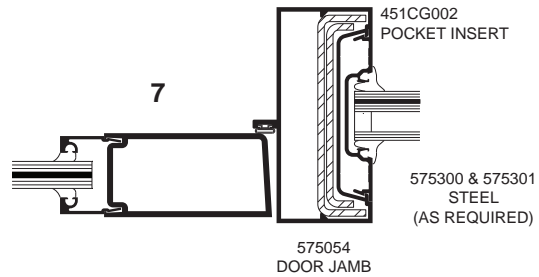


TRANSOM JAMBS

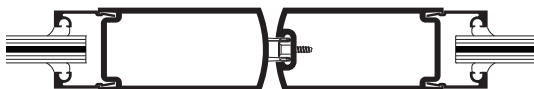
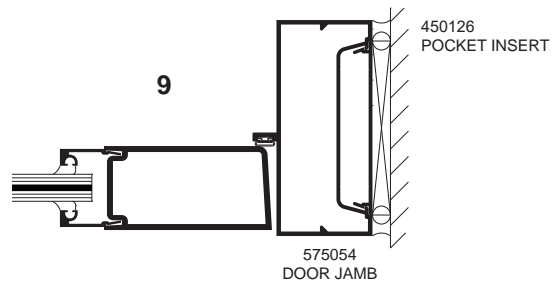
Transom area for both double or single acting doors with glass surround. Jamb above transom bar are routed out to accept glass holding insert with or without steel reinforcing.



SINGLE ACTING DOOR JAMBS



SINGLE ACTING DOOR JAMBS



11
MEETING STILES

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.
© 2018, Kawneer Company, Inc.

BASIC FRAMING DETAILS 30-36

MISCELLANEOUS FRAMING..... 37-38

CORNERS..... 39-40

ENTRANCE FRAMING.....41

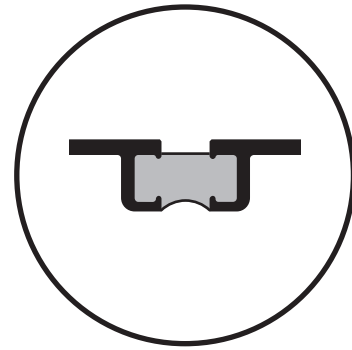
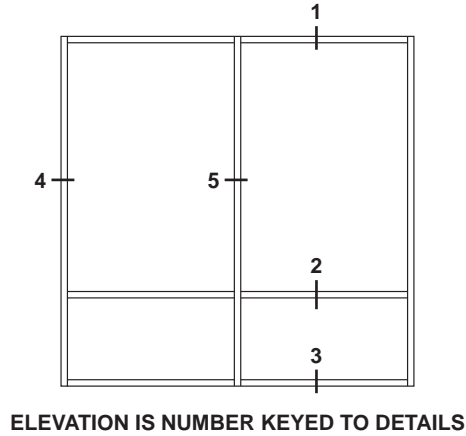
GLASSvent® WINDOW for STOREFRONT FRAMING42

8225TL THERMAL WINDOW DETAILS.....43

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.
© 2018, Kawneer Company, Inc.

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

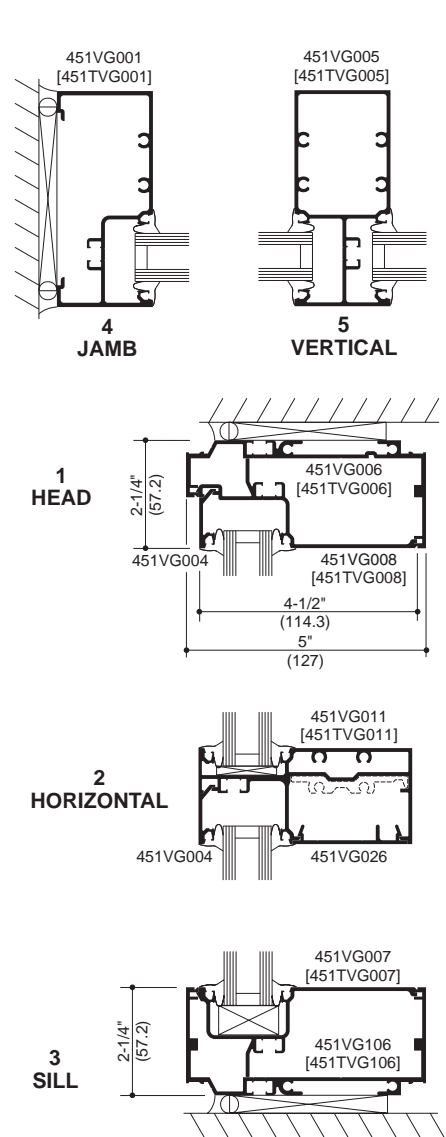
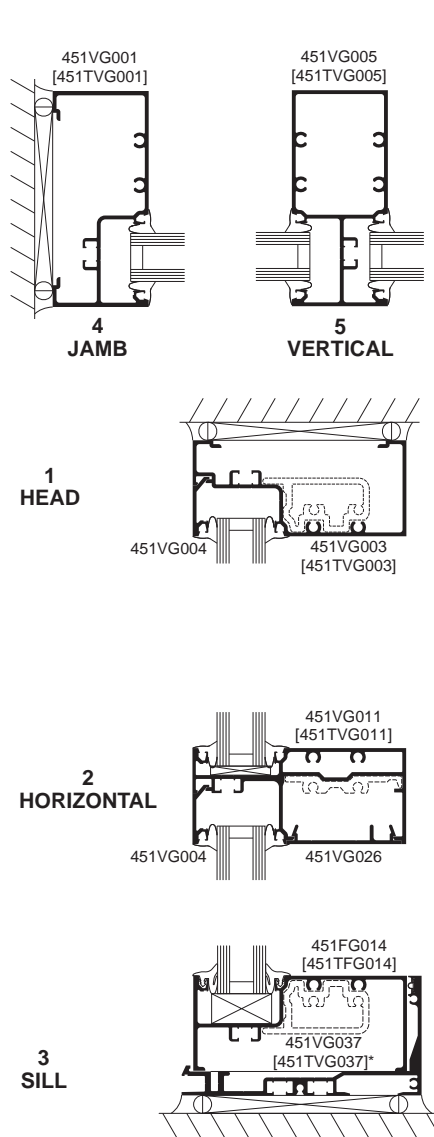
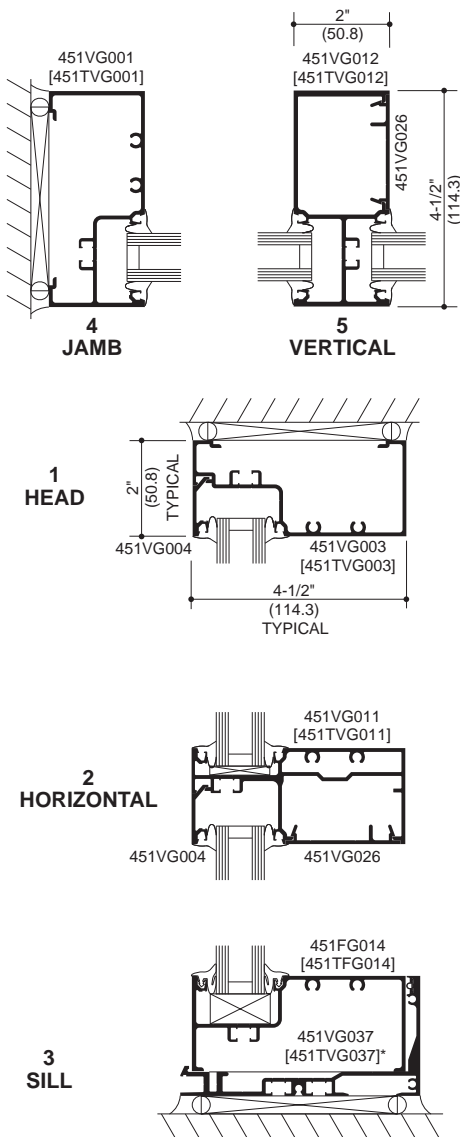


NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

SCREW SPLINE

SHEAR BLOCK

STICK



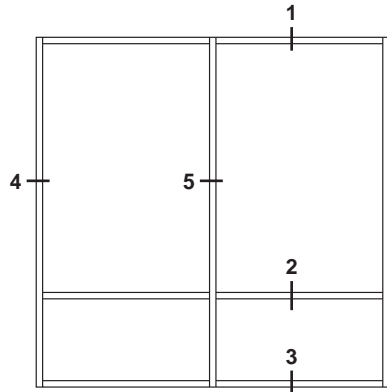
* HP Sill Flashing shown with optional gasket.

* HP Sill Flashing shown with optional gasket.

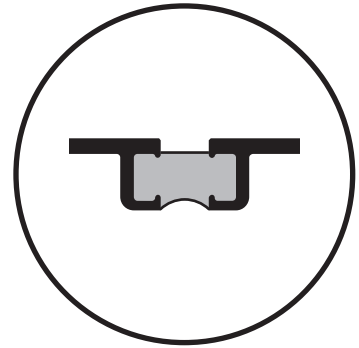
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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



ELEVATION IS NUMBER KEYED TO DETAILS

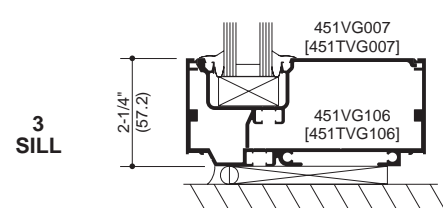
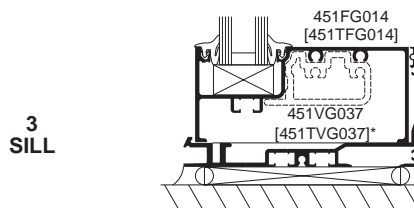
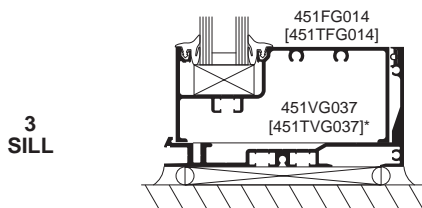
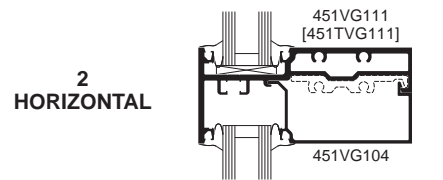
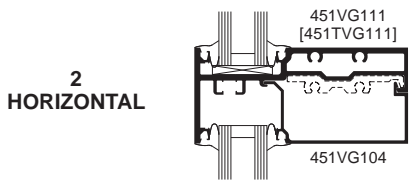
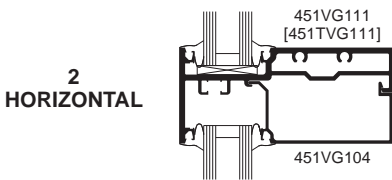
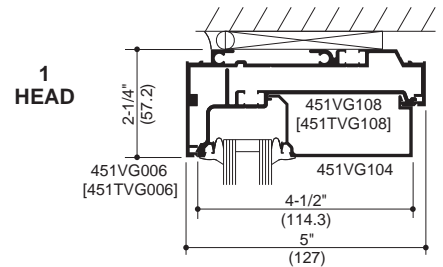
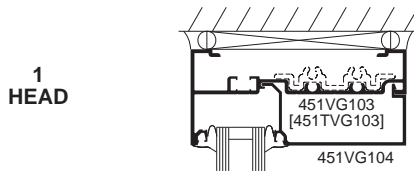
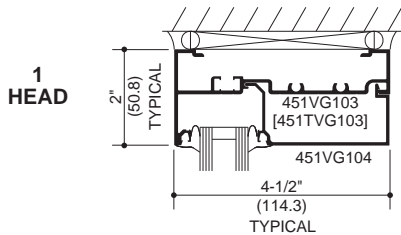
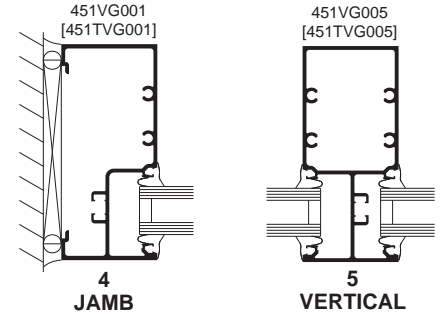
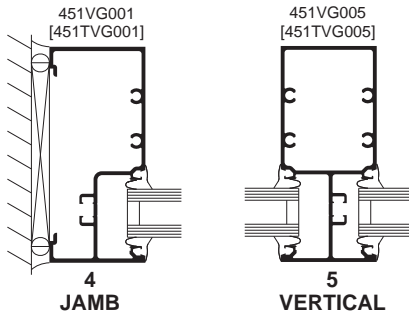
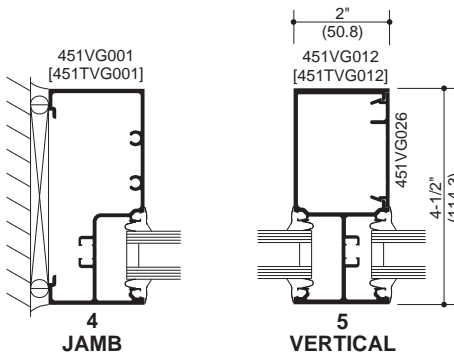


NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

SCREW SPLINE

SHEAR BLOCK

STICK



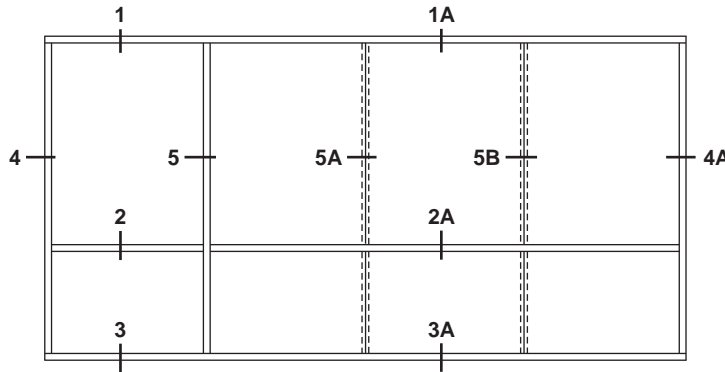
* HP Sill Flashing shown with optional gasket.

* HP Sill Flashing shown with optional gasket.

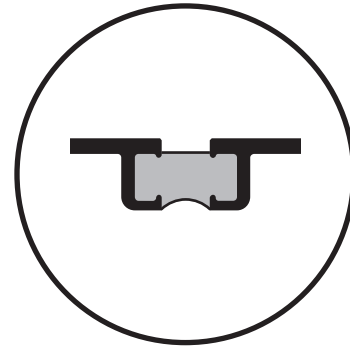
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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



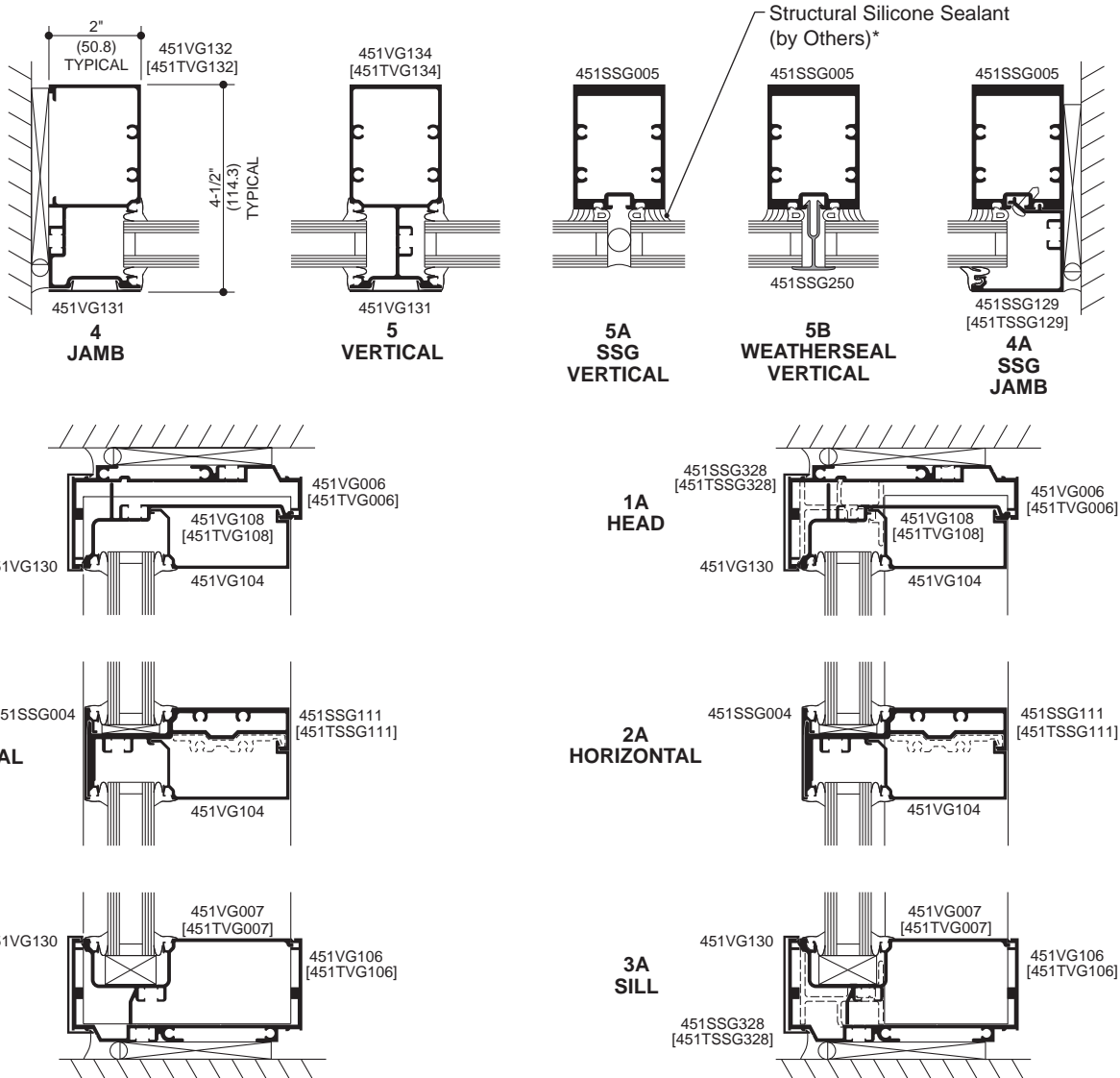
ELEVATION IS NUMBER KEYED TO DETAILS



NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

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

STANDARD RECEPTOR with SSG ADAPTOR



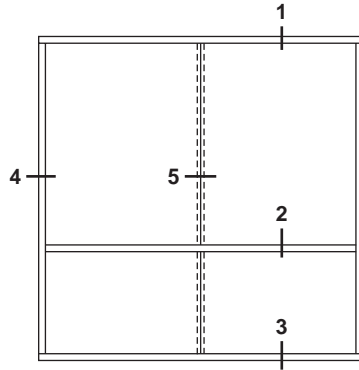
* INSTALLER NOTE: Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.

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.

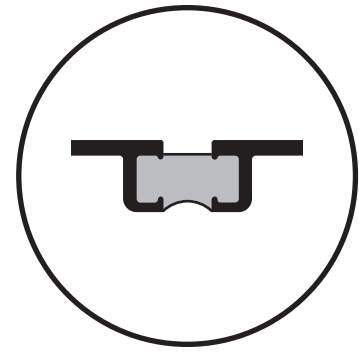
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

© 2018, Kawneer Company, Inc.

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



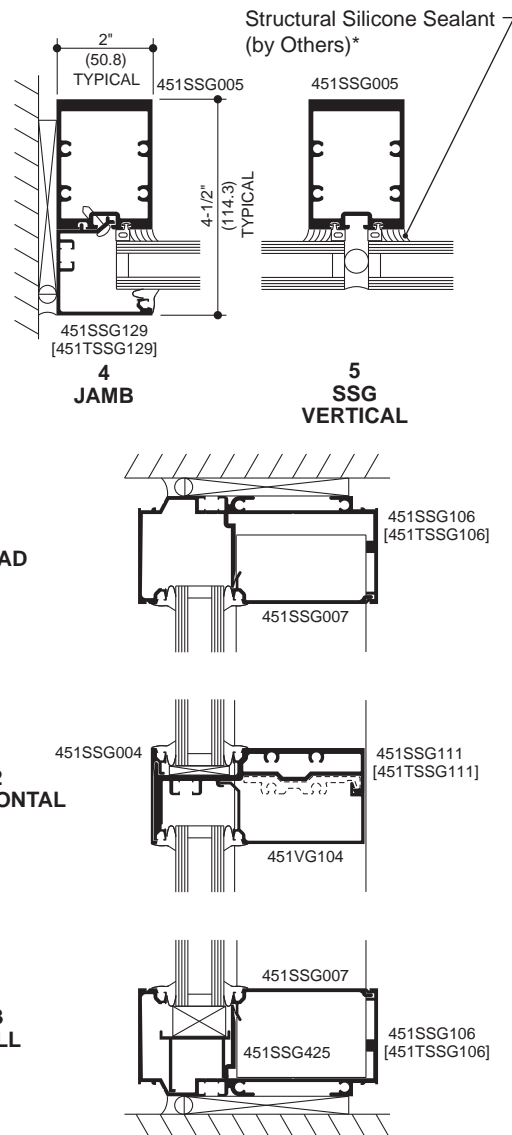
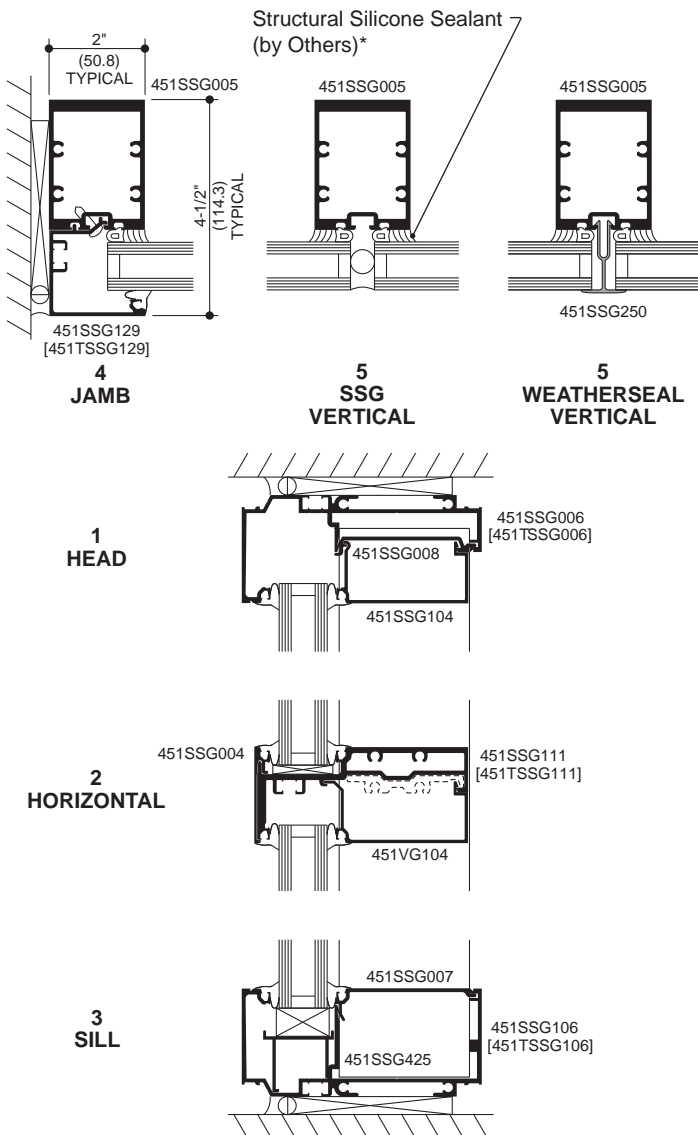
ELEVATION IS NUMBER KEYED TO DETAILS



NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

**STICK (INSIDE GLAZED)
SSG RECEPTOR**

**STICK (OUTSIDE GLAZED)
SSG RECEPTOR**

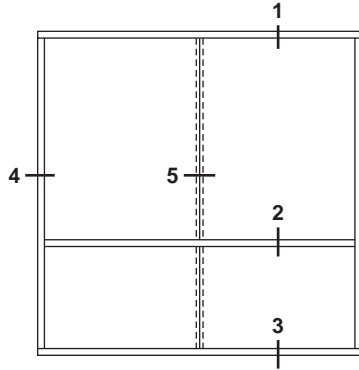


* **INSTALLER NOTE:** Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.

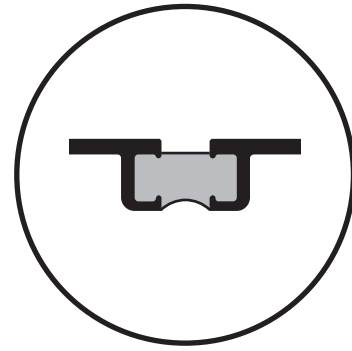
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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



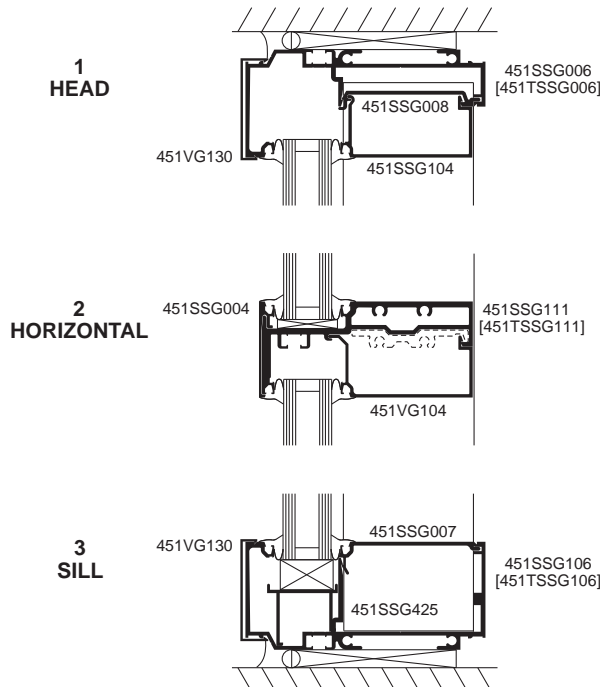
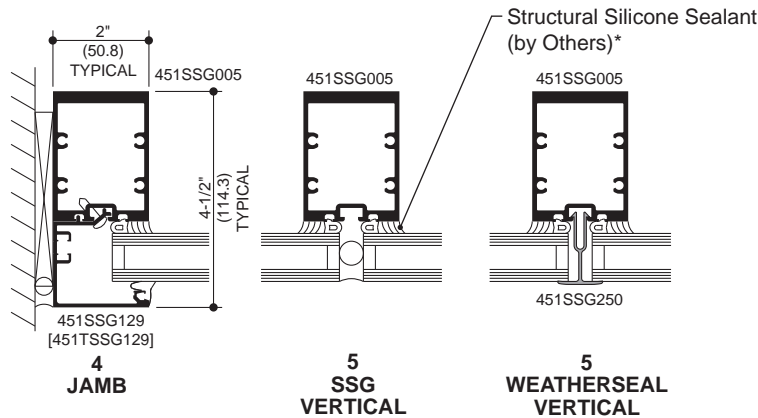
ELEVATION IS NUMBER KEYED TO DETAILS



NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

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

SSG RECEPTOR

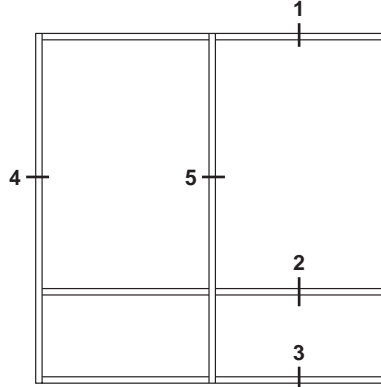


* INSTALLER NOTE: Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.

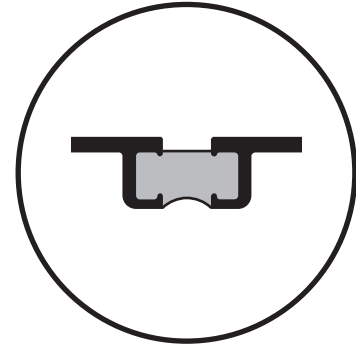
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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



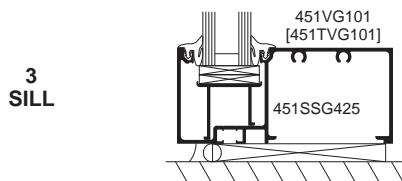
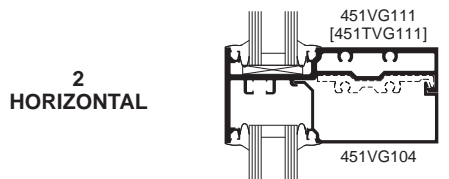
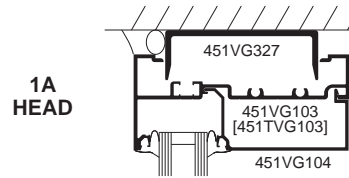
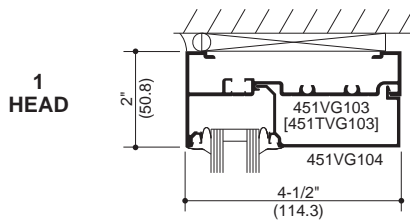
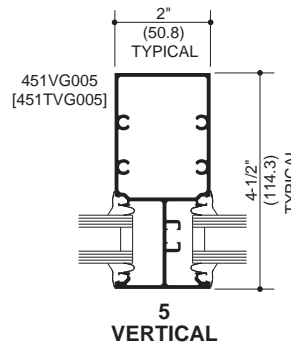
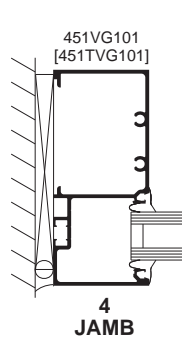
ELEVATION IS NUMBER KEYED TO DETAILS



NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

CONTINUOUS HEAD AND SILL (INSIDE GLAZED)

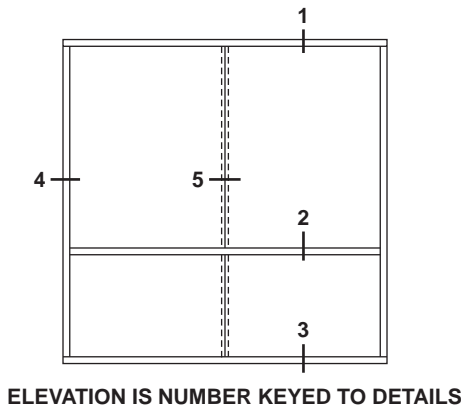
PUNCHED OPENING



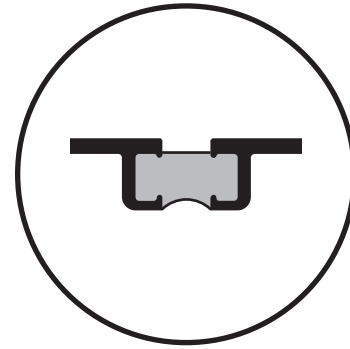
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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

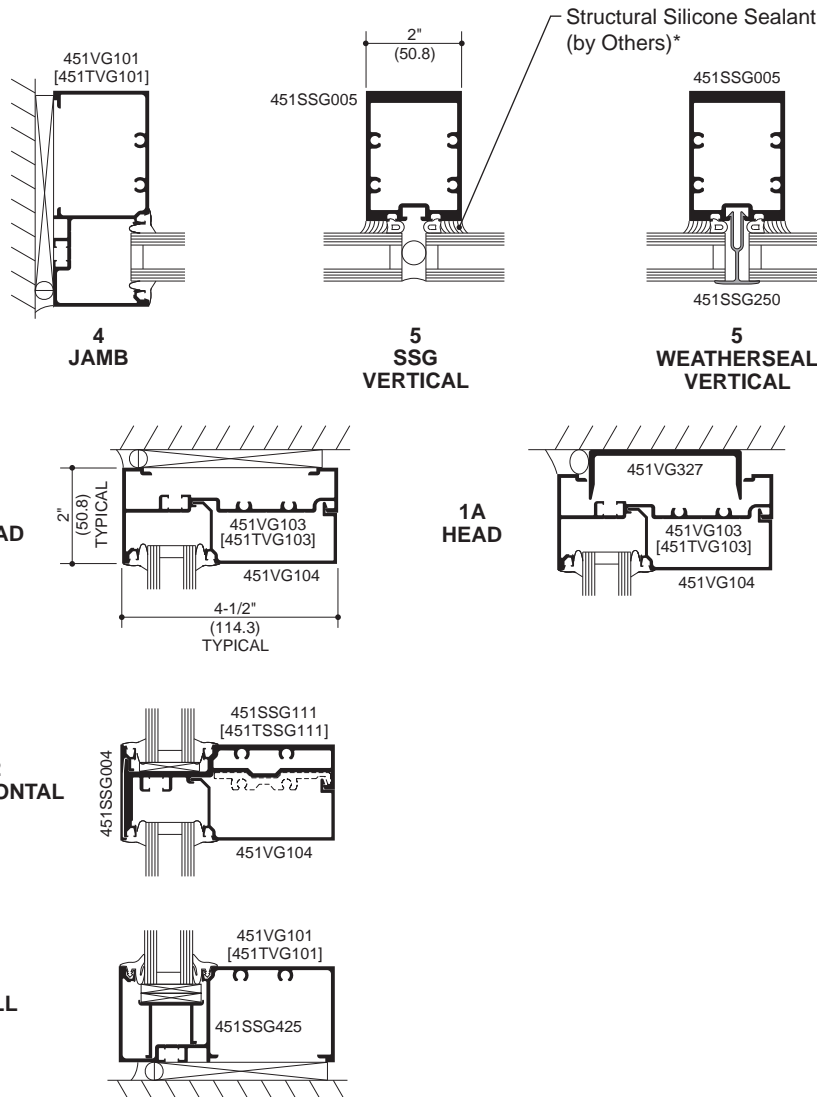


ELEVATION IS NUMBER KEYED TO DETAILS



NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

**CONTINUOUS HEAD AND SILL (INSIDE GLAZED)
SSG \ WEATHERSEAL
PUNCHED OPENING**



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

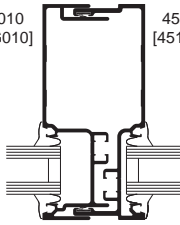
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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

© 2018, Kawneer Company, Inc.

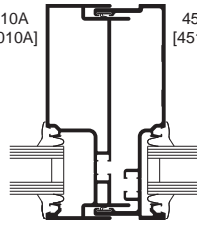
Additional information and CAD details are available at www.kawneer.com

451VG010
[451TVG010] 451VG540
[451TVG540]



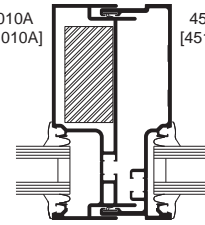
EXPANSION MULLION

451VG010A
[451TVG010A] 451VG540
[451TVG540]

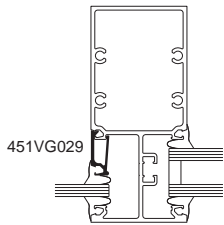


**TUBULAR
EXPANSION MULLION**

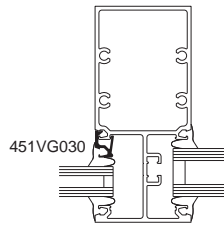
451VG010A
[451TVG010A] 451VG540
[451TVG540]



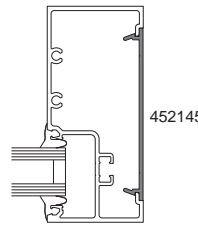
**TUBULAR
EXPANSION MULLION
WITH STEEL**



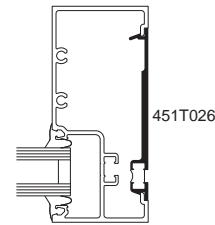
**1/4" (6.4) INFILL
SNAP-IN ADAPTOR**



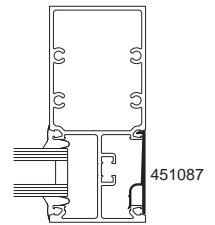
**5/8" (15.9) INFILL
SNAP-IN ADAPTOR**



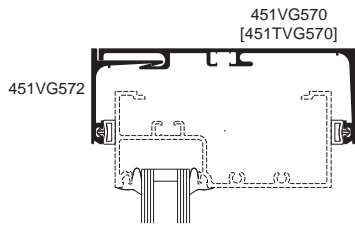
**PVC FLAT FILLER
(NON STRUCTURAL)**



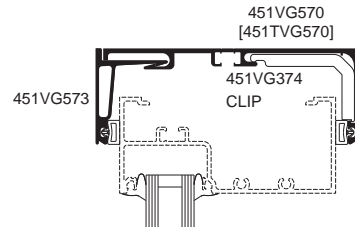
**THERMAL
FLAT FILLER**



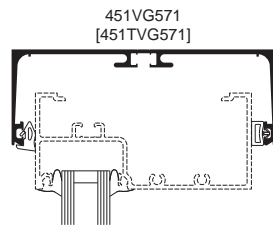
**SNAP-IN
FLAT FILLER**



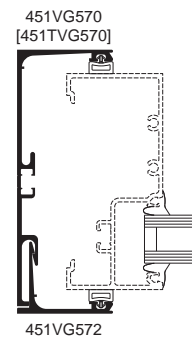
**STANDARD - HEAD
COMPENSATING RECEPTOR
(EXTERIOR INSTALLED)**



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



**ONE PIECE - HEAD
COMPENSATING RECEPTOR**

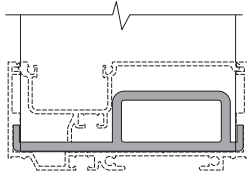


**JAMB
COMPENSATING RECEPTOR
(EXTERIOR INSTALLED)**

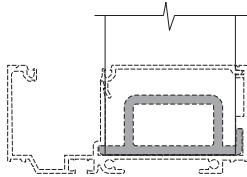
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

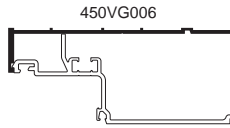
Additional information and CAD details are available at www.kawneer.com



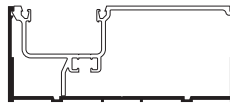
451VG362
MULLION ANCHOR



451SSG362
SSG MULLION ANCHOR

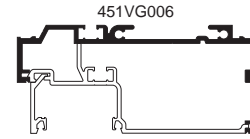


450VG006

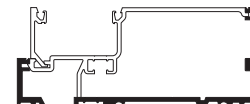


450VG106

**OPTIONAL LIGHTWEIGHT
CAN RECEPTORS**



451VG006



451VG106

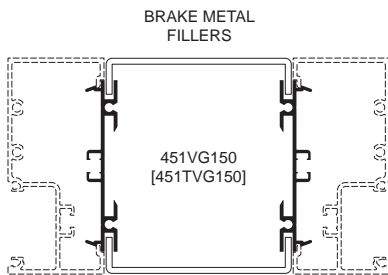
**OPTIONAL UNEQUAL LEG
CAN RECEPTORS**

NOTE:

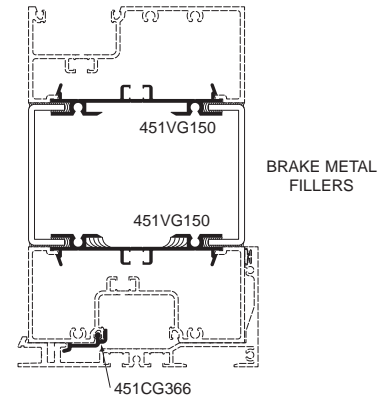
If the end reaction of the mullion (mullion spacing (ft.) times height (ft) times specified wind load (psf), divided by two) is more than 500 LBS., the optional Mullion Anchor must be used. Consult Application Engineering.

NOTE:

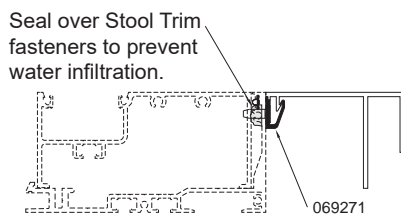
Mullion Anchor not used with Lightweight Receptor.



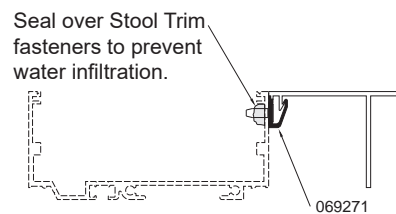
**BRAKE METAL
ADAPTOR**



**BRAKE METAL ADAPTOR
AT HORIZONTAL**



**STOOL TRIM CLIP
with HP FLASHING**

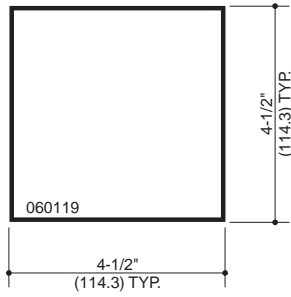


**STOOL TRIM CLIP
FOR STICK ASSEMBLY**

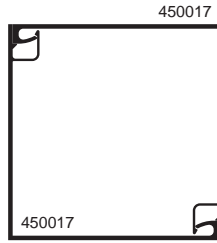
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

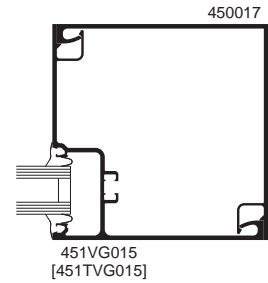
Additional information and CAD details are available at www.kawneer.com



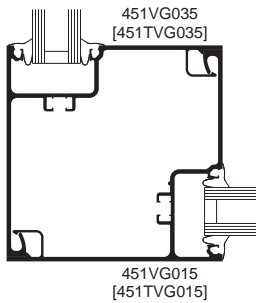
4-1/2" X 4-1/2" TUBE



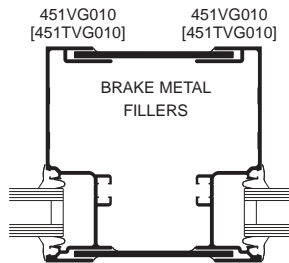
TWO PIECE NO POCKET CORNER



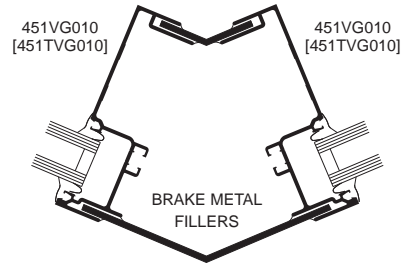
ONE POCKET CORNER



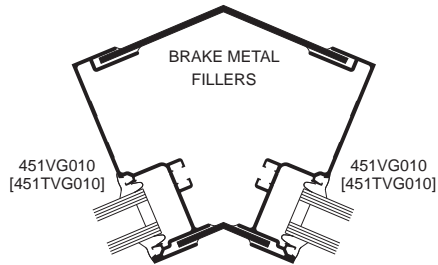
TWO POCKET 90° CORNER



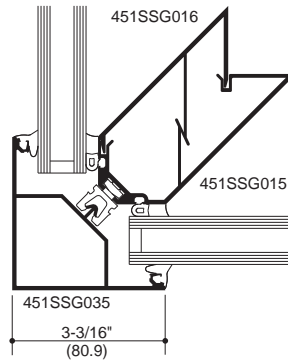
TWO POCKET CORNER POST



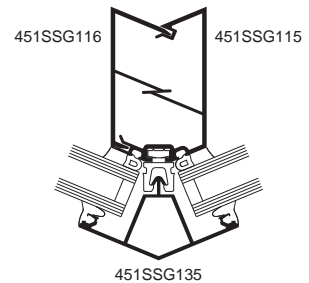
VARIABLE DEGREE BRAKE METAL OUTSIDE CORNER



VARIABLE DEGREE BRAKE METAL INSIDE CORNER



90° CORNER



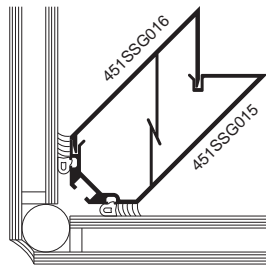
135° CORNER

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.

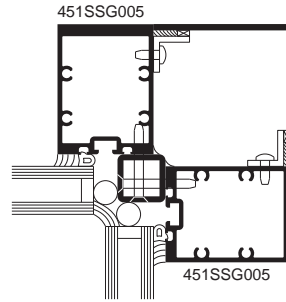
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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

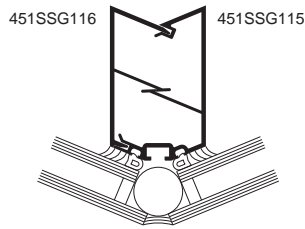
INSIDE GLAZED



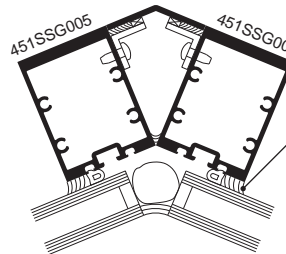
90° OUTSIDE CORNER



90° INSIDE CORNER

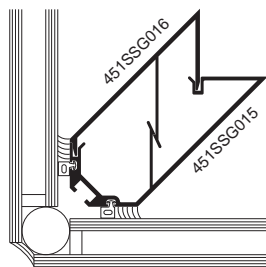


135° OUTSIDE CORNER

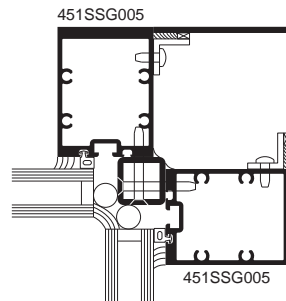


135° INSIDE CORNER

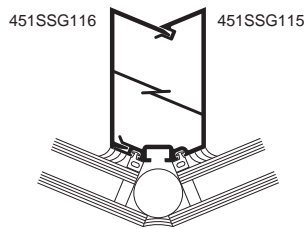
OUTSIDE GLAZED



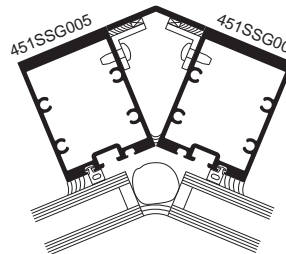
90° OUTSIDE CORNER



90° INSIDE CORNER



135° OUTSIDE CORNER



135° INSIDE CORNER

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

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.

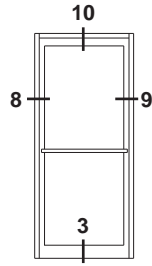
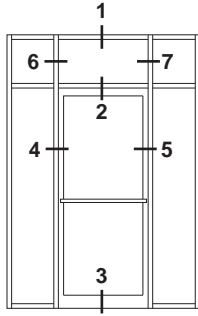
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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

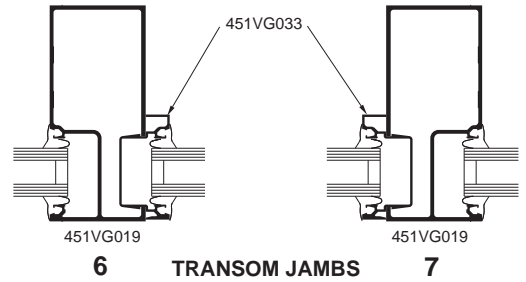
Trifab® VersaGlaze® 451 FRAMING INCORPORATING KAWNEER “190” DOORS.

DOOR FRAMING NON-THERMAL ONLY

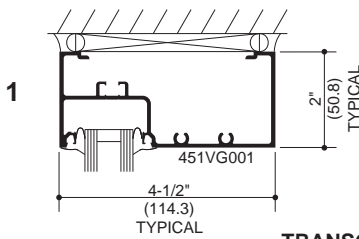
NOTE: OTHER TYPES OF KAWNEER DOORS MAY BE USED WITH THIS FRAMING SYSTEM. SEE ENTRANCE DETAILS FOR ADDITIONAL INFORMATION.



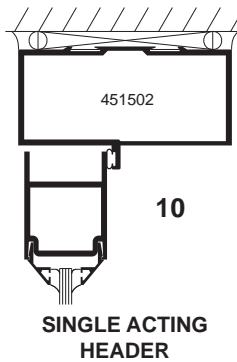
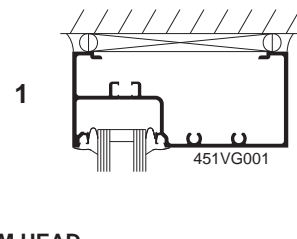
ELEVATIONS ARE NUMBER KEYED TO DETAILS



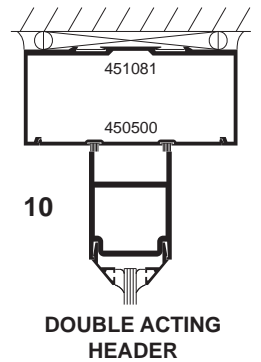
Transom area for both double or single acting doors with glass surround. Jambs above transom bar are routed out to accept glass holding insert.



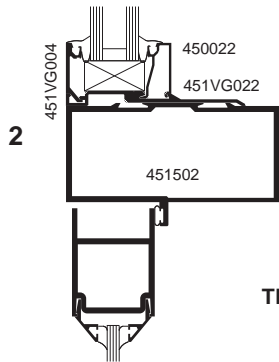
TRANSOM HEAD



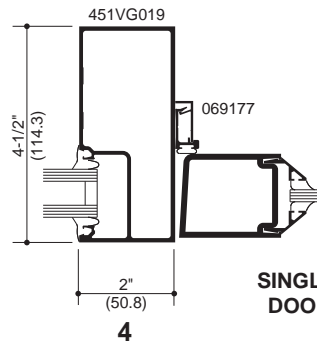
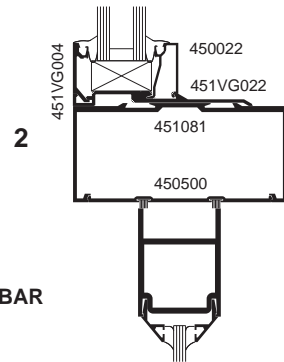
SINGLE ACTING HEADER



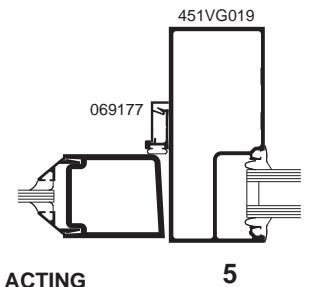
DOUBLE ACTING HEADER



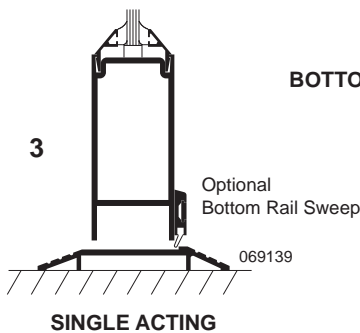
TRANSOM BAR



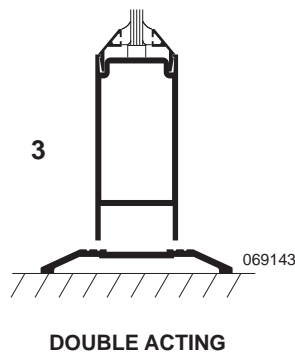
SINGLE ACTING DOOR JAMBS



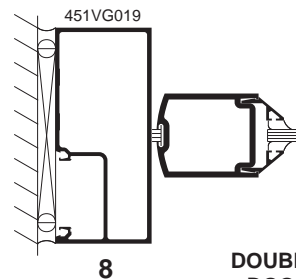
5



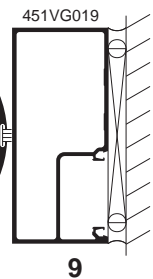
SINGLE ACTING



DOUBLE ACTING



DOUBLE ACTING DOOR JAMBS



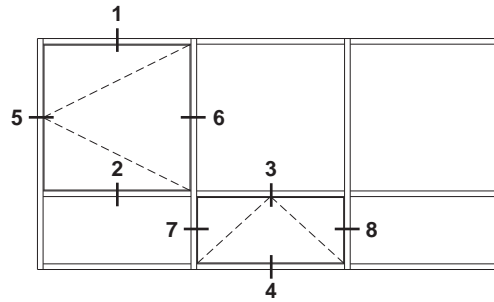
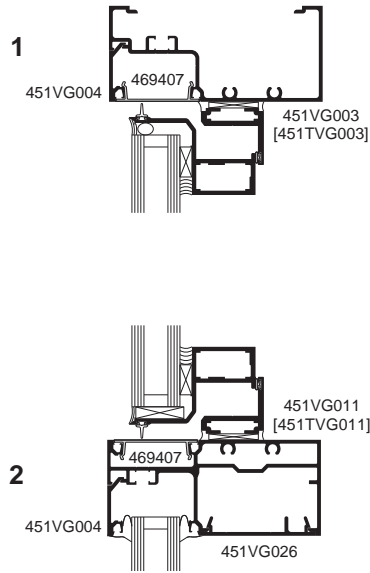
9

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.
© 2018, Kawneer Company, Inc.

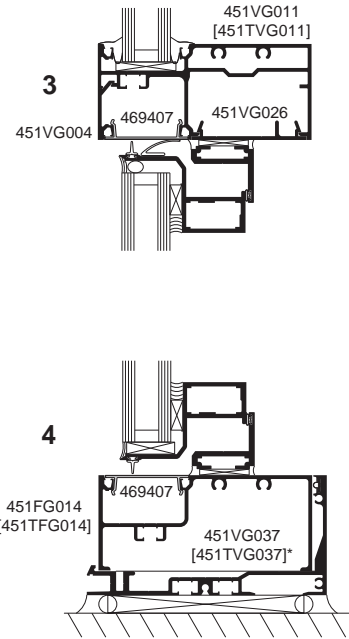
Additional information and CAD details are available at www.kawneer.com

**OUTSWING CASEMENT
VERTICAL SECTION**

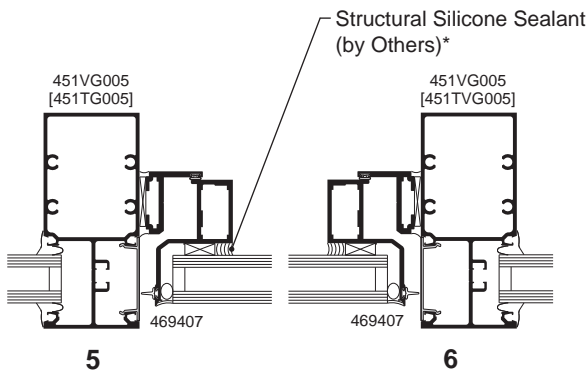


ELEVATION IS NUMBER KEYED TO DETAILS

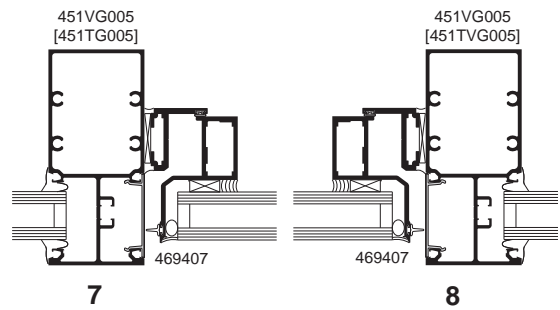
**PROJECT-OUT
VERTICAL SECTION**



**OUTSWING CASEMENT
HORIZONTAL SECTION**



**PROJECT-OUT
HORIZONTAL SECTION**



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

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.

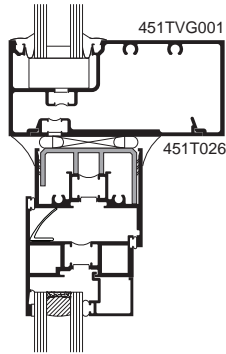
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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

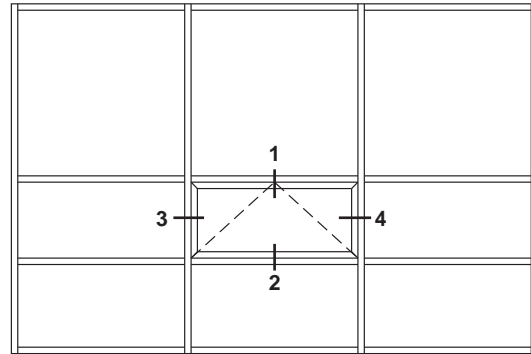
Additional information and CAD details are available at www.kawneer.com

PROJECT-OUT VERTICAL SECTION

1

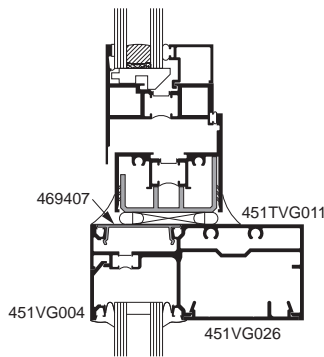


8225TL THERMAL WINDOWS SHOWN
NOTE: OTHER VENT TYPES CAN BE
ACCOMMODATED, CONSULT YOUR KAWNEER
REPRESENTATIVE FOR OTHER OPTIONS

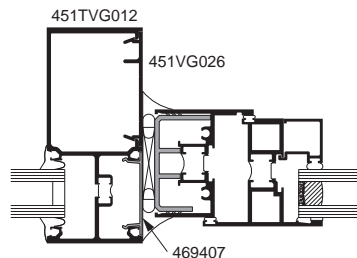


ELEVATION IS NUMBER KEYED TO DETAILS

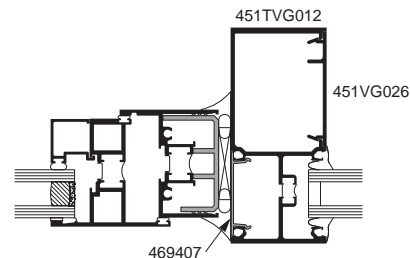
2



PROJECT-OUT HORIZONTAL SECTION



3



4

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.
 © 2018, Kawneer Company, Inc.

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.
© 2018, Kawneer Company, Inc.

BASIC FRAMING DETAILS 46-47

MISCELLANEOUS FRAMING..... 48-49

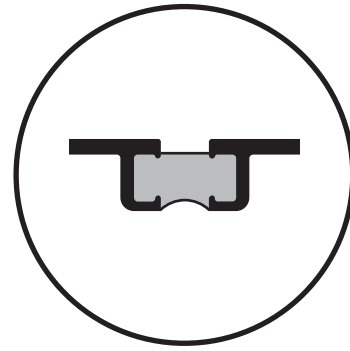
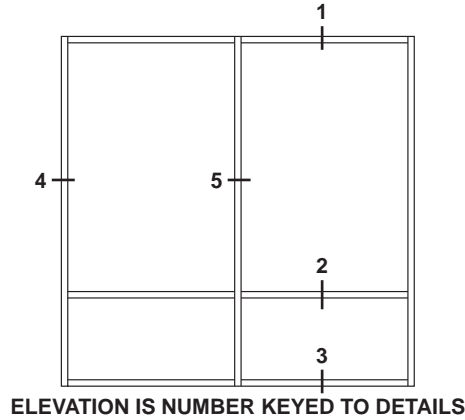
CORNERS.....50

ENTRANCE FRAMING.....51

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.
© 2018, Kawneer Company, Inc.

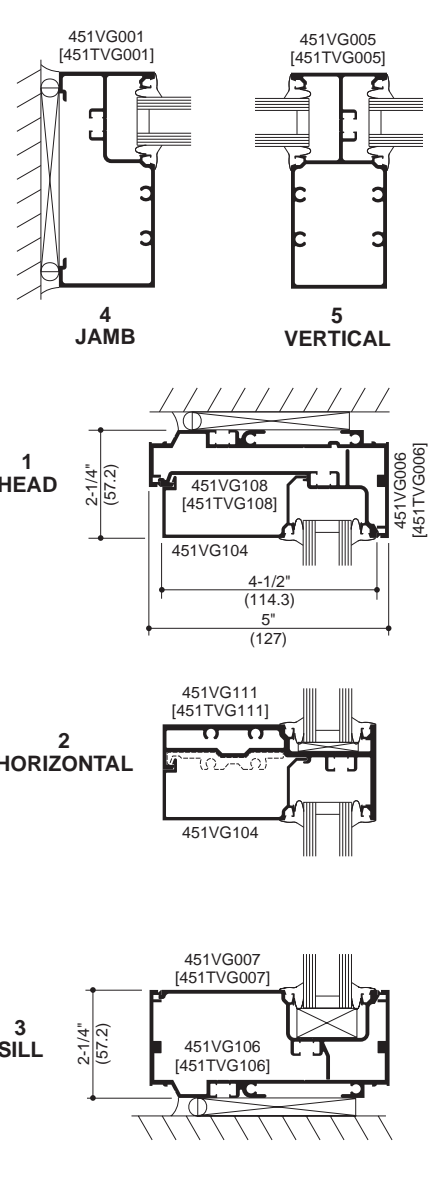
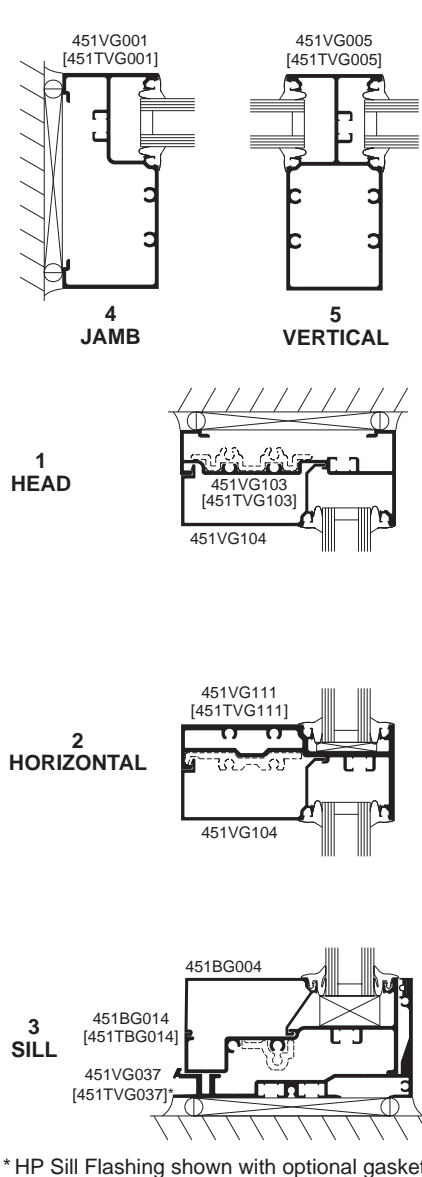
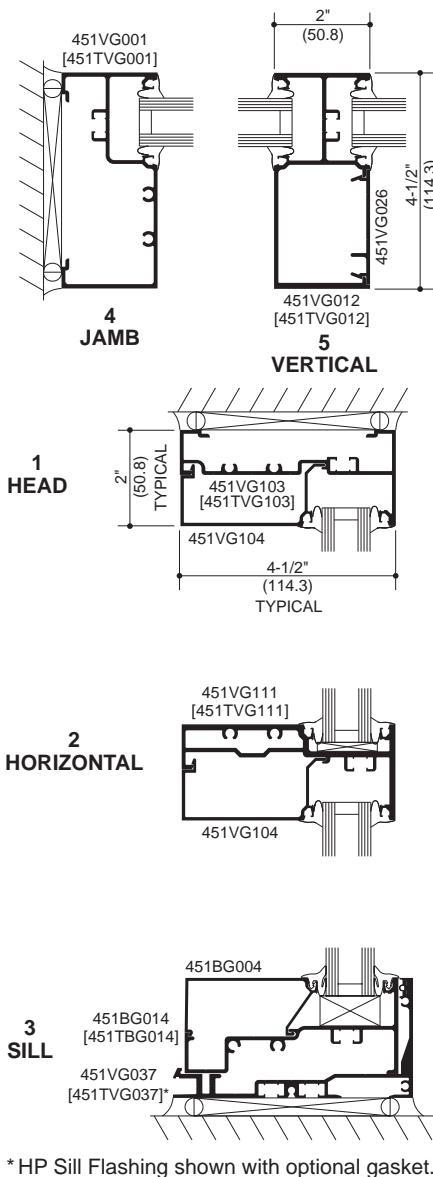
Additional information and CAD details are available at www.kawneer.com



SCREW SPLINE

SHEAR BLOCK

STICK



* HP Sill Flashing shown with optional gasket.

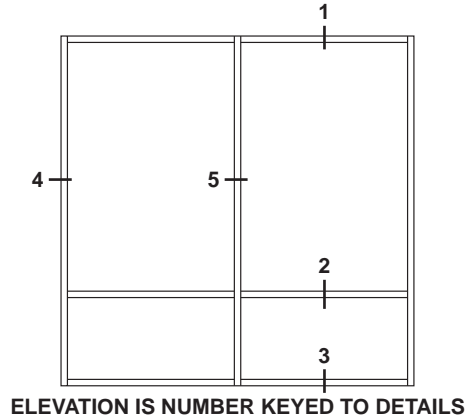
* HP Sill Flashing shown with optional gasket.

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

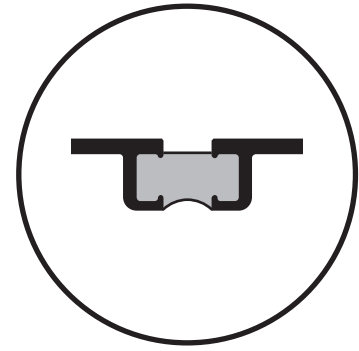
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

© 2018, Kawneer Company, Inc.

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

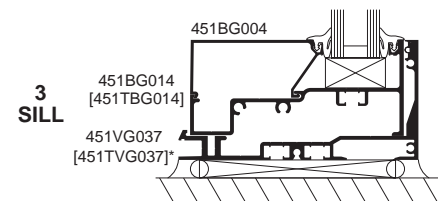
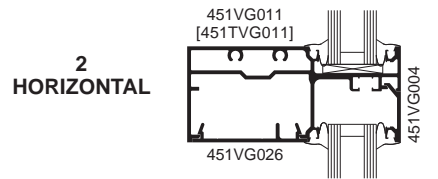
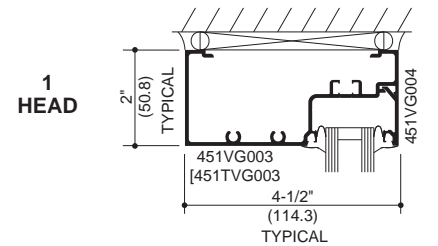
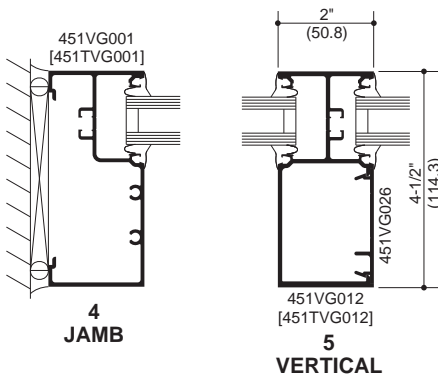


ELEVATION IS NUMBER KEYED TO DETAILS



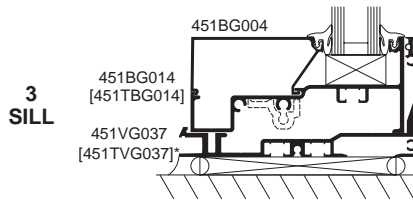
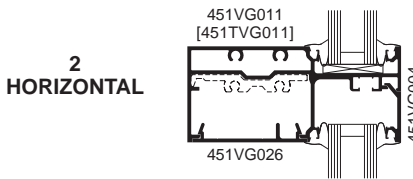
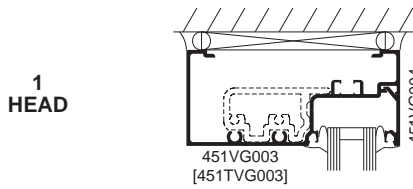
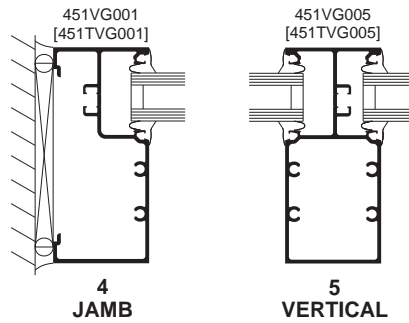
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

SCREW SPLINE



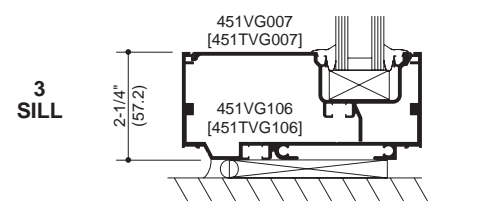
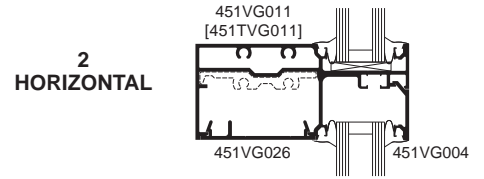
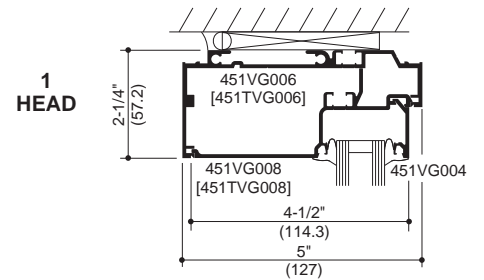
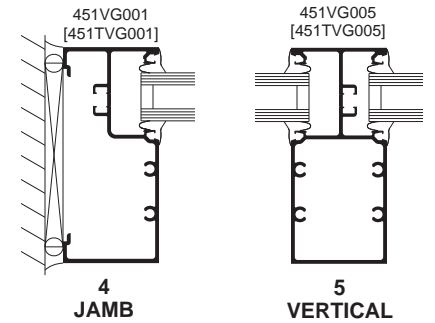
* HP Sill Flashing shown with optional gasket.

SHEAR BLOCK



* HP Sill Flashing shown with optional gasket.

STICK

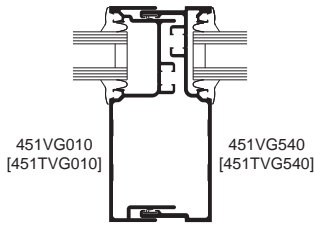


* HP Sill Flashing shown with optional gasket.

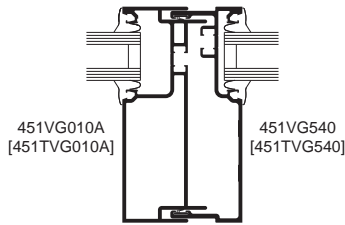
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

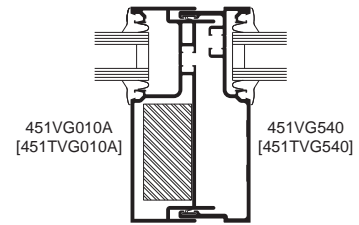
Additional information and CAD details are available at www.kawneer.com



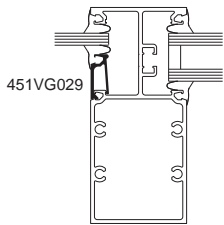
EXPANSION MULLION



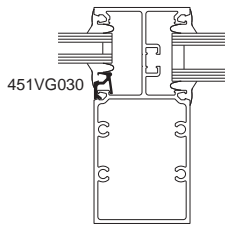
TUBULAR EXPANSION MULLION



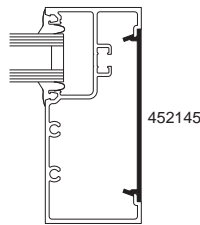
TUBULAR EXPANSION MULLION WITH STEEL



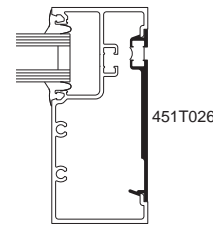
1/4" (6.4) INFILL SNAP-IN ADAPTOR



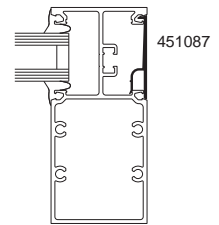
5/8" (15.9) INFILL SNAP-IN ADAPTOR



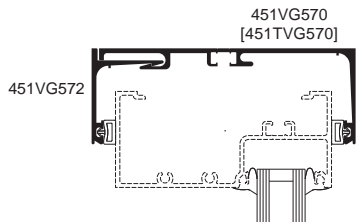
PVC FLAT FILLER (NON STRUCTURAL)



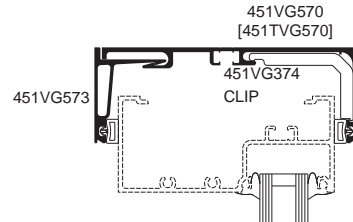
THERMAL FLAT FILLER



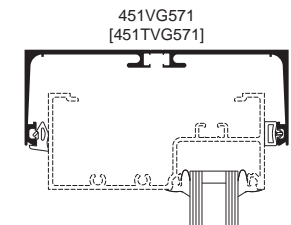
SNAP-IN FLAT FILLER



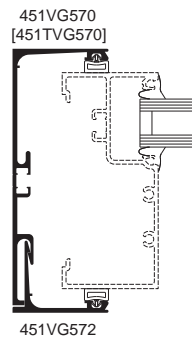
STANDARD - HEAD COMPENSATING RECEPTOR (EXTERIOR INSTALLED)



HEAVY WEIGHT - HEAD COMPENSATING RECEPTOR (EXTERIOR INSTALLED)



STANDARD - HEAD COMPENSATING RECEPTOR

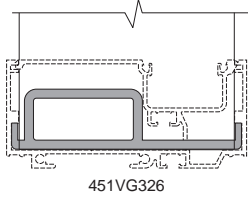


JAMB COMPENSATING RECEPTOR (EXTERIOR INSTALLED)

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.
© 2018, Kawneer Company, Inc.

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



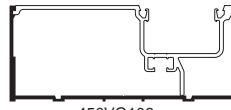
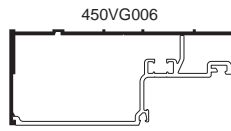
MULLION ANCHOR

NOTE:

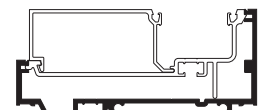
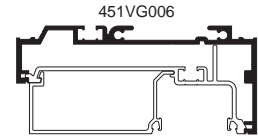
If the end reaction of the mullion (mullion spacing (ft.) times height (ft) times specified wind load (psf), divided by two) is more than 500 LBS., the optional Mullion Anchor must be used. Consult Application Engineering.

NOTE:

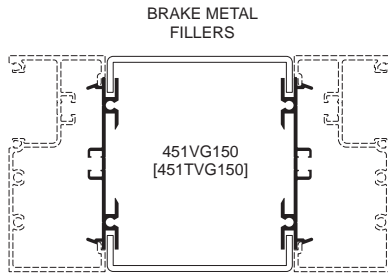
Mullion Anchor not used with Lightweight Receptor.



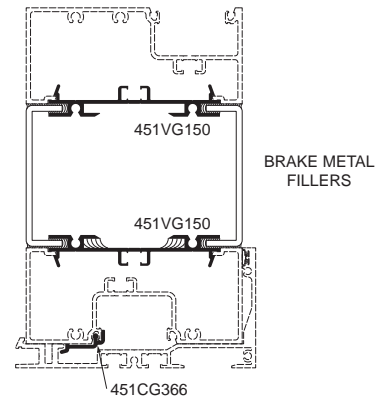
OPTIONAL LIGHTWEIGHT CAN RECEPTORS



OPTIONAL UNEQUAL LEG CAN RECEPTORS

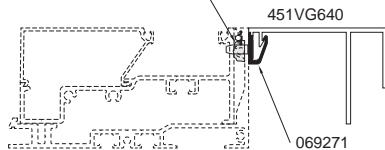


BRAKE METAL ADAPTOR



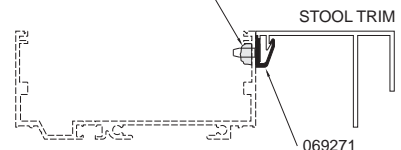
BRAKE METAL ADAPTOR AT HORIZONTAL

Seal over Stool Trim fasteners to prevent water infiltration.



STOOL TRIM CLIP with HP FLASHING

Seal over Stool Trim fasteners to prevent water infiltration.

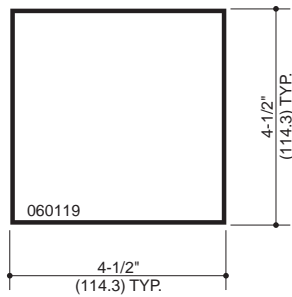


STOOL TRIM CLIP FOR STICK ASSEMBLY

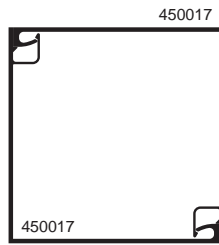
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

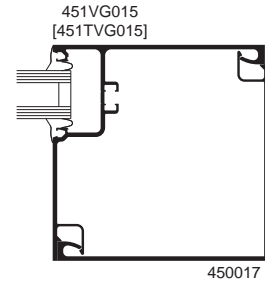
Additional information and CAD details are available at www.kawneer.com



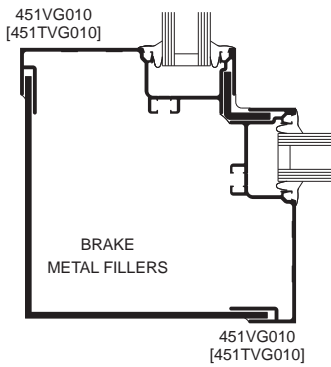
4-1/2" X 4-1/2" TUBE



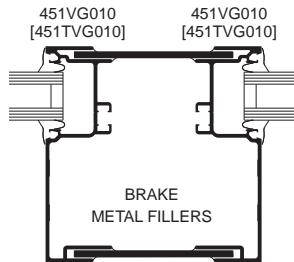
TWO PIECE NO POCKET CORNER



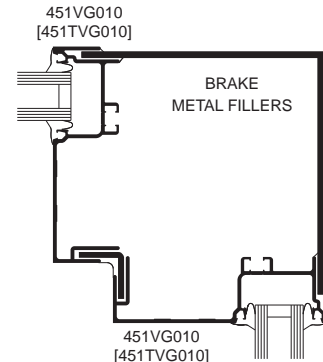
ONE POCKET CORNER



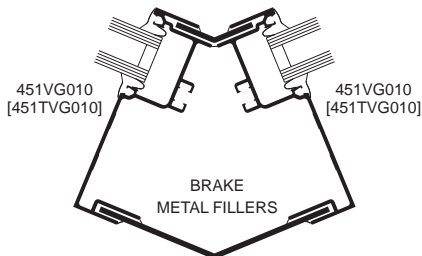
OUTSIDE 90° CORNER



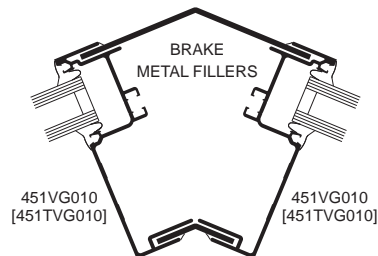
TWO POCKET CORNER POST



INSIDE 90° CORNER



135° OUTSIDE CORNER



135° INSIDE CORNER

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.
© 2018, Kawneer Company, Inc.

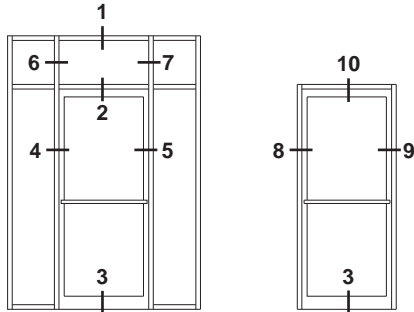
Additional information and CAD details are available at www.kawneer.com

TRIFAB® VersaGlaze® 451 FRAMING INCORPORATING KAWNEER “190” DOORS.

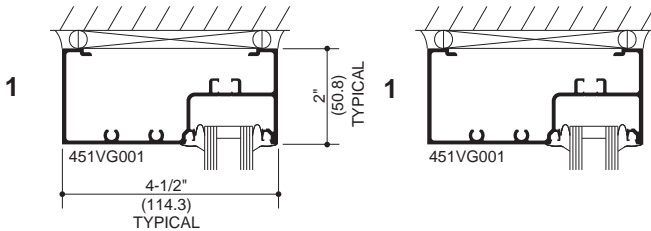
DOOR FRAMING NON-THERMAL ONLY

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

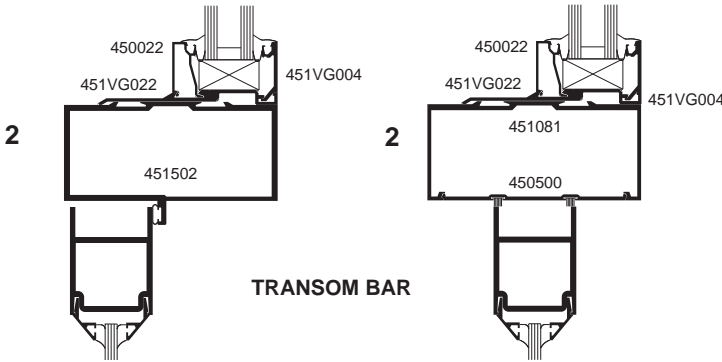
SEE ENTRANCE DETAILS FOR ADDITIONAL INFORMATION.



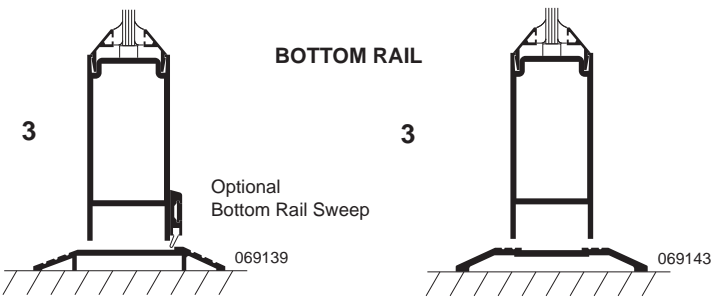
ELEVATIONS ARE NUMBER KEYED TO DETAILS



TRANSOM HEAD

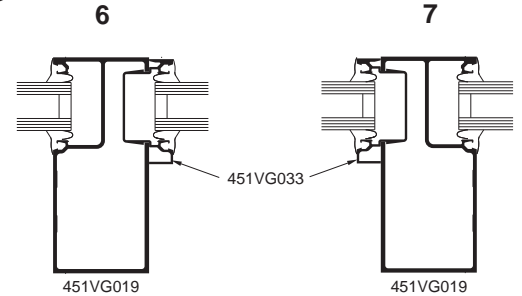


TRANSOM BAR



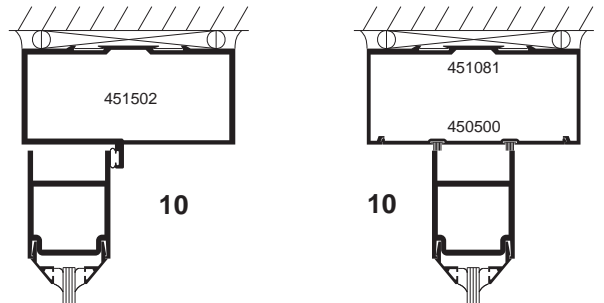
SINGLE ACTING

DOUBLE ACTING



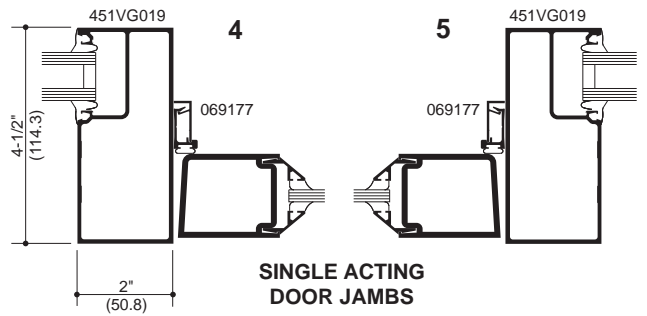
TRANSOM JAMBS

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

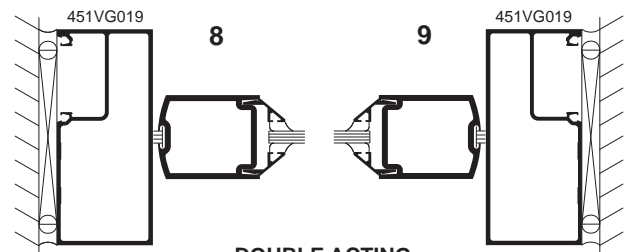


SINGLE ACTING HEADER

DOUBLE ACTING HEADER



SINGLE ACTING DOOR JAMBS



DOUBLE ACTING DOOR JAMBS

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.
© 2018, Kawneer Company, Inc.

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.
© 2018, Kawneer Company, Inc.

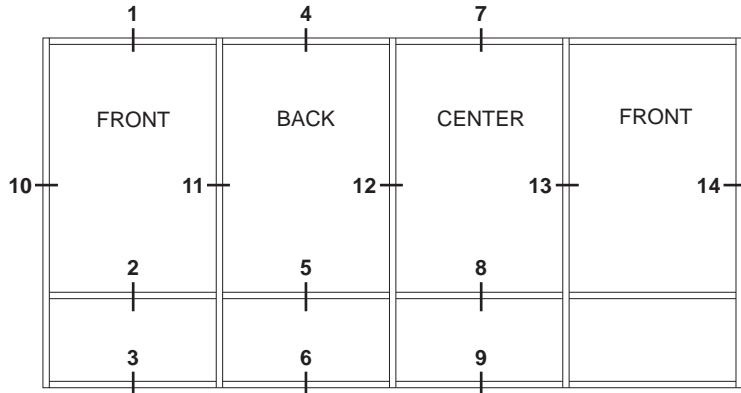
BASIC FRAMING DETAILS 54-59
(See appropriate Center, Front or Back Section
for Miscellaneous Details.)

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.

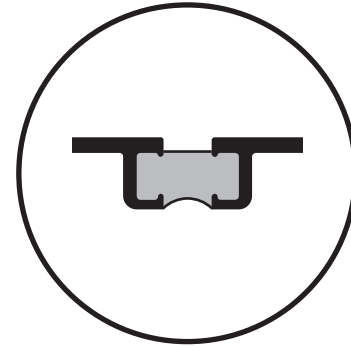
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
 © 2018, Kawneer Company, Inc.

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

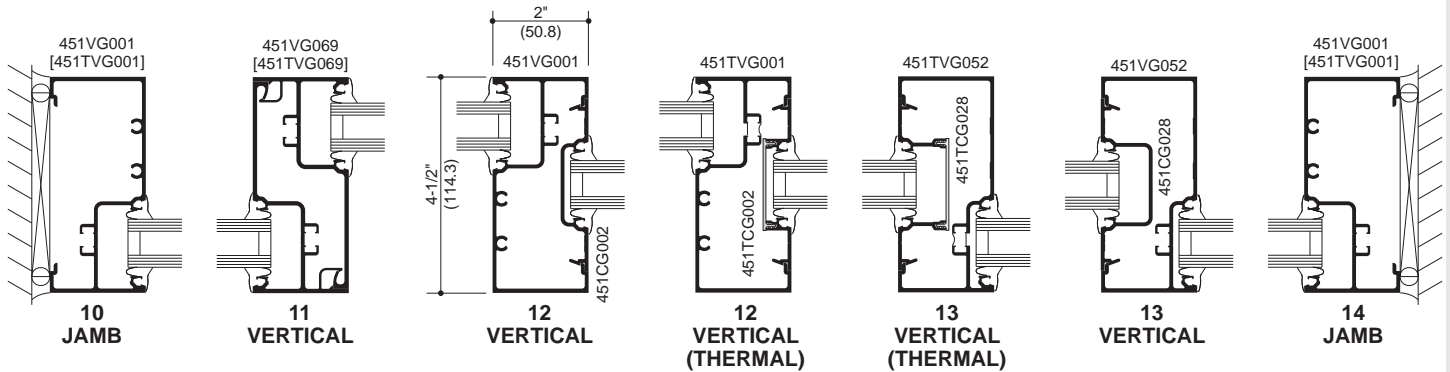
SCREW SPLINE ASSEMBLY



ELEVATION IS NUMBER KEYED TO DETAILS

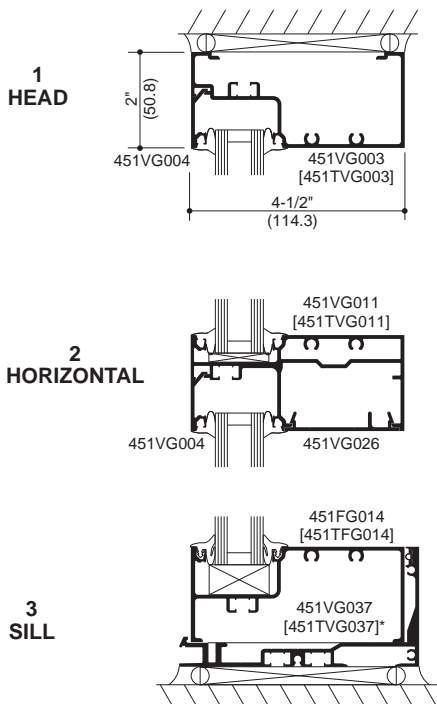


NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS



FRONT

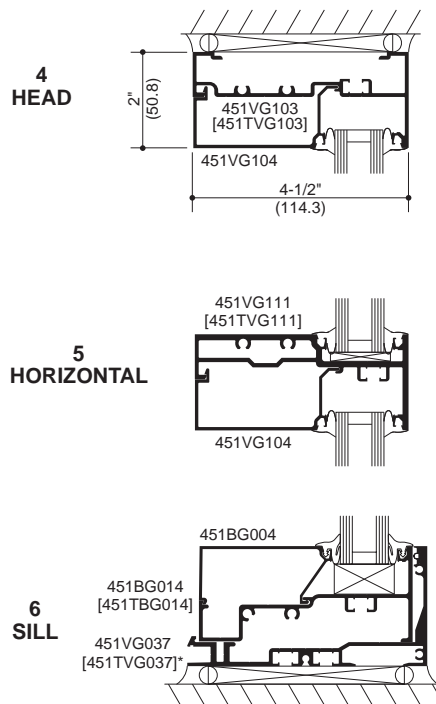
See Pages 30 thru 43 for all FRONT details.



* HP Sill Flashing shown with optional gasket.

BACK

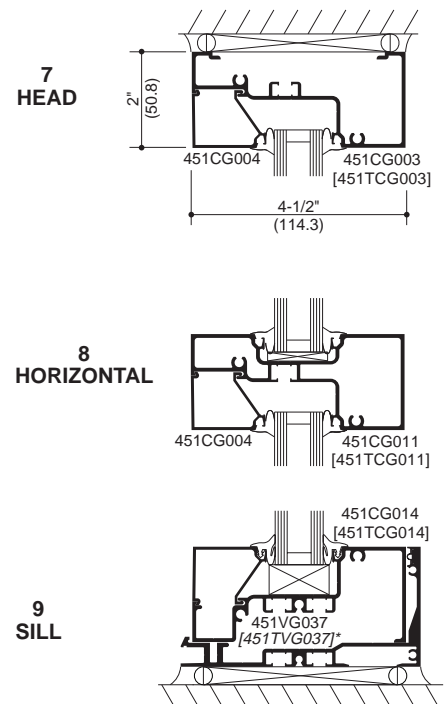
See Pages 46 thru 51 for all BACK details.



* HP Sill Flashing shown with optional gasket.

CENTER

See Pages 12 thru 27 for all CENTER details.



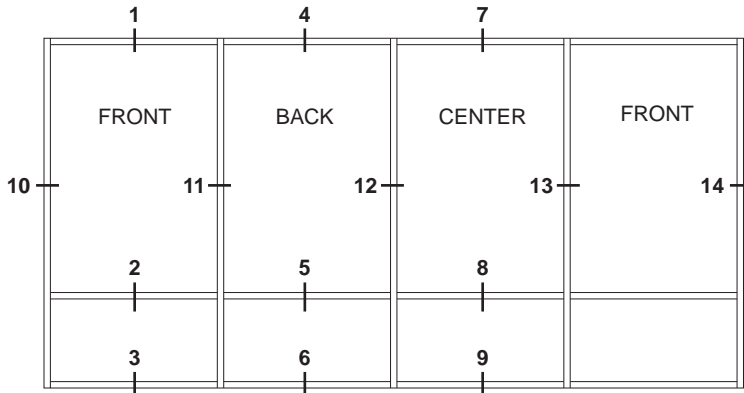
* HP Sill Flashing shown with optional gasket.

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

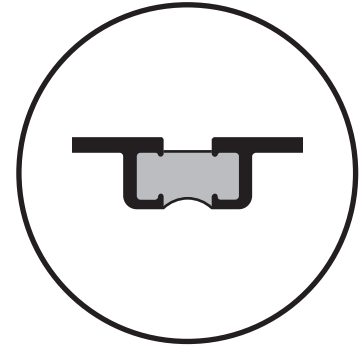
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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

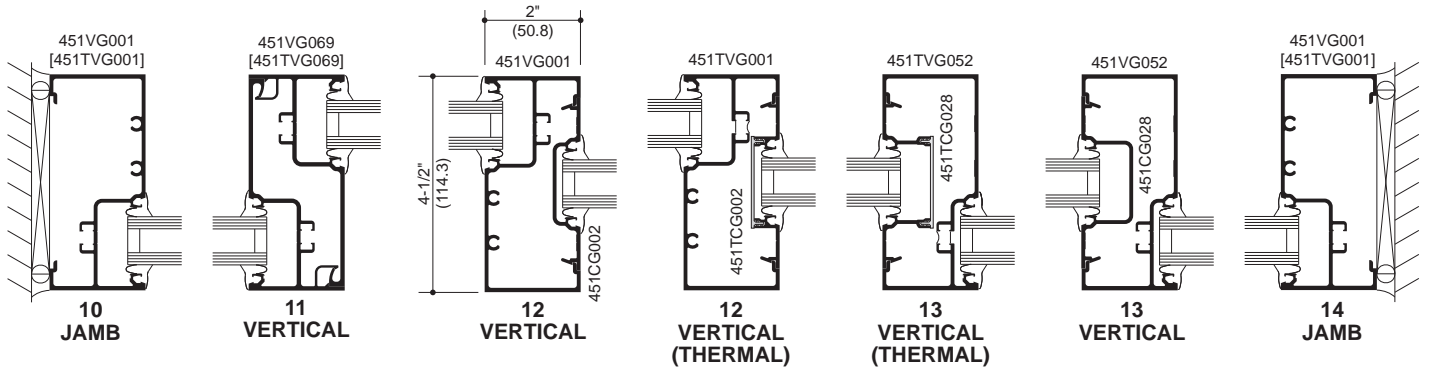
SCREW SPLINE ASSEMBLY



ELEVATION IS NUMBER KEYED TO DETAILS



NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

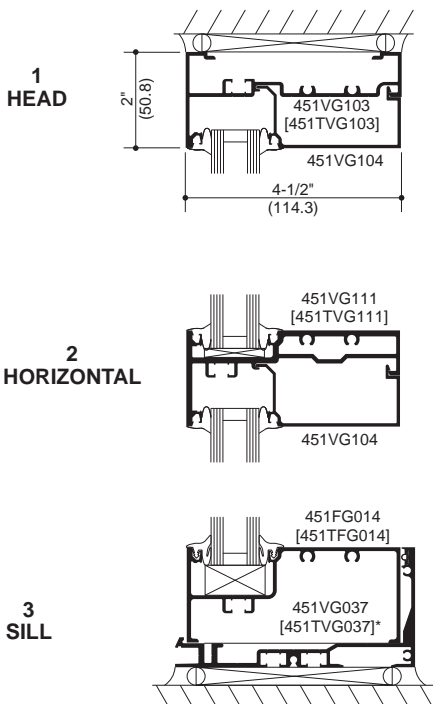


Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

FRONT

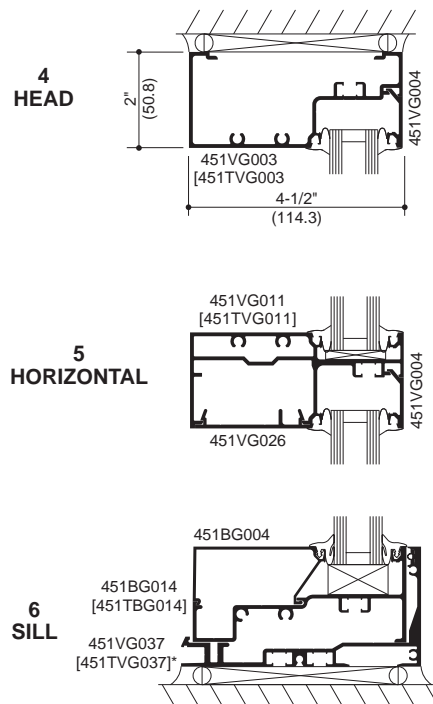
See Pages 30 thru 43 for all FRONT details.



* HP Sill Flashing shown with optional gasket.

BACK

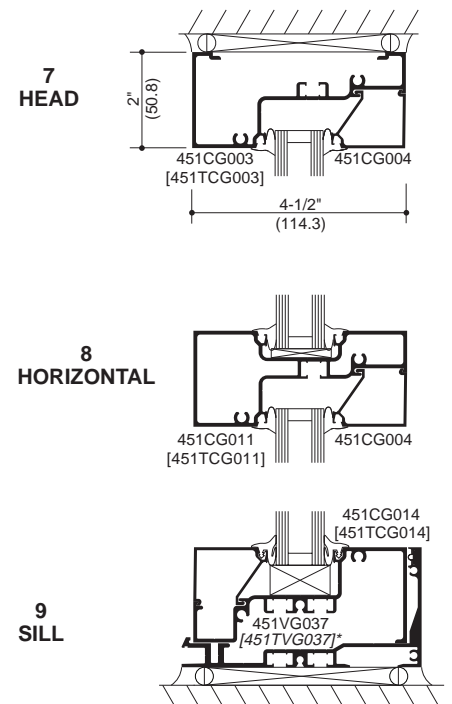
See Pages 46 thru 51 for all BACK details.



* HP Sill Flashing shown with optional gasket.

CENTER

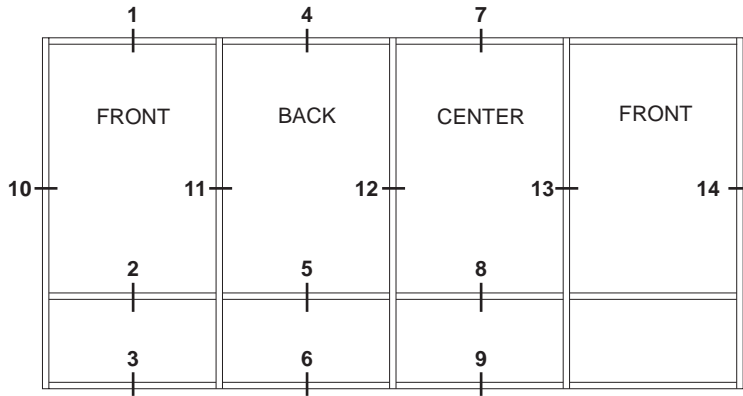
See Pages 12 thru 27 for all CENTER details.



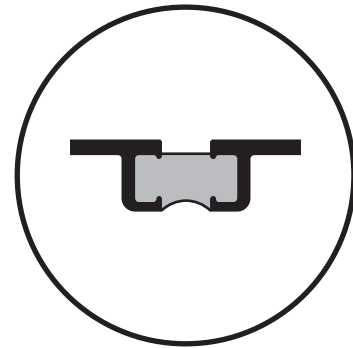
* HP Sill Flashing shown with optional gasket.

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

SHEAR BLOCK ASSEMBLY

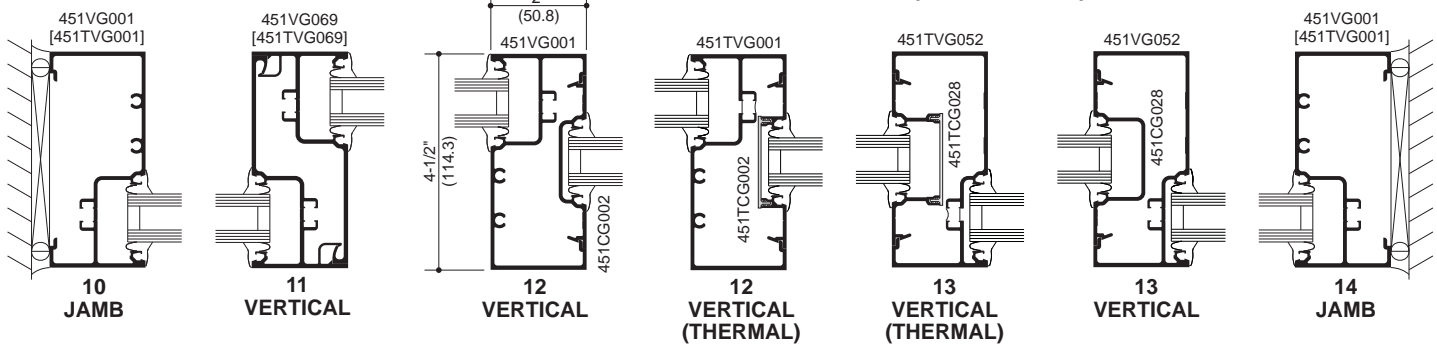


ELEVATION IS NUMBER KEYED TO DETAILS



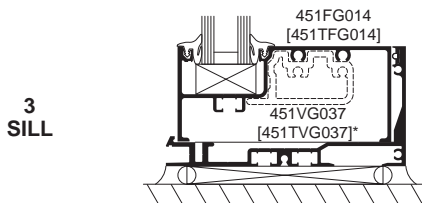
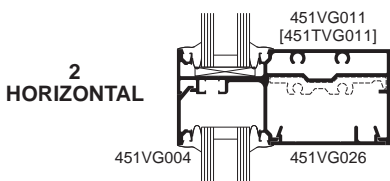
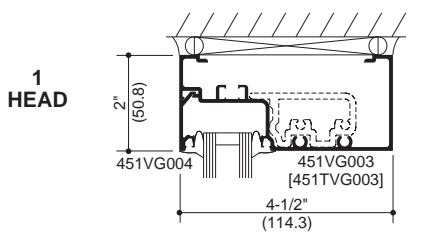
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

Note: Transition verticals are required to be two piece.



FRONT

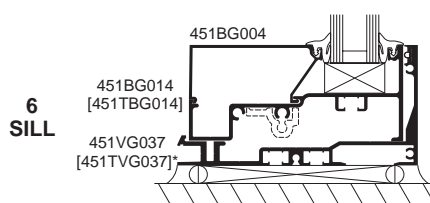
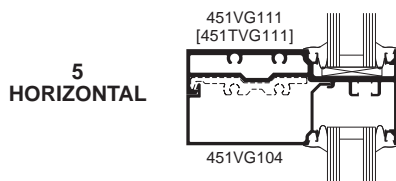
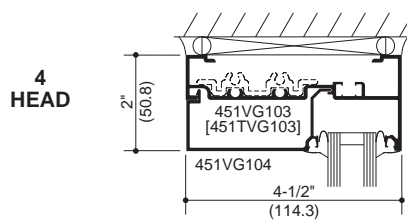
See Pages 30 thru 43 for all FRONT details.



* HP Sill Flashing shown with optional gasket.

BACK

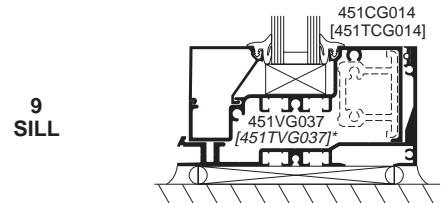
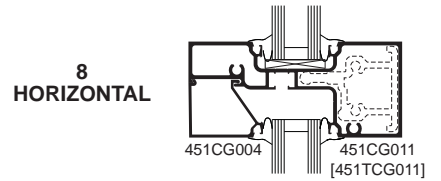
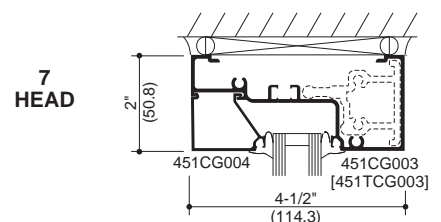
See Pages 46 thru 51 for all BACK details.



* HP Sill Flashing shown with optional gasket.

CENTER

See Pages 12 thru 27 for all CENTER details.



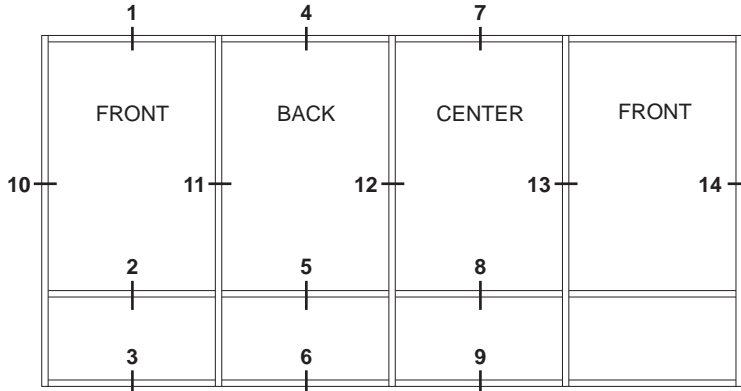
* HP Sill Flashing shown with optional gasket.

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

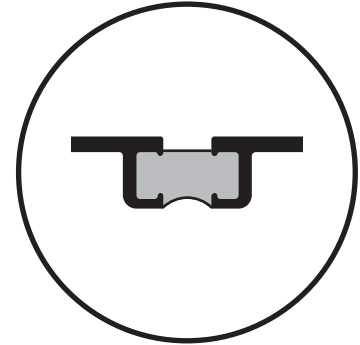
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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

SHEAR BLOCK ASSEMBLY

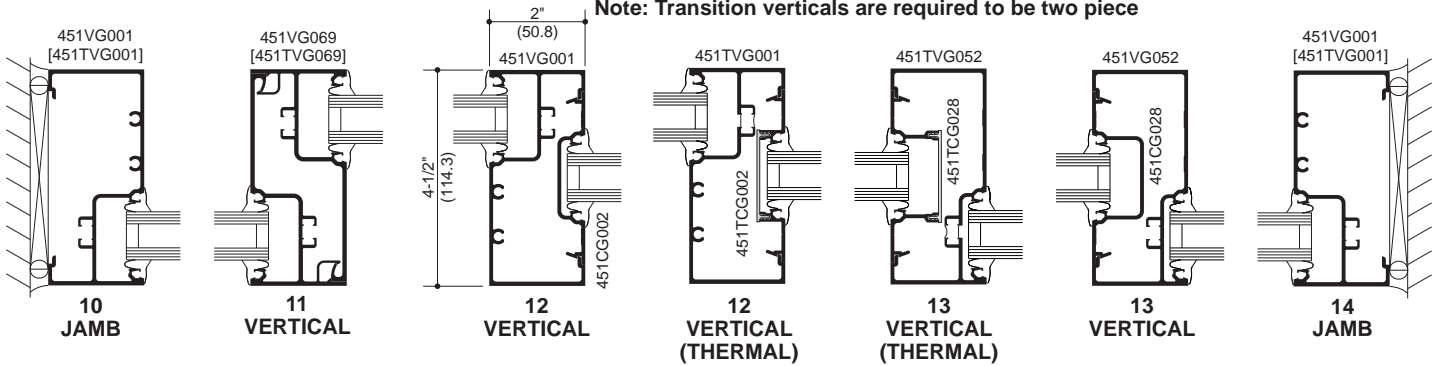


ELEVATION IS NUMBER KEYED TO DETAILS



NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

Note: Transition verticals are required to be two piece

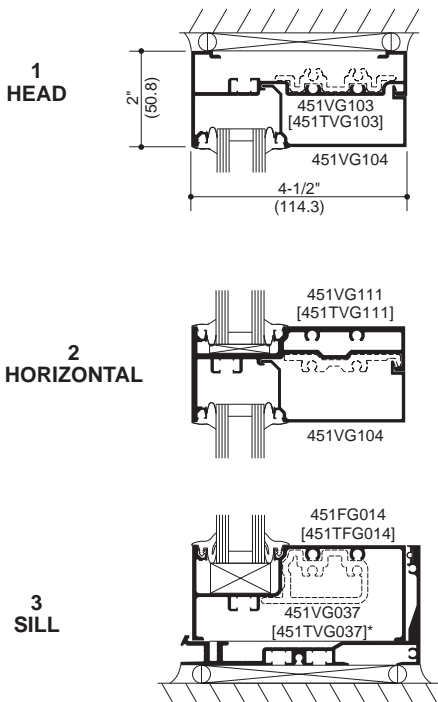


Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

FRONT

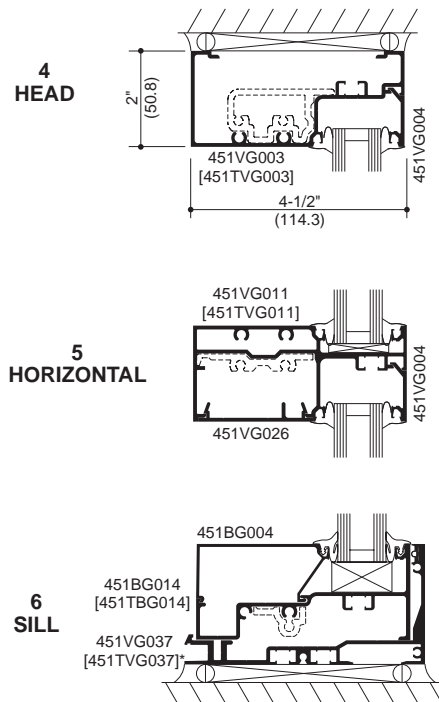
See Pages 30 thru 43 for all FRONT details.



* HP Sill Flashing shown with optional gasket.

BACK

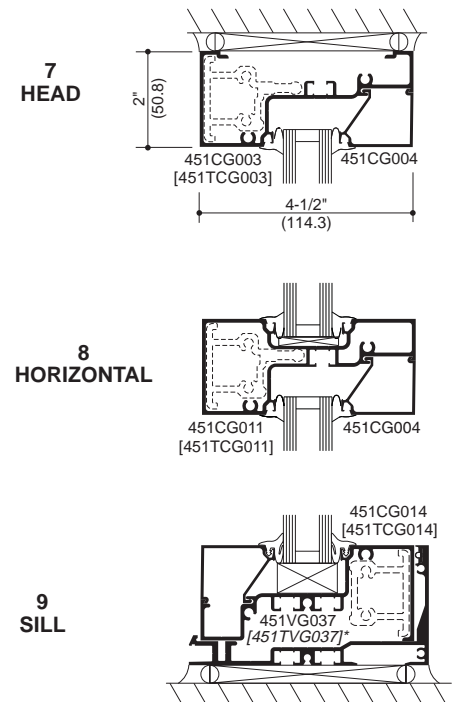
See Pages 46 thru 51 for all BACK details.



* HP Sill Flashing shown with optional gasket.

CENTER

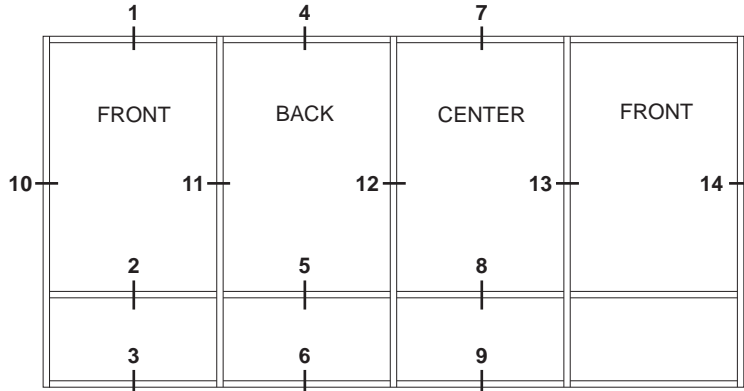
See Pages 12 thru 27 for all CENTER details.



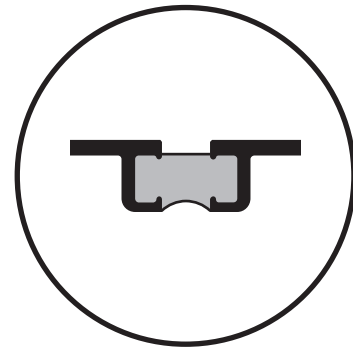
* HP Sill Flashing shown with optional gasket.

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

STICK ASSEMBLY

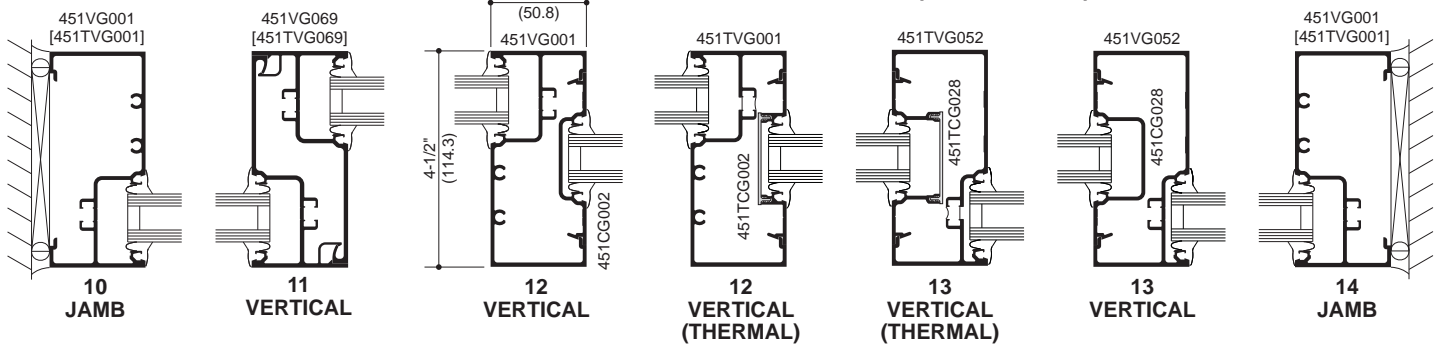


ELEVATION IS NUMBER KEYED TO DETAILS



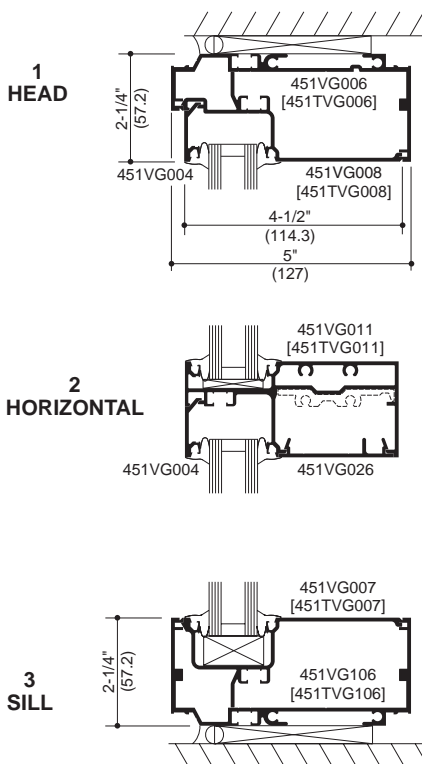
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

Note: Transition verticals are required to be two piece.



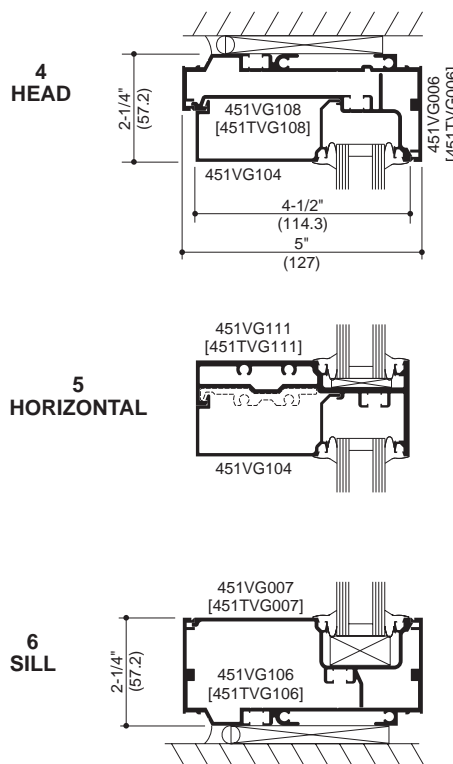
FRONT

See Pages 30 thru 43 for all FRONT details.



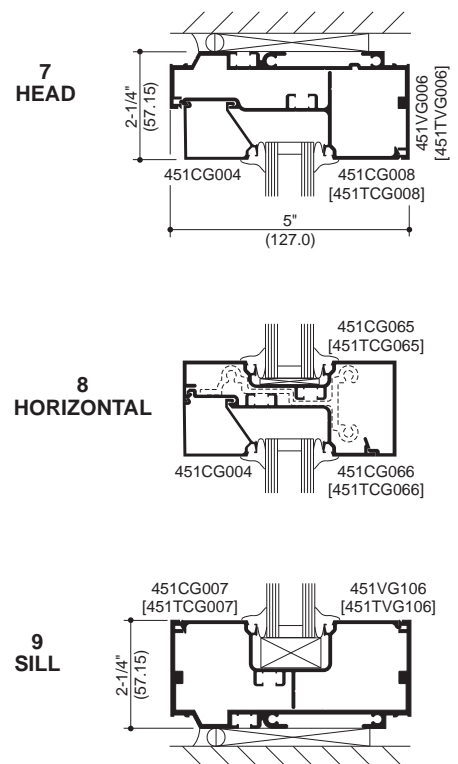
BACK

See Pages 46 thru 51 for all BACK details.



CENTER

See Pages 12 thru 27 for all CENTER details.

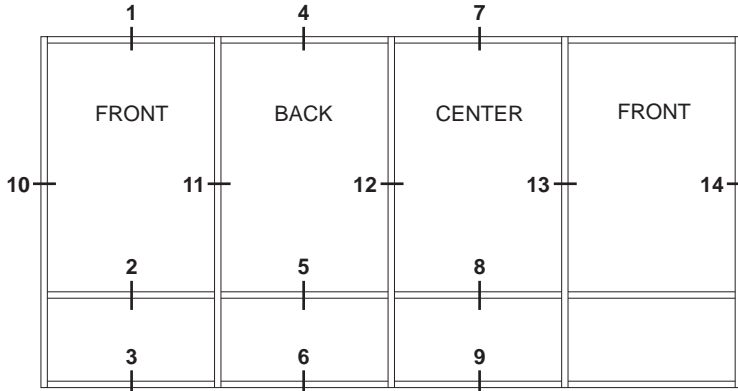


Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

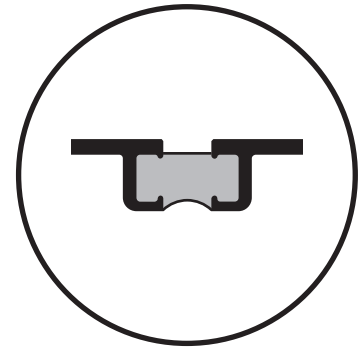
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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

STICK ASSEMBLY

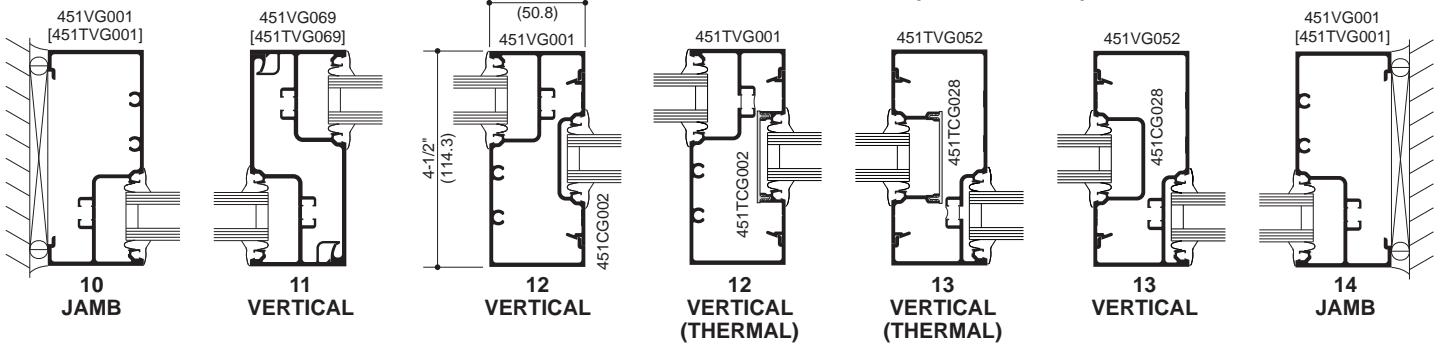


ELEVATION IS NUMBER KEYED TO DETAILS



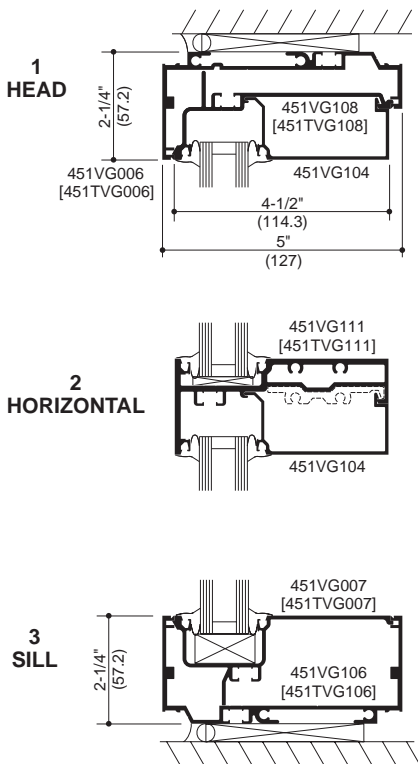
NUMBERS IN BRACKETS ARE THERMALLY BROKEN MEMBERS

Note: Transition verticals are required to be two piece



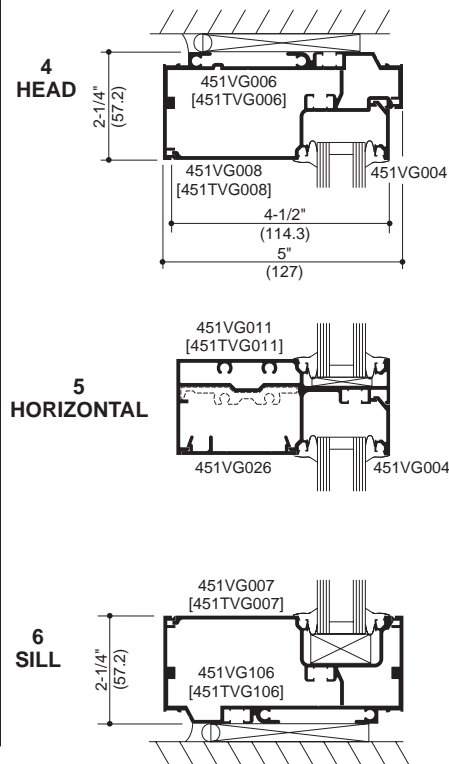
FRONT

See Pages 30 thru 43 for all FRONT details.



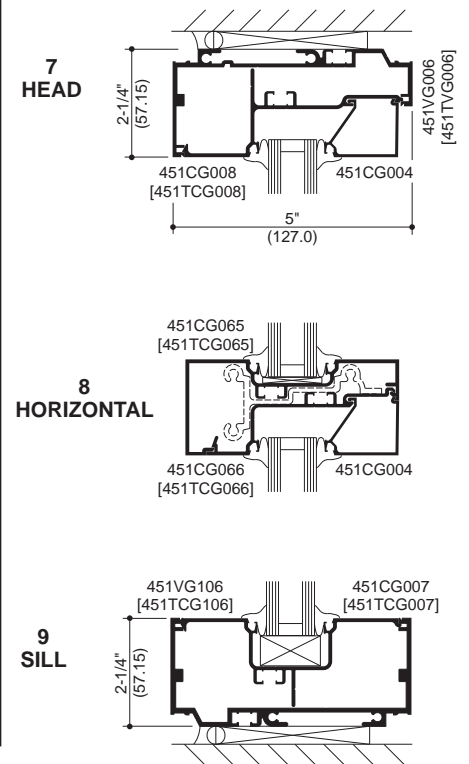
BACK

See Pages 46 thru 51 for all BACK details.



CENTER

See Pages 12 thru 27 for all CENTER details.



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.
© 2018, Kawneer Company, Inc.

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.

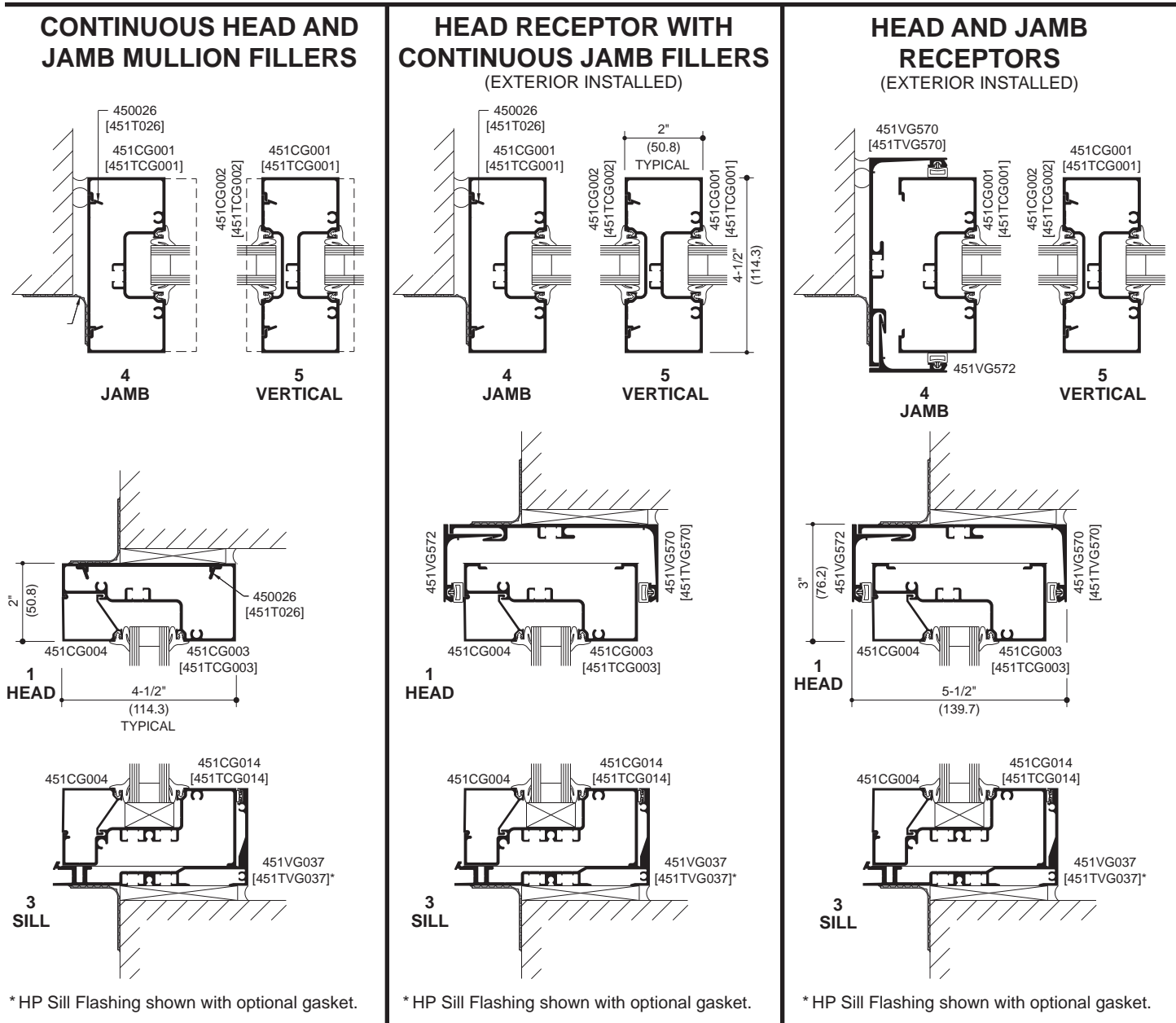
For integration of a silicone engineered transition assembly, the Trifab® storefront system must use continuous head and jamb mullion fillers, a head receptor with continuous jamb fillers or a head receptor with jamb receptors.

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.)



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.
© 2018, Kawneer Company, Inc.

WIND LOAD CHARTS (CENTER)
TF VG 451 (Non-Thermal)..... 63-67
TF VG 451T (Thermal)..... 68-72

WIND LOAD CHARTS (FRONT or BACK)
TF VG 451 (Non-Thermal)..... 73-76
TF VG 451T (Thermal)..... 77-79

WIND LOAD CHARTS (FRONT or BACK)
TF VG 451/451T (SSG Mullions)80

WIND LOAD CHARTS (MULTI PLANE)
TF VG 451 (Non-Thermal).....81
TF VG 451T (Thermal).....82

WIND LOAD CHARTS (ENTRANCE FRAMING)
TF VG 451/451T 83-84

DEADLOAD CHARTS
TF VG 451/451T 85-86

END REACTION CHARTS87

THERMAL CHARTS
EXAMPLE CALCULATION.....88
TF VG 451 (CENTER – Non-Thermal)..... 89-91
TF VG 451 Pre-Glazed (CENTER - Non-Thermal)..... 92-94
TF VG 451T (CENTER – Thermal)..... 95-97
TF VG 451T Pre-Glazed (CENTER – Thermal)..... 98-100
TF VG 451T (FRONT – Thermal) 101-103
TF VG 451T (BACK – Thermal) 104-106
TF VG 451T with Steel (CENTER)..... 107-109

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.
© 2018, Kawneer Company, Inc.

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.

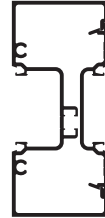
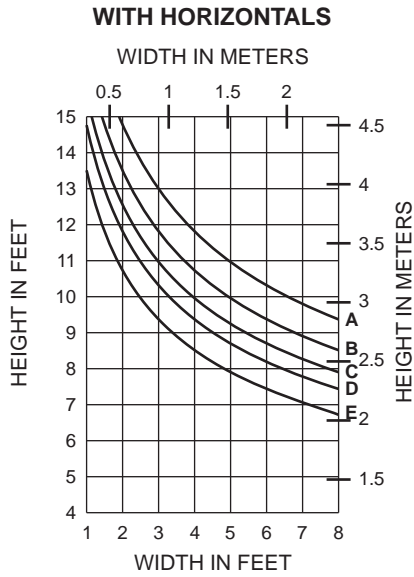
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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.

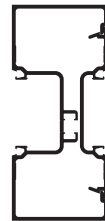
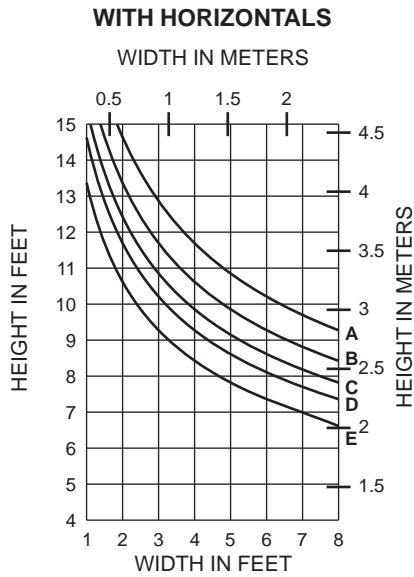
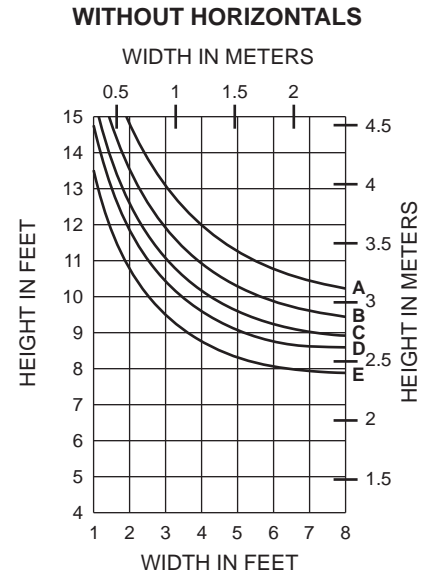
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

	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)



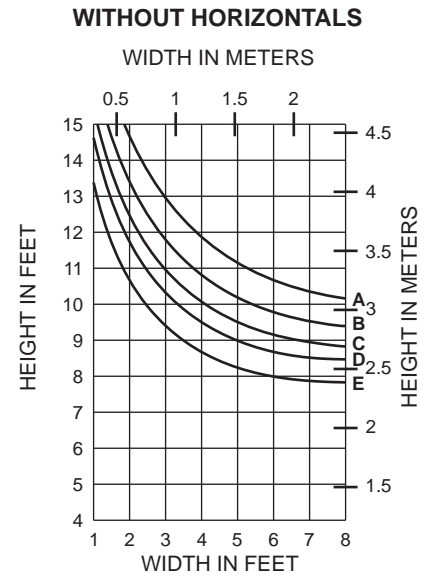
451CG001
451CG002

$I = 3.237 (134.73 \times 10^4)$
 $S = 1.431 (23.45 \times 10^3)$

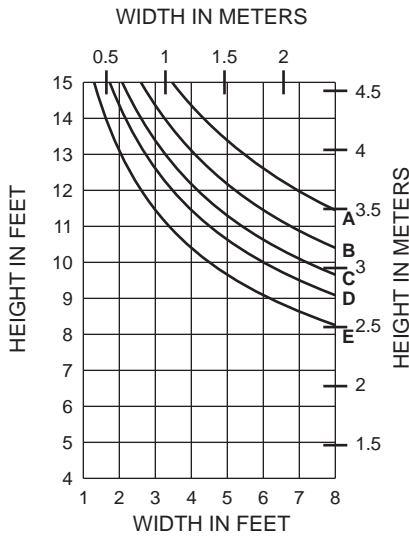


451CG012
451CG002

$I = 3.137 (130.57 \times 10^4)$
 $S = 1.384 (22.68 \times 10^3)$



WITH HORIZONTALS



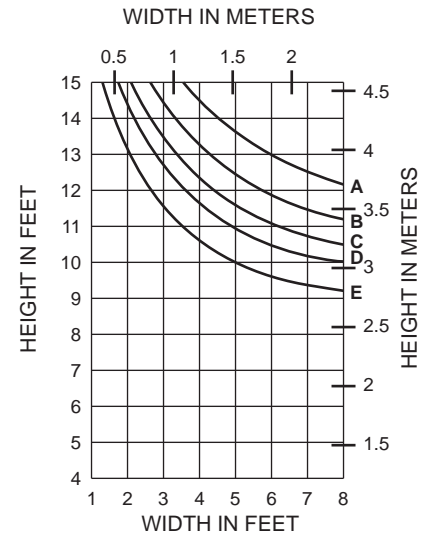
	Allowable Stress Design Load	LFRD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



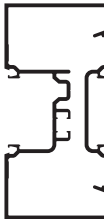
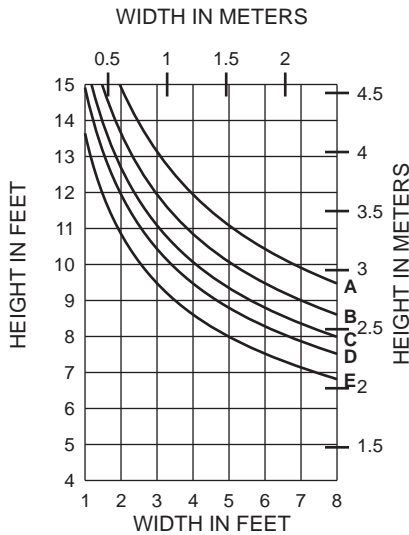
451CG013
451CG002

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

WITHOUT HORIZONTALS



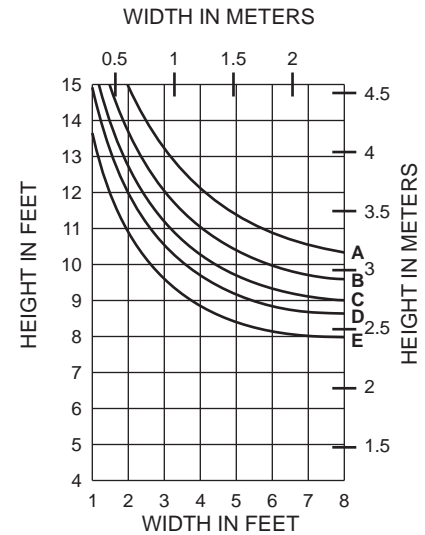
WITH HORIZONTALS



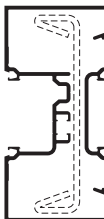
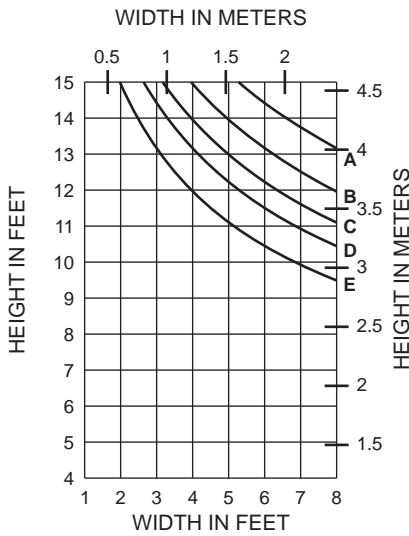
451CG112
451CG002

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

WITHOUT HORIZONTALS



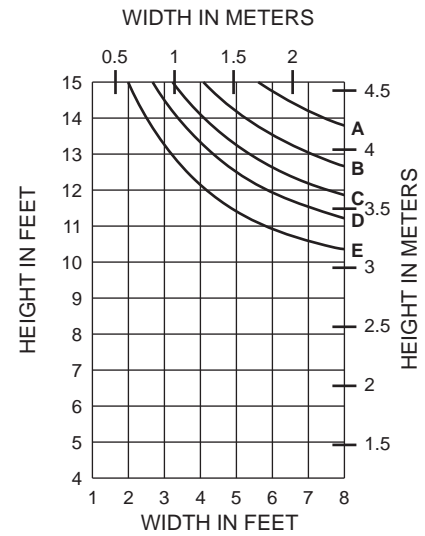
WITH HORIZONTALS



451CG112
451CG002
with 450110 STEEL

$I_A = 3.346 (139.27 \times 10^4)$
 $S_A = 1.474 (24.15 \times 10^3)$
 $I_S = 1.935 (80.54 \times 10^4)$
 $S_S = 0.938 (15.37 \times 10^3)$

WITHOUT HORIZONTALS



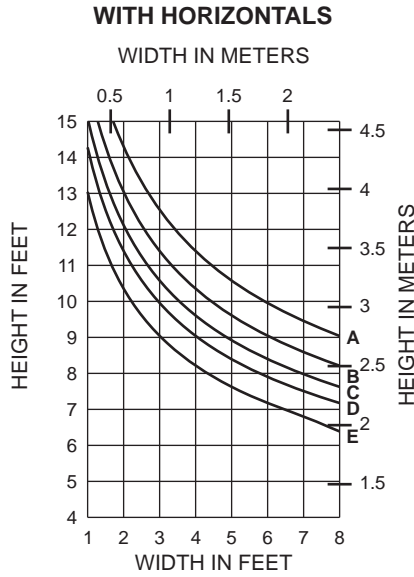
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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.

© 2018, Kawneer Company, Inc.

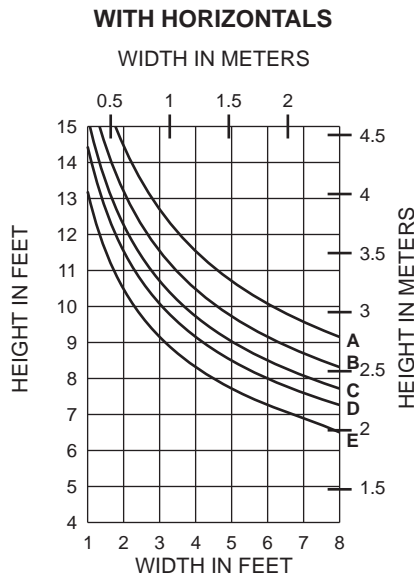
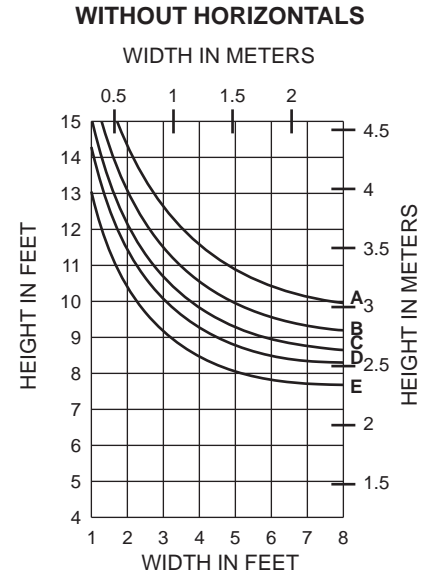


	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



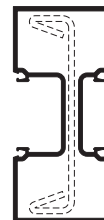
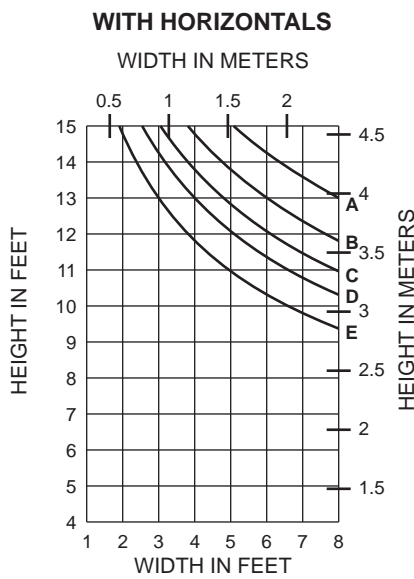
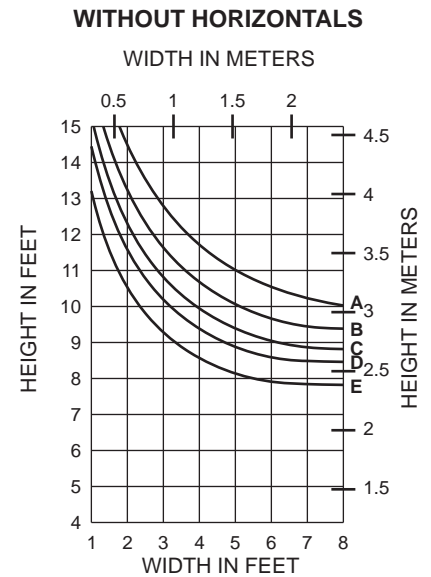
451CG005

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



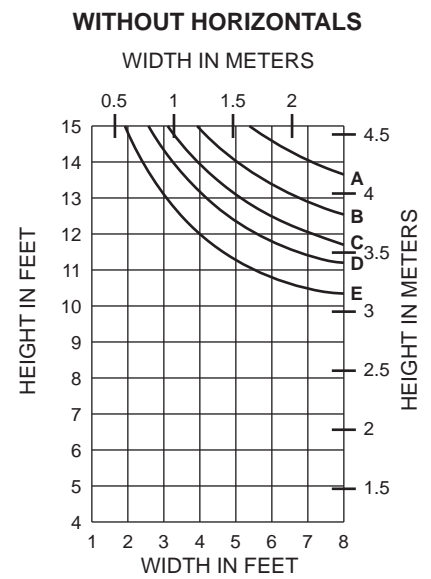
451CG005A

$I = 3.016 (125.53 \times 10^4)$
 $S = 1.340 (21.96 \times 10^3)$

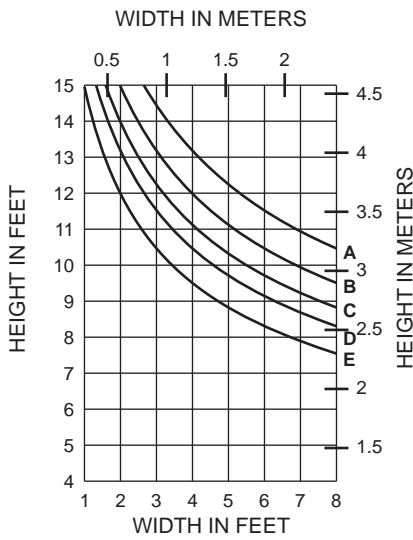


451CG005A with 450110 STEEL

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



WITH HORIZONTALS



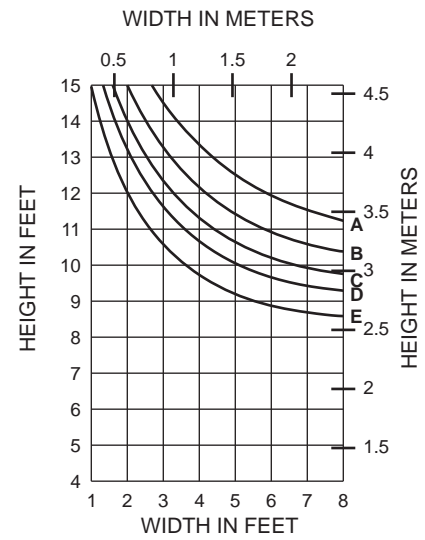
	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



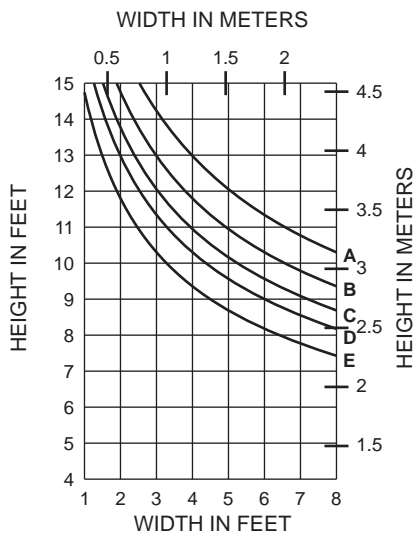
451CG001A
451CG002

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

WITHOUT HORIZONTALS



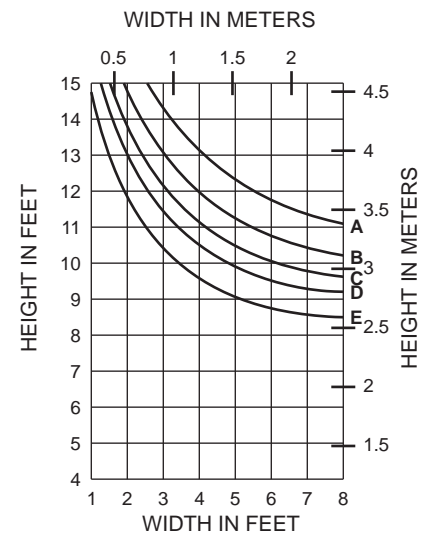
WITH HORIZONTALS



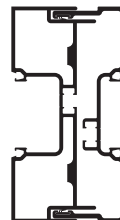
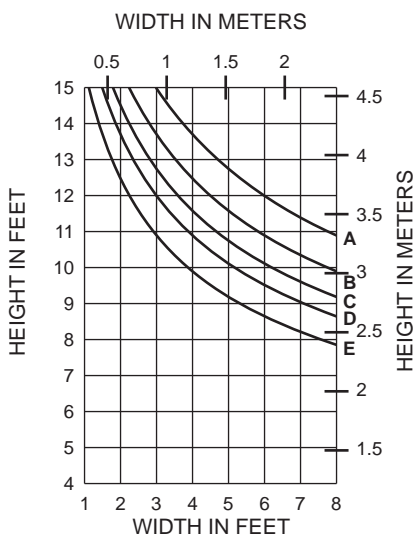
451CG010
451CG540

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

WITHOUT HORIZONTALS



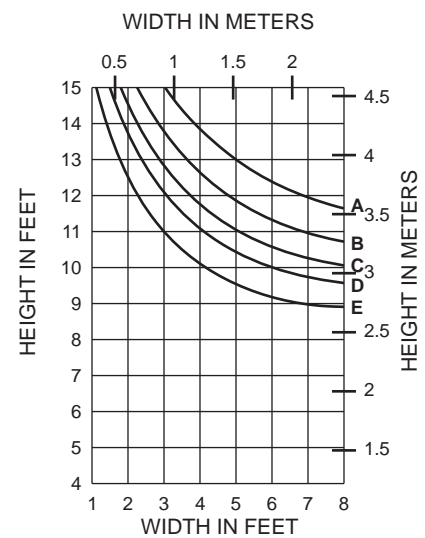
WITH HORIZONTALS



451CG010A
451CG540

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

WITHOUT HORIZONTALS

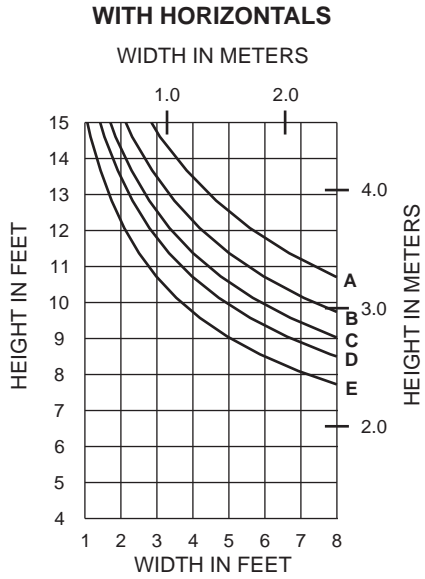


Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

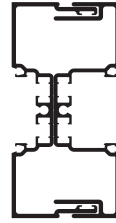
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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.
© 2018, Kawneer Company, Inc.

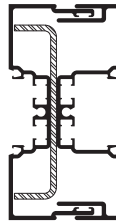
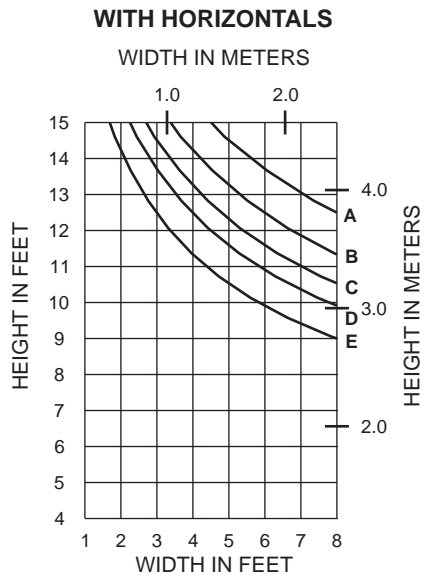
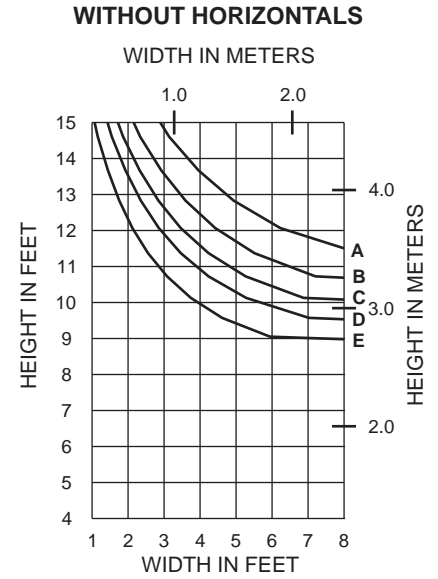


	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



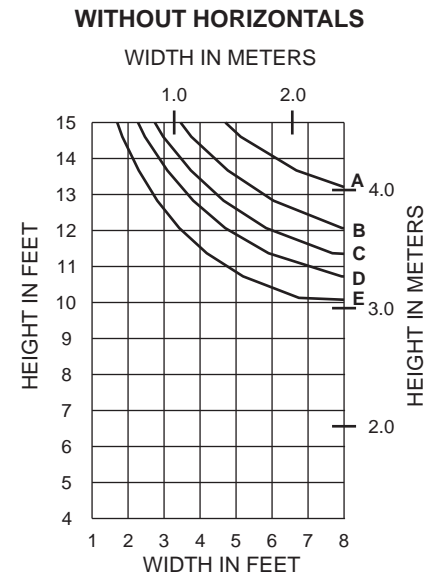
451CG081 / 451CG082

I = 4.829 (201.00 x 10⁴)
S = 2.146 (35.17 x 10³)

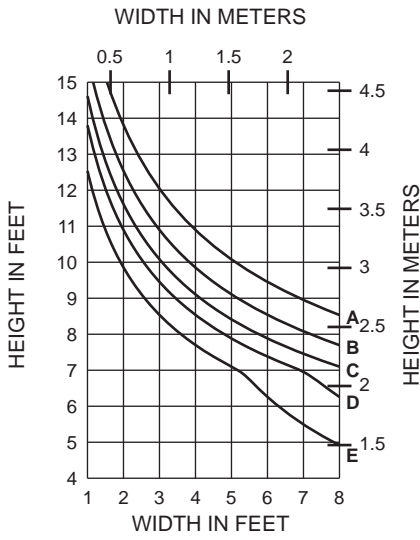


**451CG081 / 451CG082
with 400110 STEEL**

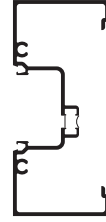
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505



WITH HORIZONTALS



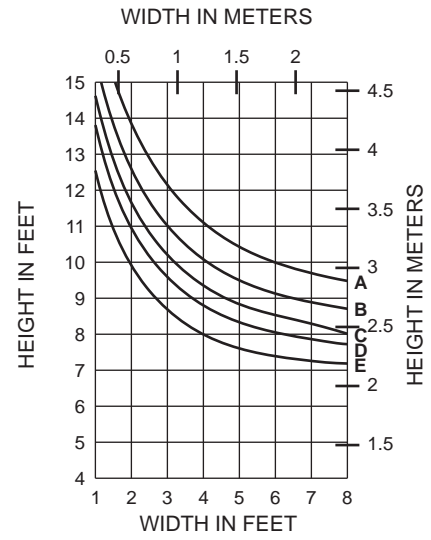
	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



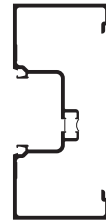
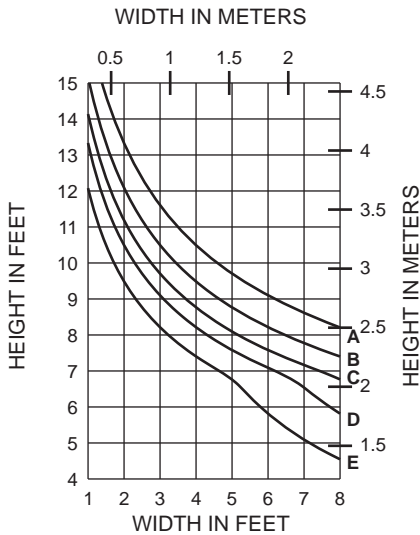
451TCG001

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

WITHOUT HORIZONTALS



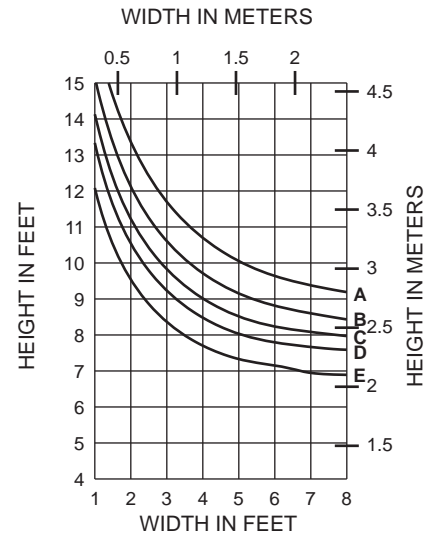
WITH HORIZONTALS



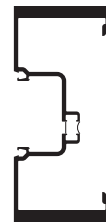
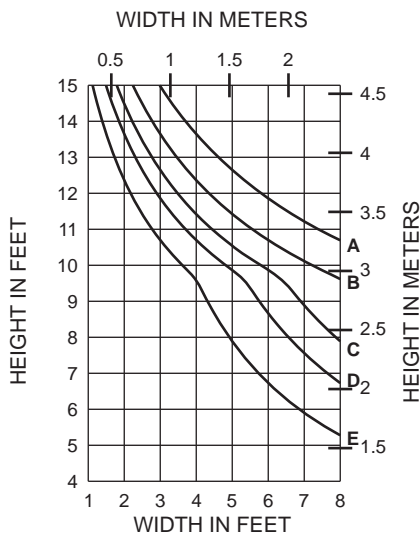
451TCG012

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

WITHOUT HORIZONTALS



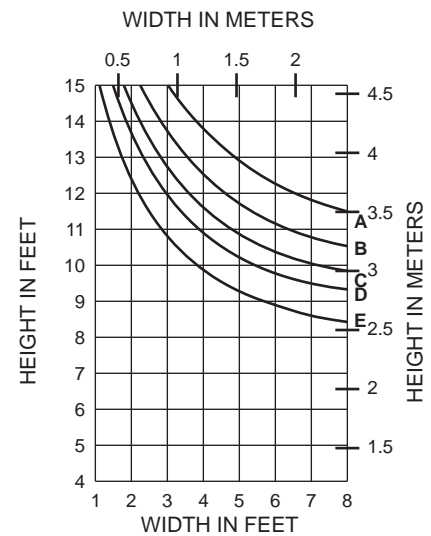
WITH HORIZONTALS



451TCG013

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

WITHOUT HORIZONTALS

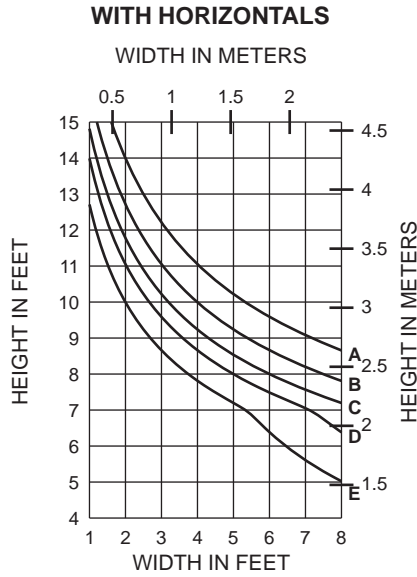


Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

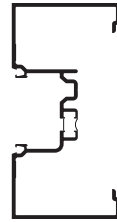
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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.
© 2018, Kawneer Company, Inc.

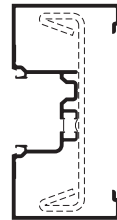
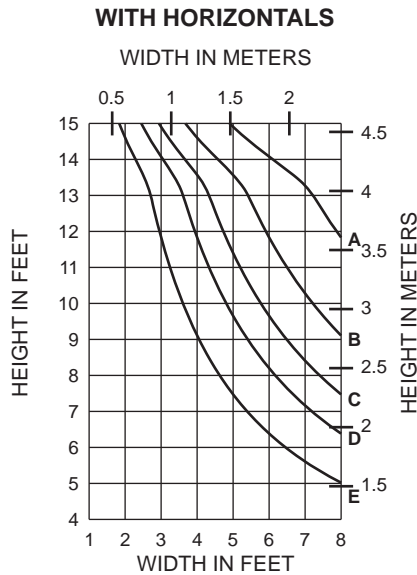
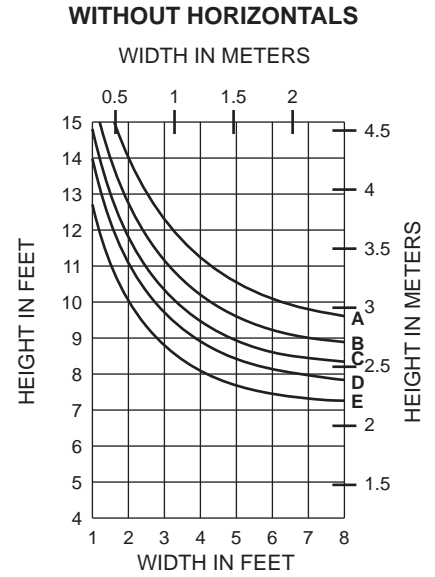


	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



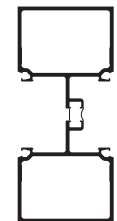
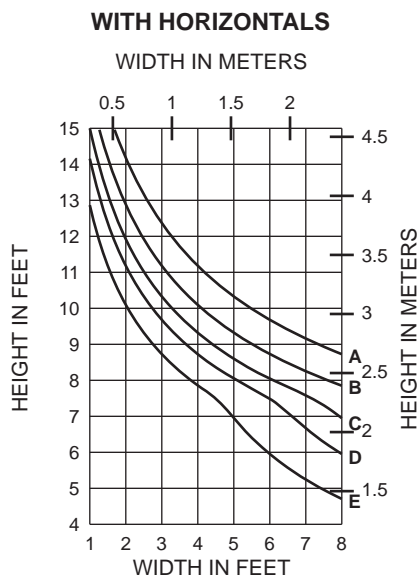
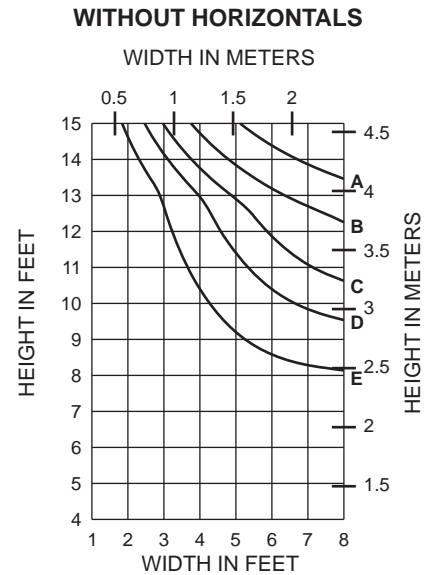
451TCG112

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



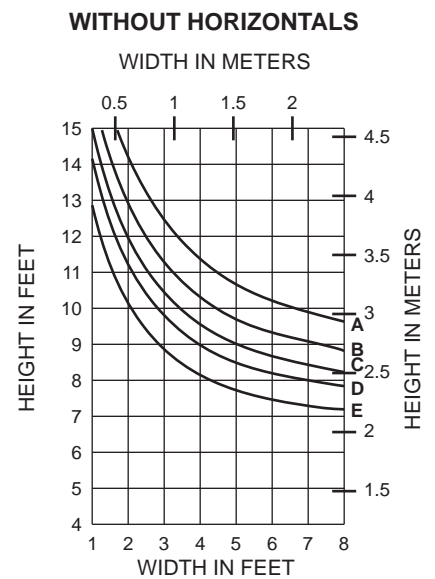
451TCG112 with 450110 STEEL

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

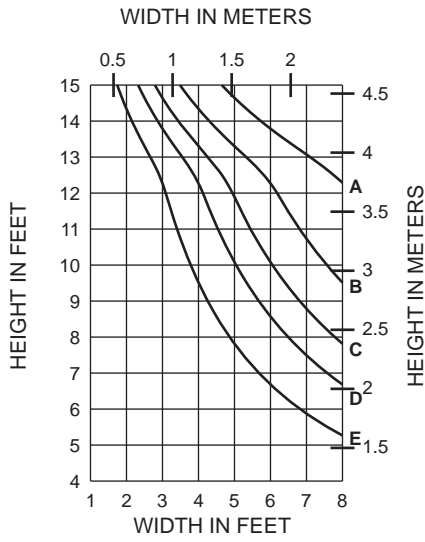


451TCG005

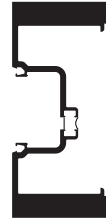
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505



WITH HORIZONTALS



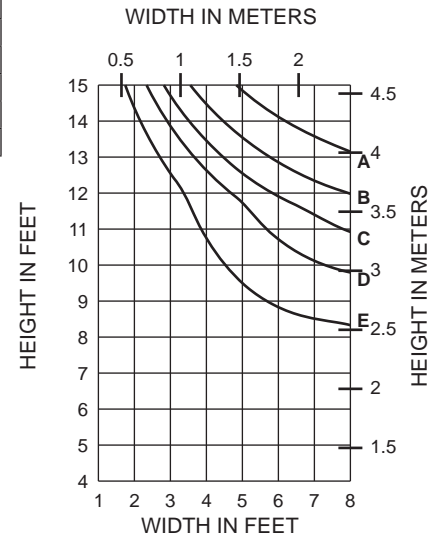
	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



451TCG113

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

WITHOUT HORIZONTALS

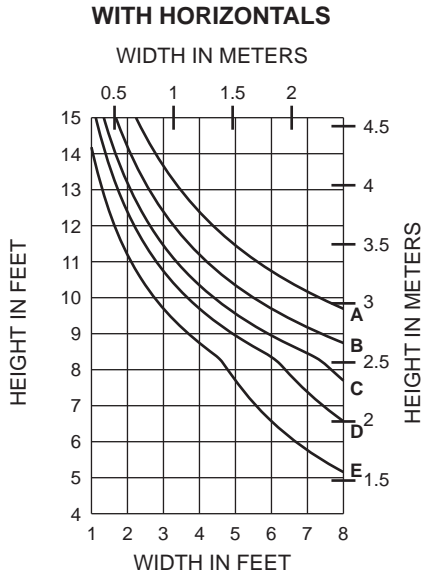


Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

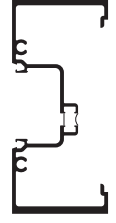
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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.
© 2018, Kawneer Company, Inc.

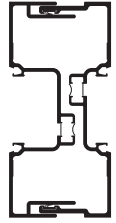
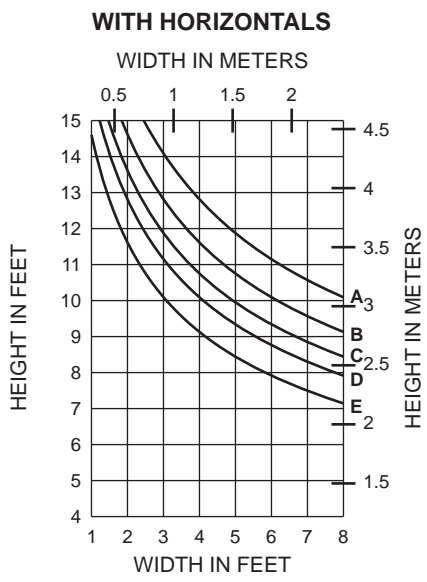
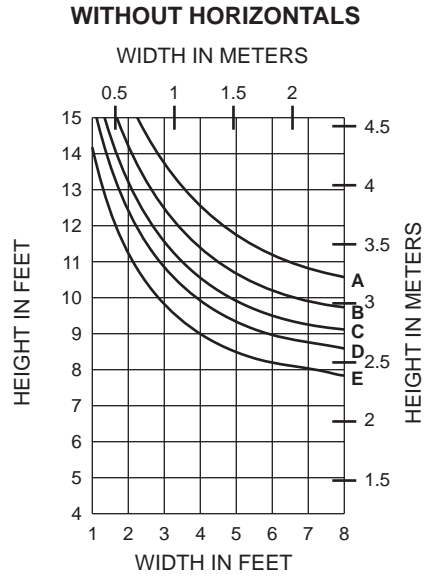


	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



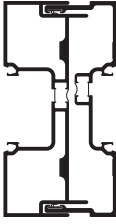
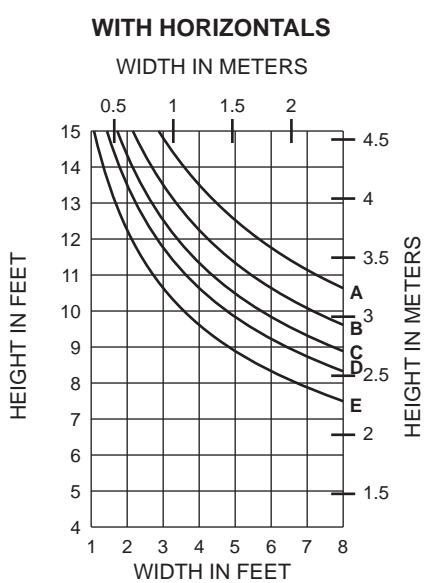
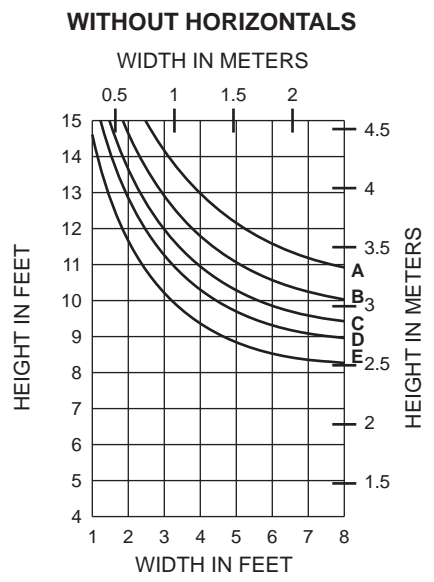
451TCG001A

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



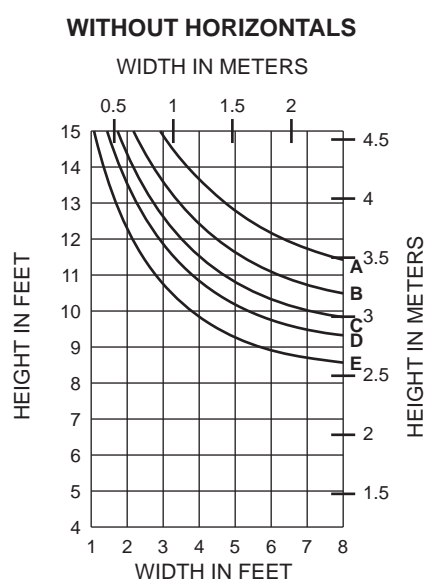
**451TCG540
451TCG010**

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

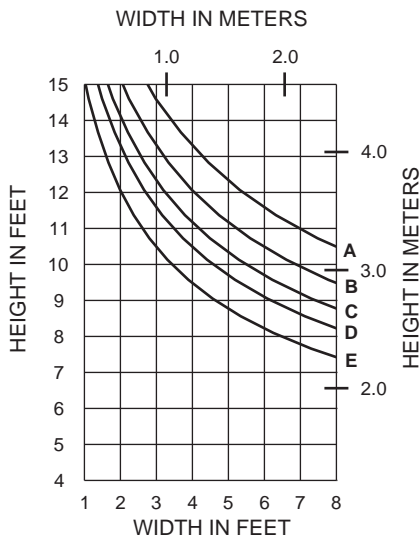


**451TCG540
451TCG010A**

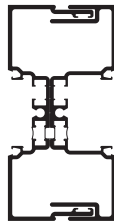
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505



WITH HORIZONTALS



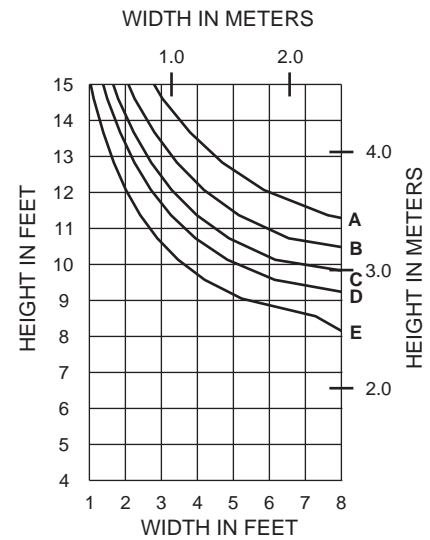
	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



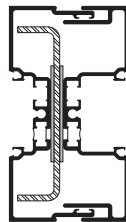
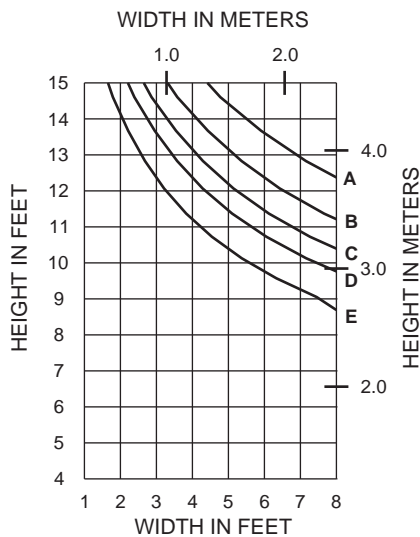
451TCG081 / 451TCG082

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

WITHOUT HORIZONTALS



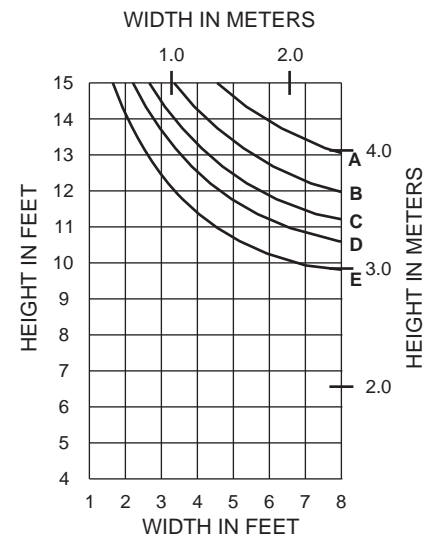
WITH HORIZONTALS



**451TCG081 / 451TCG082
with 400110 STEEL**

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

WITHOUT HORIZONTALS

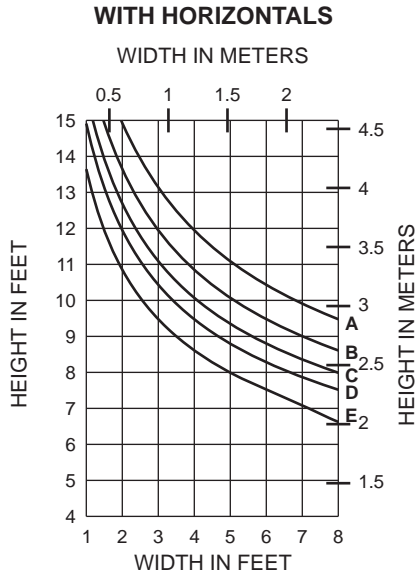


Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

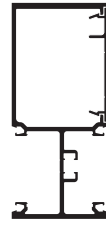
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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.
© 2018, Kawneer Company, Inc.

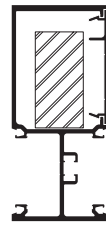
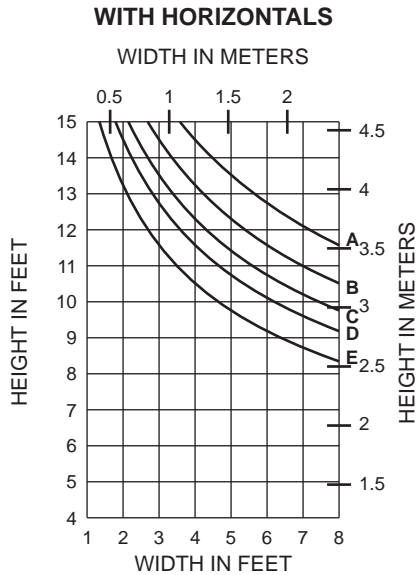
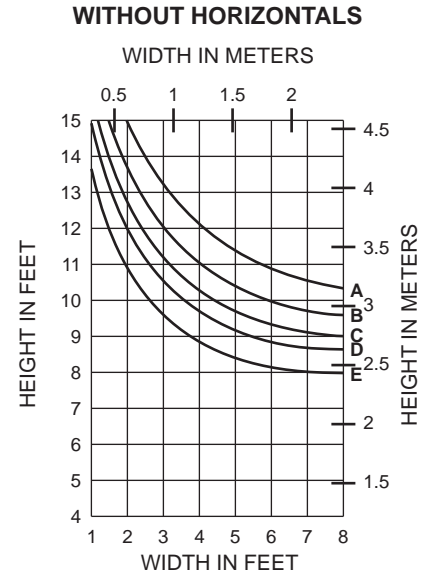


	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



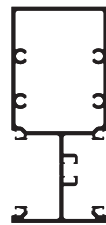
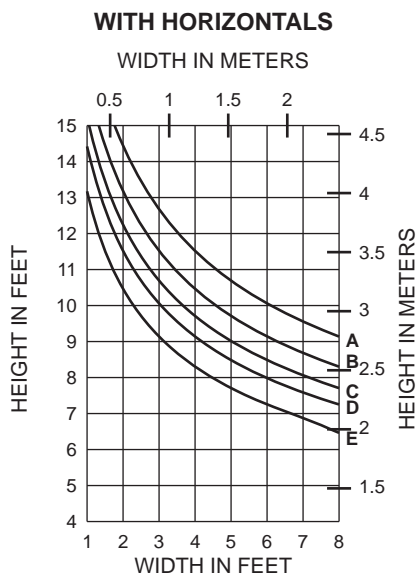
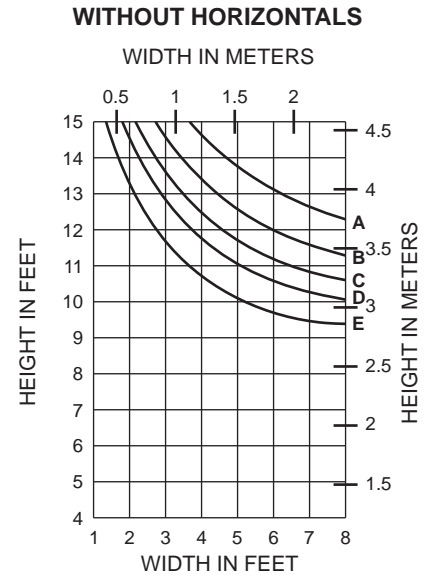
451VG012
451VG026

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



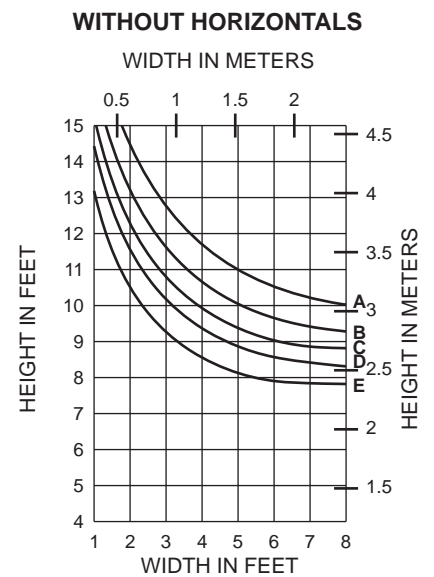
451VG012
451VG026
with 1" x 2-1/4" STEEL BAR

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

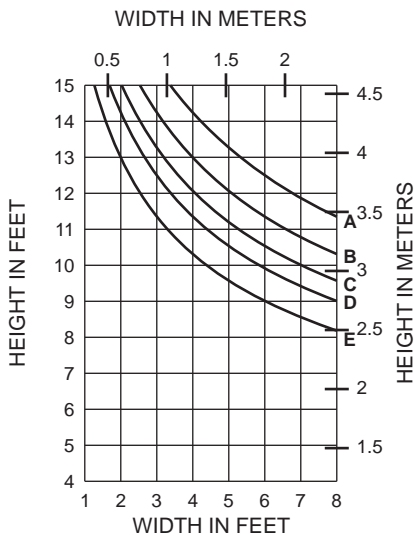


451VG005

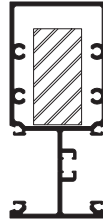
$I = 3.001 (124.91 \times 10^4)$
 $S = 1.323 (21.68 \times 10^3)$



WITH HORIZONTALS



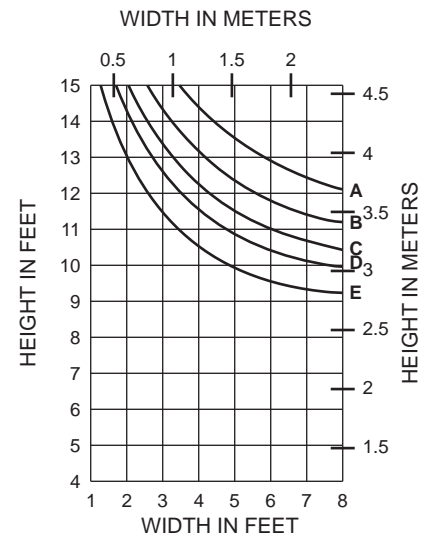
	Allowable Stress Design Load	LFRD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



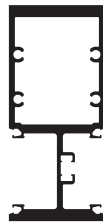
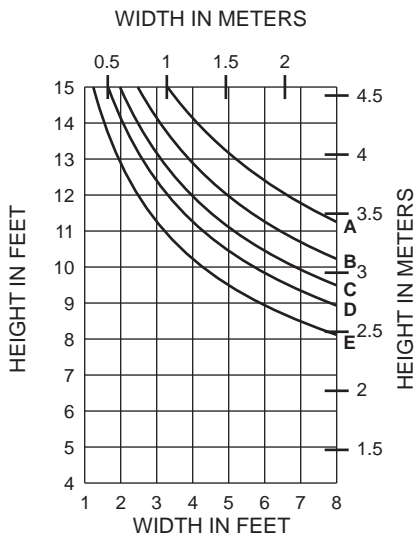
451VG005
with 1" x 2-1/4" STEEL BAR

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

WITHOUT HORIZONTALS



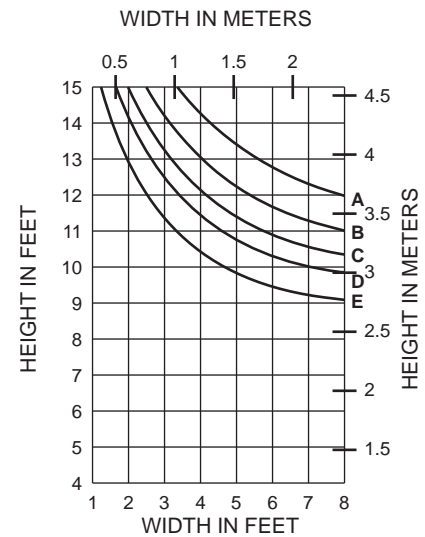
WITH HORIZONTALS



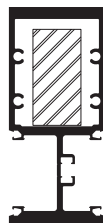
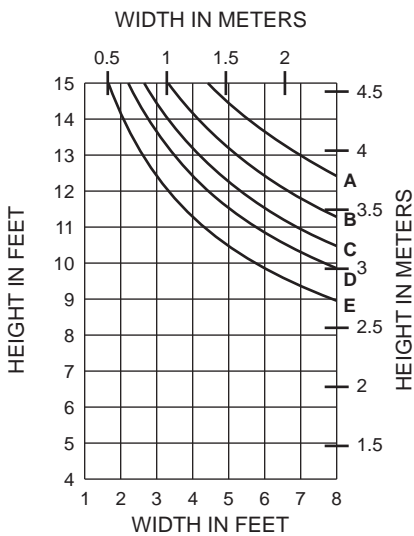
451VG014

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

WITHOUT HORIZONTALS



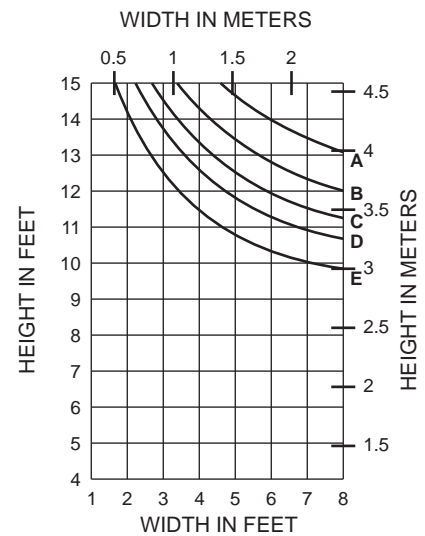
WITH HORIZONTALS



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



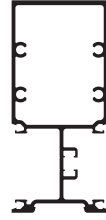
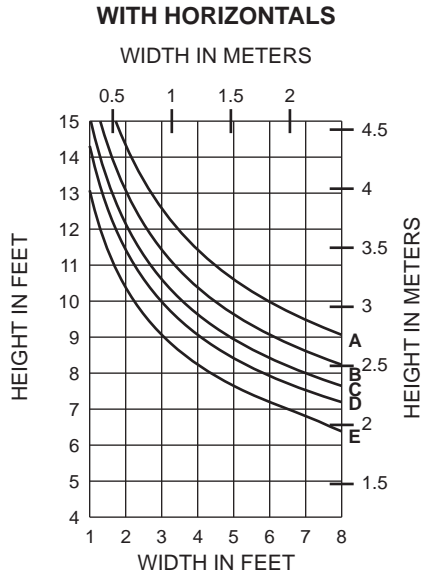
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
 © 2018, Kawneer Company, Inc.

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.

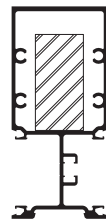
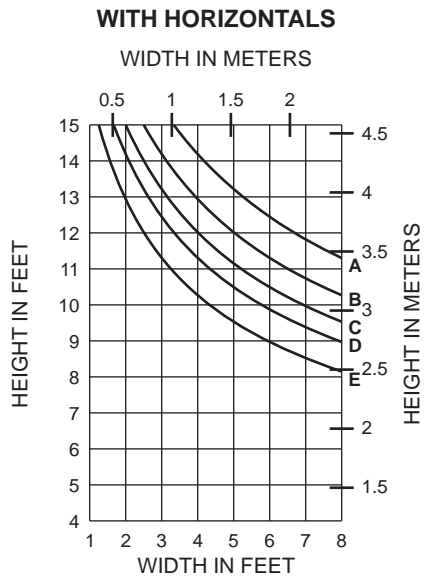
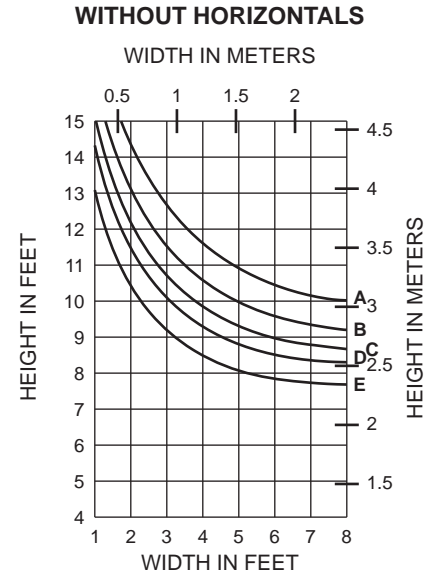
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

	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)



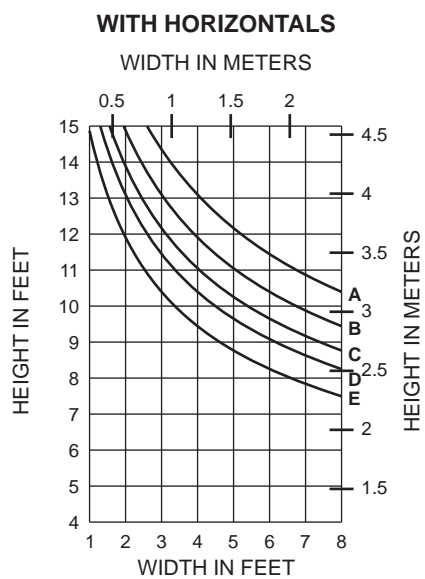
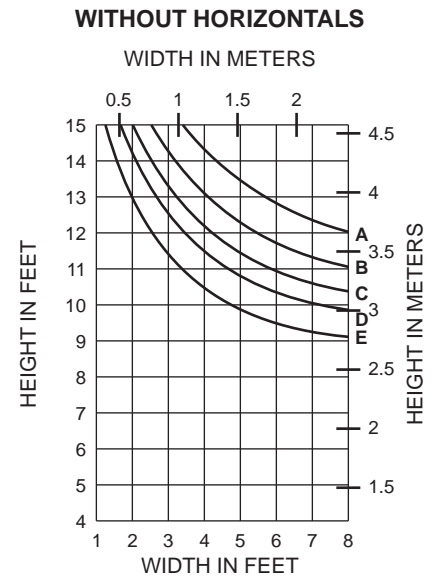
451VG134

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



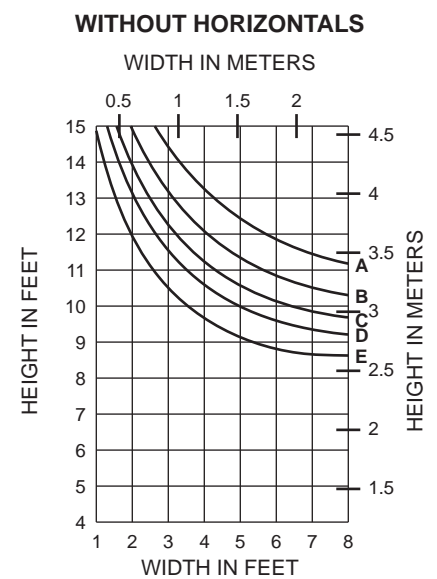
451VG134
with 1" x 2-1/4" STEEL BAR

$I_x = 2.930 (121.96 \times 10^4)$
 $S_A = 1.290 (21.13 \times 10^3)$
 $I_y = 0.949 (39.50 \times 10^4)$
 $S_S = 0.844 (13.83 \times 10^3)$

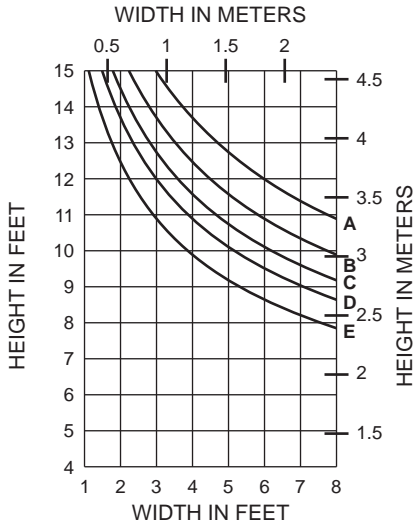


451VG010
451VG540

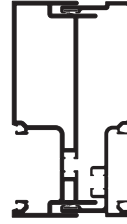
$I = 4.418 (183.89 \times 10^4)$
 $S = 1.798 (29.46 \times 10^3)$



WITH HORIZONTALS



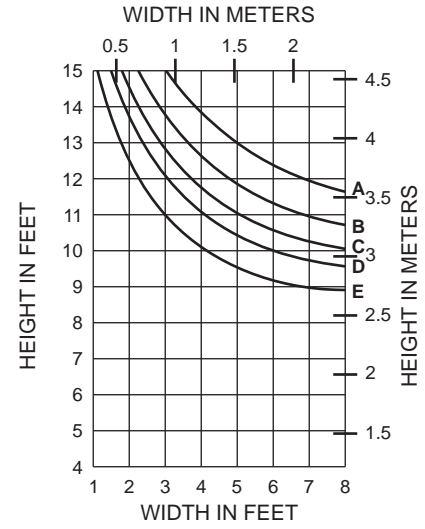
	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



451VG010A
451VG009

I = 5.076 (211.27 x 10⁴)
S = 2.066 (33.86 x 10³)

WITHOUT HORIZONTALS



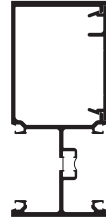
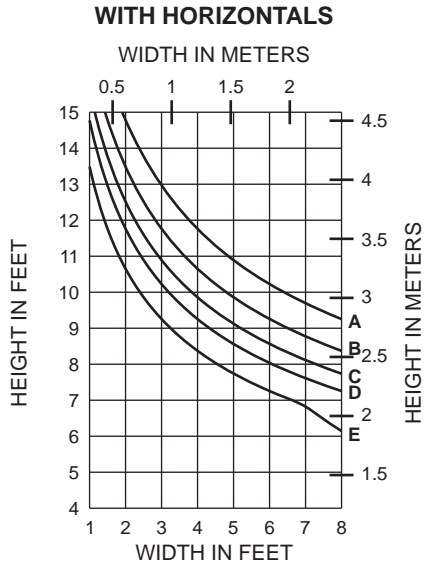
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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.

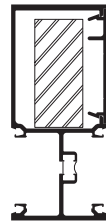
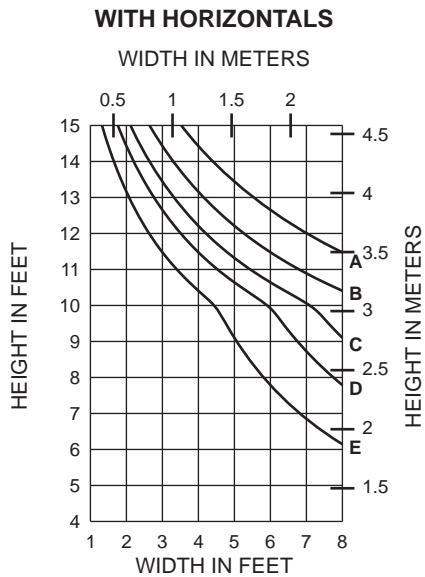
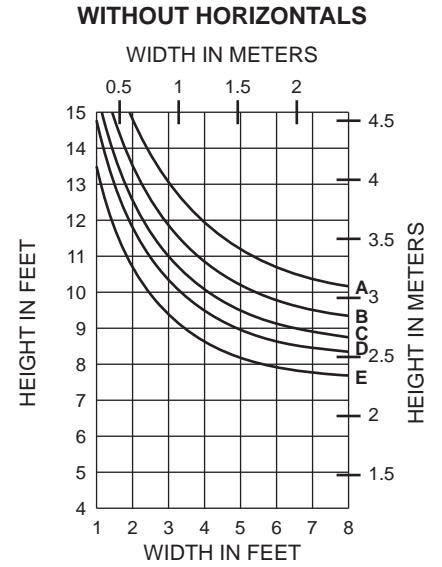
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

	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)



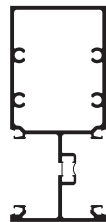
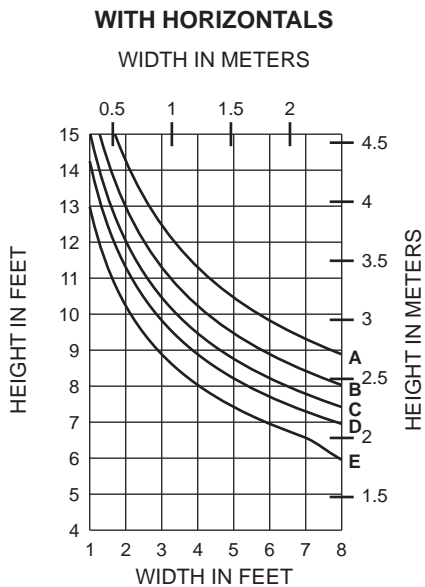
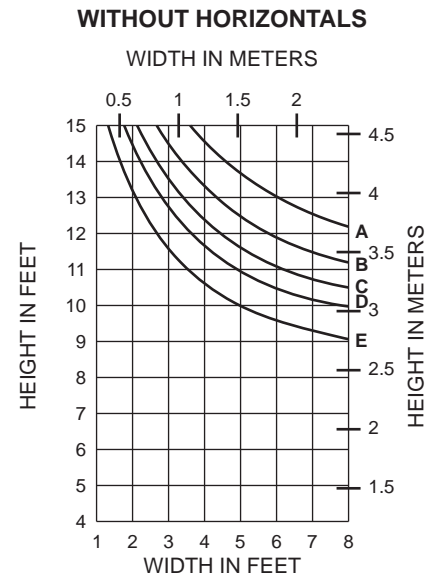
451TVG012
451VG026

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



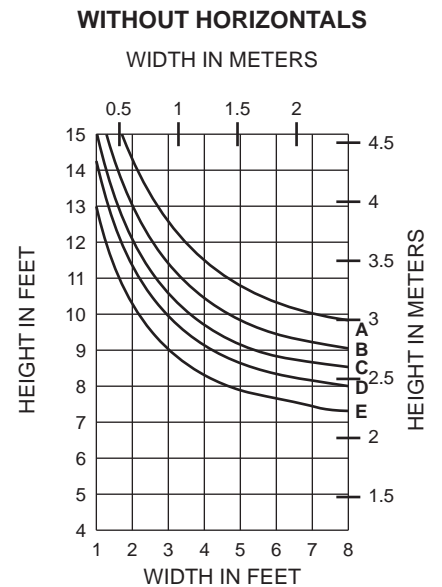
451TVG012
451VG026
with 1" x 2-1/4" STEEL BAR

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

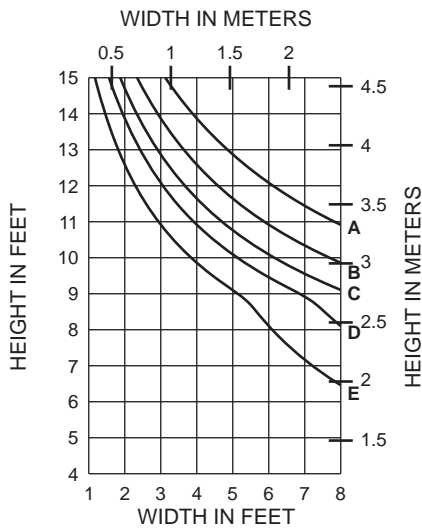


451TVG005

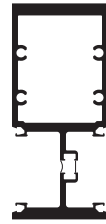
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505



WITH HORIZONTALS



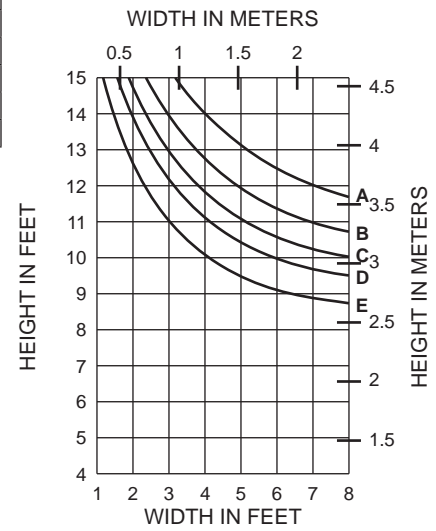
	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



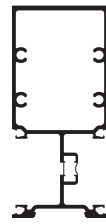
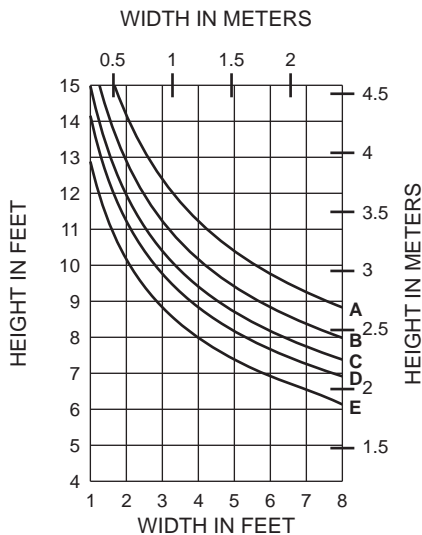
451TVG014

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

WITHOUT HORIZONTALS



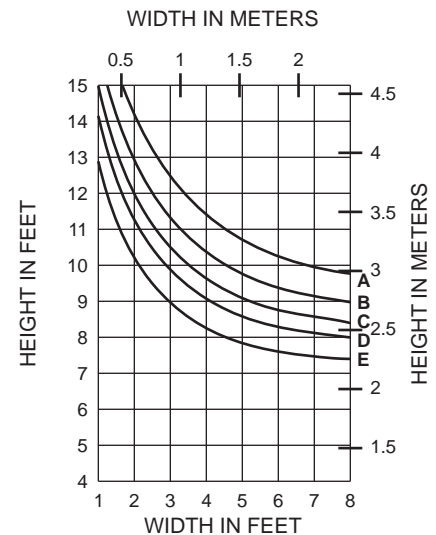
WITH HORIZONTALS



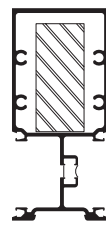
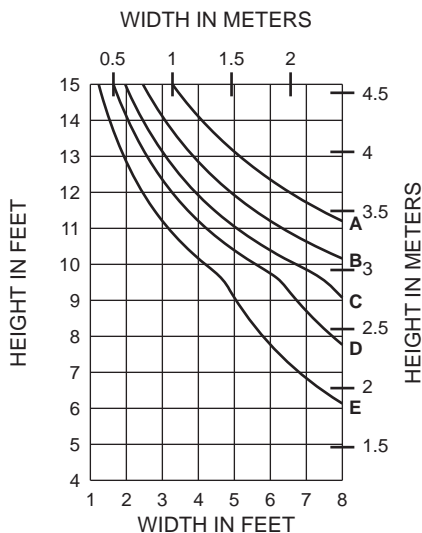
451TVG134

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

WITHOUT HORIZONTALS



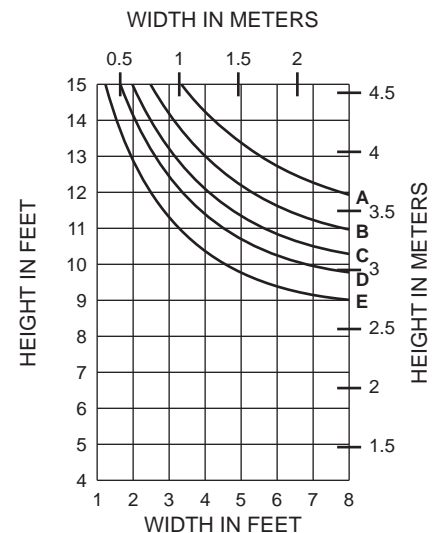
WITH HORIZONTALS



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

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

WITHOUT HORIZONTALS

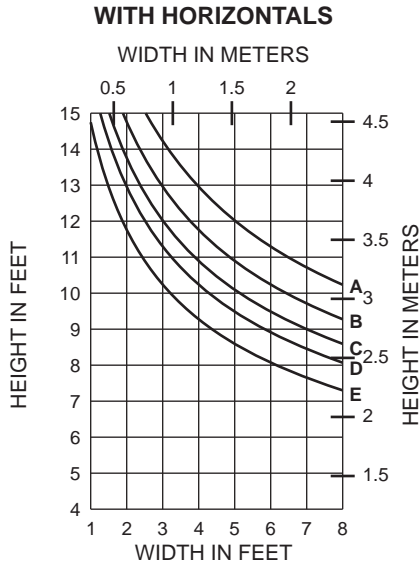


Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

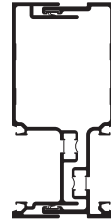
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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.
© 2018, Kawneer Company, Inc.

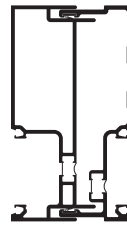
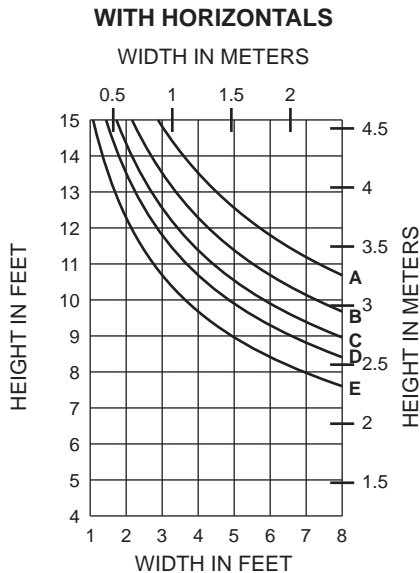
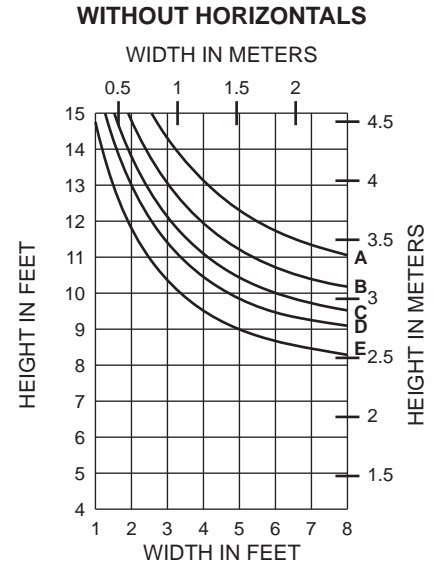


	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



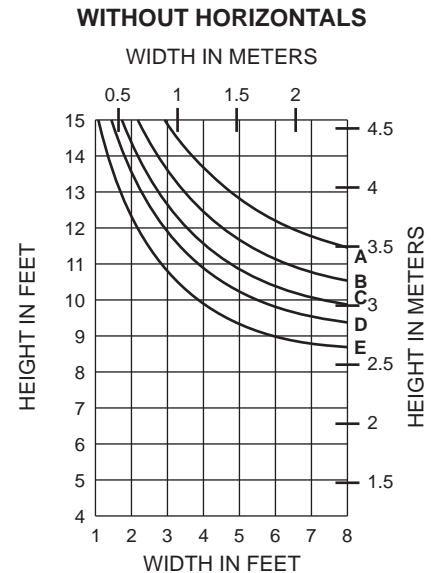
451TVG540
451TVG010

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

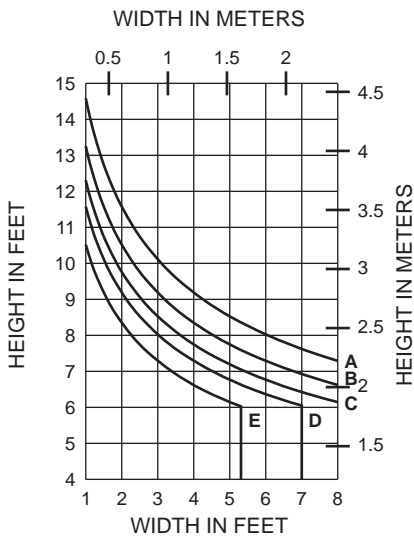


451TVG540
451TVG010A

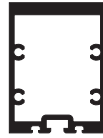
WIND LOAD CHARTS ARE BASED ON COMPOSITE PROPERTIES WHICH ARE CALCULATED IN ACCORDANCE WITH AAMA TIR-A8 AND AAMA 505



WITH HORIZONTALS



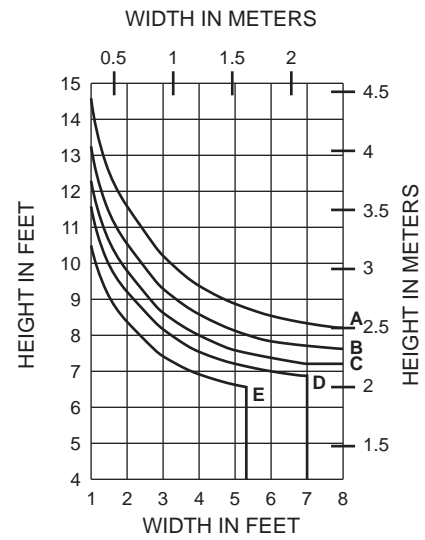
	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



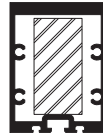
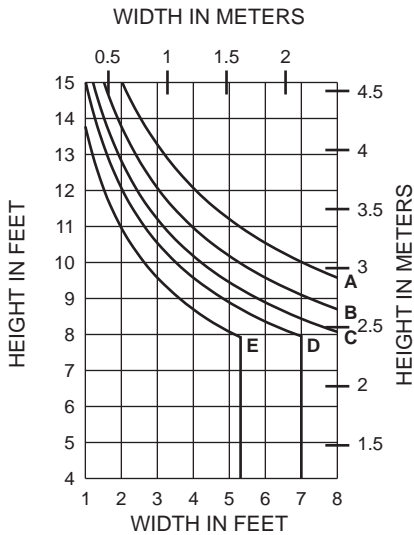
451SSG005

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

WITHOUT HORIZONTALS



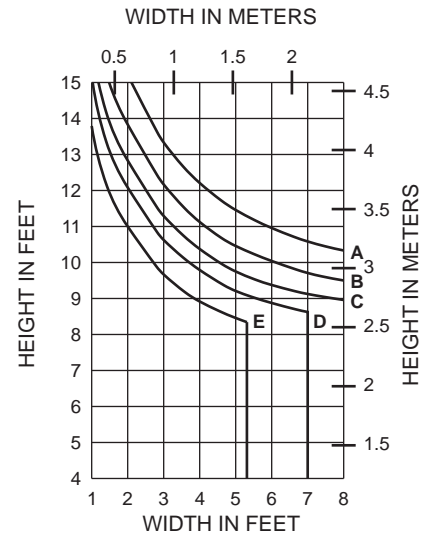
WITH HORIZONTALS



451SSG005
with 1" x 2" STEEL BAR

$I_A = 1.527 (63.55 \times 10^4)$
 $S_A = 1.057 (17.32 \times 10^3)$
 $I_S = 0.667 (27.76 \times 10^4)$
 $S_S = 0.667 (10.93 \times 10^3)$

WITHOUT HORIZONTALS

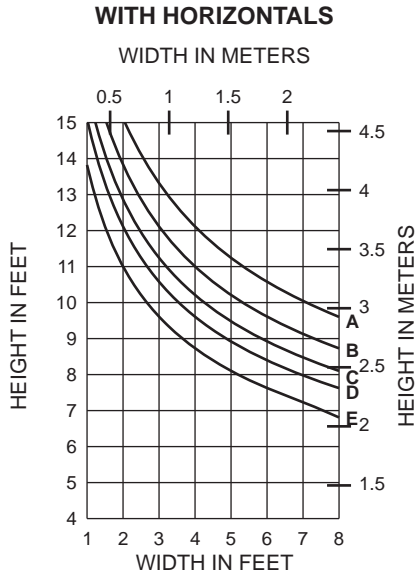


Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

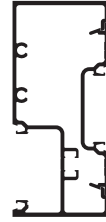
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
 © 2018, Kawneer Company, Inc.

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.
© 2018, Kawneer Company, Inc.

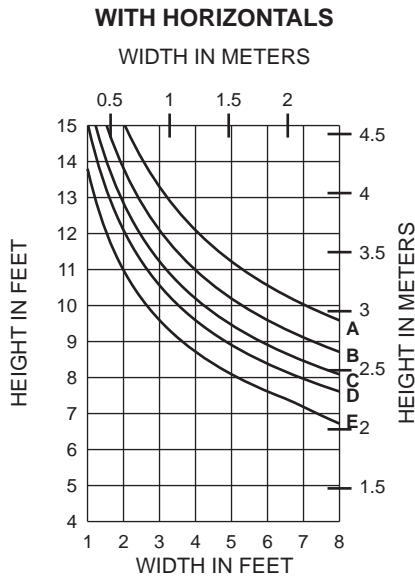
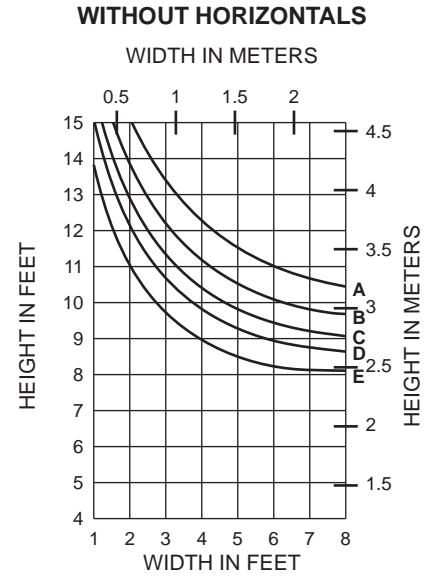


	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



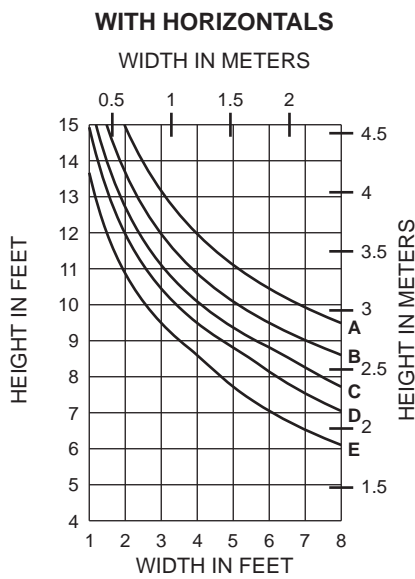
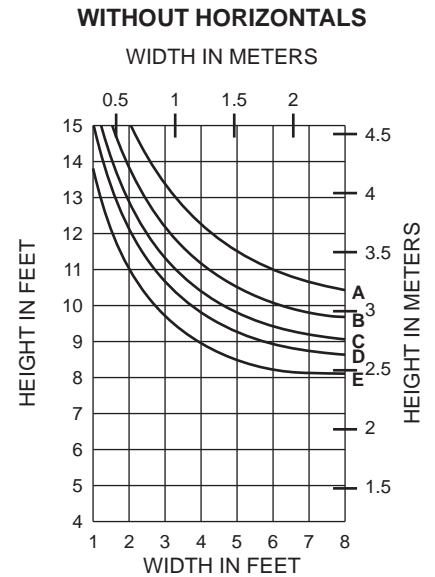
451VG001
451CG002

I = 3.485 (145.05 x 10⁴)
S = 1.468 (24.06 x 10³)



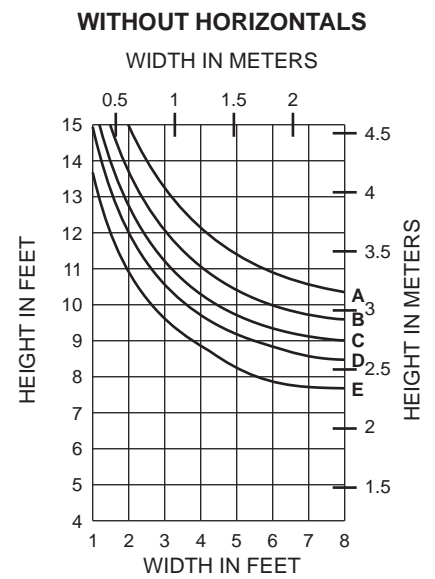
451VG052
451CG028

I = 3.470 (144.43 x 10⁴)
S = 1.431 (23.45 x 10³)

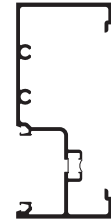
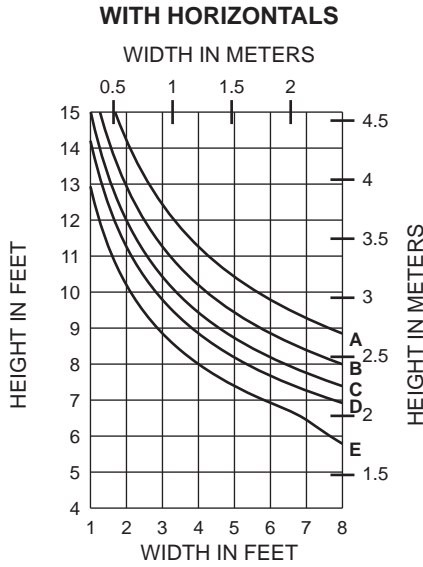


451VG069
451VG069

I = 3.362 (139.94 x 10⁴)
S = 1.181 (19.35 x 10³)

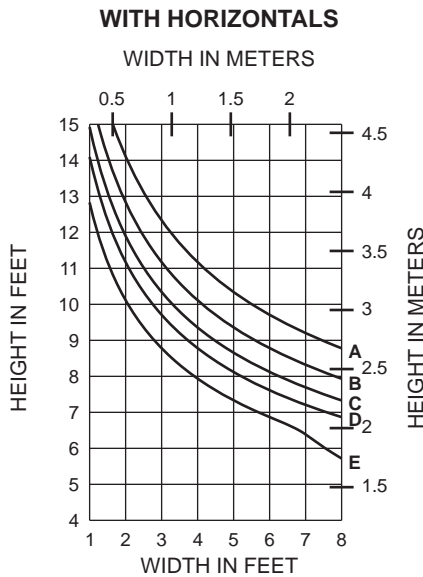
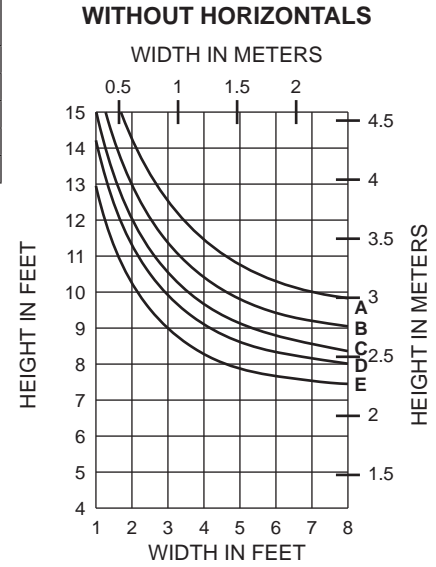


	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



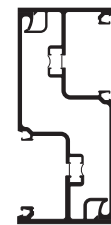
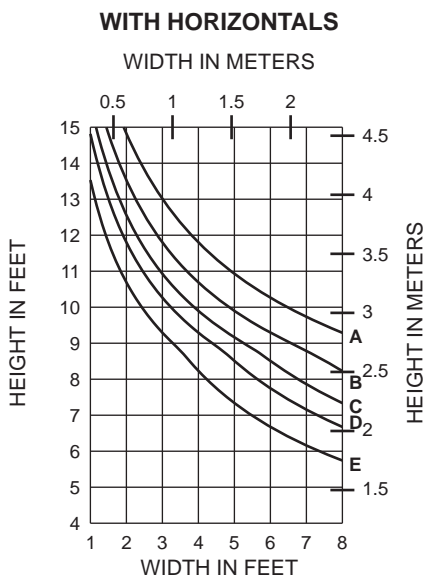
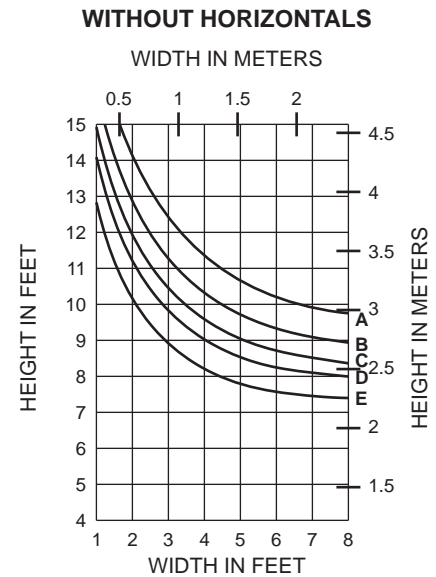
451TVG001

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



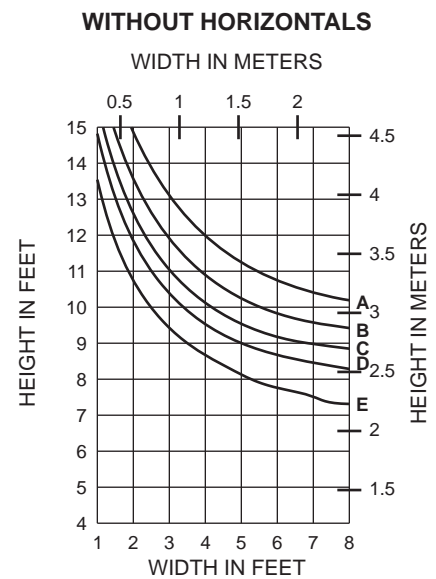
451TVG052

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



451TVG069
451TVG069

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

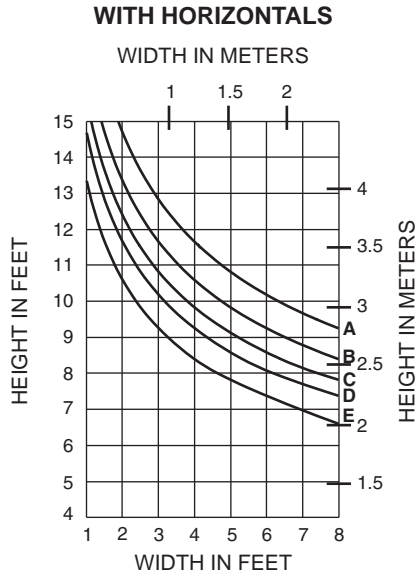


Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

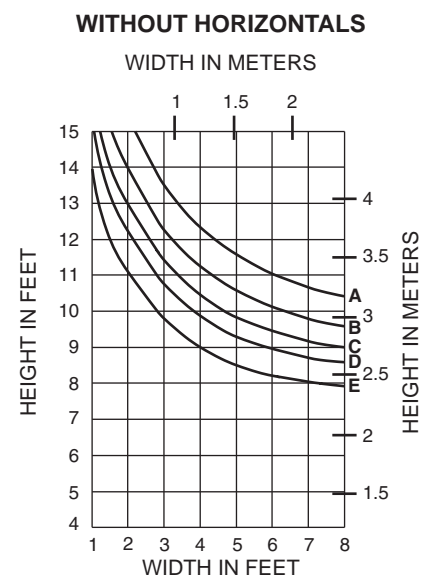
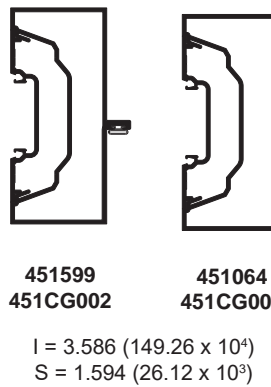
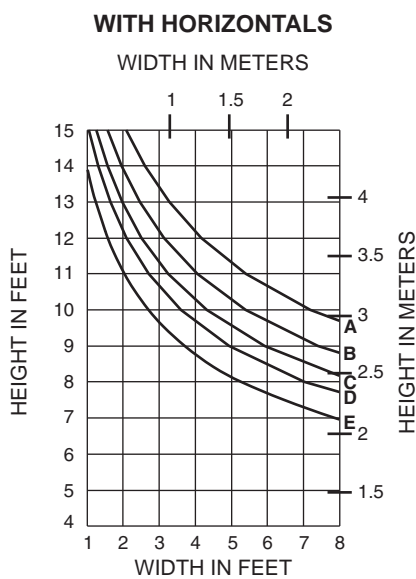
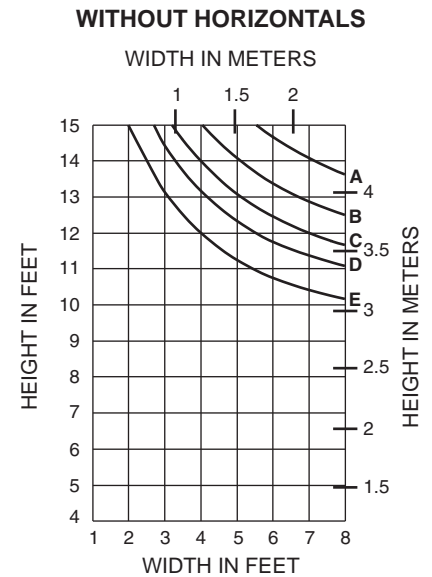
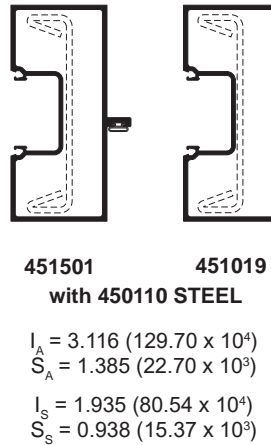
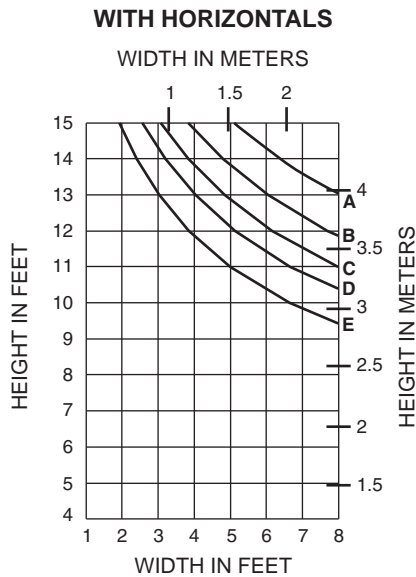
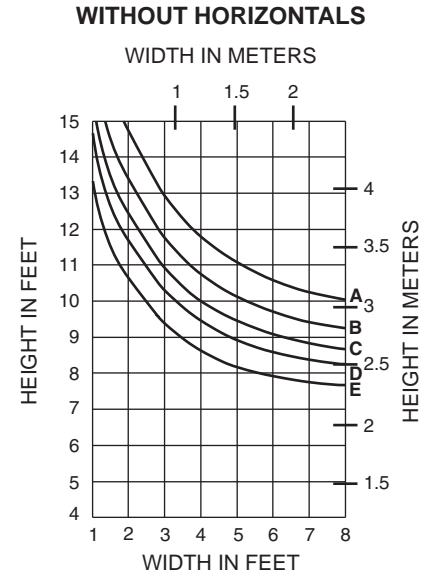
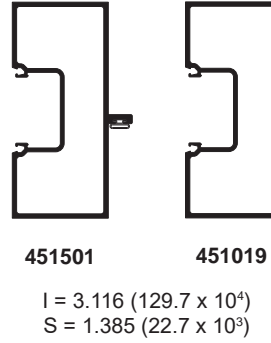
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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.

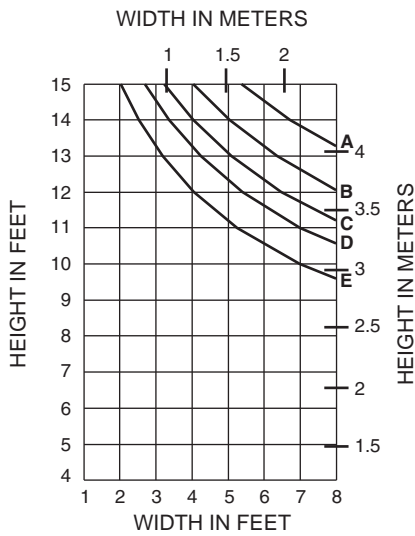
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.



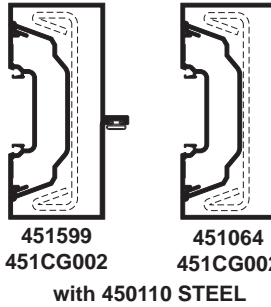
	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)



WITH HORIZONTALS

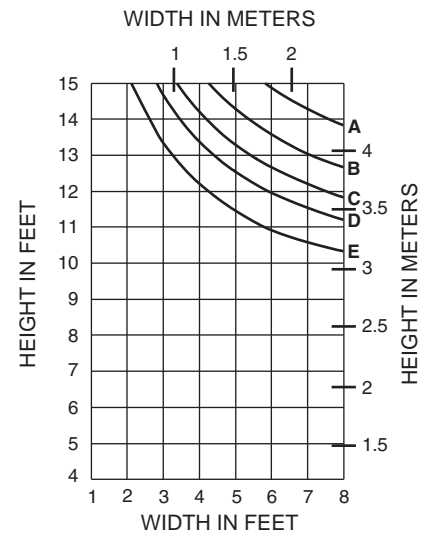


	Allowable Stress Design Load	LFRD Ultimate Design Load
A =	15 PSF (720)	25 PSF (1200)
B =	20 PSF (960)	33 PSF (1580)
C =	25 PSF (1200)	42 PSF (2000)
D =	30 PSF (1440)	50 PSF (2400)
E =	40 PSF (1920)	67 PSF (3200)

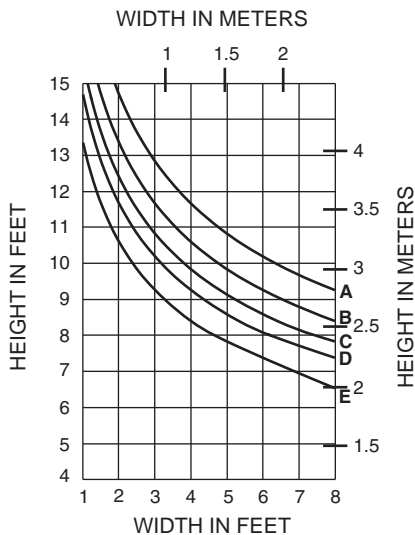


with 450110 STEEL
 $I = 3.565 (148.39 \times 10^4)$
 $S = 1.622 (26.58 \times 10^3)$
 $I_s = 1.935 (80.54 \times 10^4)$
 $S_s = 0.938 (15.37 \times 10^3)$

WITHOUT HORIZONTALS

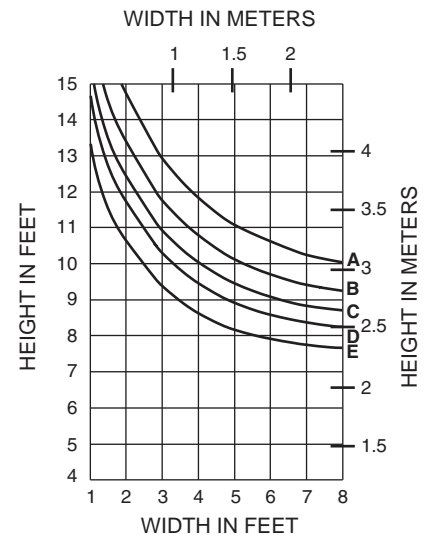


WITH HORIZONTALS

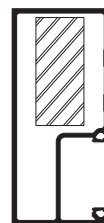
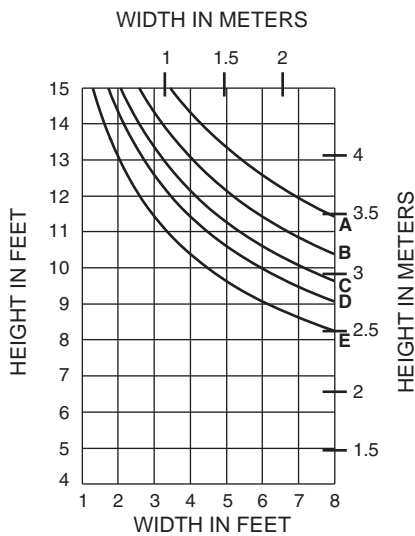


451VG019
 $I = 3.124 (130.03 \times 10^4)$
 $S = 1.333 (21.84 \times 10^3)$

WITHOUT HORIZONTALS

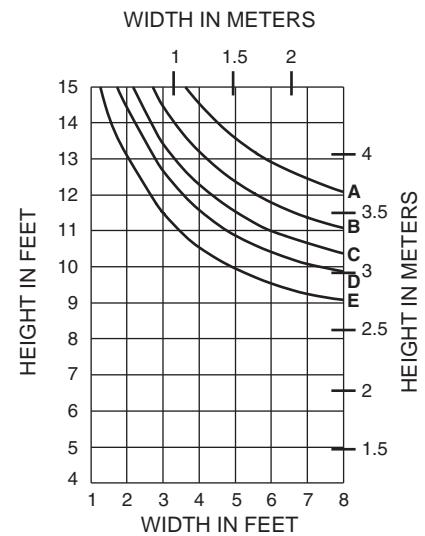


WITH HORIZONTALS



451VG019
with 1" x 2-1/4" STEEL BAR
 $I_A = 3.124 (130.03 \times 10^4)$
 $S_A = 1.333 (21.84 \times 10^3)$
 $I_s = 0.949 (39.50 \times 10^4)$
 $S_s = 0.844 (13.83 \times 10^3)$

WITHOUT HORIZONTALS



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.
 © 2018, Kawneer Company, Inc.

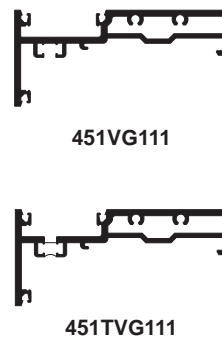
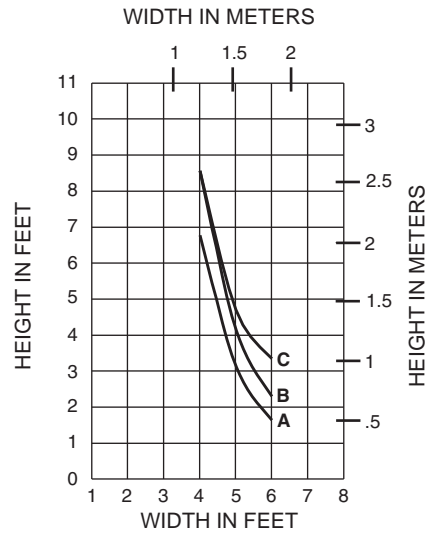
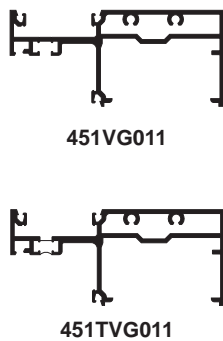
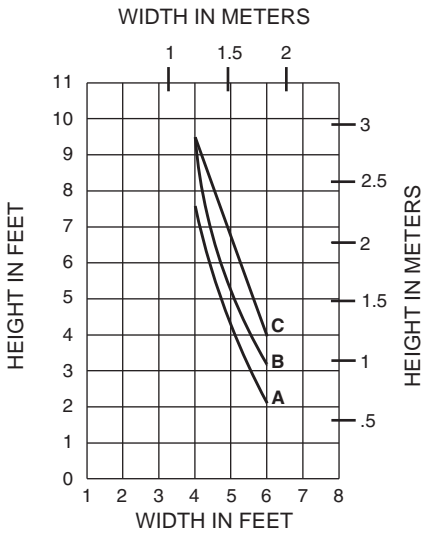
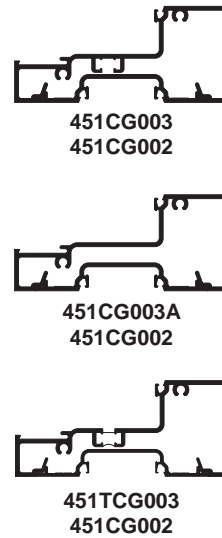
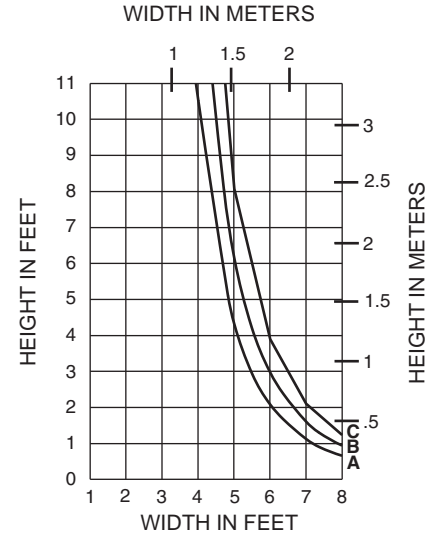
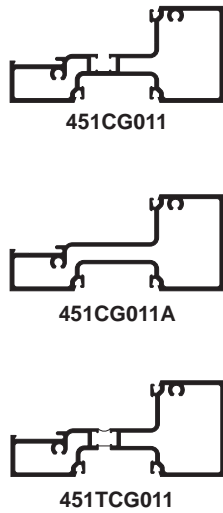
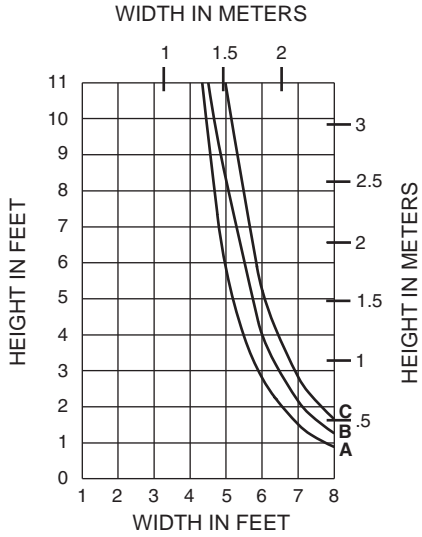
Horizontal or deadload limitations are based upon 1/8" (3.2) maximum allowable deflection at the center of an intermediate horizontal member. The accompanying charts are calculated for 1" (25.4) thick insulating glass supported on two setting blocks at the loading points shown.

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

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

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.

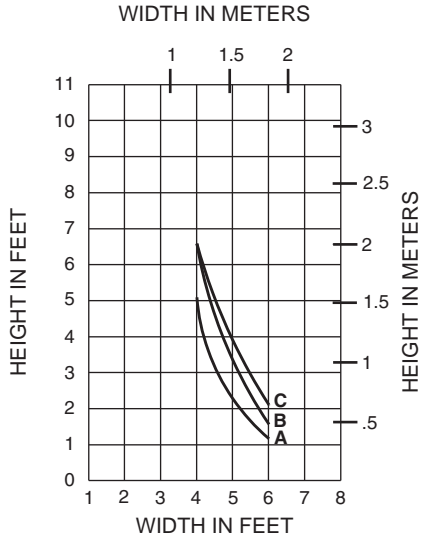
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.



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

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

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



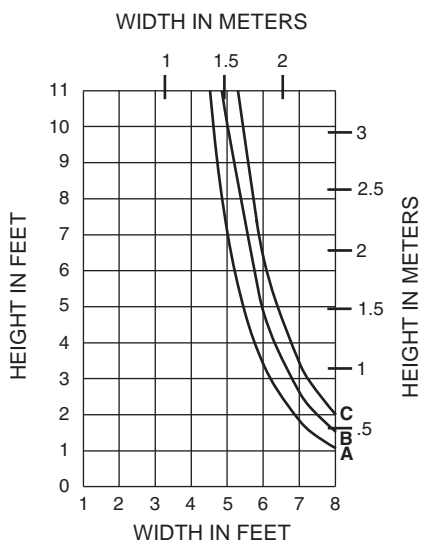
451SSG111



451TSSG111

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

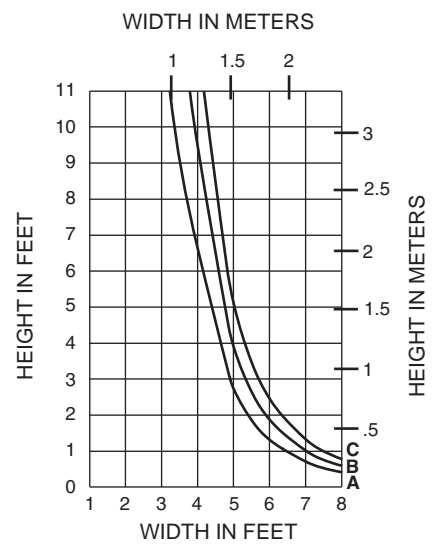
- A = (1/4 POINT LOADING)
- B = (1/6 POINT LOADING)
- C = (1/8 POINT LOADING)



451502
SINGLE ACTING
T-BAR



451081
DOUBLE ACTING
T-BAR

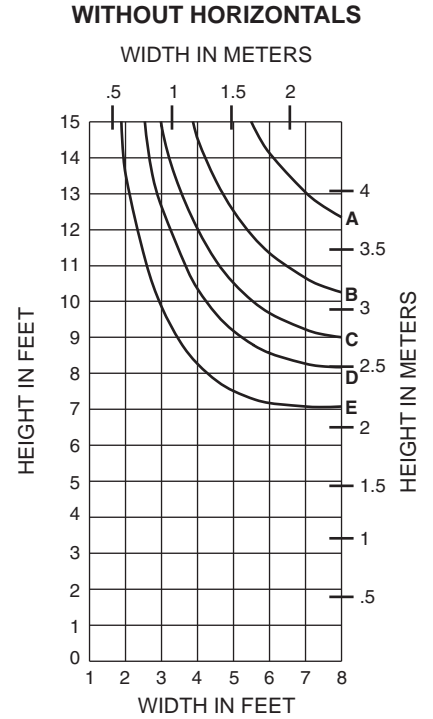
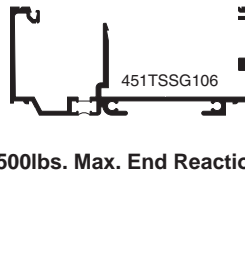
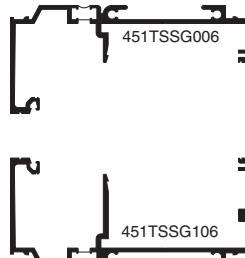
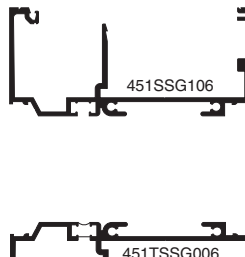
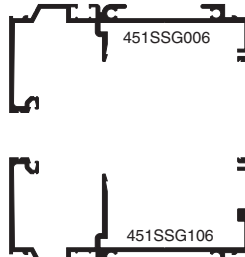
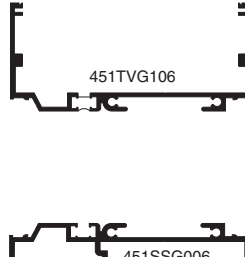
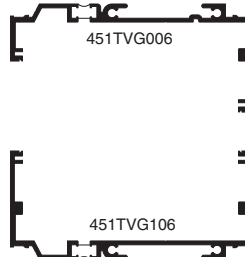
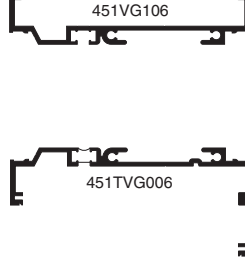
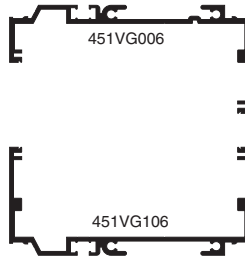
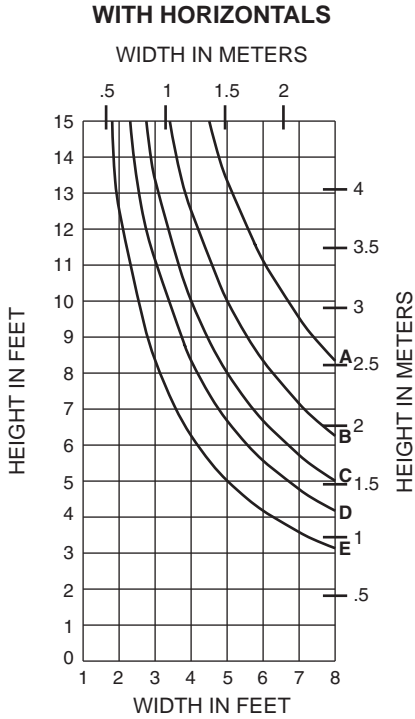


Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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)

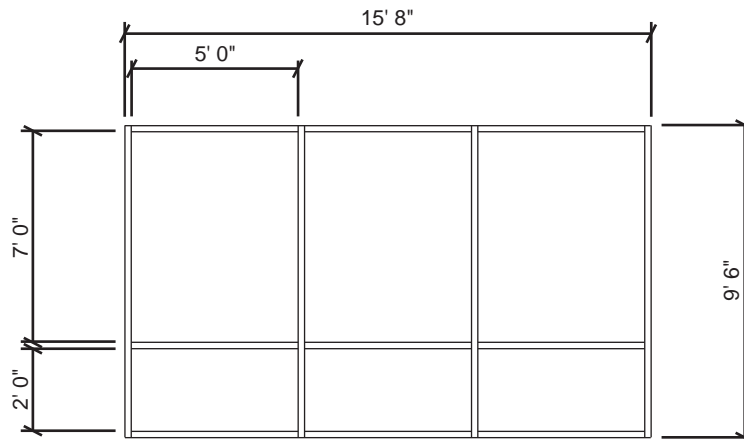


500lbs. Max. End Reaction

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.
© 2018, Kawneer Company, Inc.

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



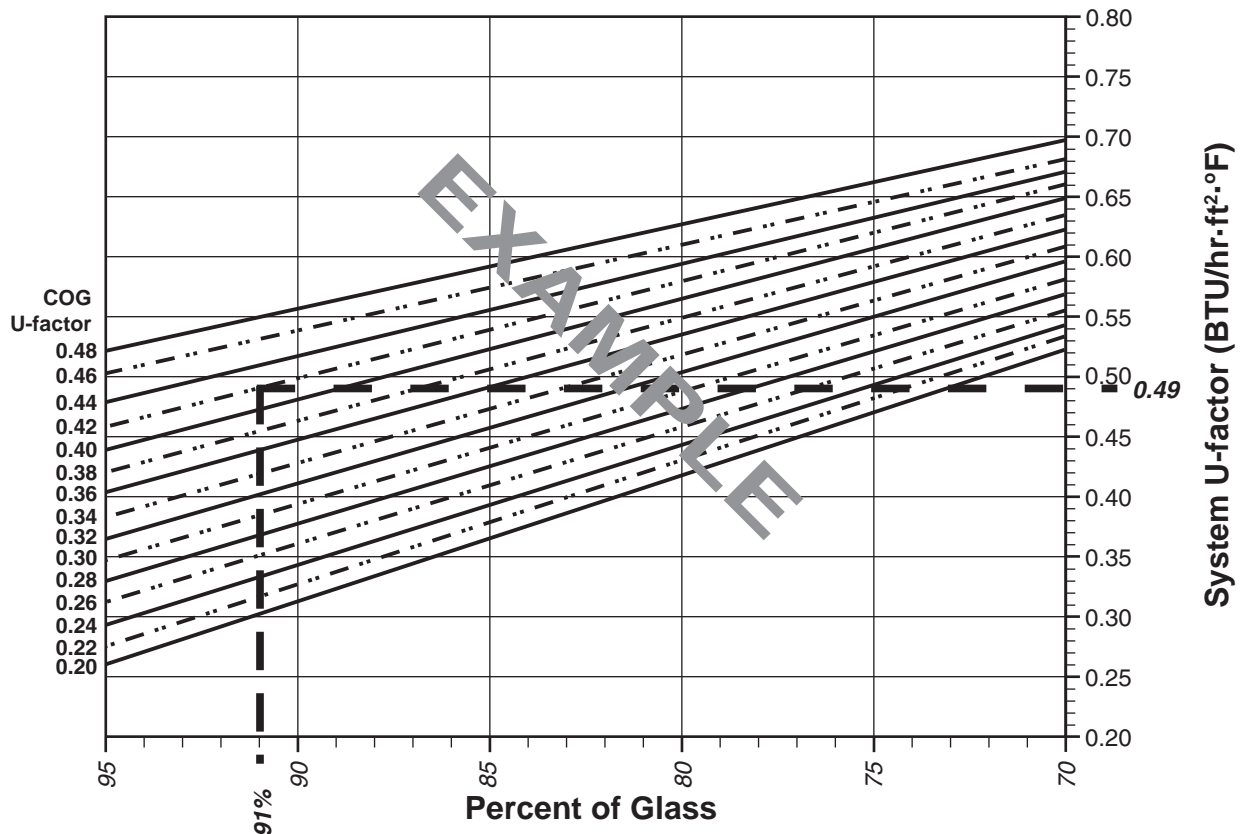
Example Glass U-factor = 0.42 Btu/hr·ft²·°F

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

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

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

System U-factor vs Percent of Glass Area



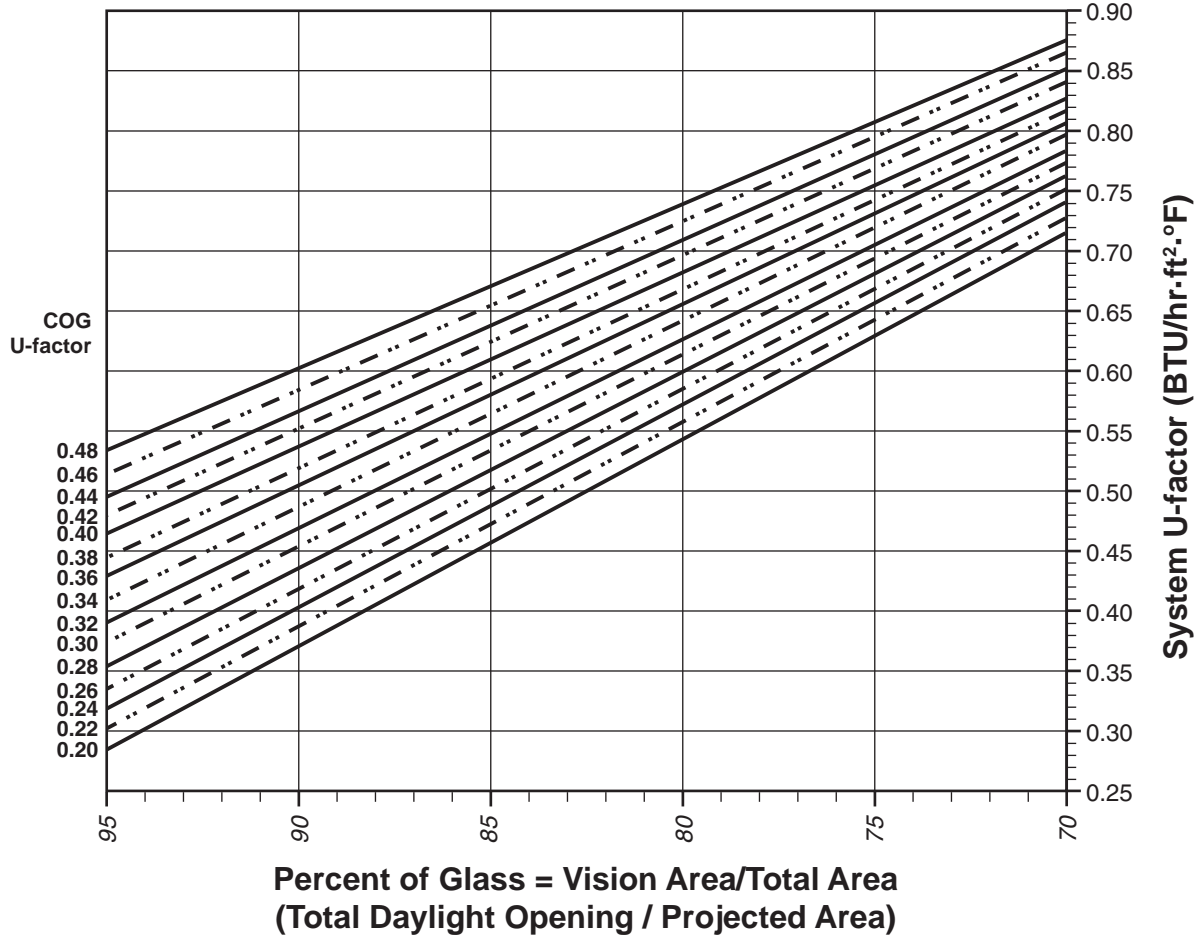
Based on 91% glass and center of glass (COG) U-factor of 0.42
System U-factor is equal to 0.49 Btu/hr x ft² x °F

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.
 © 2018, Kawneer Company, Inc.

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

System U-factor vs Percent of Glass Area



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

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

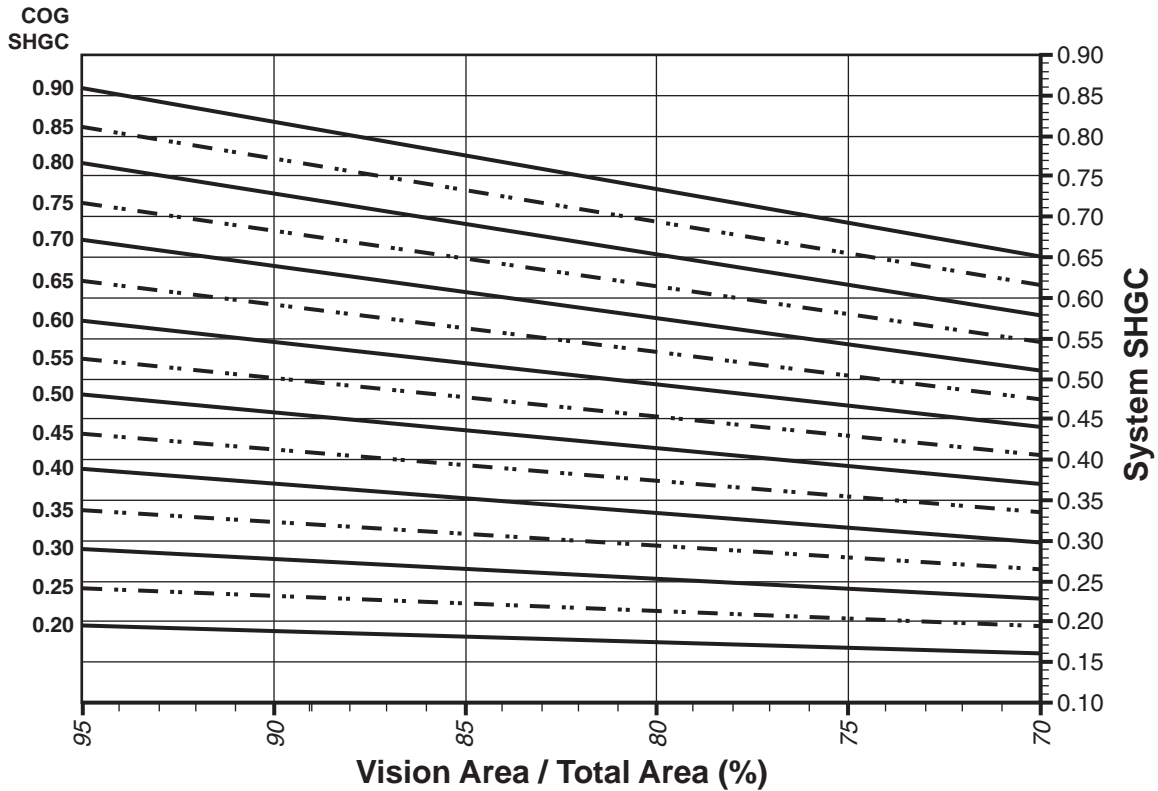
Glass properties are based on center of glass values and are obtained from your glass supplier.

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.

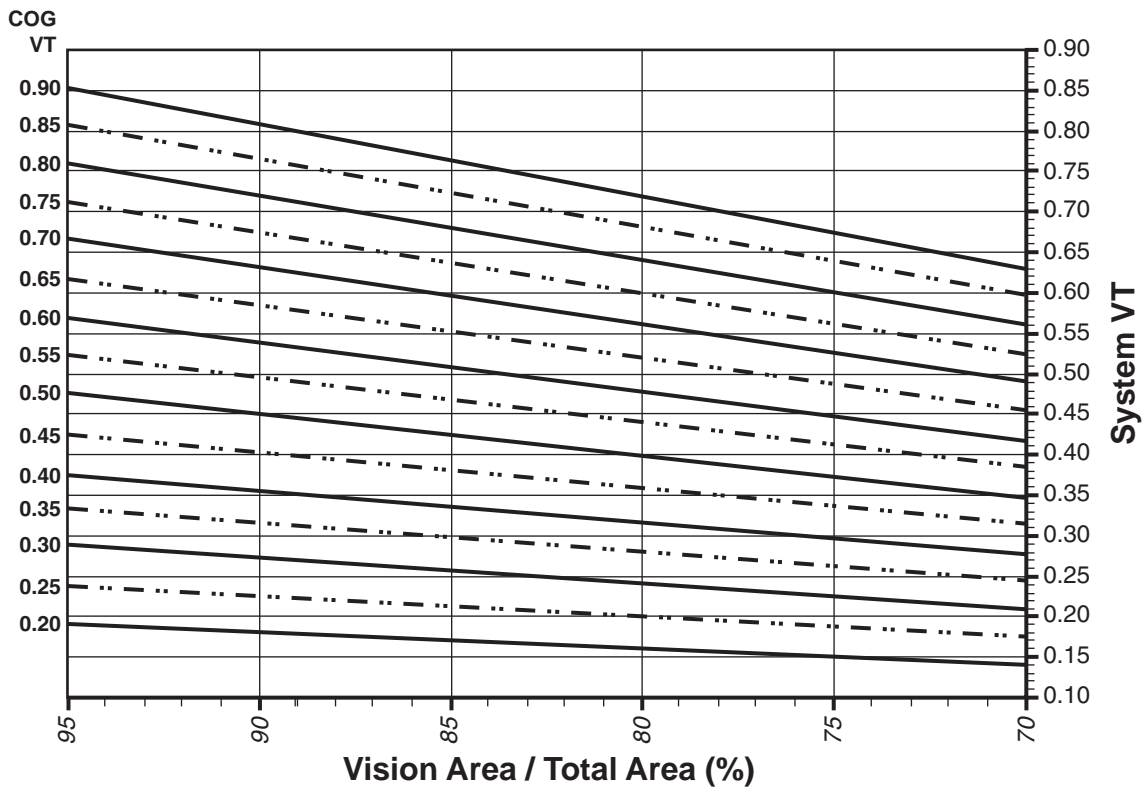
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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



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.
© 2018, Kawneer Company, Inc.

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

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

**Trifab® VersaGlaze® 451
(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.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 2,000 mm wide by 2,000 mm high (78-3/4" by 78-3/4").

SHGC Matrix ²

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

Visible Transmittance ²

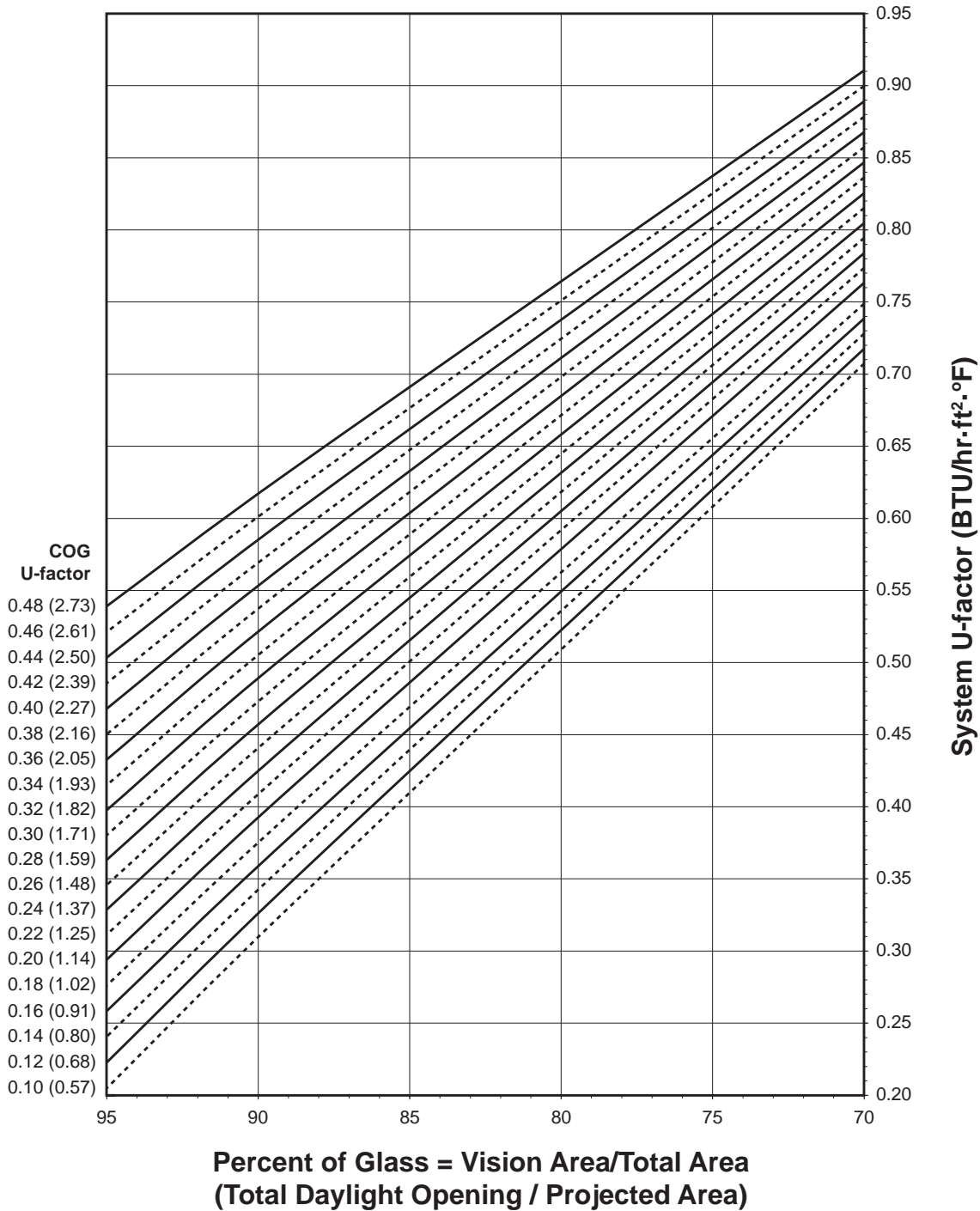
Glass VT ³	Overall VT ⁴
0.90	0.79
0.85	0.75
0.80	0.71
0.75	0.66
0.70	0.62
0.65	0.57
0.60	0.53
0.55	0.49
0.50	0.44
0.45	0.40
0.40	0.35
0.35	0.31
0.30	0.26
0.25	0.22
0.20	0.18

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.
© 2018, Kawneer Company, Inc.

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

System U-factor vs Percent of Glass Area



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

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

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

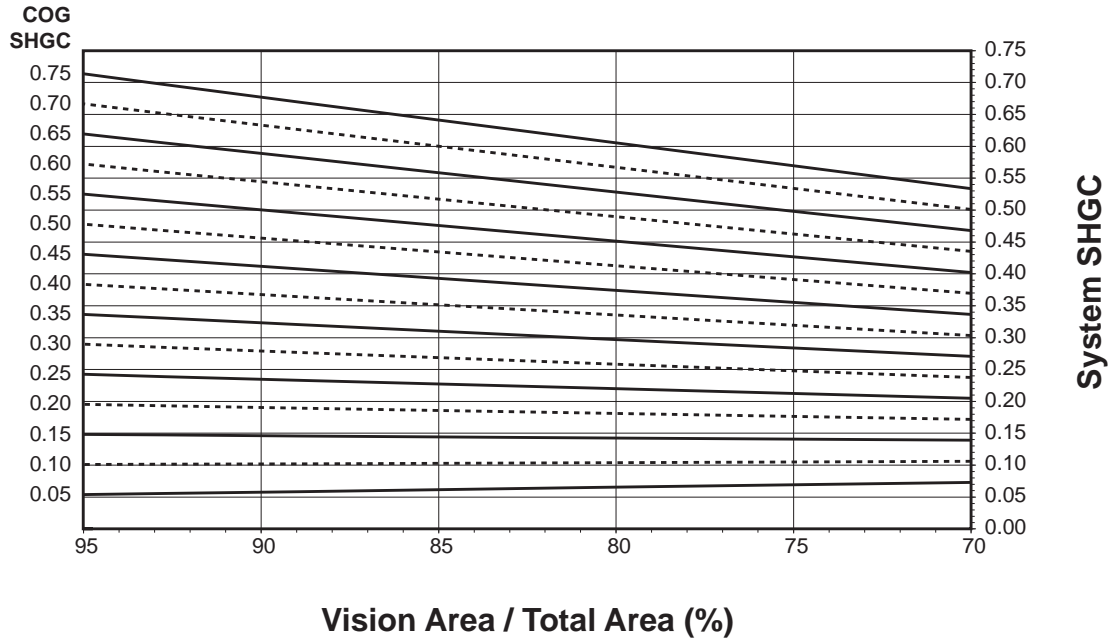
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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

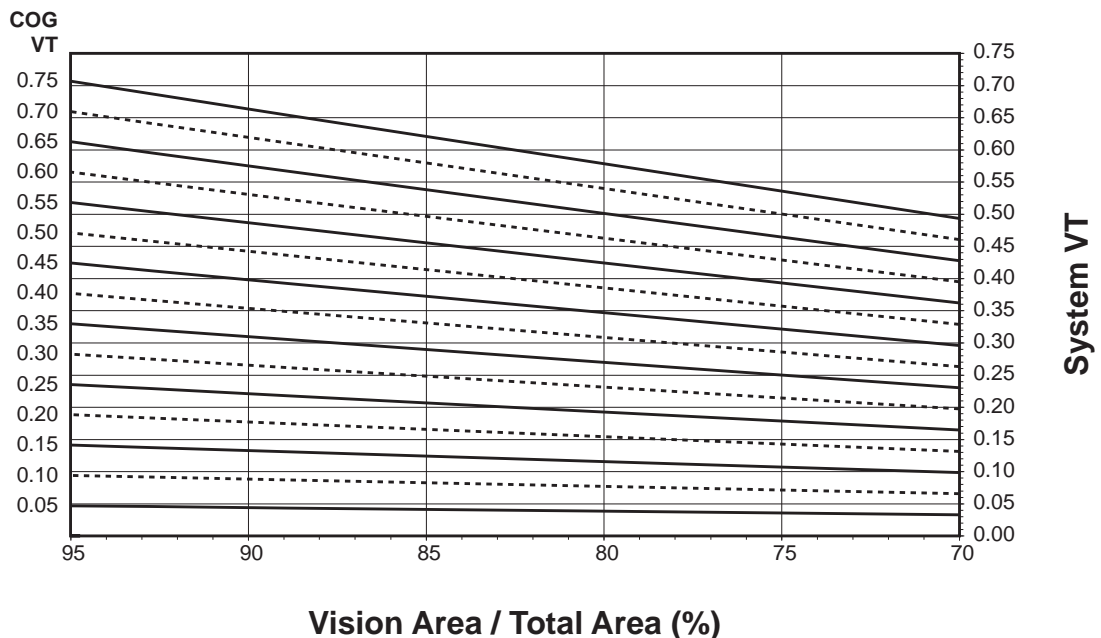
© 2018, Kawneer Company, Inc.

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

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



System Visible Transmittance (VT) vs Percent of Vision Area



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.
© 2018, Kawneer Company, Inc.

Thermal Transmittance ¹ (BTU/hr • ft² • °F)

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

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

SHGC Matrix ²

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

Visible Transmittance ²

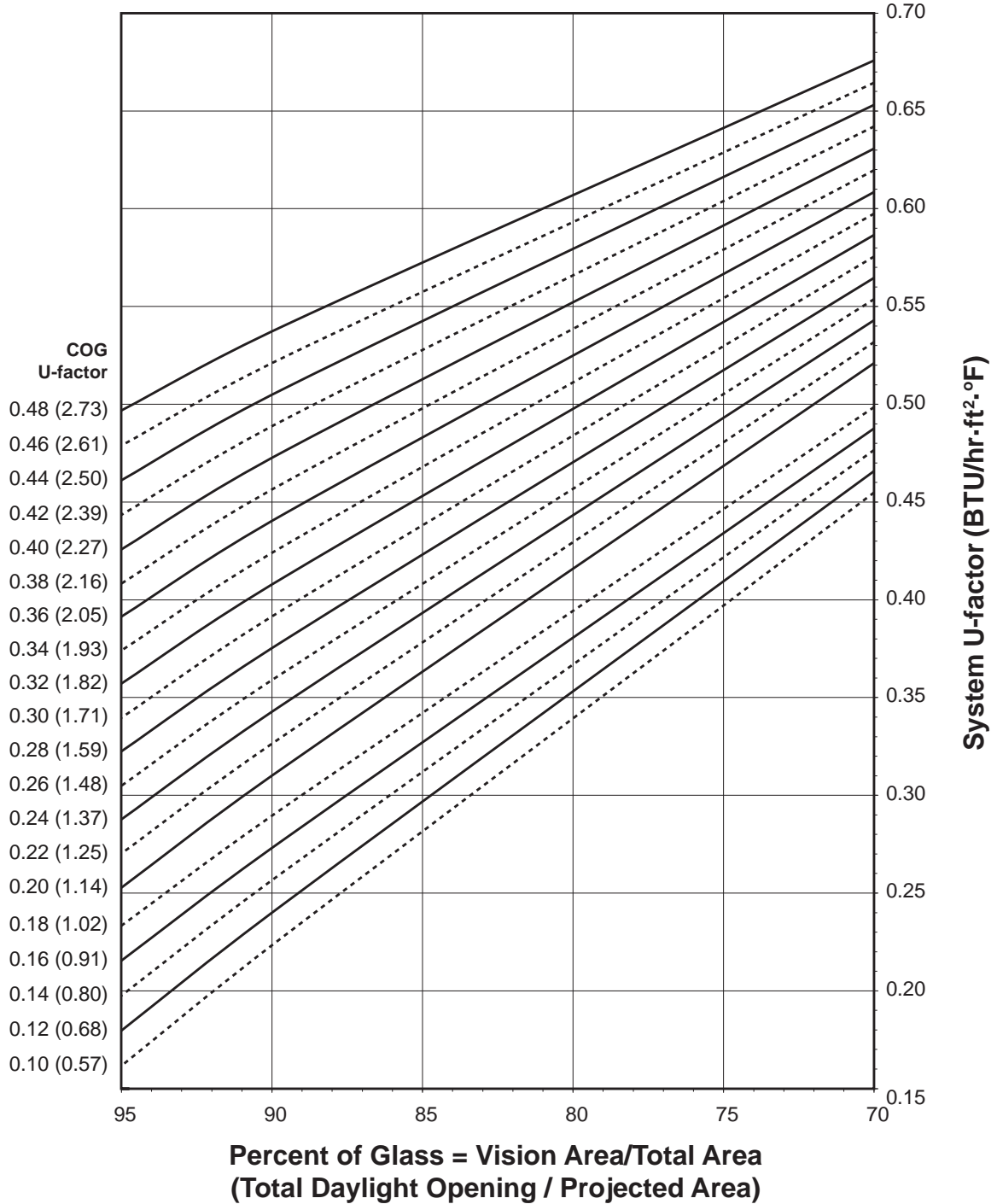
Glass VT ³	Overall VT ⁴
0.75	0.65
0.70	0.61
0.65	0.57
0.60	0.52
0.55	0.48
0.50	0.44
0.45	0.39
0.40	0.35
0.35	0.31
0.30	0.26
0.25	0.22
0.20	0.17
0.15	0.13
0.10	0.09
0.05	0.04

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.
© 2018, Kawneer Company, Inc.

Trifab® VersaGlaze® 451T (CENTER – Thermal)

System U-factor vs Percent of Glass Area



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

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

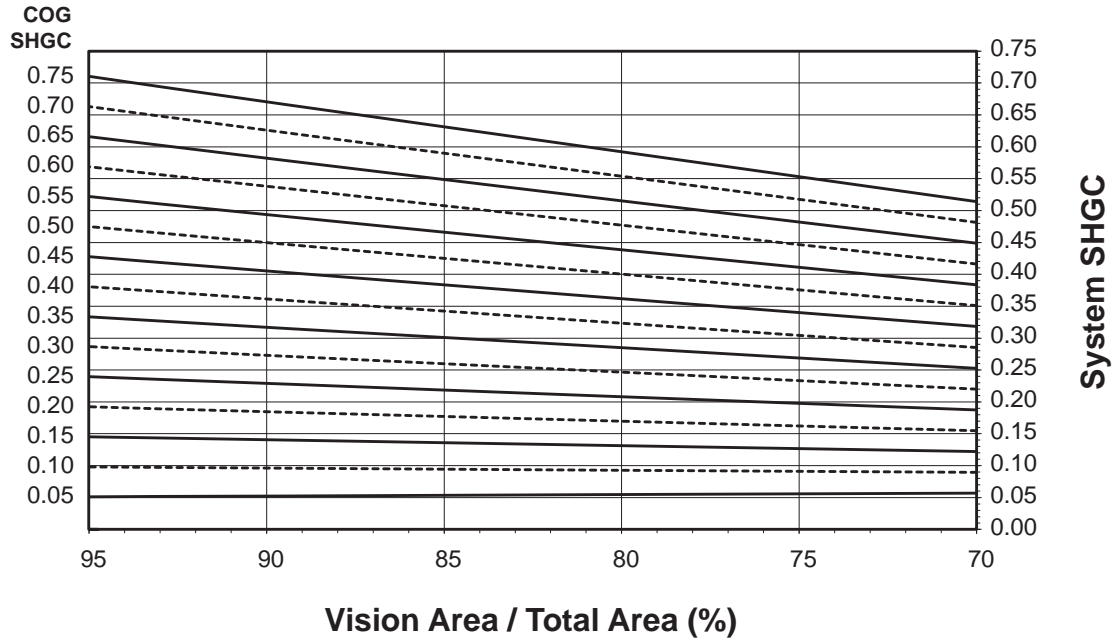
Glass properties are based on center of glass values and are obtained from your glass supplier.

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.

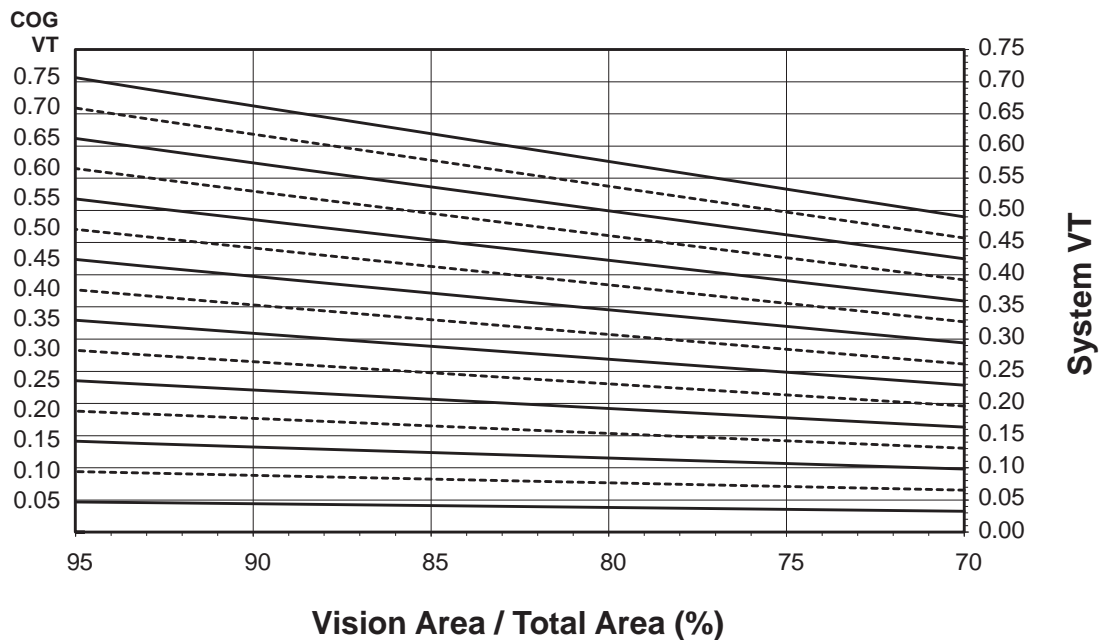
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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



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.
© 2018, Kawneer Company, Inc.

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

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

**Trifab® VersaGlaze® 451T
(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 Matrices are based on the standard NFRC specimen size of 2,000 mm wide by 2,000 mm high (78-3/4" by 78-3/4").

SHGC Matrix ²

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

Visible Transmittance ²

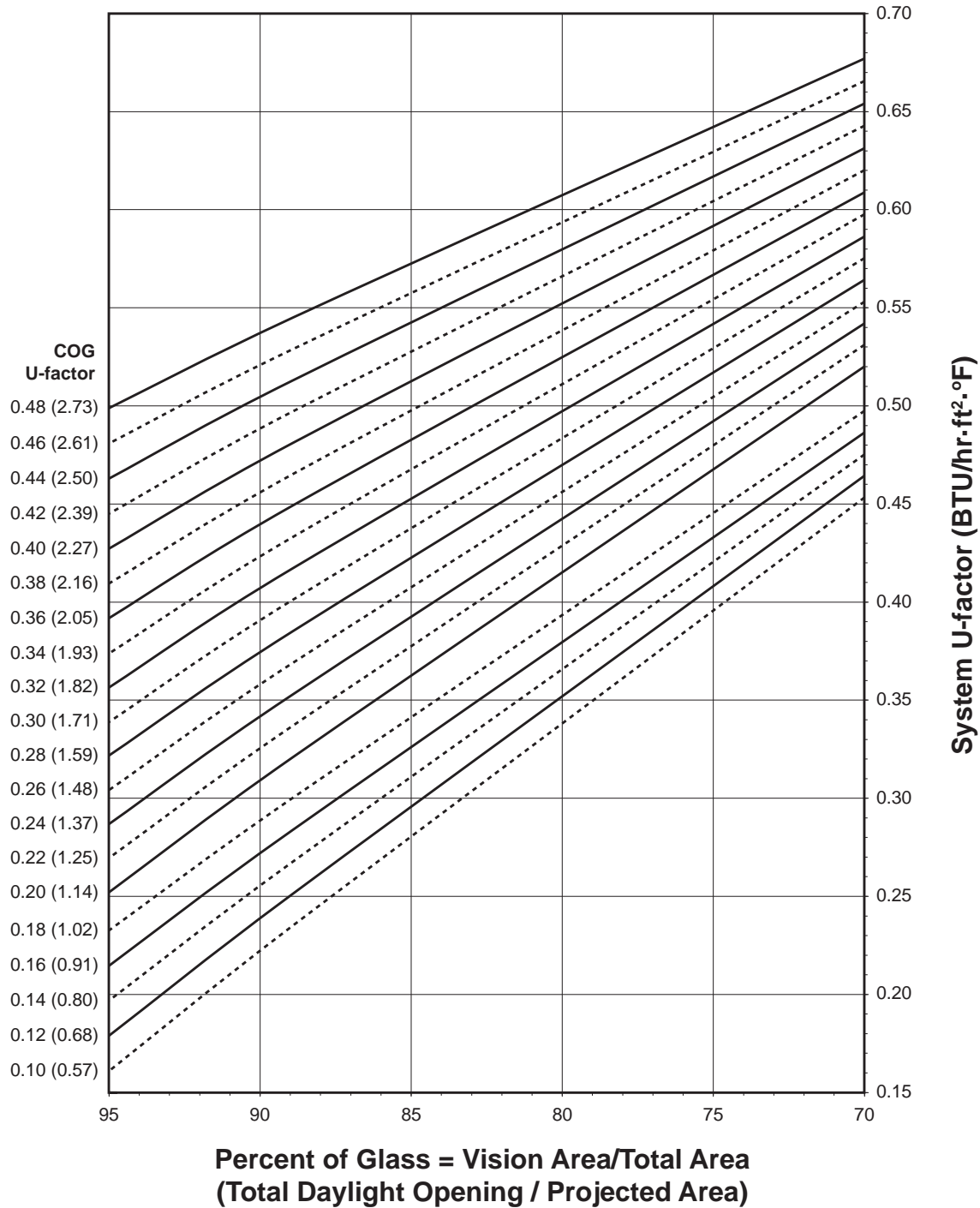
Glass VT ³	Overall VT ⁴
0.75	0.66
0.70	0.61
0.65	0.57
0.60	0.53
0.55	0.48
0.50	0.44
0.45	0.39
0.40	0.35
0.35	0.31
0.30	0.26
0.25	0.22
0.20	0.18
0.15	0.13
0.10	0.09
0.05	0.04

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.
© 2018, Kawneer Company, Inc.

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

System U-factor vs Percent of Glass Area



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

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

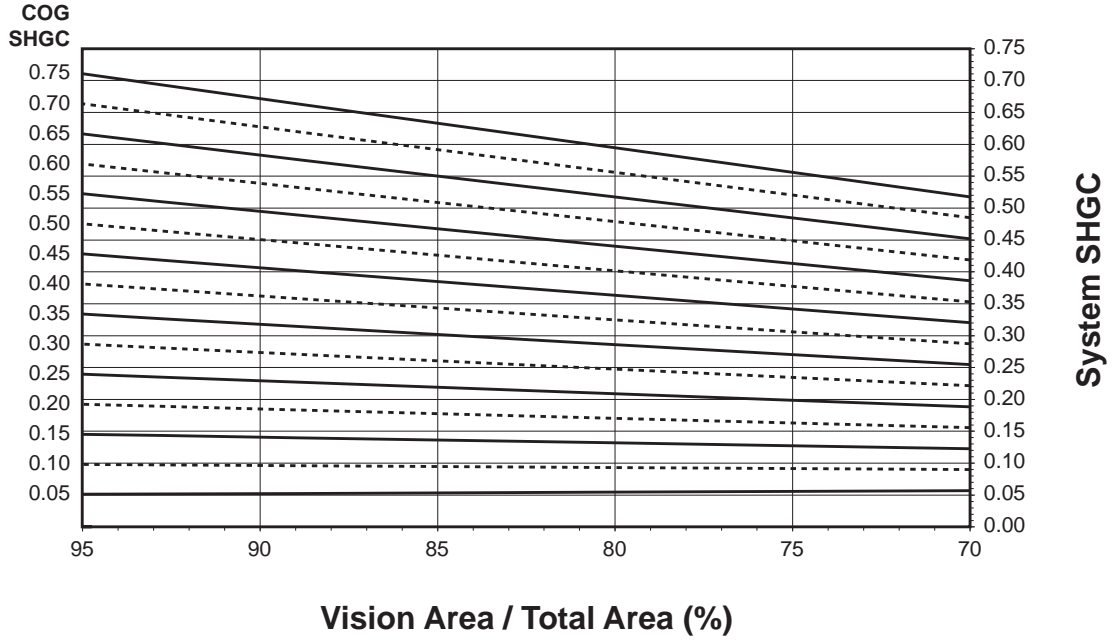
Glass properties are based on center of glass values and are obtained from your glass supplier.

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.

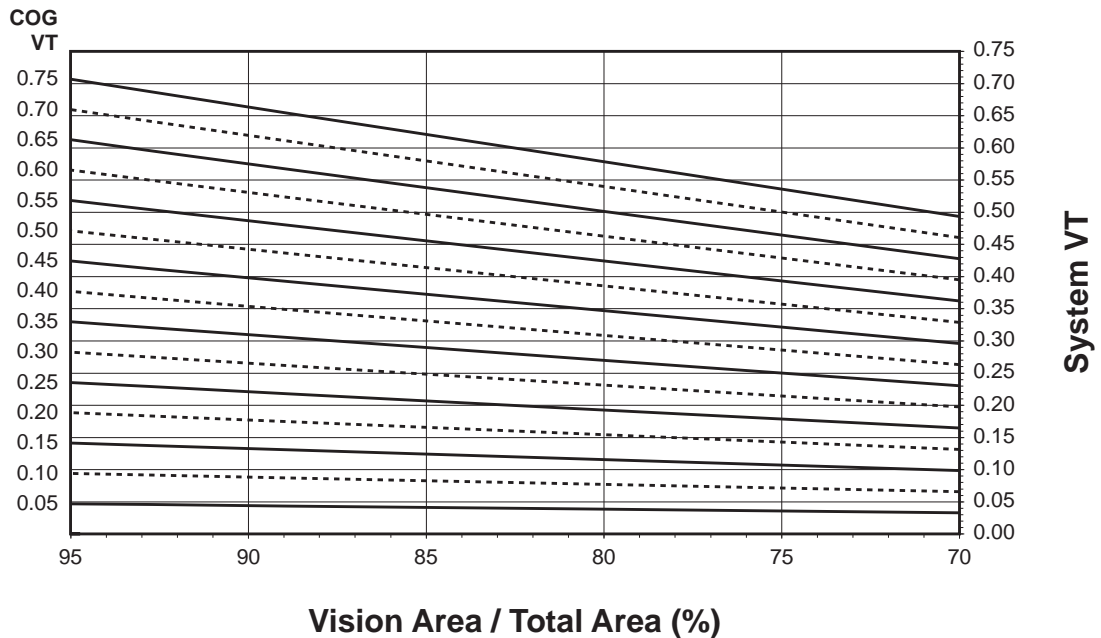
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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



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.
© 2018, Kawneer Company, Inc.

Thermal Transmittance ¹ (BTU/hr • ft² • °F)

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

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

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

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

SHGC Matrix ²

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

Visible Transmittance ²

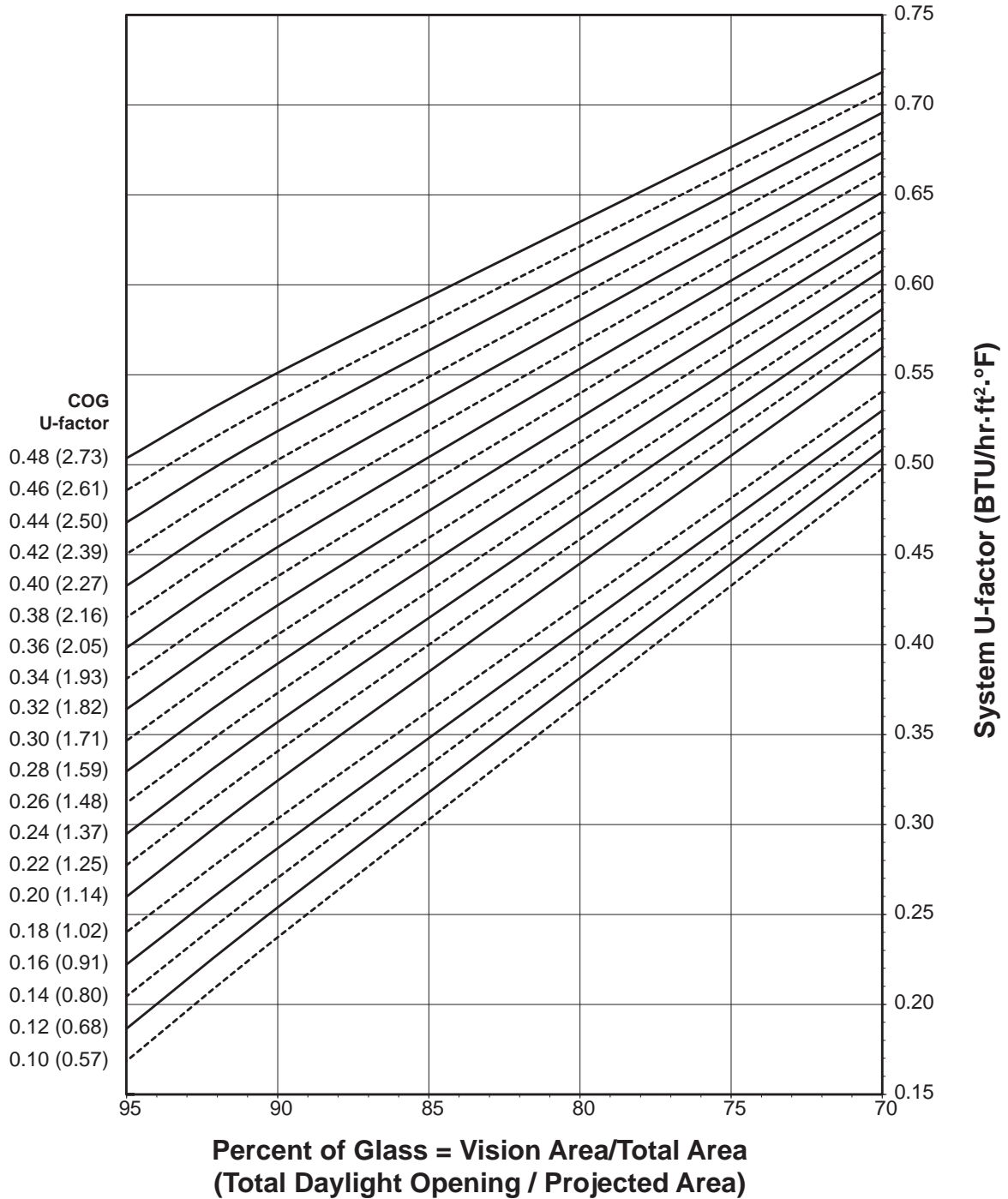
Glass VT ³	Overall VT ⁴
0.75	0.65
0.70	0.61
0.65	0.57
0.60	0.52
0.55	0.48
0.50	0.44
0.45	0.39
0.40	0.35
0.35	0.31
0.30	0.26
0.25	0.22
0.20	0.17
0.15	0.13
0.10	0.09
0.05	0.04

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.
© 2018, Kawneer Company, Inc.

Trifab® VersaGlaze® 451T (FRONT – Thermal)

System U-factor vs Percent of Glass Area



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

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

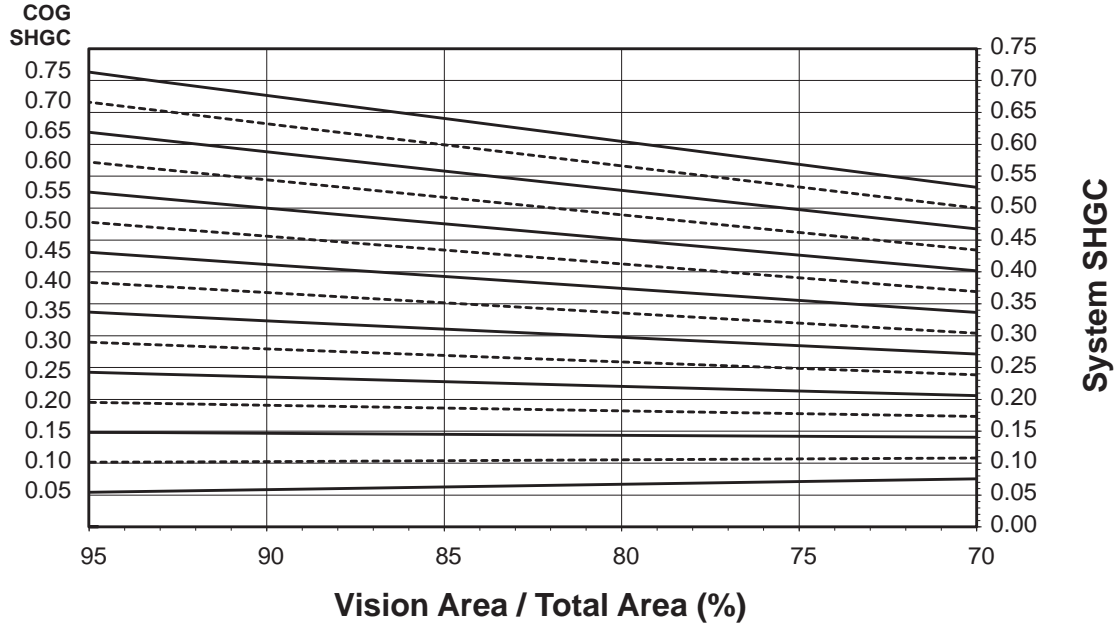
Glass properties are based on center of glass values and are obtained from your glass supplier.

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.

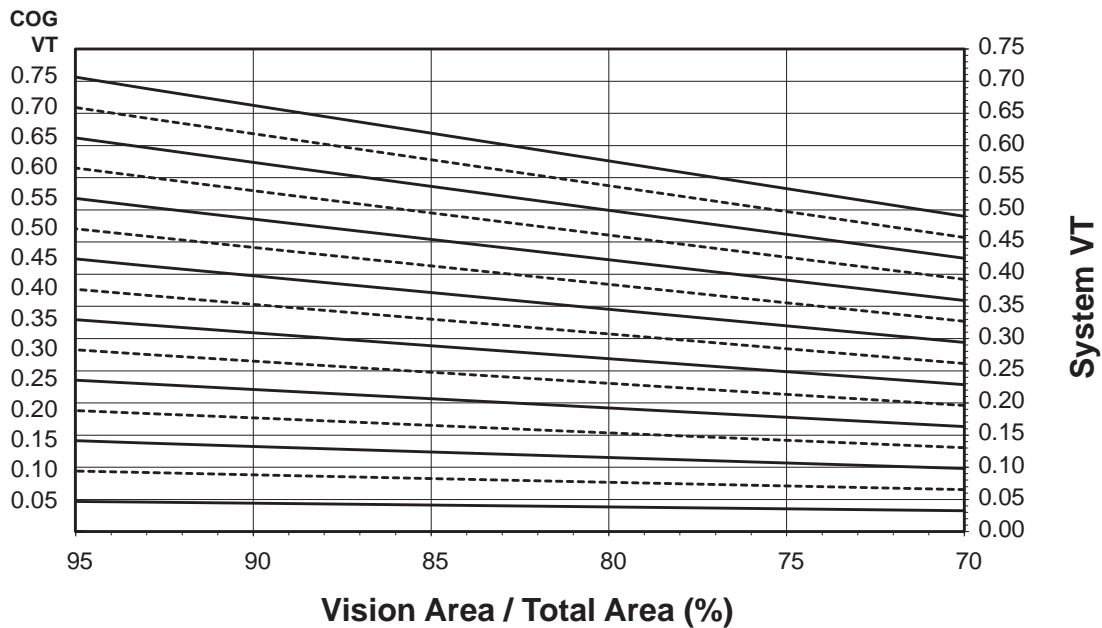
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

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



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.
© 2018, Kawneer Company, Inc.

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

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

**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 Matrices are based on the standard NFRC specimen size of 2,000 mm wide by 2,000 mm high (78-3/4" by 78-3/4").

SHGC Matrix ²

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

Visible Transmittance ²

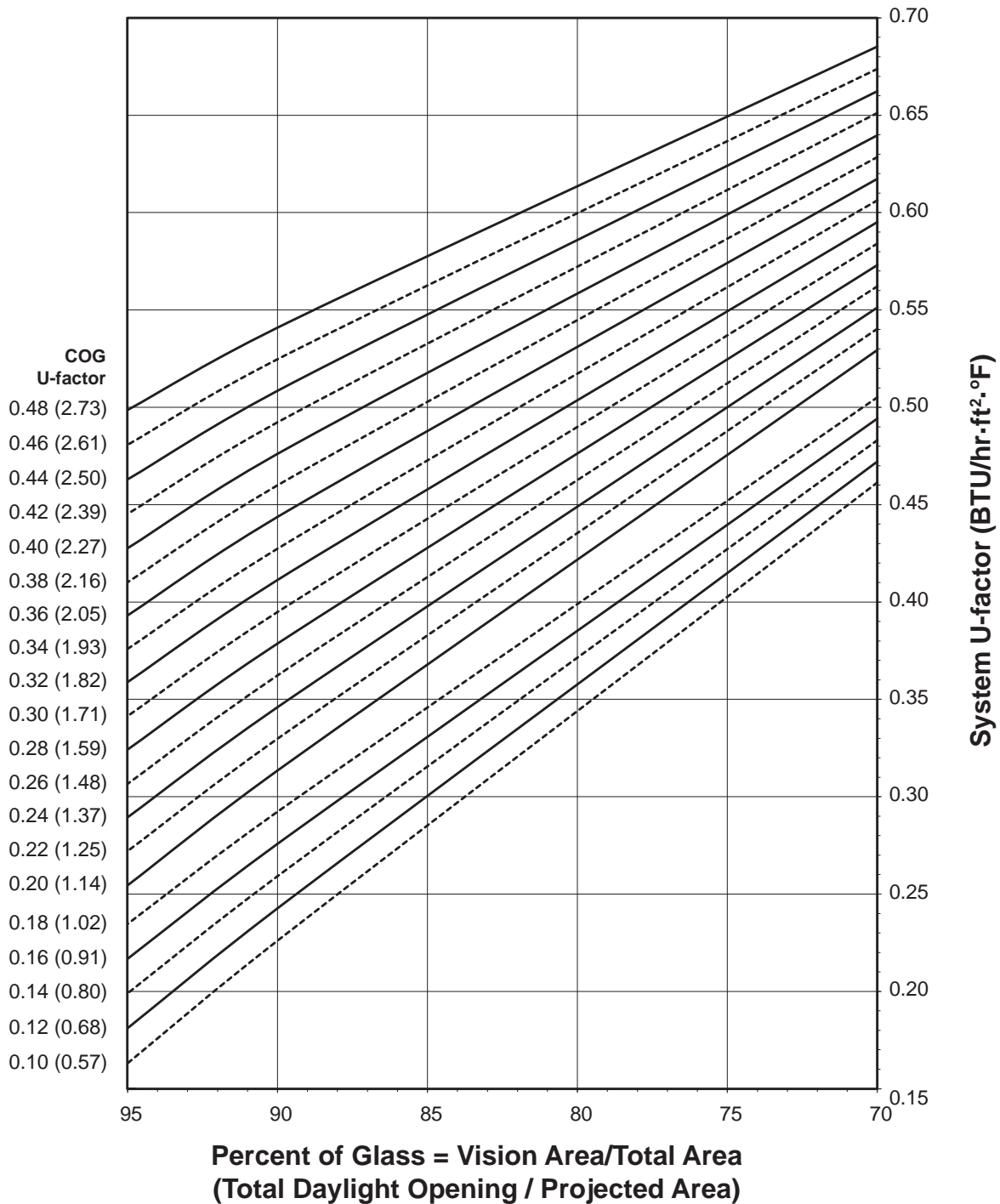
Glass VT ³	Overall VT ⁴
0.75	0.66
0.70	0.61
0.65	0.57
0.60	0.53
0.55	0.48
0.50	0.44
0.45	0.39
0.40	0.35
0.35	0.31
0.30	0.26
0.25	0.22
0.20	0.18
0.15	0.13
0.10	0.09
0.05	0.04

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.
© 2018, Kawneer Company, Inc.

Trifab® VersaGlaze® 451T (BACK – Thermal)

System U-factor vs Percent of Glass Area



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

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

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

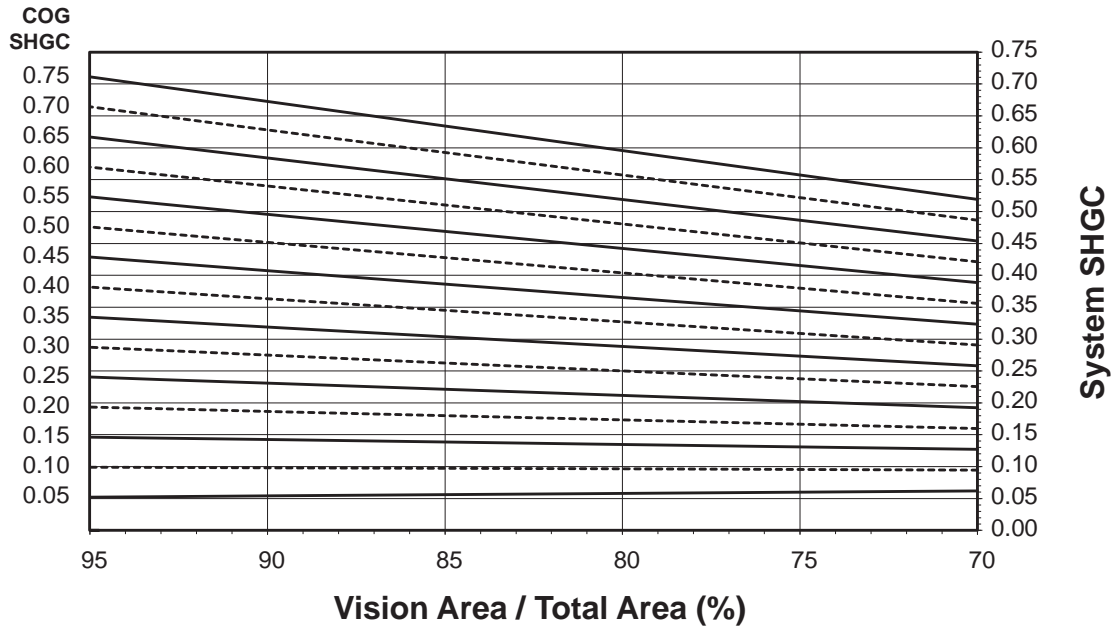
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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

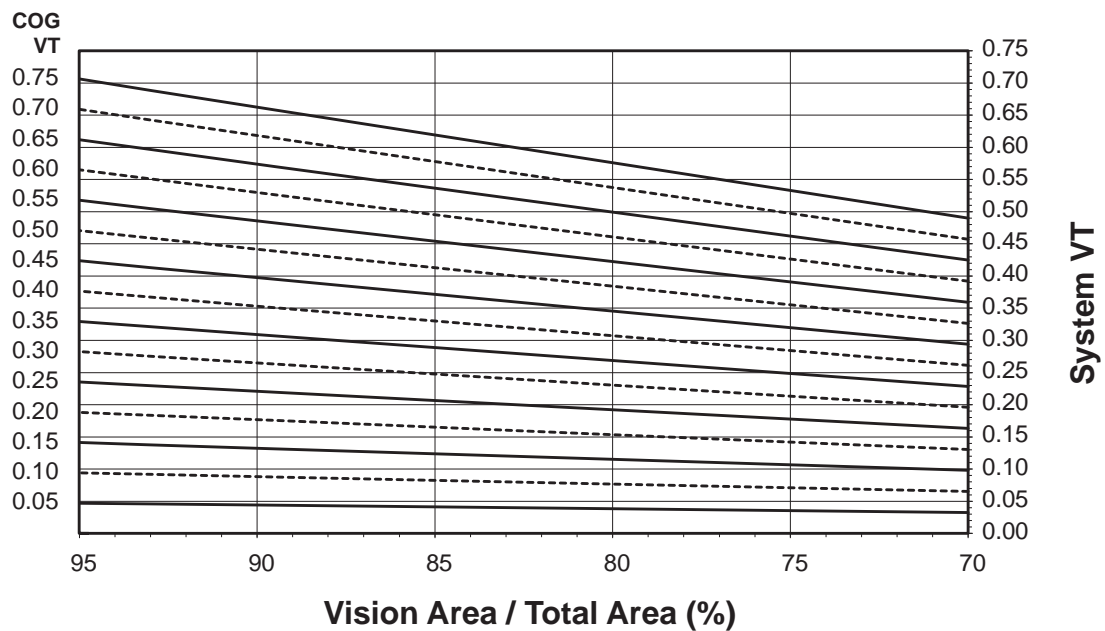
© 2018, Kawneer Company, Inc.

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



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.
© 2018, Kawneer Company, Inc.

Thermal Transmittance ¹ (BTU/hr • ft² • °F)

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

Trifab® VersaGlaze® 451T
(BACK – Thermal)

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

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

SHGC Matrix ²

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

Visible Transmittance ²

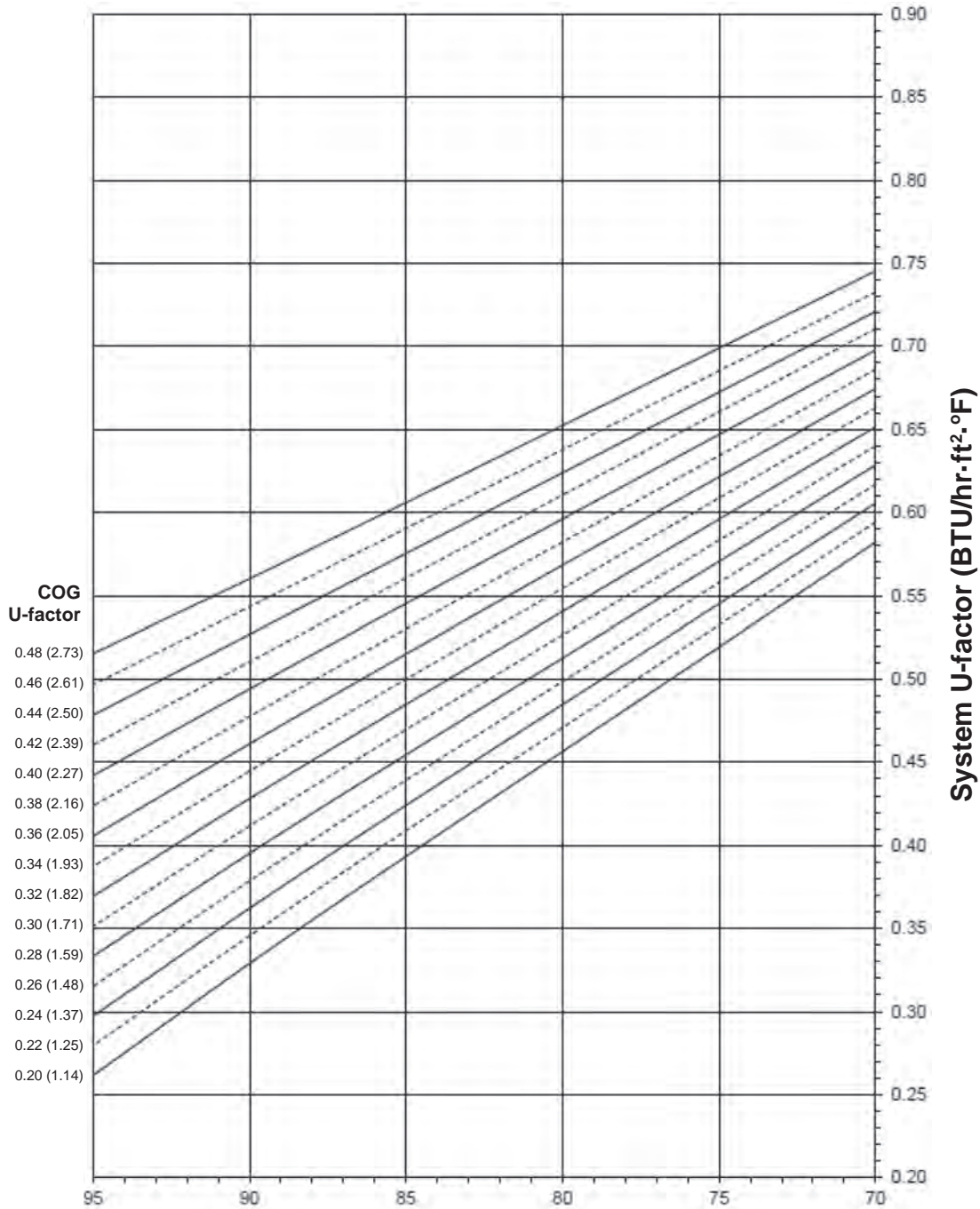
Glass VT ³	Overall VT ⁴
0.75	0.66
0.70	0.61
0.65	0.57
0.60	0.53
0.55	0.48
0.50	0.44
0.45	0.39
0.40	0.35
0.35	0.31
0.30	0.26
0.25	0.22
0.20	0.18
0.15	0.13
0.10	0.09
0.05	0.04

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.
© 2018, Kawneer Company, Inc.

Trifab® VersaGlaze® 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.

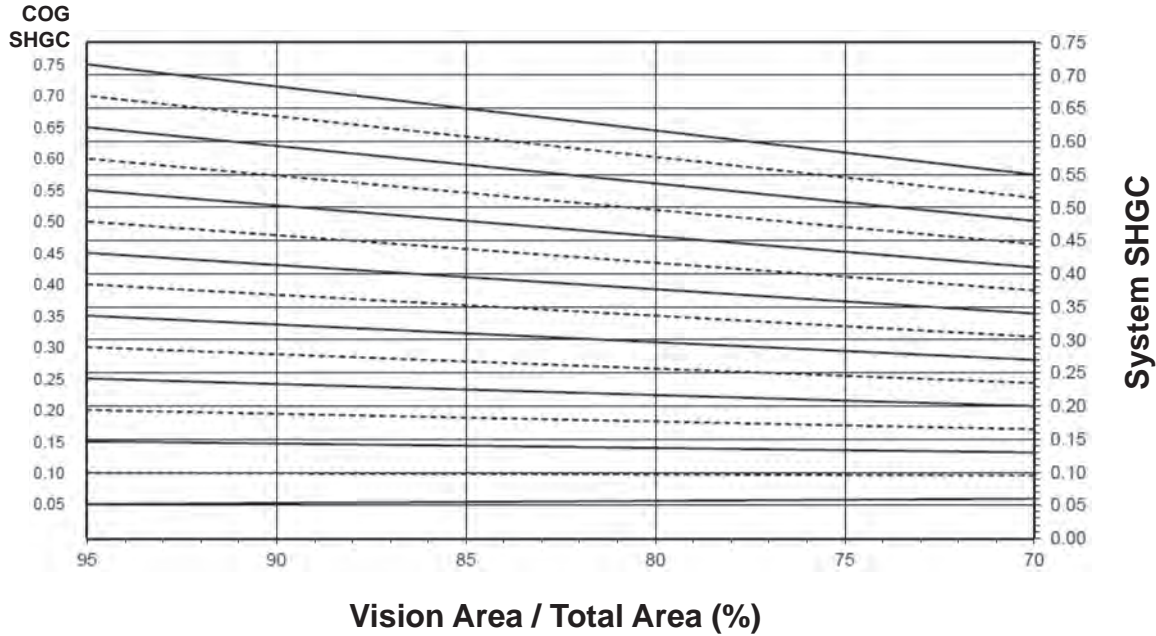
Glass properties are based on center of glass values and are obtained from your glass supplier.

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.

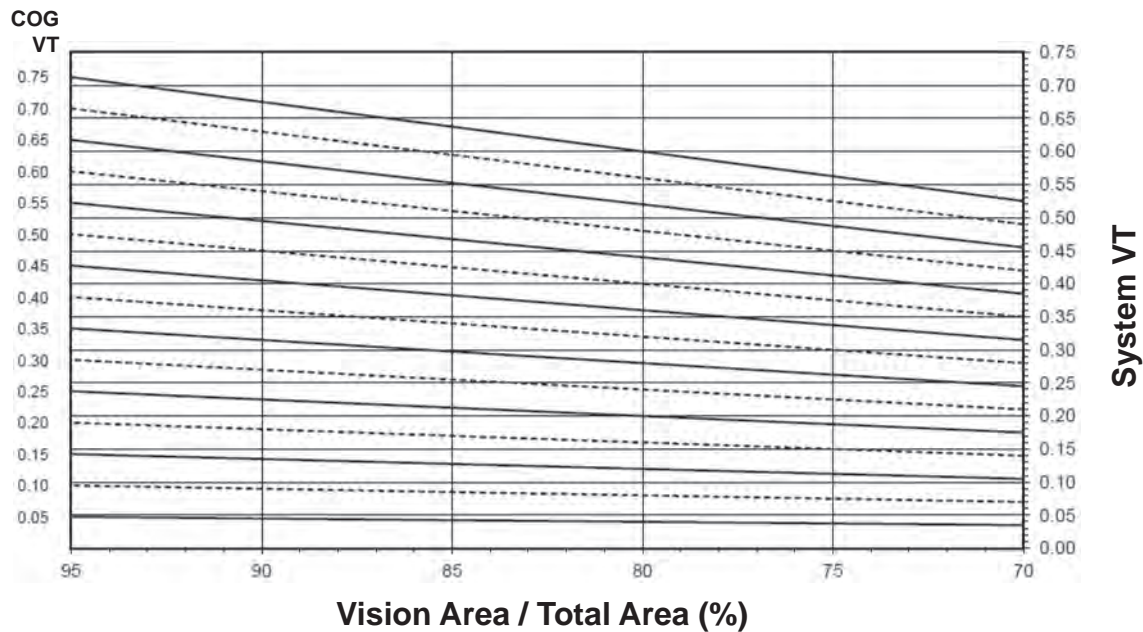
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© 2018, Kawneer Company, Inc.

Trifab® VersaGlaze® 451T with Steel (CENTER)

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



System Visible Transmittance (VT) vs Percent of Vision Area



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.
© 2018, Kawneer Company, Inc.

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

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

Trifab® VersaGlaze® 451T with Steel (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 Matricies are based on the standard NFRC specimen size of 2,000 mm wide by 2,000 mm high (78-3/4" by 78-3/4").

SHGC Matrix ²

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

Visible Transmittance ²

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

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.
© 2018, Kawneer Company, Inc.

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.

© 2018, Kawneer Company, Inc.