

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.
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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.

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

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

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

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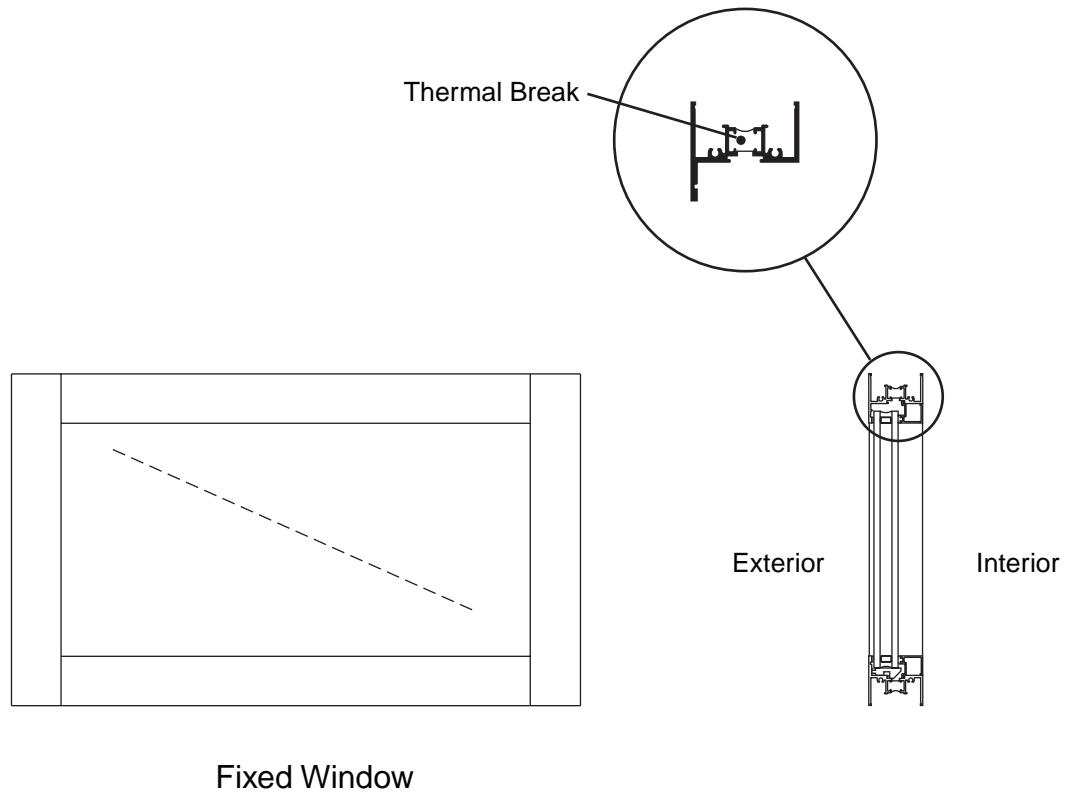
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Features

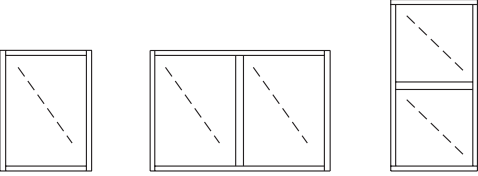
- Architectural Grade Window
- IsoLock™ Thermal Break
- Screw and Spline Frame Corner Joinery
- Factory Silicone Glazed
- Interior Applied Glazing Bead with Bulb Gasket
- Architectural Anodized Finishes and Applied Coatings
- Two Year Manufacturer's Warranty

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For specific product applications,
Consult your Kawneer representative.

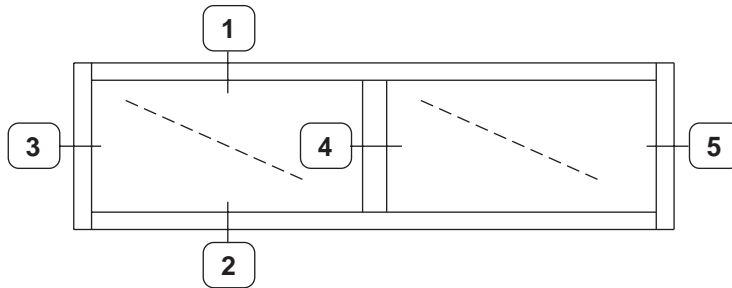
CLASS and GRADE	Architectural Grade AW-PG100-FW					
TESTING STANDARD	AAMA / WDMA / CSA 101 / I.S. 2 / A440 (NAFS)					
FRAME DEPTH	2-1/4" Overall Frame Depth					
TYPICAL WALL THICKNESS	.090 and .125 Nominal					
TYPICAL MAXIMUM SIZE	60" x 99"					
TYPICAL MINIMUM SIZE	12" x 12"					
TYPICAL CONFIGURATIONS						
STANDARD INFILL OPTIONS	1/4" and 1"					
STANDARD HARDWARE	Not Applicable					
OPTIONAL HARDWARE	Not Applicable					
OTHER OPTIONS	Unequal Leg Frames Exterior and/or Interior Applied Muntins Perimeters and Sills Exterior Pannings and Interior Trims Structural Mullions Vertically or Horizontally Stacked Access Panels and Blinds Silicone Field Glazing upon Request					
PERFORMANCE	Air Infiltration Cfm/ft ²	Water Resistance PSF	Design Load PSF	Thermal Transmittance "U" Value	Condensation Resistance CRF	Sound Transmittance STC
	.10 @ 6.24 psf	15	100	.58	59	34

Note: Thermal values are based upon 1" clear insulating glass.

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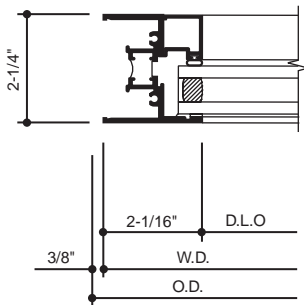
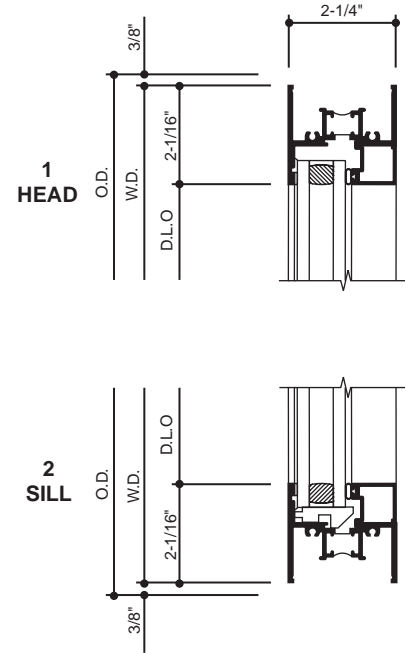
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SCALE : 3" = 1'-0"

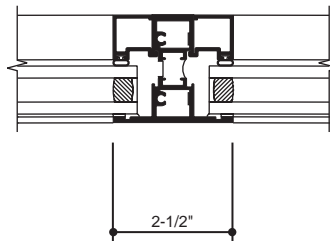


TYPICAL ELEVATION

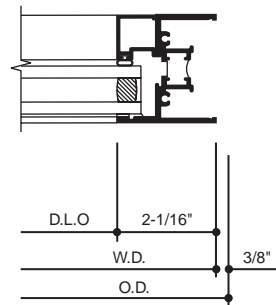
Log onto www.kawneer.com for other configurations



**3
JAMB**



**4
VERTICAL
MULLION**



**5
JAMB**

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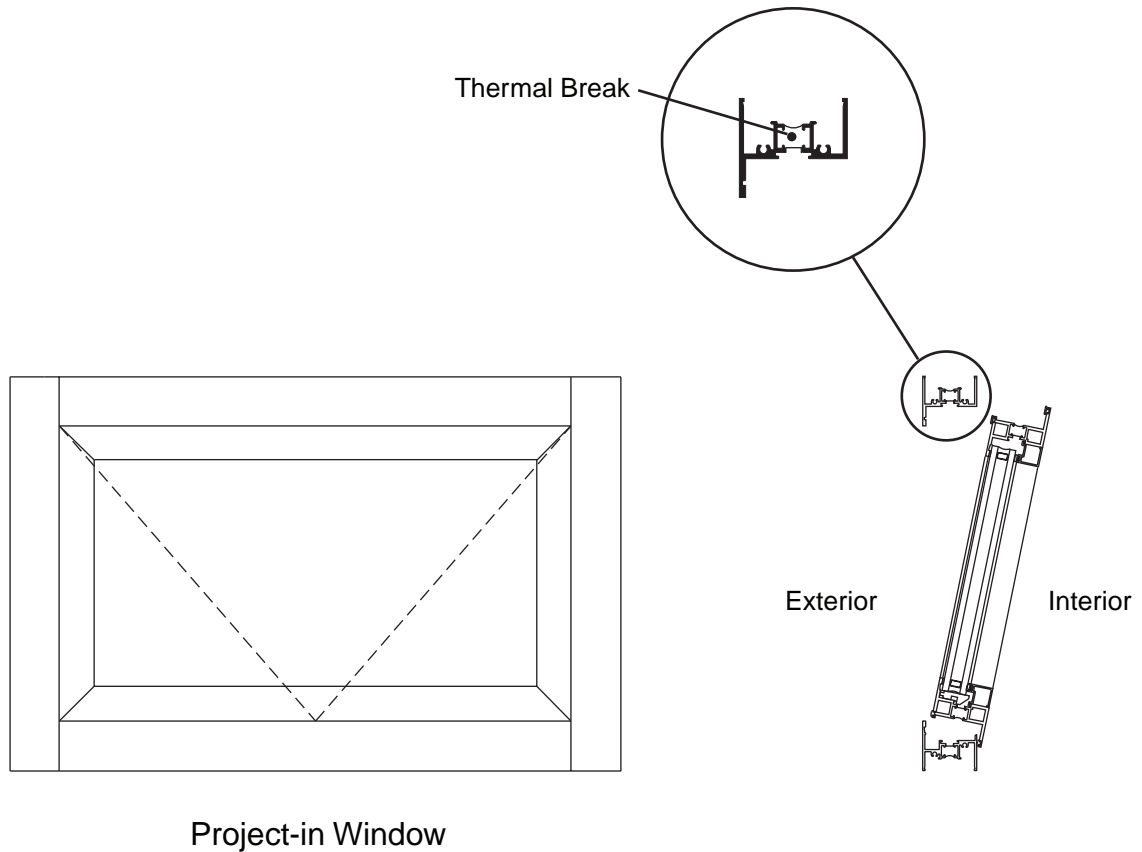
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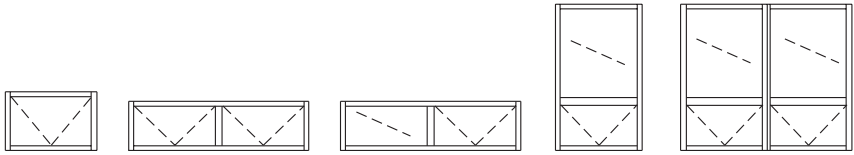
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Features

- Architectural Grade Window
- IsoLock™ Thermal Break
- Mitered, Clipped and Staked Vent Corner Joinery
- Screw and Spline Frame Corner Joinery
- Factory Silicone Glazed
- Interior Applied Glazing Bead with Bulb Gasket
- Architectural Anodized Finishes and Applied Coatings
- Two Year Manufacturer's Warranty
- Compatible with Storefront and Curtain Wall Systems



For specific product applications,
Consult your Kawneer representative.

CLASS and GRADE		Architectural Grade AP-HC90 / AP-AW90 / AP-PG90-AP				
TESTING STANDARD		AAMA / WDMA / CSA 101 / I.S. 2 / A440 (NAFS)				
FRAME DEPTH		2-1/4" Overall Frame Depth				
TYPICAL WALL THICKNESS		.090 and .125 Nominal				
TYPICAL MAXIMUM SIZE		60" x 48"				
TYPICAL MINIMUM SIZE		17" x 17"				
TYPICAL CONFIGURATIONS						
STANDARD INFILL OPTIONS		1/4" and 1"				
STANDARD HARDWARE		Stainless Steel 4-Bar Hinges Cast White Bronze Cam Locks				
OPTIONAL HARDWARE		Access Control Locks Limit Stop Pole and Pole Ring				
OTHER OPTIONS		Unequal Leg Frames Exterior and/or Interior Applied Muntins Insect Screens Perimeters and Sills Exterior Pannings and Interior Trims Structural Mullions Vertically or Horizontally Stacked Access Panels and Blinds Silicone Field Glazing upon Request				
PERFORMANCE	Air Infiltration Cfm/ft ²	Water Resistance PSF	Design Load PSF	Thermal Transmittance "U" Value	Condensation Resistance CRF	Sound Transmittance STC
	.10 @ 6.24 psf	15	90	.62	56	n/a

Note: Thermal values are based upon 1" clear insulating glass.

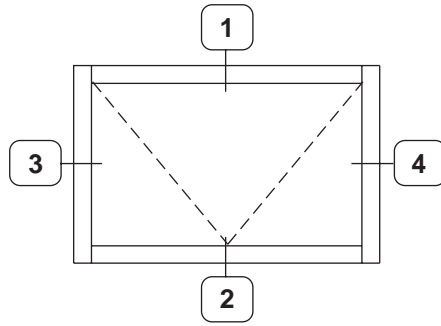
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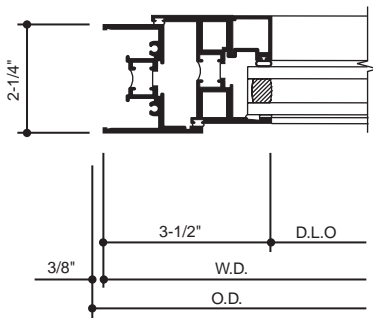
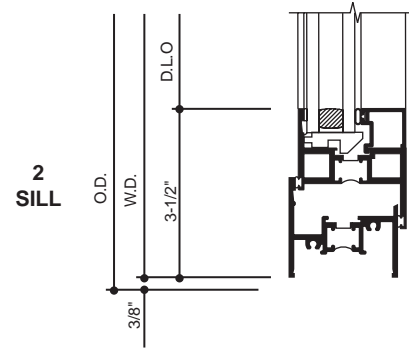
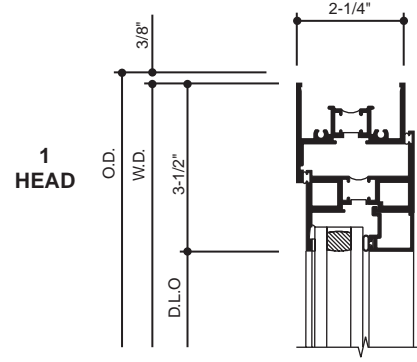
SCALE : 3" = 1'-0"

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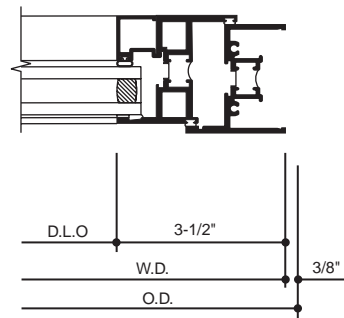
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TYPICAL ELEVATION
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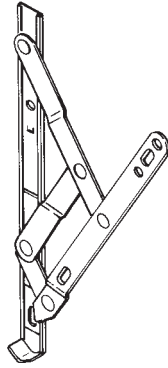


3
JAMB



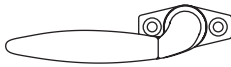
4
JAMB

STAINLESS STEEL 4 BAR HINGES



A standard hinge for ventilators providing approximately 45° to 60° openings depending on size. An optional limit stop is available to restrict hinge travel and limit vent opening.

STANDARD CAM HANDLE



Cast white bronze cam handles are standard for the manual operation and locking of ventilators.

CAM HANDLE WITH POLE RING



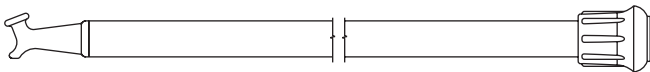
Cast white bronze cam handles with pole ring provide manual operation of ventilators located above reach. These handles are operated with a sash pole.

POLE RING



Cast white bronze pole ring is used in conjunction with locking hardware for sash pole operation of ventilators.

SASH POLE

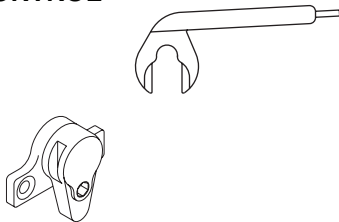


HANGER FOR SASH POLE



A 3/4" diameter aluminum sash pole with a cast white bronze pull down hook and black rubber tip. Available in 6 ft. and 12 ft. lengths with optional cast white bronze Pole Hanger.

ACCESS CONTROL LOCK



In lieu of the standard cam handles cast white bronze access control locks are offered for managed control of vent operations. Lock is operated with a manganese bronze removable handle.

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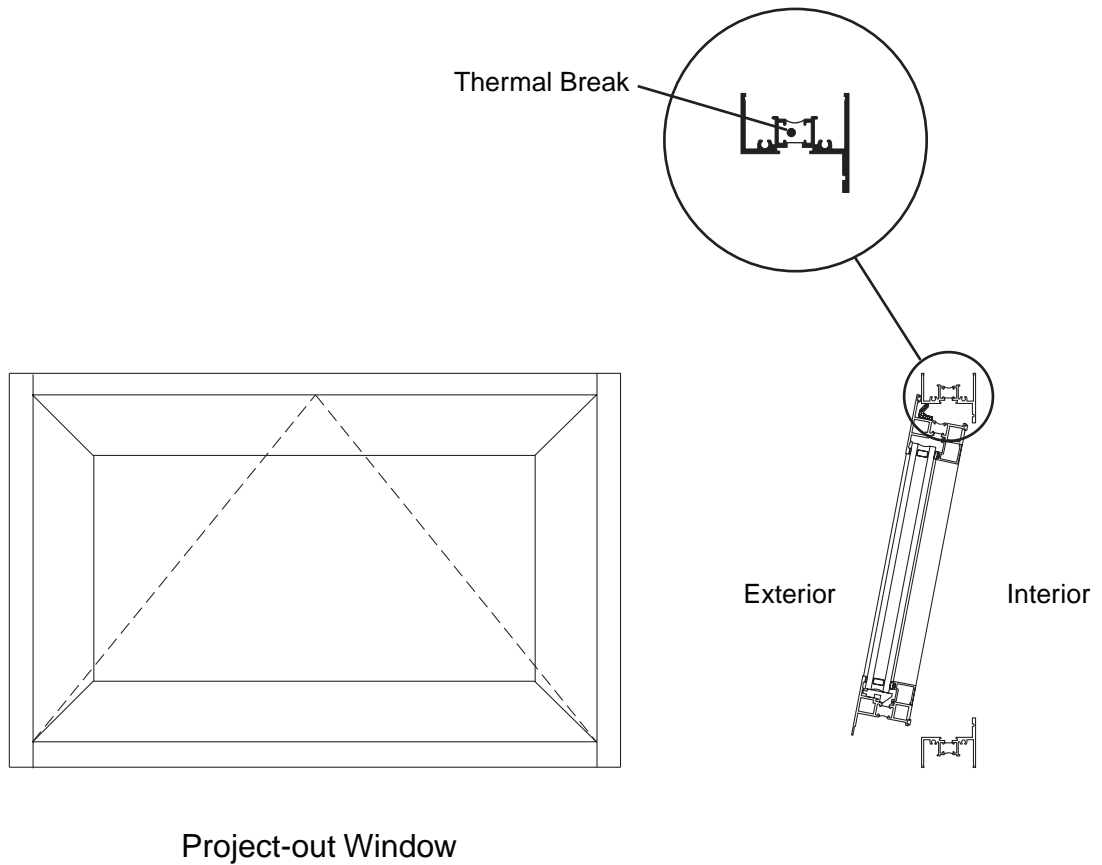
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Features

- Architectural Grade Window
- IsoLock™ Thermal Break
- Mitered, Clipped and Staked Vent Corner Joinery
- Screw and Spline Frame Corner Joinery
- Factory Silicone Glazed
- Interior Applied Glazing Bead with Bulb Gasket
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CLASS and GRADE		Architectural Grade AP-HC90 / AP-AW90 / AW-PG90-AP				
TESTING STANDARD		AAMA / WDMA / CSA 101 / I.S. 2 / A440 (NAFS)				
FRAME DEPTH		2-1/4" Overall Frame Depth				
TYPICAL WALL THICKNESS		.090 and .125 Nominal				
TYPICAL MAXIMUM SIZE		60" x 89"				
TYPICAL MINIMUM SIZE		17" x 17"				
TYPICAL CONFIGURATIONS						
STANDARD INFILL OPTIONS		1/4" and 1"				
STANDARD HARDWARE		Stainless Steel 4-Bar Hinges Cast White Bronze Cam Locks 88SS Support Arm (Units over 50" in height)				
OPTIONAL HARDWARE		Access Control Locks Hook Bolt Lock Handle Pivot Shoe Roto-Operator Scissors Arm Roto-Operator Limit Stop Pole and Pole Ring				
OTHER OPTIONS		Unequal Leg Frames Exterior and/or Interior Applied Muntins Insect Screens Perimeters and Sills Exterior Pannings and Interior Trims Structural Mullions Vertically or Horizontally Stacked Access Panels and Blinds Silicone Field Glazing upon Request				
PERFORMANCE	Air Infiltration Cfm/ft ²	Water Resistance PSF	Design Load PSF	Thermal Transmittance "U" Value	Condensation Resistance CRF	Sound Transmittance STC
	.10 @ 6.24 psf	15	90	.60	56	33

Note: Thermal values are based upon 1" clear insulating glass.

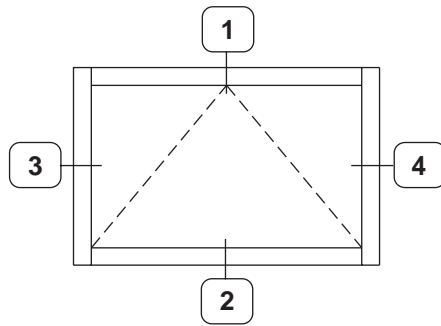
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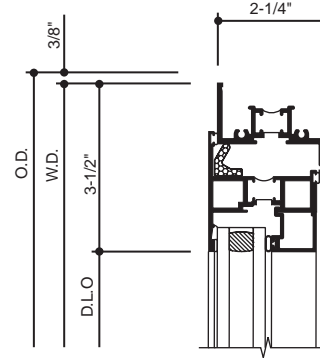
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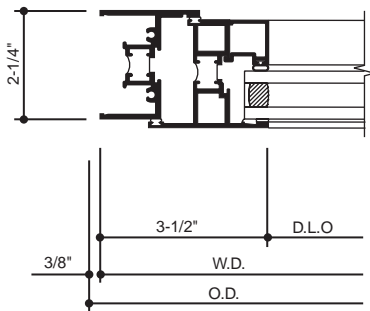
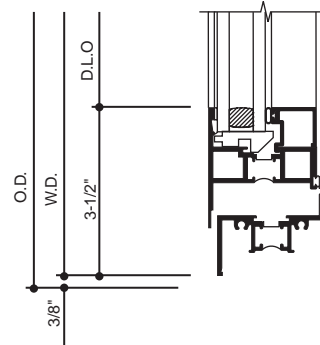
TYPICAL ELEVATION

Log onto www.kawneer.com for other configurations

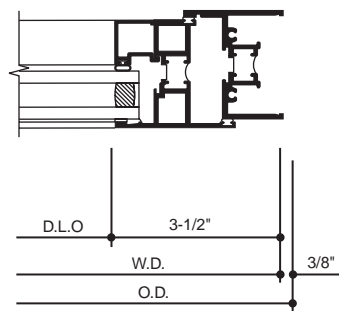
1 HEAD



2 SILL

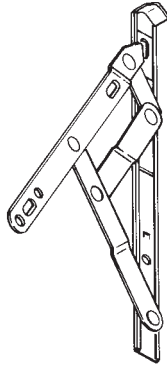


3 JAMB



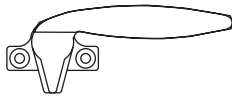
4 JAMB

STAINLESS STEEL 4 BAR HINGES



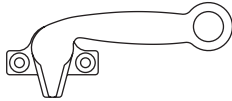
A standard hinge for ventilators providing approximately 45° to 60° openings depending on size. An optional limit stop is available to restrict hinge travel and limit vent opening.

STANDARD CAM HANDLE



Cast white bronze cam handles are standard for the manual operation and locking of ventilators.

CAM HANDLE WITH POLE RING



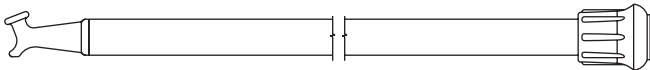
Cast white bronze cam handles with pole ring provide manual operation of ventilators located above reach. These handles are operated with a sash pole.

POLE RING



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SASH POLE

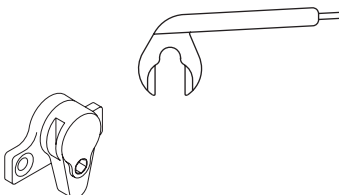


HANGER FOR SASH POLE



A 3/4" diameter aluminum sash pole with a cast white bronze pull down hook and black rubber tip. Available in 6 ft. and 12 ft. lengths with optional cast white bronze pole hanger.

ACCESS CONTROL LOCK

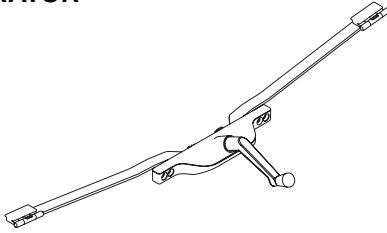


In lieu of the standard cam handles cast white bronze access control locks are offered for managed control of vent operations. Lock is operated with a manganese bronze removable handle.

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**PIVOT-SHOE
ROTO-OPERATOR**



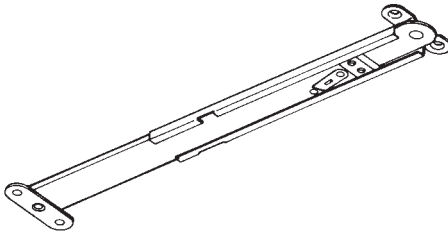
Optional pivot shoe roto operator is located on the center line of the bottom horizontal frame. Standard finish shall be brushed copper nickel to match US-25-D.

HOOK BOLT LOCK



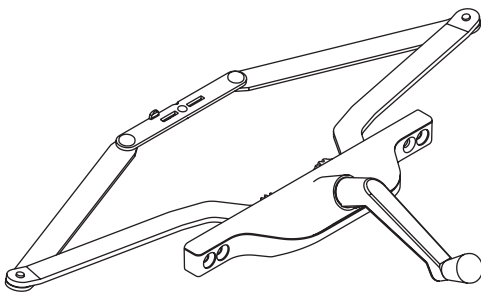
For use with pivot-shoe roto operator in lieu of cam handles. Standard finish shall be US-25-D clear white bronze.

88SS SUPPORT ARM



Support arms are used when window height exceeds 50-1/2". When fully extended, the hardware automatically retains the ventilator in an open position.

**SCISSORS ARM
ROTO OPERATOR**



Optional scissor arm roto operator is located on the center line of the bottom horizontal frame. Standard finish shall be brushed copper nickel to match US-25-D.

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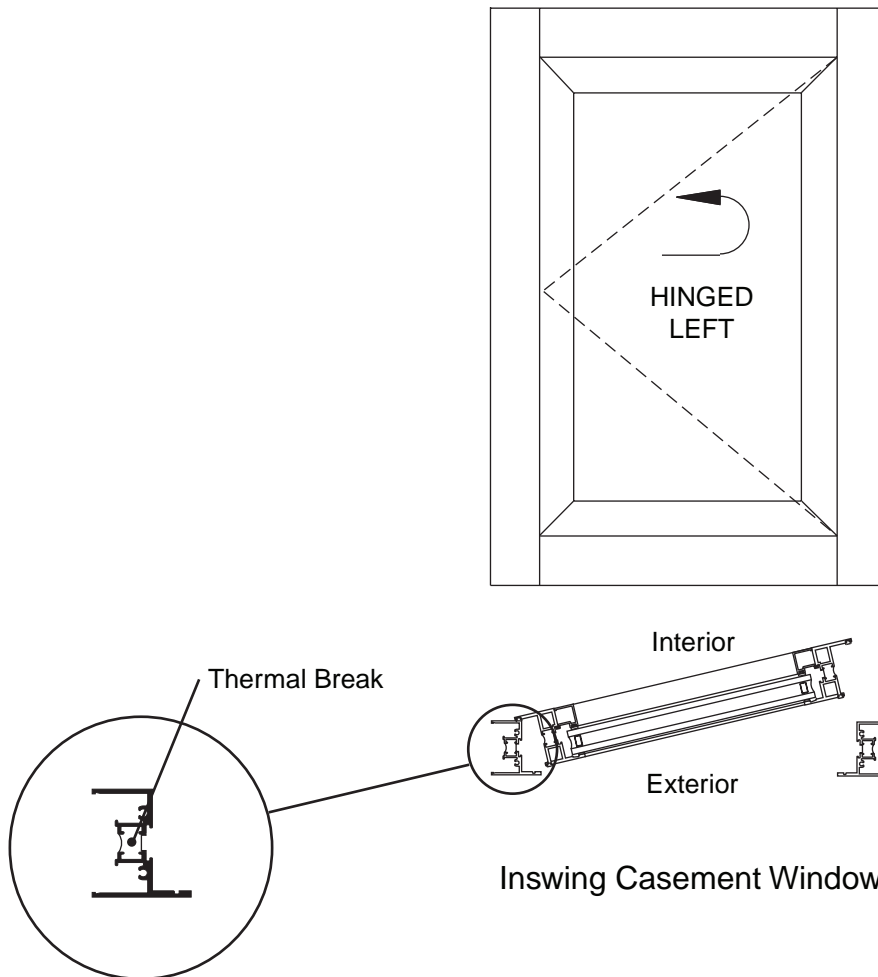
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- Architectural Anodized Finishes and Applied Coatings
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- Compatible with Storefront and Curtain Wall Systems



For specific product applications,
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CLASS and GRADE		Architectural Grade C-HC90 / C-AW90 / AW-PG90-C				
TESTING STANDARD		AAMA / WDMA / CSA 101 / I.S. 2 / A440 (NAFS)				
FRAME DEPTH		2-1/4" Overall Frame Depth				
TYPICAL WALL THICKNESS		.090 and .125 Nominal				
TYPICAL MAXIMUM SIZE		36" x 60"				
TYPICAL MINIMUM SIZE		17" x 17"				
TYPICAL CONFIGURATIONS						
STANDARD INFILL OPTIONS		1/4" and 1"				
STANDARD HARDWARE		Stainless Steel 4-Bar Hinges Cast White Bronze Cam Locks				
OPTIONAL HARDWARE		Access Control Locks Limit Stop Pole and Pole Ring Butt Hinges Friction Adjustor Keyed Limit Arm				
OTHER OPTIONS		Unequal Leg Frames Exterior and/or Interior Applied Muntins Insect Screens Perimeters and Sills Exterior Pannings and Interior Trims Structural Mullions Vertically or Horizontally Stacked Access Panels and Blinds Silicone Field Glazing upon Request				
PERFORMANCE	Air Infiltration Cfm/ft ²	Water Resistance PSF	Design Load PSF	Thermal Transmittance "U" Value	Condensation Resistance CRF	Sound Transmittance STC
	.10 @ 6.24 psf	15	90	.58	52	n/a

Note: Thermal values are based upon 1" clear insulating glass.

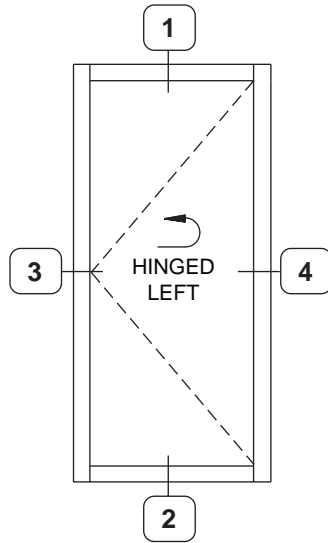
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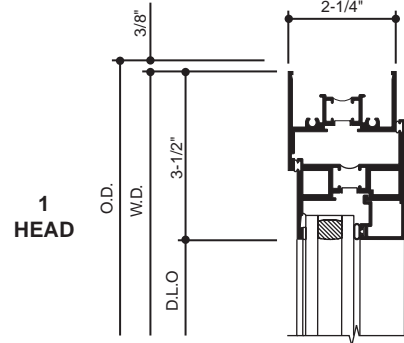
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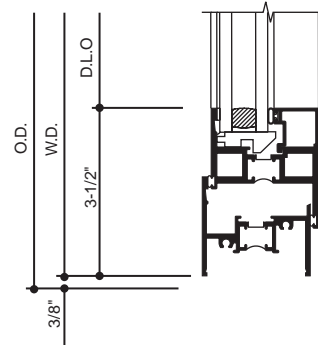


TYPICAL ELEVATION

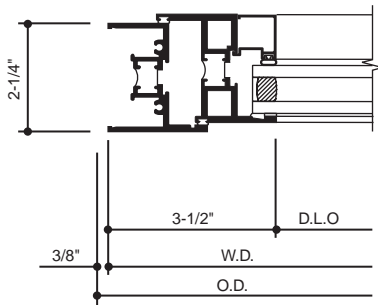
Log onto www.kawneer.com for other configurations



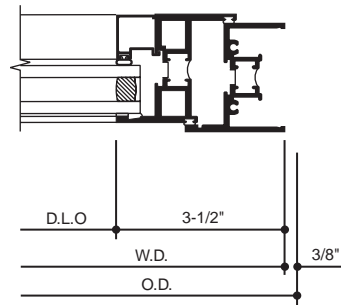
1 HEAD



2 SILL

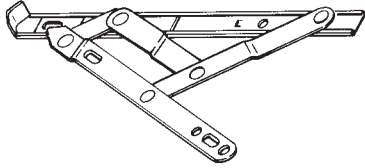


3 JAMB



4 JAMB

STAINLESS STEEL 4 BAR HINGES



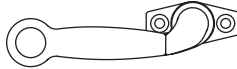
A standard hinge for ventilators providing approximately 45° to 60° openings depending on size. An optional limit stop is available to restrict hinge travel and limit vent opening.

STANDARD CAM HANDLE



Cast white bronze cam handles are standard for the manual operation and locking of ventilators.

CAM HANDLE WITH POLE RING



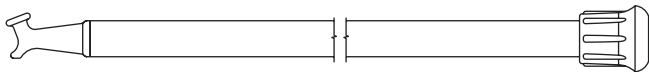
Cast white bronze cam handles with pole ring provide manual operation of ventilators located above reach. These handles are operated with a sash pole.

POLE RING



Cast white bronze pole ring is used in conjunction with locking hardware for sash pole operation of ventilators.

SASH POLE

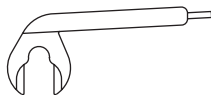


HANGER FOR SASH POLE

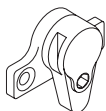


A 3/4" diameter aluminum sash pole with a cast white bronze pull down hook and black rubber tip. Available in 6 ft. and 12 ft. lengths with optional cast white bronze pole hanger.

ACCESS CONTROL LOCK



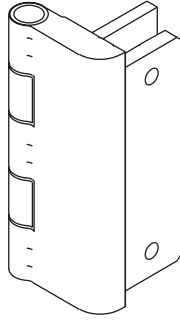
In lieu of the standard cam handles cast white bronze access control locks are offered for managed control of vent operations. Lock is operated with a manganese bronze removable handle.



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.

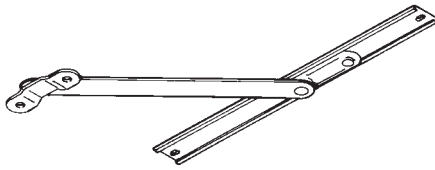
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
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BUTT HINGES



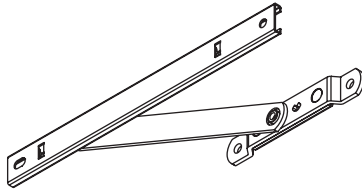
An optional hinge for ventilators providing a full 90° opening. Butt Hinges shall be finished to match the window.

FRICTION ADJUSTOR



Friction adjustors shall be used with butt hinges for additional friction for control of the ventilator.

KEYED LIMIT ARM



Key released limit arms may be used to restrict ventilator opening when used with butt hinges.

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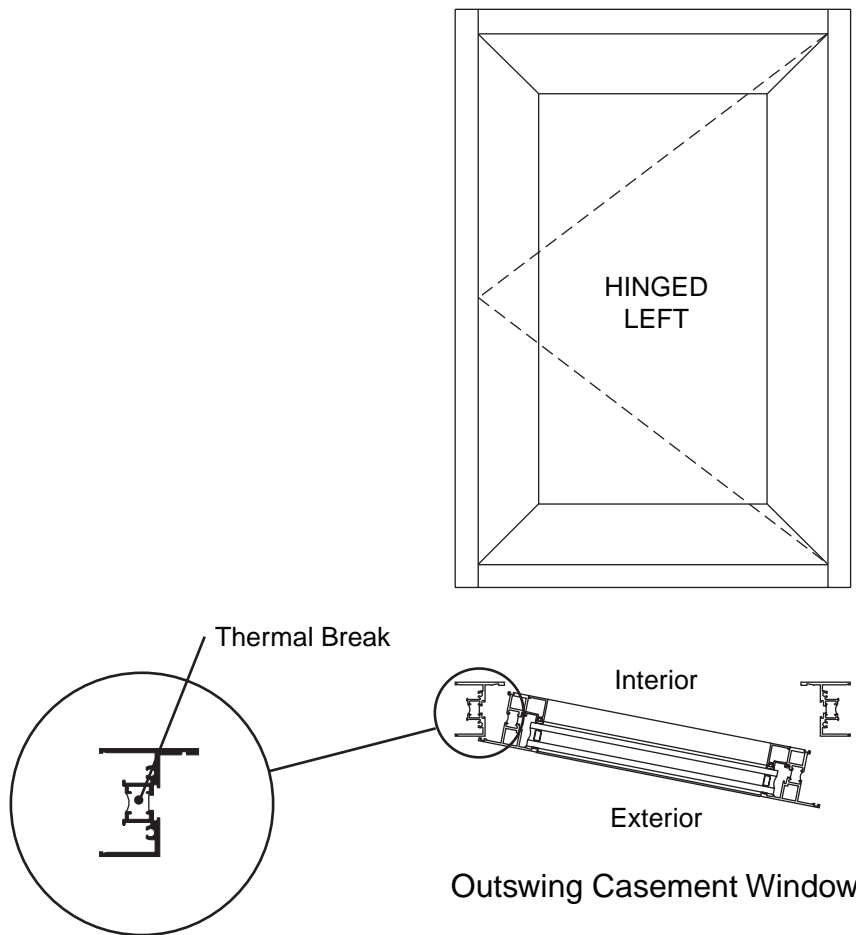
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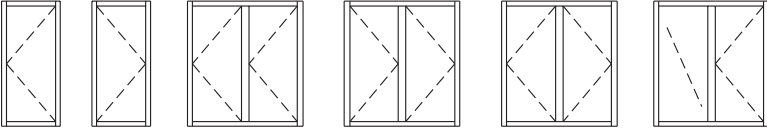
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Features

- Architectural Grade Window
- IsoLock™ Thermal Break
- Mitered, Clipped and Staked Vent Corner Joinery
- Screw and Spline Frame Corner Joinery
- Factory Silicone Glazed
- Interior Applied Glazing Bead with Bulb Gasket
- Architectural Anodized Finishes and Applied Coatings
- Two Year Manufacturer's Warranty
- Compatible with Storefront and Curtain Wall Systems



For specific product applications,
Consult your Kawneer representative.

CLASS and GRADE		Architectural Grade C-HC90 / C-AW90 / AW-PG90-C				
TESTING STANDARD		AAMA / WDMA / CSA 101 / I.S. 2 / A440 (NAFS)				
FRAME DEPTH		2-1/4" Overall Frame Depth				
TYPICAL WALL THICKNESS		.090 and .125 Nominal				
TYPICAL MAXIMUM SIZE		36" x 60"				
TYPICAL MINIMUM SIZE		17" x 17"				
TYPICAL CONFIGURATIONS						
STANDARD INFILL OPTIONS		1/4" and 1"				
STANDARD HARDWARE		Stainless Steel 4-Bar Hinges Cast White Bronze Cam Locks				
OPTIONAL HARDWARE		Butt Hinges Access Control Locks Hook Bolt Lock or Multi-Point Lock Limit Stop Pole and Pole Ring Friction Adjustor Keyed Limit Arm Roto Operator				
OTHER OPTIONS		Unequal Leg Frames Exterior and/or Interior Applied Muntins Insect Screens Perimeters and Sills Exterior Pannings and Interior Trims Structural Mullions Vertically or Horizontally Stacked Access Panel and Blinds Silicone Field Glazing upon Request				
PERFORMANCE	Air Infiltration Cfm/ft ²	Water Resistance PSF	Design Load PSF	Thermal Transmittance "U" Value	Condensation Resistance CRF	Sound Transmittance STC
	.10 @ 6.24 psf	15	90	.60	50	37

Note: Thermal values are based upon 1" clear insulating glass.

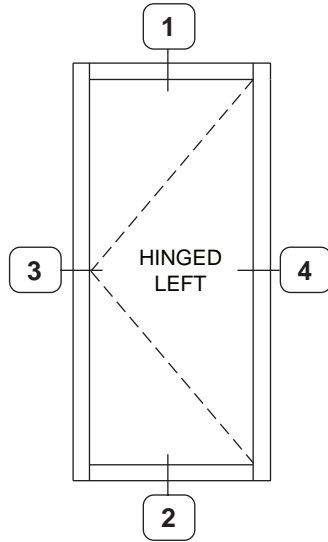
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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SCALE : 3" = 1'-0"

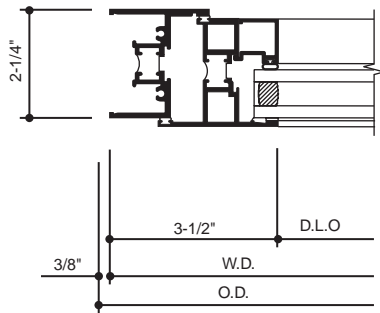
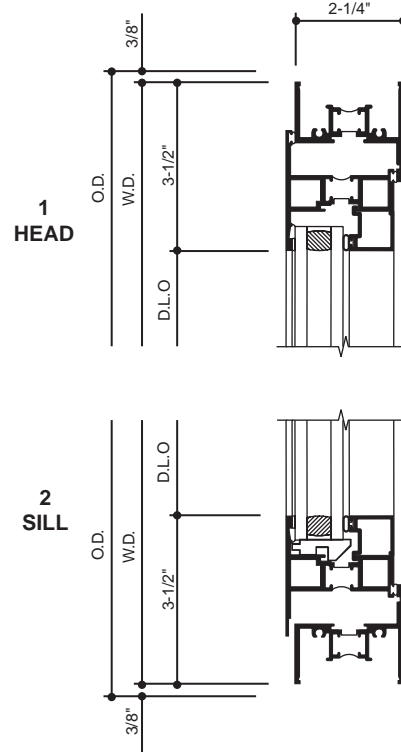
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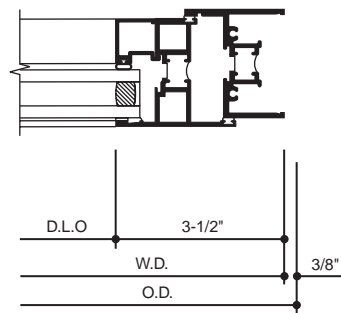


TYPICAL ELEVATION

Log onto www.kawneer.com for other configurations

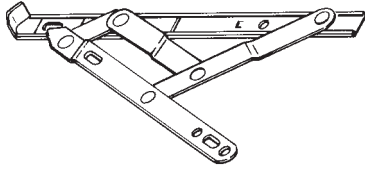


**3
JAMB**



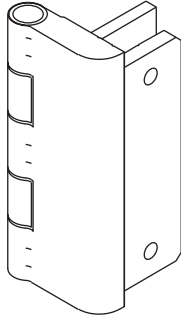
**4
JAMB**

STAINLESS STEEL 4 BAR HINGES



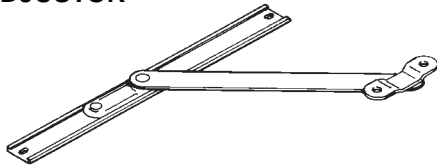
A standard hinge for ventilators providing approximately 45° to 60° openings depending on size. An optional limit stop is available to restrict hinge travel and limit vent opening.

BUTT HINGES



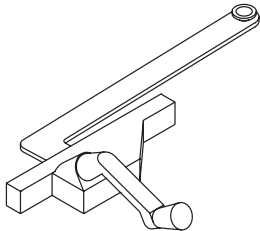
An optional hinge for ventilators providing a full 90° opening. Butt hinges shall be finished to match the window.

FRICTION ADJUSTOR



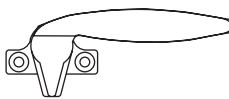
Friction adjustors shall be used with butt hinges for additional friction for control of the ventilator.

ROTO OPERATOR



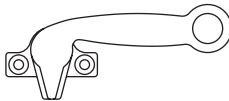
Roto operators are used with butt hinges only and located at the bottom horizontal frame. Standard finish shall be brushed copper nickel to match US-25-D.

STANDARD CAM HANDLE



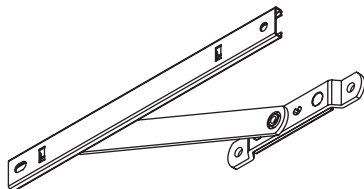
Cast white bronze cam handles are standard for the manual operation and locking of ventilators.

CAM HANDLE WITH POLE RING



Cast white bronze cam handles with pole ring provide manual operation of ventilators located above reach. These handles are operated with a sash pole.

KEYED LIMIT ARM



Key released limit arms may be used to restrict ventilator opening when used with butt hinges.

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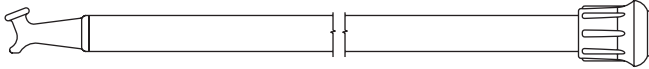
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POLE RING



Cast white bronze pole ring is used in conjunction with locking hardware for sash pole operation of ventilators.

SASH POLE

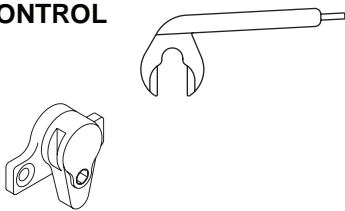


HANGER FOR SASH POLE



A 3/4" diameter aluminum sash pole with a cast white bronze pull down hook and black rubber tip. Available in 6 ft. and 12 ft. lengths with optional cast white bronze pole hanger.

ACCESS CONTROL LOCK



In lieu of the standard cam handles cast white bronze access control locks are offered for managed control of vent operations. Lock is operated with a manganese bronze removable handle.

HOOK BOLT LOCK



Optional hook bolt lock in lieu of cam handle. Standard finish shall be US-25-D clear white bronze.

MULTI-POINT LOCK



Optional single locking handle for concealed multi-point locks located on the vertical frame. Standard finish shall be US-25-D clear white bronze.

ESCAPE WINDOW SIGN

Vinyl escape window sign. Colors are white letters on red background.



RESCUE WINDOW SIGN

Vinyl rescue window sign with lettering on both sides. Colors are black letters on a yellow background.



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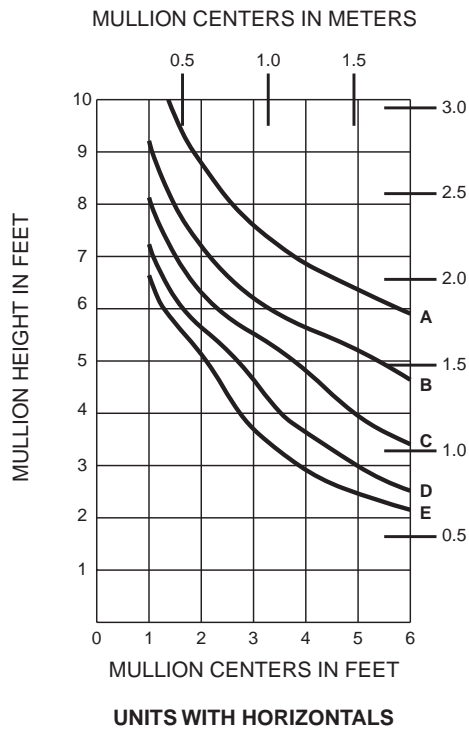
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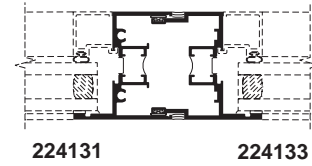
WIND LOAD CHARTS:

THESE CHARTS ARE BASED ON A MAXIMUM DEFLECTION OF L/175 AND/OR A MAXIMUM STRESS OF 15,152 PSI (104 MPa).

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.

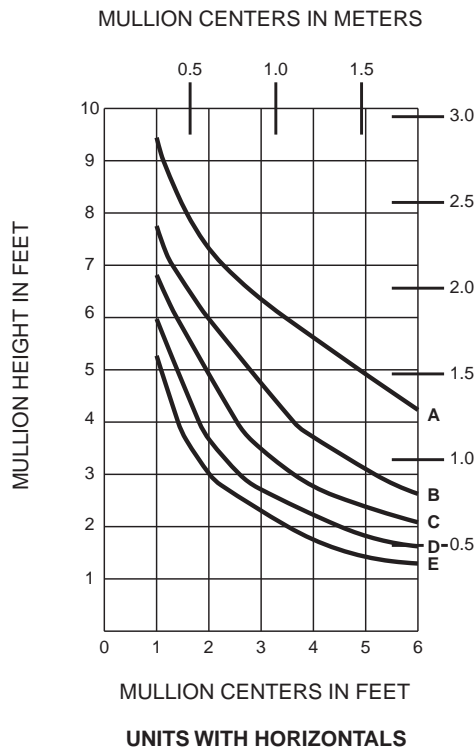


- A = 20 PSF (958)
- B = 35 PSF (1436)
- C = 50 PSF (2394)
- D = 70 PSF (3352)
- E = 90 PSF (4309)

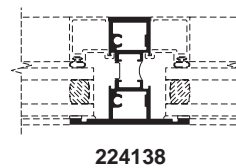


MULLION HEIGHT IN METERS

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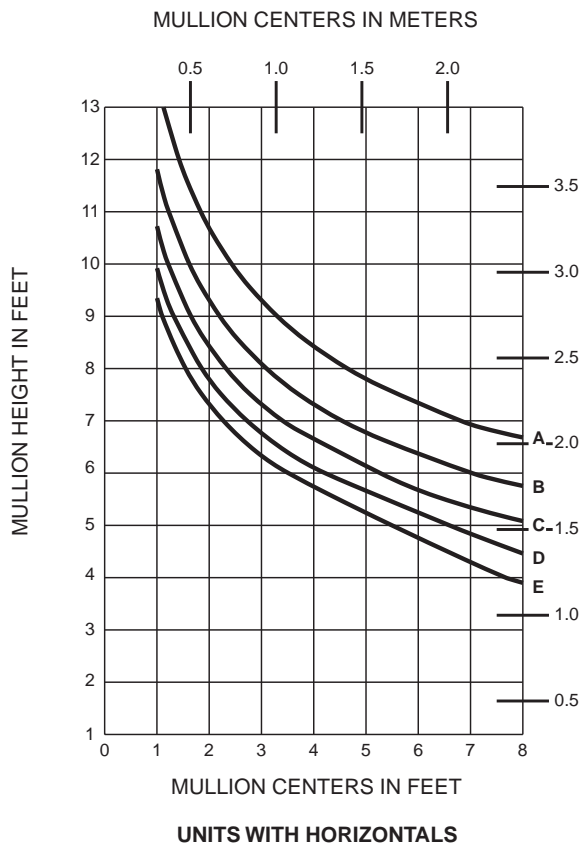
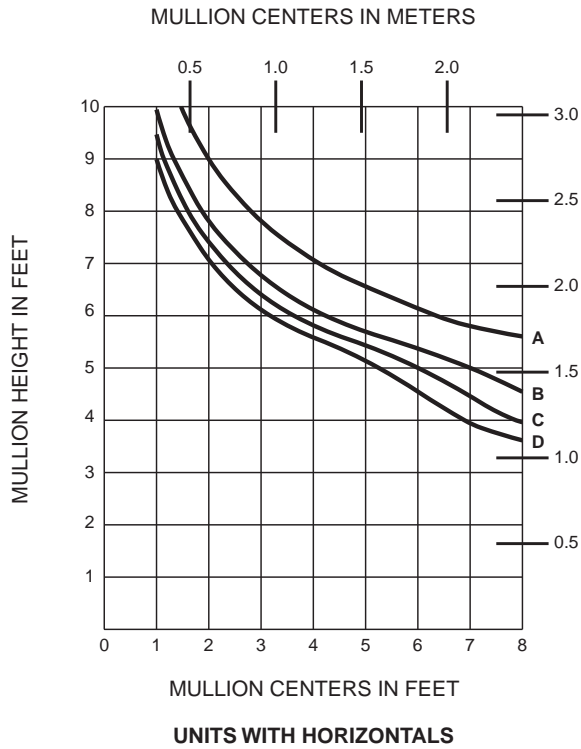
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- C = 50 PSF (2394)
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MULLION HEIGHT IN METERS

WIND LOAD CHARTS:

THESE CHARTS ARE BASED ON A MAXIMUM DEFLECTION OF L/175 AND/OR A MAXIMUM STRESS OF 15,152 PSI (104 MPa).

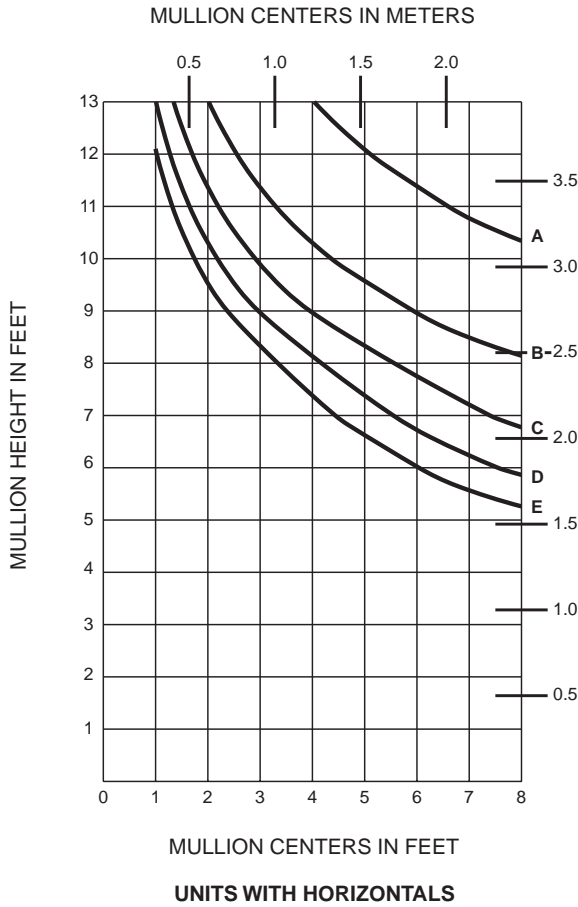


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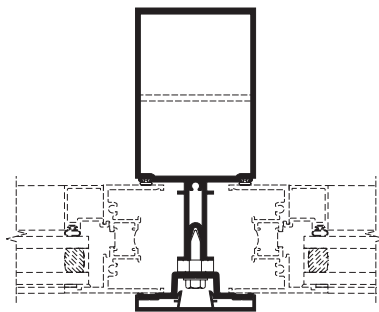
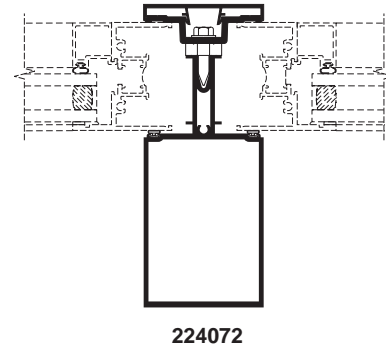
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WIND LOAD CHARTS:

THESE CHARTS ARE BASED ON A MAXIMUM DEFLECTION OF L/175 AND/OR A MAXIMUM STRESS OF 15,152 PSI (104 MPa).



- A = 20 PSF (958)
- B = 40 PSF (1915)
- C = 60 PSF (2873)
- D = 80 PSF (3830)
- E = 100 PSF (4788)



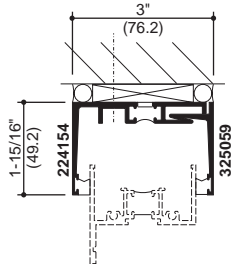
NOTE:
 MULLION PROJECTION TO THE
 INTERIOR AVAILABLE

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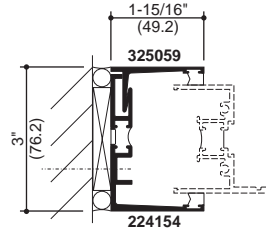
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SCALE : 3" = 1'-0"

EQUAL LEG SILLS

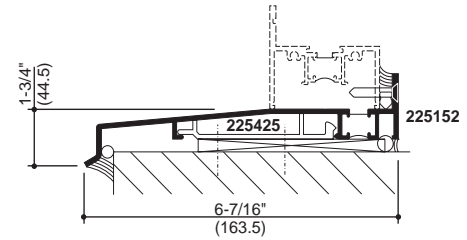
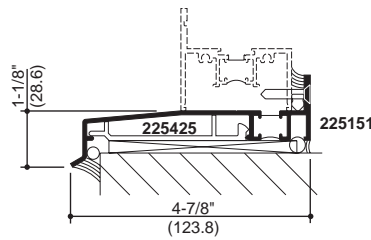
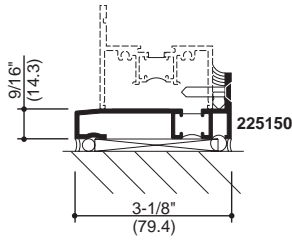


HEAD RECEPTOR

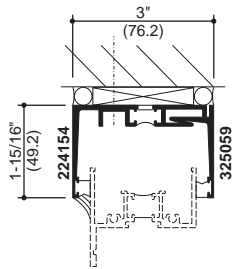


JAMB RECEPTOR

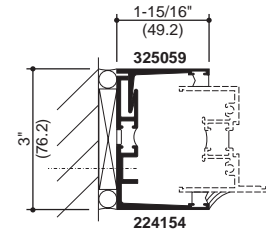
FULL DEPTH SILLS



UNEQUAL LEG SILLS

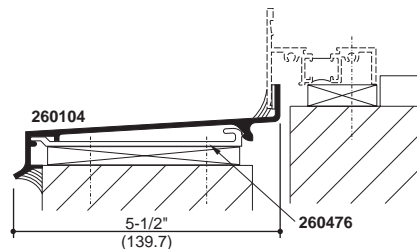
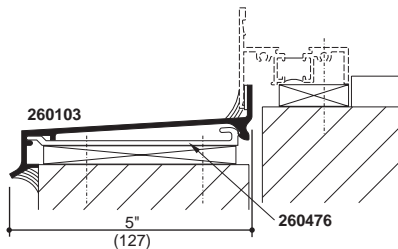
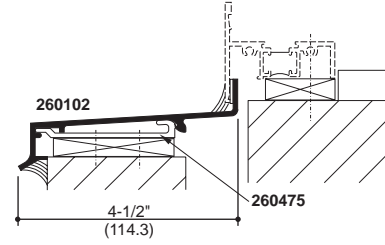
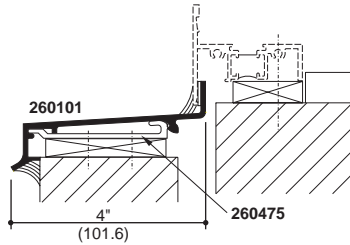
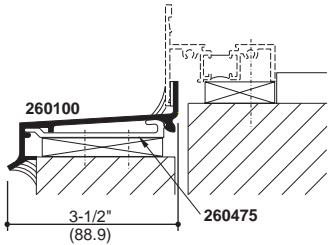


HEAD RECEPTOR



JAMB RECEPTOR

UNEQUAL LEG SILLS

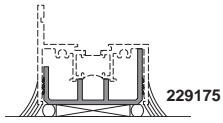


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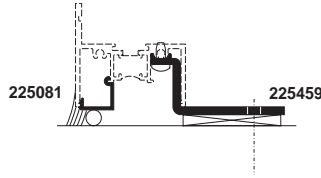
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EC 97911-075

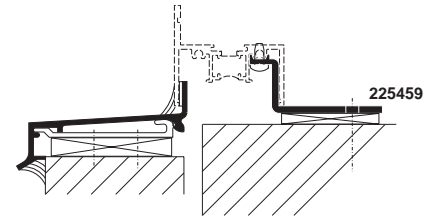
SCALE : 3" = 1'-0"



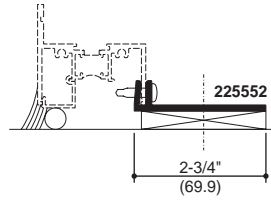
**PVC PERIMETER
(Continuous)
Head and Jamb Similar**



**STRAP ANCHOR
with SEALANT BACK-UP**



**STRAP ANCHOR
with SUB SILL**

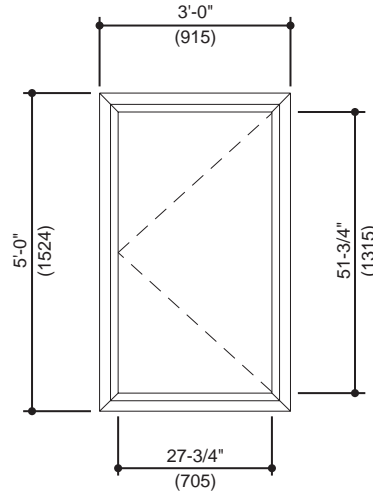


**F-ANCHOR STRAP
Equal Leg Frame Only**

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



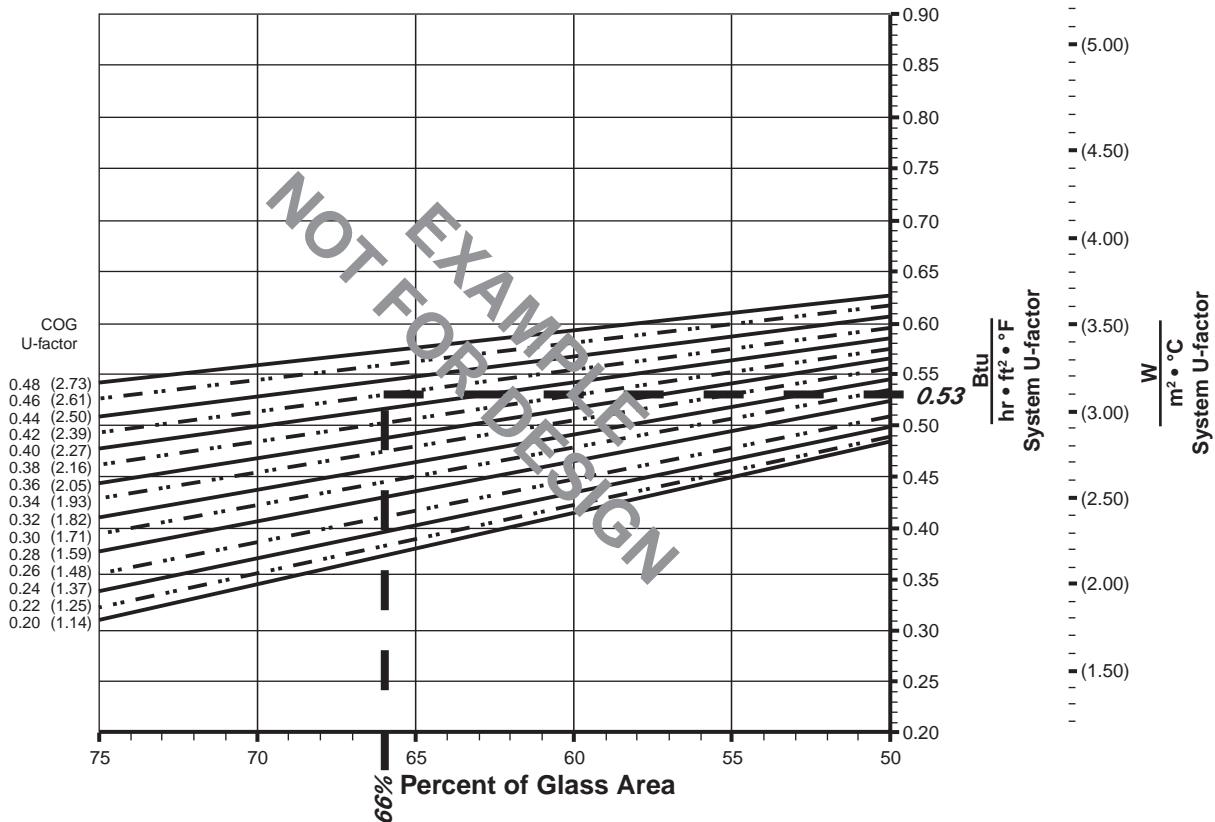
Example Glass U-Factor = 0.42 Btu/hr • ft² • °F

Total Daylight Opening = 27-3/4" • 51-3/4" = 9.97ft²

Total Projected Area = 3'-0" • 5'-0" = 15 ft²

Percent of Glass = (Total Daylight Opening ÷ Total Projected Area)100
 = (9.97 ÷ 15)100 = 66%

System U-factor vs Percent of Glass Area



Based on 66% glass and center of glass (COG) U-factor of 0.42
 System U-factor is equal to 0.53 Btu/hr • ft² • °F

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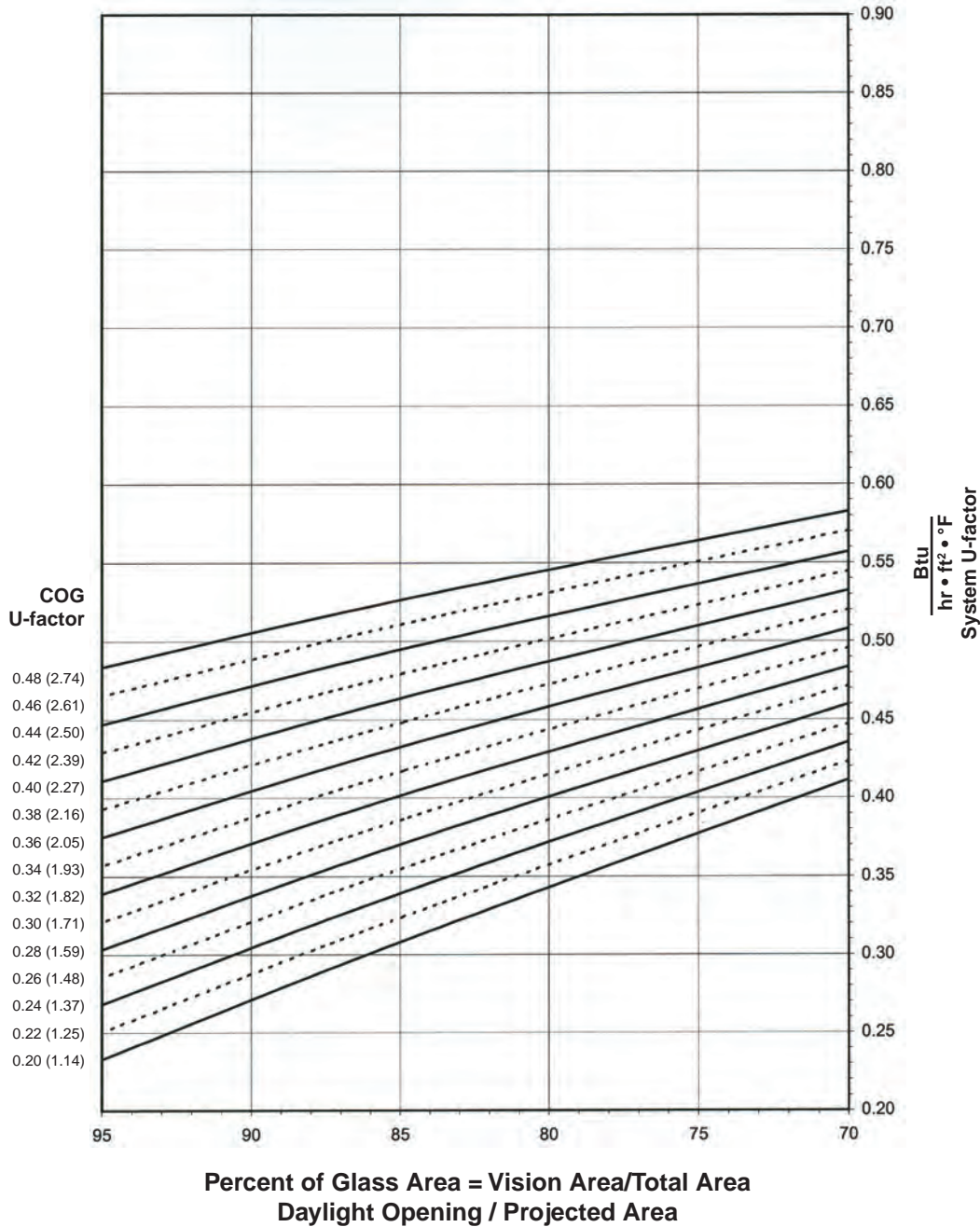
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FIXED WINDOW WITH 1" GLAZING

Note:

Values in parentheses are metric.
 COG = Center of Glass.
 Charts are generated per AMMA 507

System U-factor vs Percent of Glass Area



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

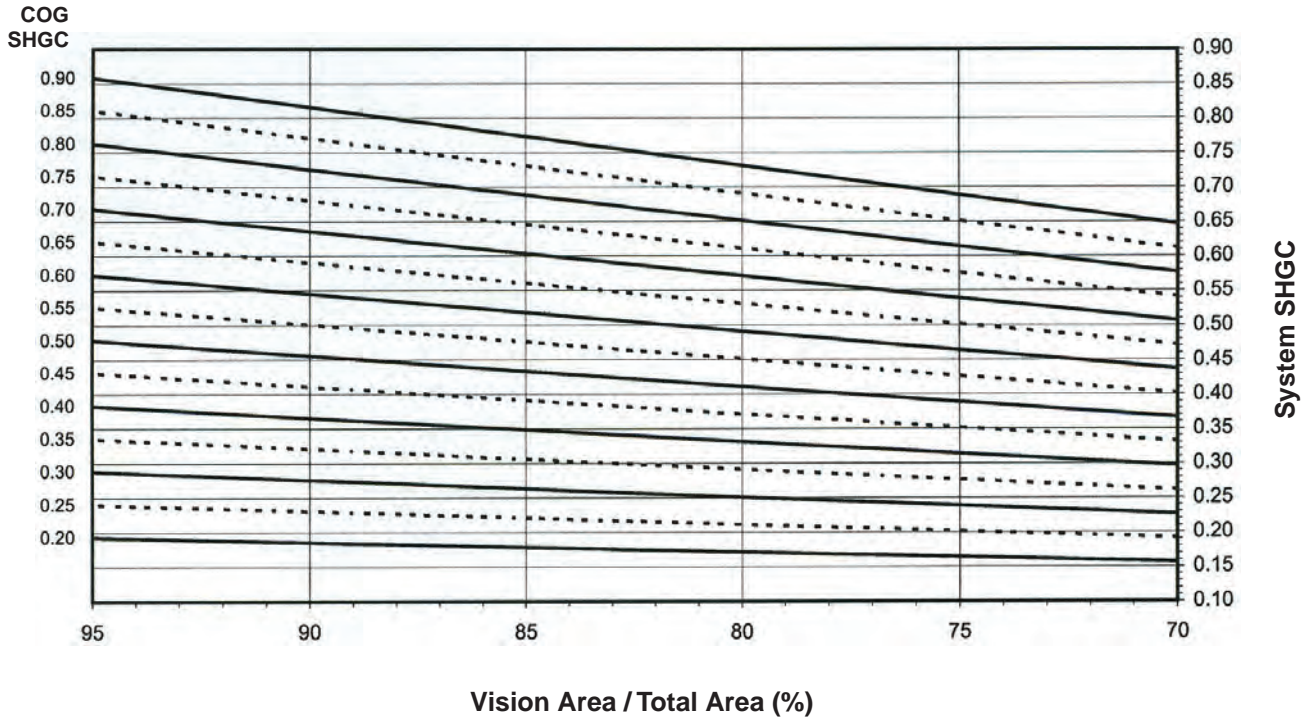
For glass values that are not listed, linear interpolation is permitted.
 Glass properties are based on center of glass values and are obtained from your glass supplier.

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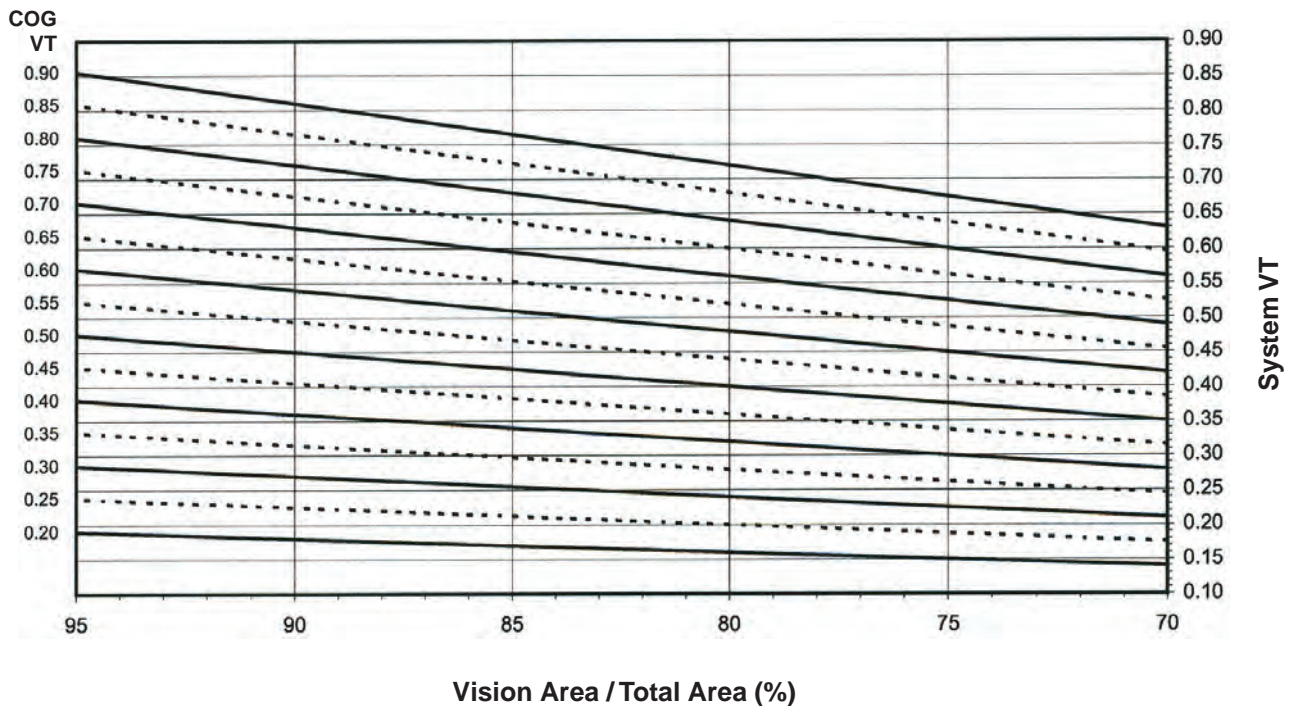
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FIXED WINDOW WITH 1" GLAZING

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



System Visible Transmittance (VT) vs Percent of Vision Area



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

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.53
0.46	0.51
0.44	0.50
0.42	0.48
0.40	0.46
0.38	0.45
0.36	0.43
0.34	0.42
0.32	0.40
0.30	0.39
0.28	0.37
0.26	0.36
0.24	0.34
0.22	0.32
0.20	0.31

FIXED WINDOW WITH 1" GLAZING

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 1200mm wide by 1500mm high (47-1/4" by 59-1/16").

SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.90	0.77
0.85	0.73
0.80	0.69
0.75	0.65
0.70	0.60
0.65	0.56
0.60	0.52
0.55	0.48
0.50	0.43
0.45	0.39
0.40	0.35
0.35	0.31
0.30	0.26
0.25	0.22
0.20	0.18

Visible Transmittance ²

Glass VT ³	Overall VT ⁴
0.90	0.76
0.85	0.72
0.80	0.68
0.75	0.64
0.70	0.59
0.65	0.55
0.60	0.51
0.55	0.47
0.50	0.42
0.45	0.38
0.40	0.34
0.35	0.30
0.30	0.25
0.25	0.21
0.20	0.17

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.

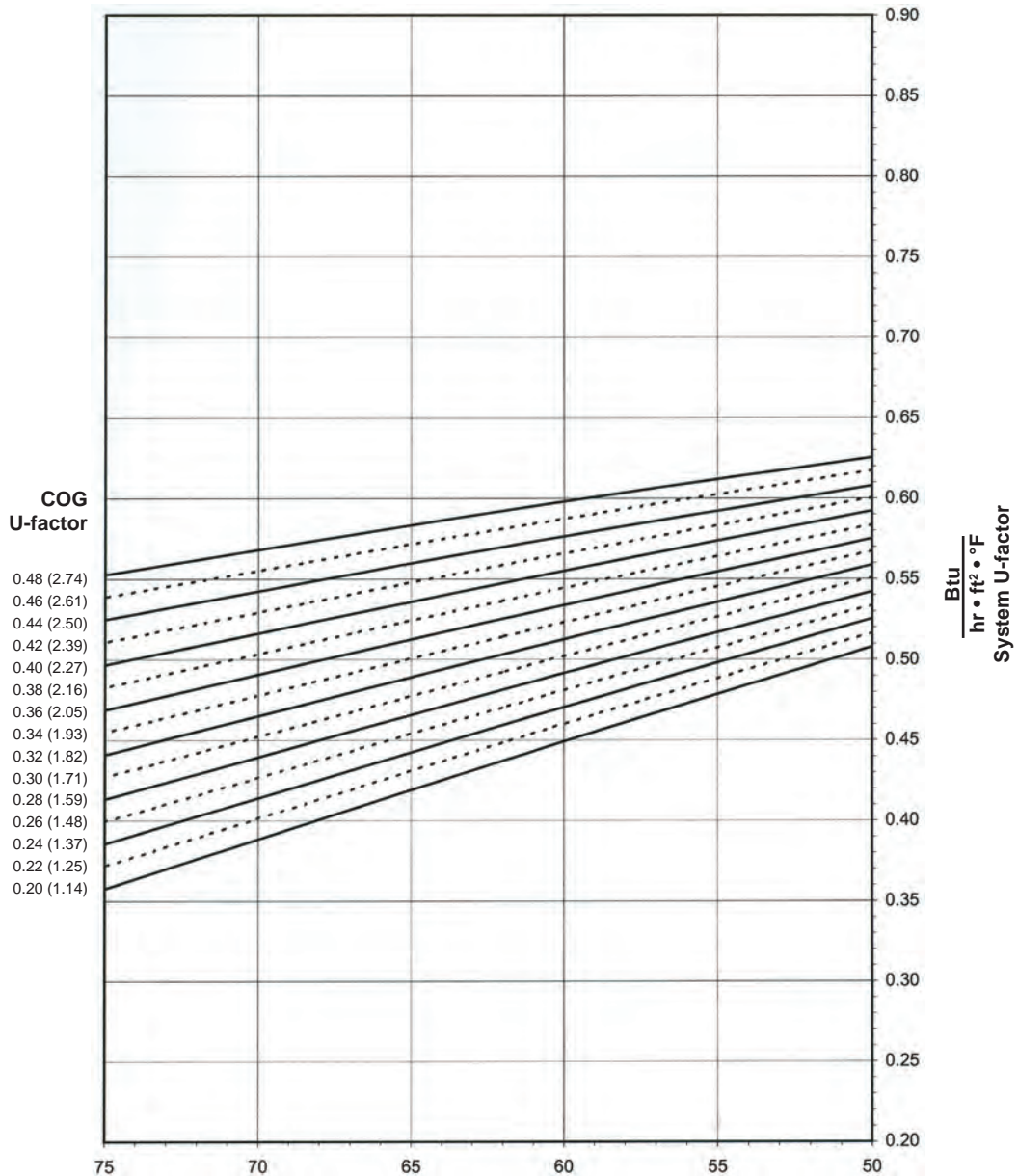
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PROJECT-IN WINDOW WITH 1" GLAZING

Note:

Values in parentheses are metric.
 COG = Center of Glass.
 Charts are generated per AMMA 507

System U-factor vs Percent of Glass Area



**Percent of Glass Area = Vision Area/Total Area
 Daylight Opening / Projected Area**

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

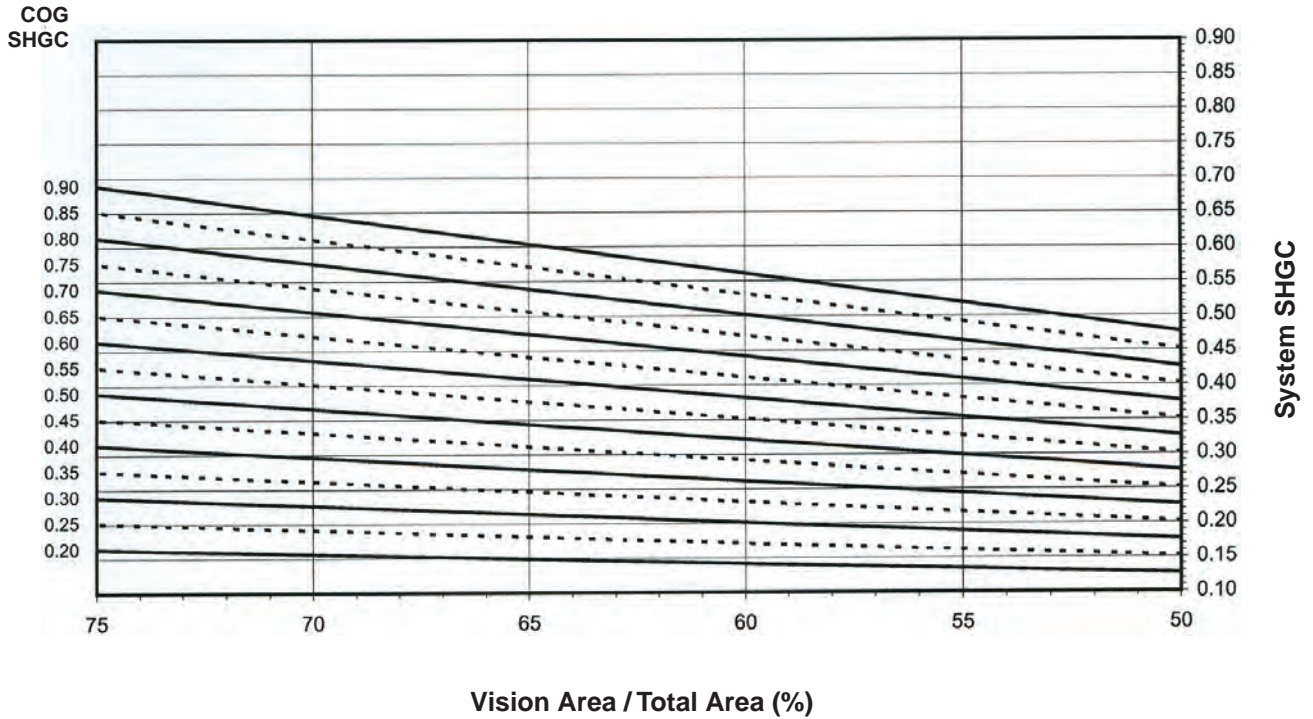
For glass values that are not listed, linear interpolation is permitted.
 Glass properties are based on center of glass values and are obtained from your glass supplier.

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

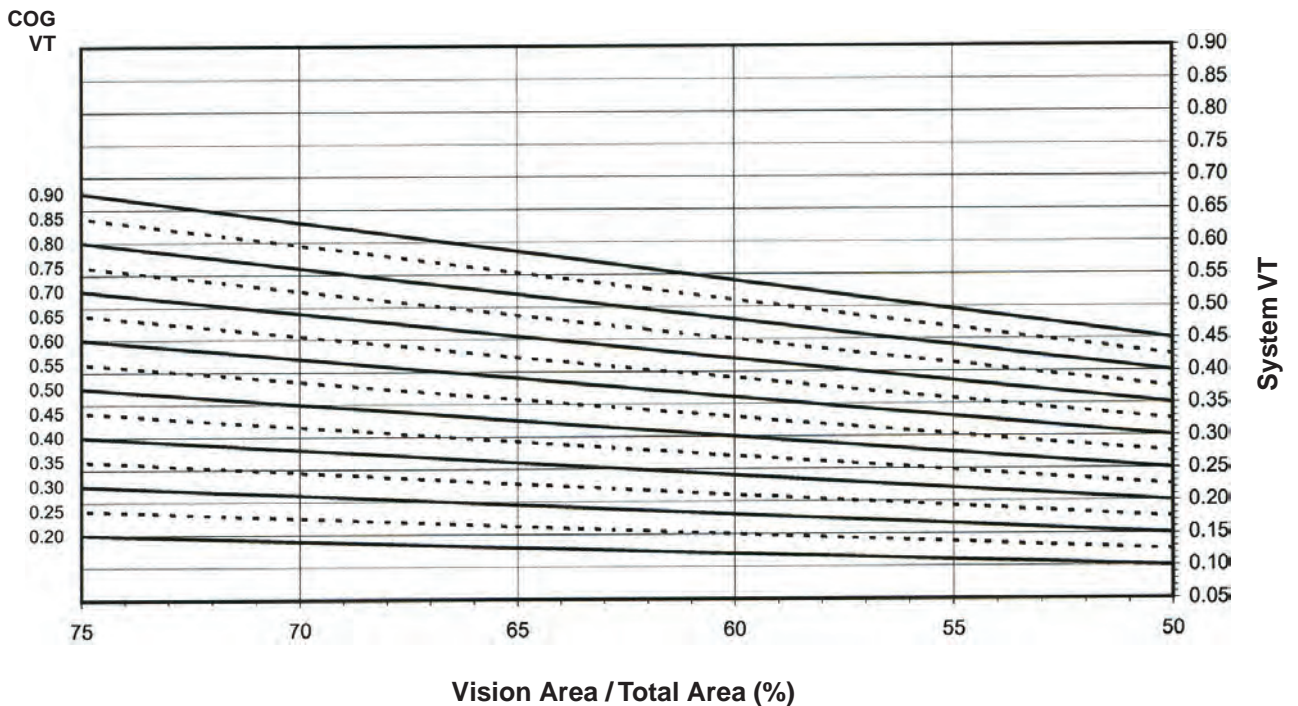
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PROJECT-IN WINDOW WITH 1" GLAZING

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.

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Thermal Transmittance¹ (BTU/hr • ft² • °F)

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.59
0.46	0.58
0.44	0.57
0.42	0.56
0.40	0.55
0.38	0.54
0.36	0.53
0.34	0.51
0.32	0.50
0.30	0.49
0.28	0.48
0.26	0.47
0.24	0.46
0.22	0.45
0.20	0.44

**PROJECT-IN WINDOW
WITH 1" GLAZING**

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 1500mm wide by 600mm high (59-1/16" by 23-5/8").

SHGC Matrix²

Glass SHGC ³	Overall SHGC ⁴
0.90	0.58
0.85	0.55
0.80	0.52
0.75	0.49
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	0.14

Visible Transmittance²

Glass VT ³	Overall VT ⁴
0.90	0.56
0.85	0.53
0.80	0.50
0.75	0.47
0.70	0.43
0.65	0.40
0.60	0.37
0.55	0.34
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	0.12

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.

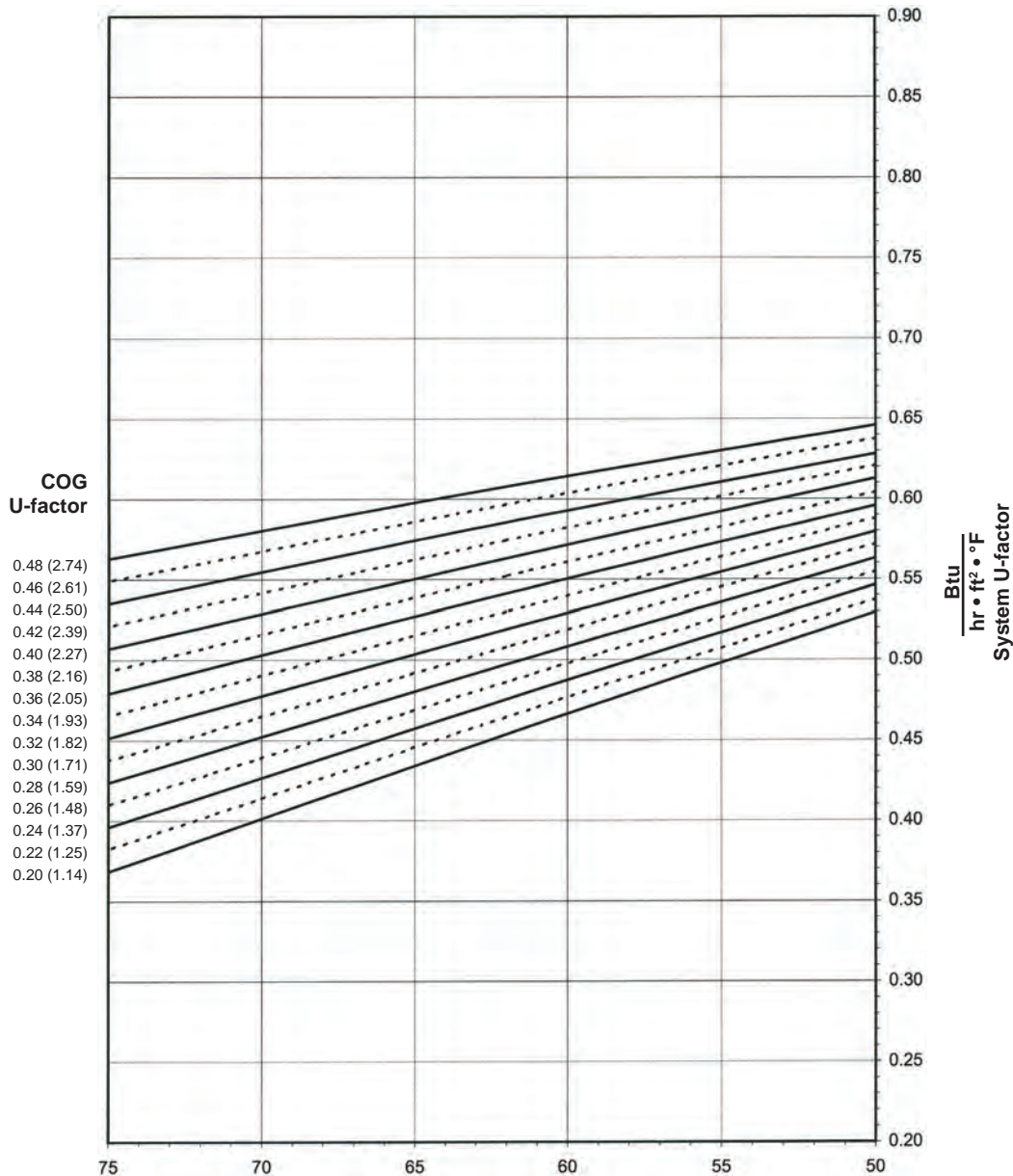
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PROJECT-OUT WINDOW WITH 1" GLAZING

Note:

Values in parentheses are metric.
 COG = Center of Glass.
 Charts are generated per AMMA 507

System U-factor vs Percent of Glass Area



**Percent of Glass Area = Vision Area/Total Area
 Daylight Opening / Projected Area**

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

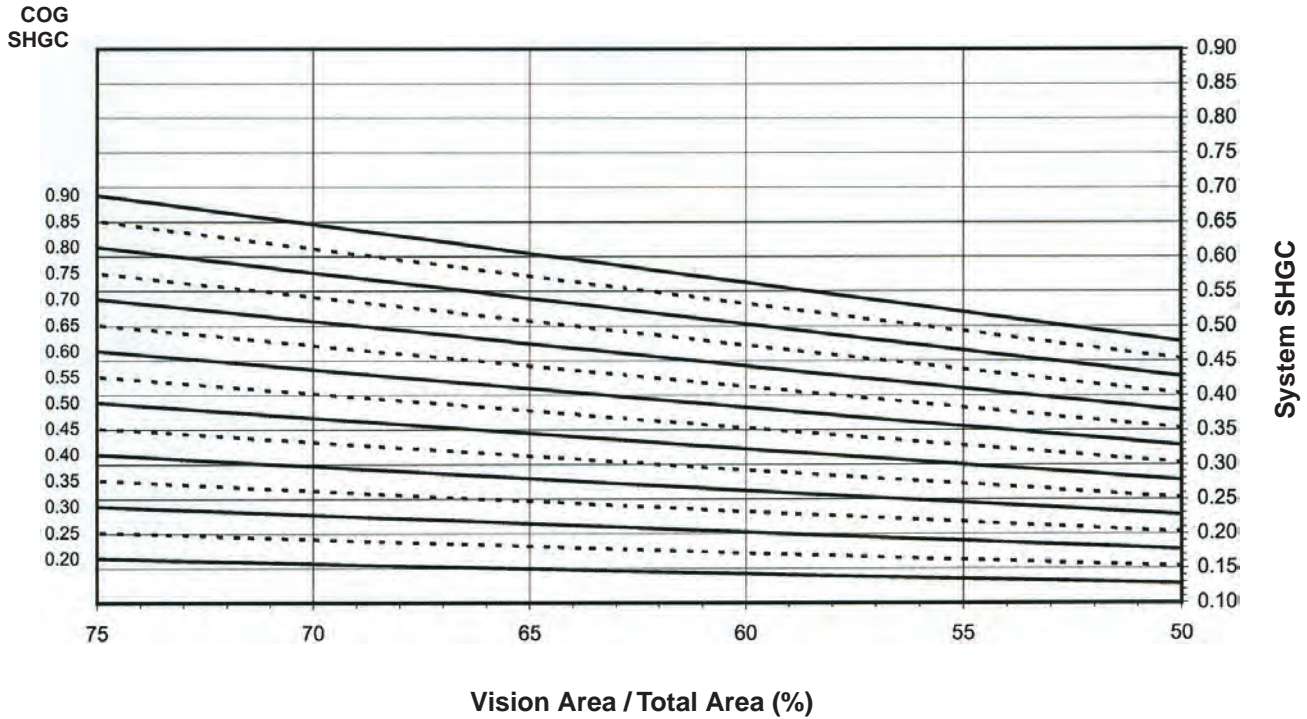
For glass values that are not listed, linear interpolation is permitted.
 Glass properties are based on center of glass values and are obtained from your glass supplier.

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

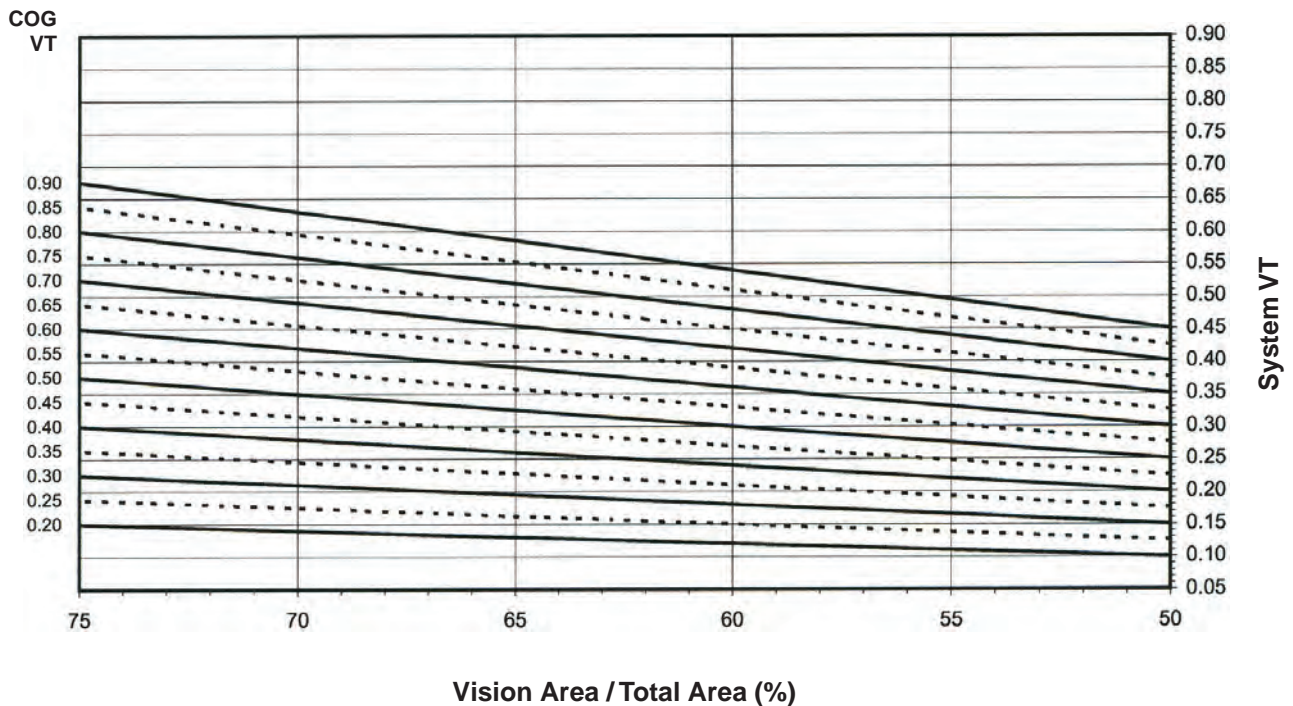
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PROJECT-OUT WINDOW WITH 1" GLAZING

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.

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

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.61
0.46	0.60
0.44	0.59
0.42	0.57
0.40	0.56
0.38	0.55
0.36	0.54
0.34	0.53
0.32	0.52
0.30	0.51
0.28	0.50
0.26	0.49
0.24	0.48
0.22	0.46
0.20	0.45

PROJECT-OUT WINDOW WITH 1" GLAZING

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 1500mm wide by 600mm high (59-1/16" by 23-5/8").

SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.90	0.58
0.85	0.55
0.80	0.52
0.75	0.49
0.70	0.46
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

Visible Transmittance ²

Glass VT ³	Overall VT ⁴
0.90	0.56
0.85	0.53
0.80	0.50
0.75	0.47
0.70	0.43
0.65	0.40
0.60	0.37
0.55	0.34
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	0.12

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.

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INSWING CASEMENT WINDOW WITH 1" GLAZING

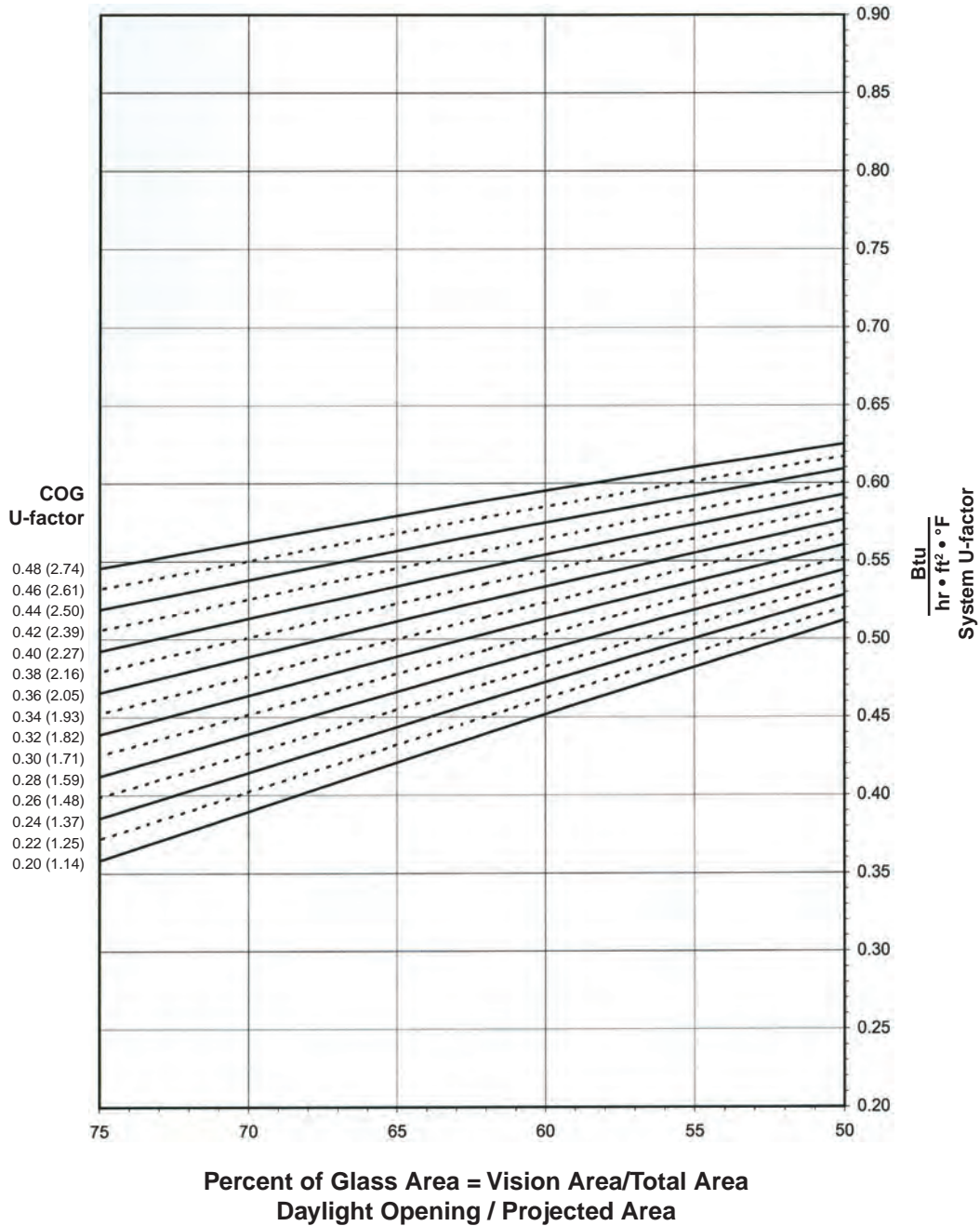
Note:

Values in parentheses are metric.

COG = Center of Glass.

Charts are generated per AMMA 507

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.

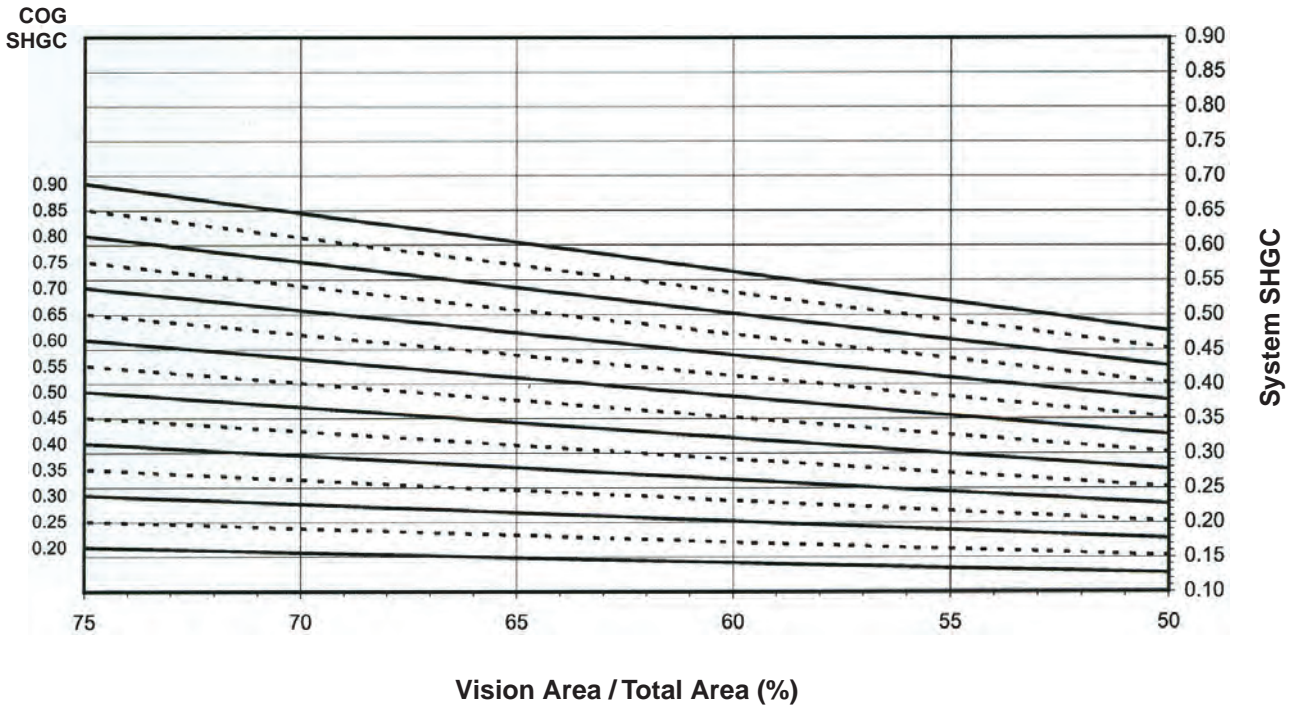
Glass properties are based on center of glass values and are obtained from your glass supplier.

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

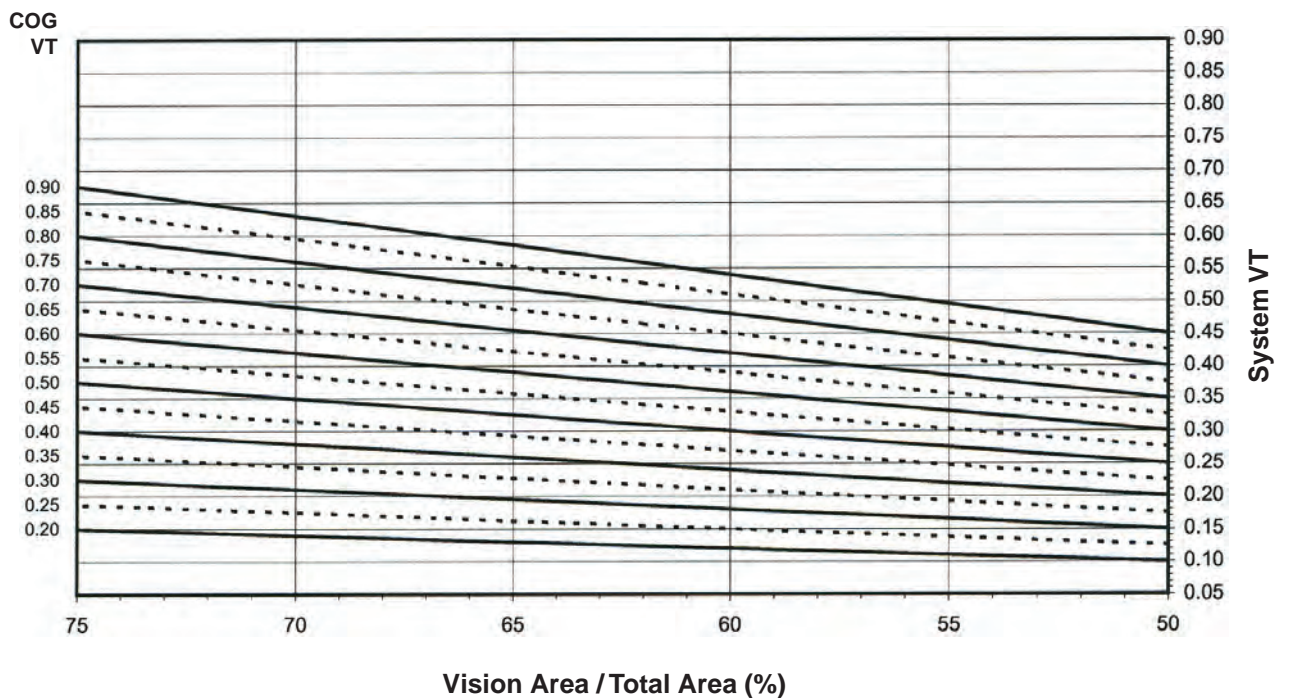
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INSWING CASEMENT WINDOW WITH 1" GLAZING

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



System Visible Transmittance (VT) vs Percent of Vision Area



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Thermal Transmittance¹ (BTU/hr • ft² • °F)

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.59
0.46	0.58
0.44	0.57
0.42	0.56
0.40	0.55
0.38	0.54
0.36	0.52
0.34	0.51
0.32	0.50
0.30	0.49
0.28	0.48
0.26	0.47
0.24	0.46
0.22	0.45
0.20	0.44

**INSWING CASEMENT WINDOW
WITH 1" GLAZING**

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 600mm wide by 1500mm high (23-5/8" by 59-1/16").

SHGC Matrix²

Glass SHGC ³	Overall SHGC ⁴
0.90	0.58
0.85	0.55
0.80	0.52
0.75	0.49
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	0.14

Visible Transmittance²

Glass VT ³	Overall VT ⁴
0.90	0.56
0.85	0.53
0.80	0.50
0.75	0.47
0.70	0.43
0.65	0.40
0.60	0.37
0.55	0.34
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	0.12

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.

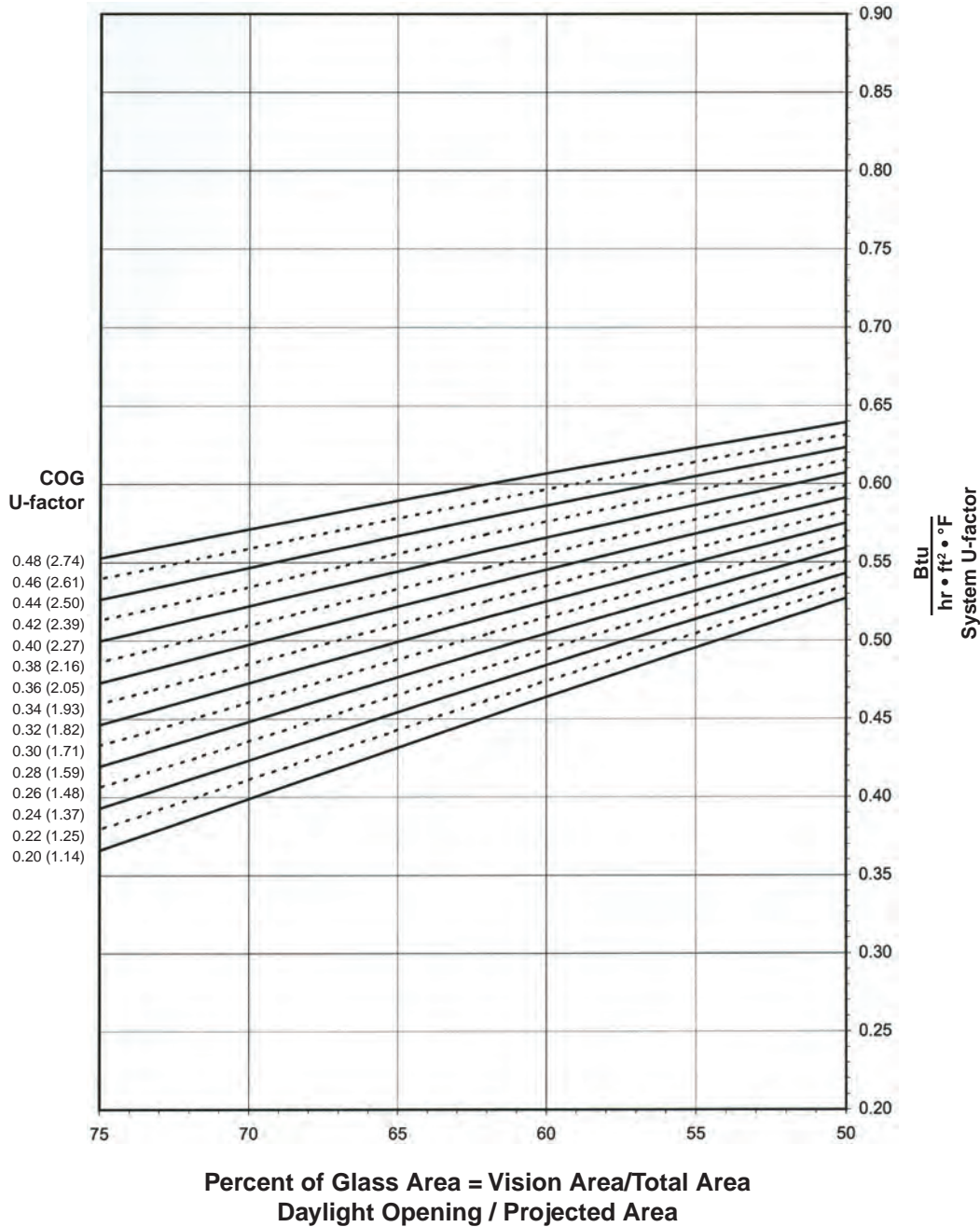
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OUTSWING CASEMENT WINDOW WITH 1" GLAZING

Note:

Values in parentheses are metric.
 COG = Center of Glass.
 Charts are generated per AMMA 507

System U-factor vs Percent of Glass Area



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

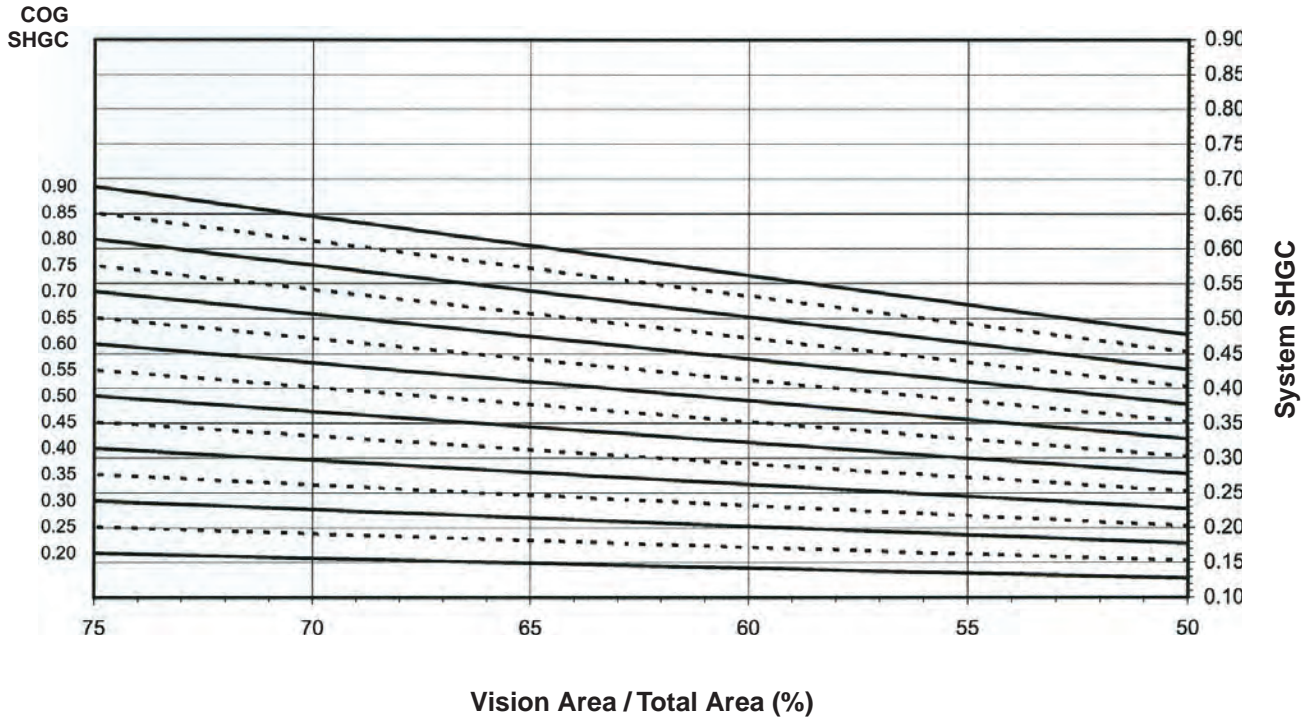
For glass values that are not listed, linear interpolation is permitted.
 Glass properties are based on center of glass values and are obtained from your glass supplier.

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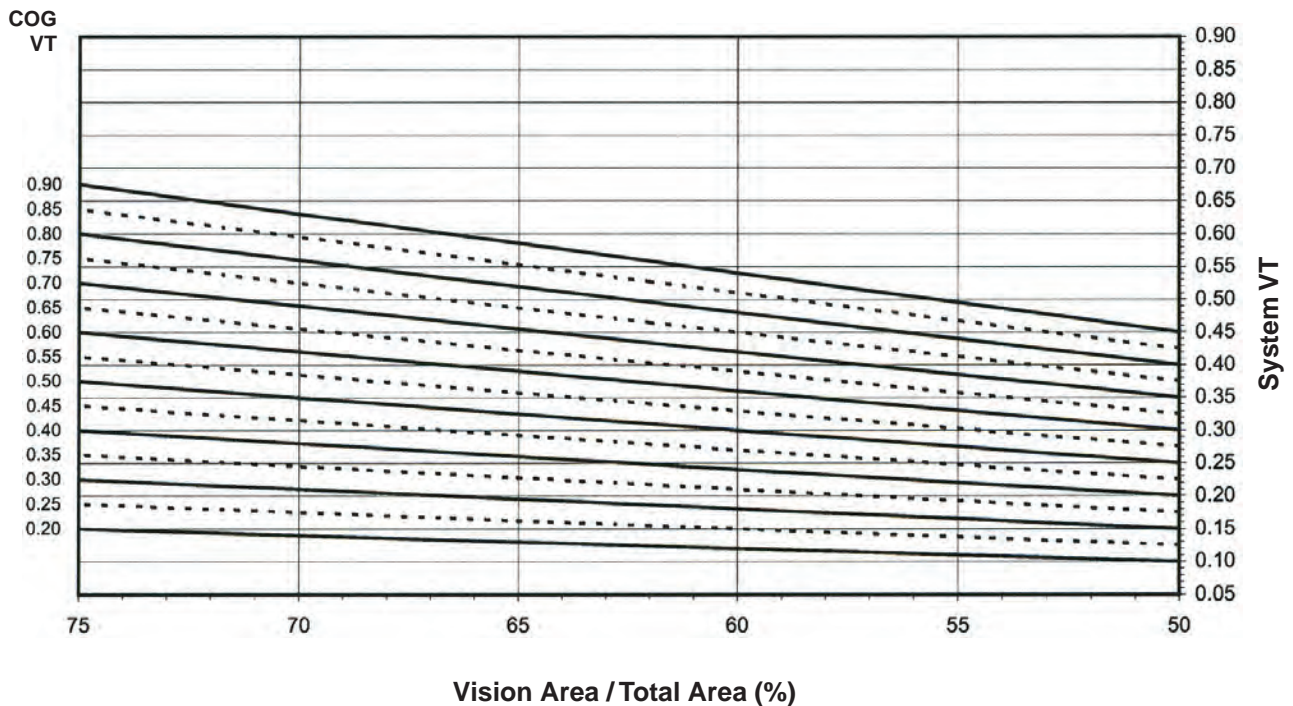
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OUTSWING CASEMENT WINDOW WITH 1" GLAZING

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



System Visible Transmittance (VT) vs Percent of Vision Area



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

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.60
0.46	0.59
0.44	0.58
0.42	0.57
0.40	0.56
0.38	0.55
0.36	0.54
0.34	0.53
0.32	0.51
0.30	0.50
0.28	0.49
0.26	0.48
0.24	0.47
0.22	0.46
0.20	0.45

OUTSWING CASEMENT WINDOW WITH 1" GLAZING

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 600mm wide by 1500mm high (23-5/8" by 59-1/16").

SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.90	0.58
0.85	0.55
0.80	0.52
0.75	0.49
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	0.14

Visible Transmittance ²

Glass VT ³	Overall VT ⁴
0.90	0.56
0.85	0.53
0.80	0.50
0.75	0.47
0.70	0.43
0.65	0.40
0.60	0.37
0.55	0.34
0.50	0.31
0.45	0.38
0.40	0.25
0.35	0.22
0.30	0.19
0.25	0.16
0.20	0.12

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