

**PROJECT-OUT WINDOW (1-3/4" INFILL) ..... 3-6**  
**PROJECT-OUT WINDOW (1" INFILL)..... 7-10**  
**OUTSWING CASEMENT WINDOW (1-3/4" INFILL)..... 11-14**  
**OUTSWING CASEMENT WINDOW (1" INFILL)..... 15-18**  
**THERMAL CHARTS ..... 19-31**

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., 2014

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

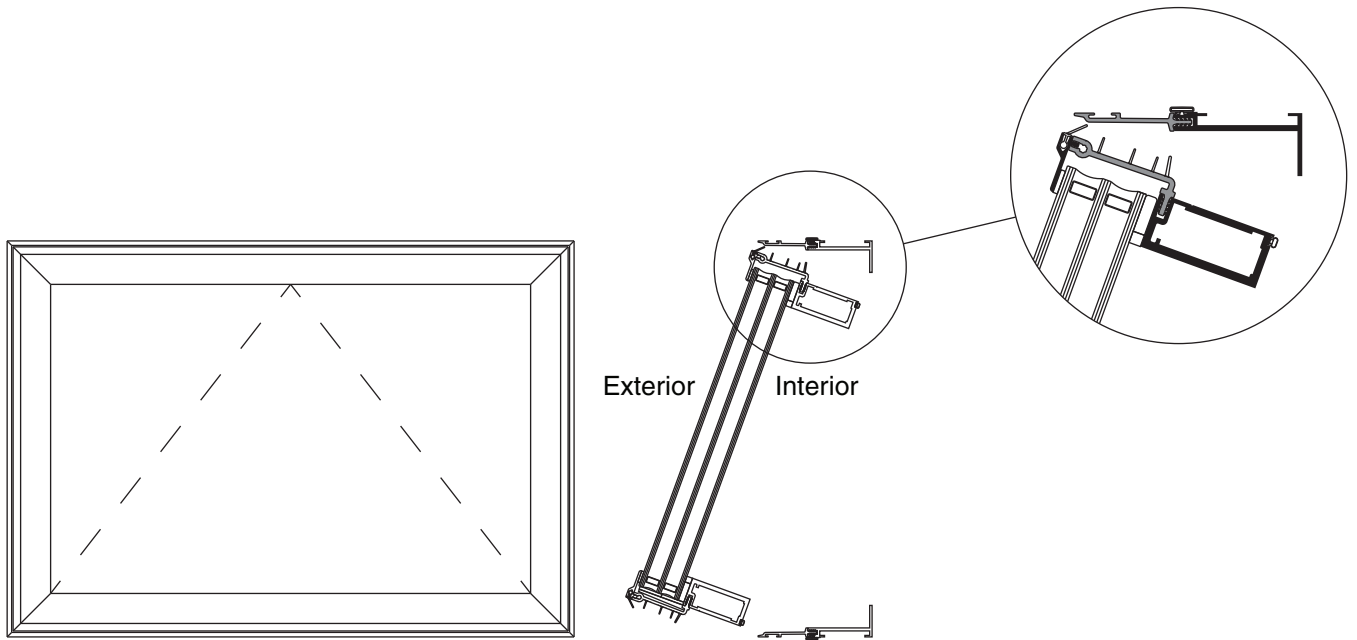
Kawneer reserves the right to change configurations without prior notice when deemed necessary for product improvement.

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., 2014

**Standard Features**

- Architectural Grade Window
- Tested to US and Canadian Standards
- 45° Mitered Vent and Frame Corners
- Staked Corner Joinery
- Architectural Anodized Finishes and Applied Coatings



**Project-out Window  
(1-3/4" infill)**

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.

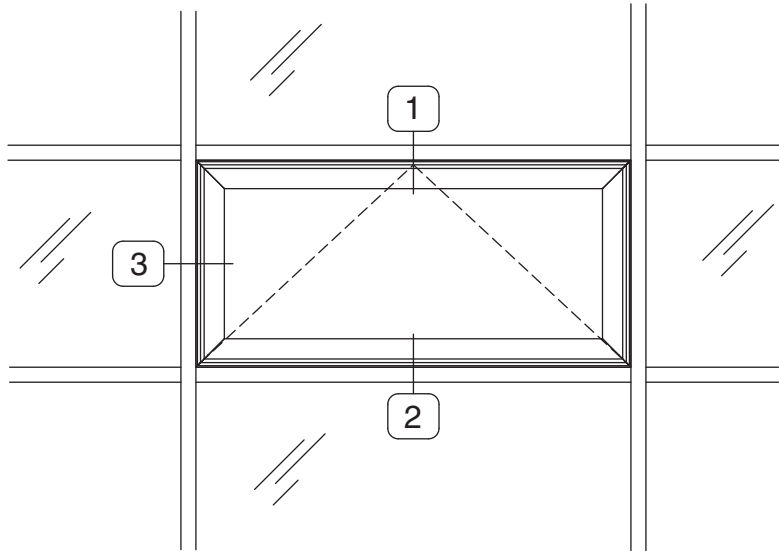
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
© Kawneer Company, Inc., 2014

<b>CLASS and GRADE</b>	Architectural Grade AW-PG90-AP
<b>TESTING STANDARD</b>	AAMA / WDMA / CSA / 101 / I.S.2 / A440 (NAFS)
<b>SYSTEM DEPTH</b>	5-1/8" Overall System Depth
<b>TYPICAL WALL THICKNESS</b>	.125 Nominal Frame / .156" Nominal Vent
<b>TYPICAL MAX. VENT SIZE</b>	60" x 36"
<b>TYPICAL MIN. VENT SIZE</b>	17" x 17"
<b>INFILL OPTIONS</b>	1-3/4"
<b>STANDARD HARDWARE</b>	Stainless Steel 4-Bar Hinges Cast White Bronze Cam Handles
<b>OPTIONAL HARDWARE</b>	Access Control Locks Pole and Pole Ring Limit Stop
<b>OTHER OPTIONS</b>	Insect Screens

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., 2014

SCALE : 3" = 1'-0"  
(Nominal Dimensions Shown)

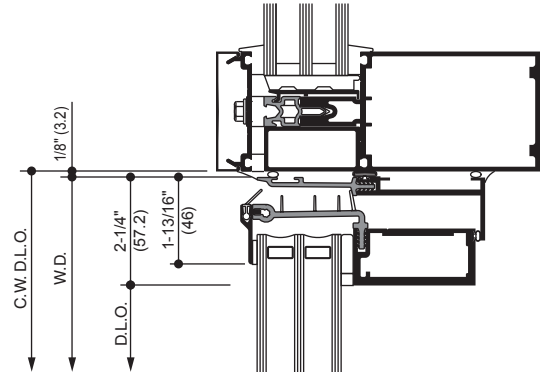


TYPICAL ELEVATION

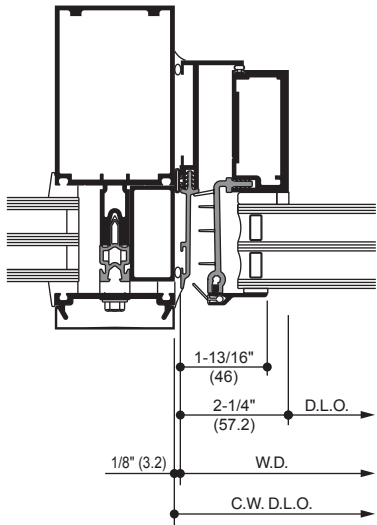
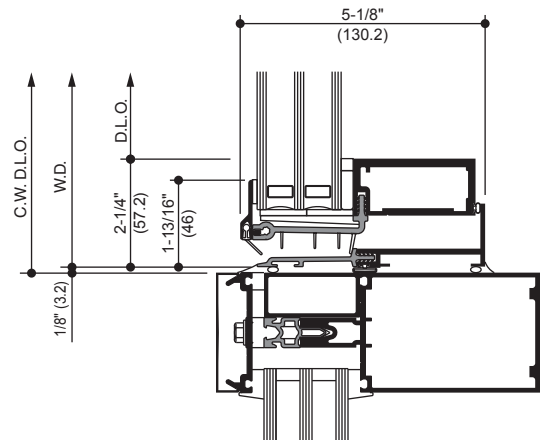
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
© Kawneer Company, Inc., 2014

1 HEAD



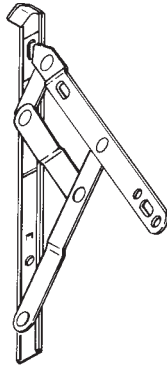
2 SILL



3 JAMB

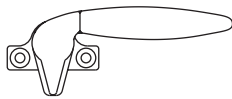
**NOTE:** THE KAWNEER GLASSvent™ UT WINDOW IS SHOWN IN THESE DETAILS WITH 1600UT SYSTEM™1 CURTAIN WALL FOR REFERENCE. OTHER KAWNEER SYSTEMS CAN BE USED. FOR PRODUCT SPECIFIC APPLICATIONS CONSULT YOUR KAWNEER REPRESENTATIVE.

### STAINLESS STEEL 4 BAR HINGES



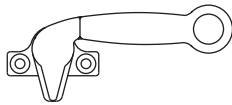
A standard hinge for ventilators providing approximately 45° to 60° openings depending on size. An optional limit stop is available to restrict hinge travel and limit vent opening.

### CAM HANDLE



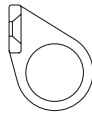
Cast white bronze cam handles are standard for the manual operation and locking of ventilators.

### CAM HANDLE WITH POLE RING



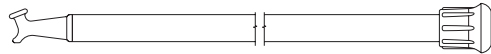
Cast white bronze cam handles with pole ring provide manual operation of ventilators located above reach. These handles are operated with a sash pole.

### POLE RING



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

### SASH POLE

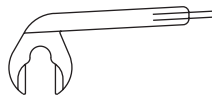


A 3/4" diameter aluminum sash pole with a cast white bronze pull down hook and black rubber tip. Available in 6 ft. and 12 ft. lengths with optional cast white bronze Pole Hanger.

### HANGER FOR SASH POLE



### ACCESS CONTROL LOCK



In lieu of 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.

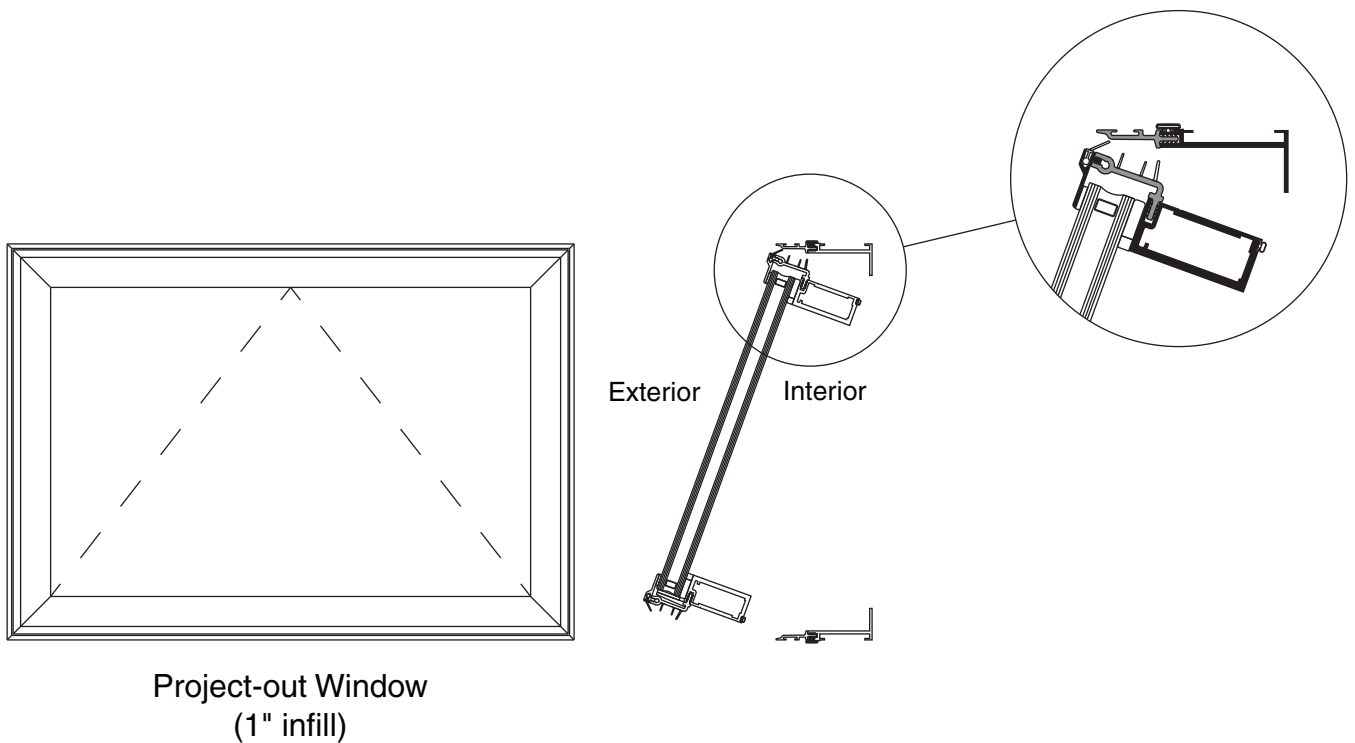


Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
© Kawneer Company, Inc., 2014

**Standard Features**

- Architectural Grade Window
- Tested to US and Canadian Standards
- 45° Mitered Vent and Frame Corners
- Staked Corner Joinery
- Architectural Anodized Finishes and Applied Coatings



Project-out Window  
(1" infill)

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., 2014

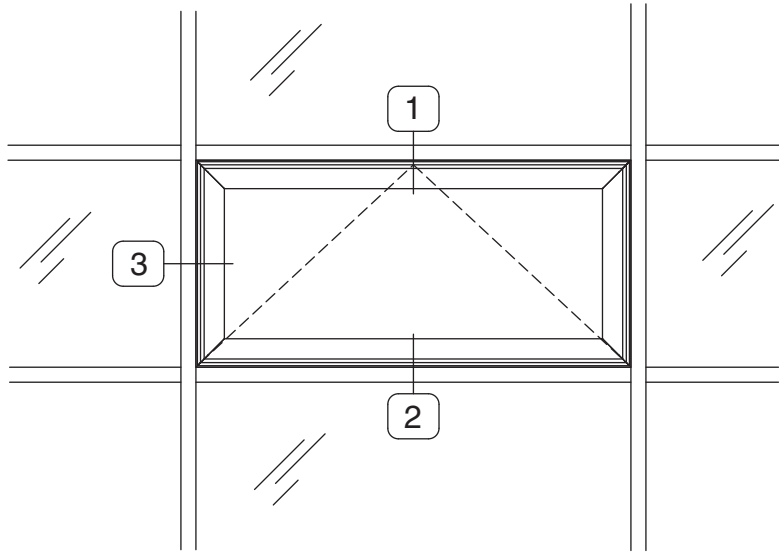
<b>CLASS and GRADE</b>	Architectural Grade AW-PG90-AP
<b>TESTING STANDARD</b>	AAMA / WDMA / CSA / 101 / I.S.2 / A440 (NAFS)
<b>SYSTEM DEPTH</b>	4-3/8" Overall System Depth
<b>TYPICAL WALL THICKNESS</b>	.125 Nominal Frame / .156" Nominal Vent
<b>TYPICAL MAX. VENT SIZE</b>	60" x 36"
<b>TYPICAL MIN. VENT SIZE</b>	17" x 17"
<b>INFILL OPTIONS</b>	1"
<b>STANDARD HARDWARE</b>	Stainless Steel 4-Bar Hinges Cast White Bronze Cam Handles
<b>OPTIONAL HARDWARE</b>	Access Control Locks Pole and Pole Ring Limit Stop
<b>OTHER OPTIONS</b>	Insect Screens

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., 2014

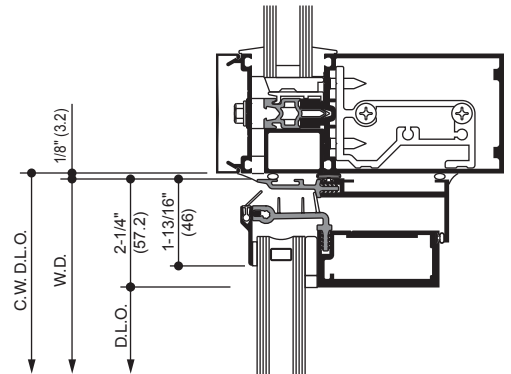


SCALE : 3" = 1'-0"  
(Nominal Dimensions Shown)

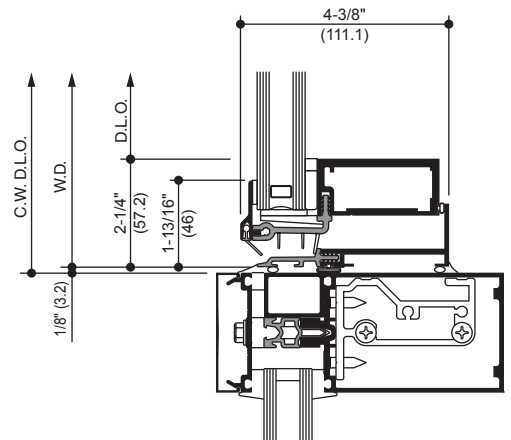


TYPICAL ELEVATION

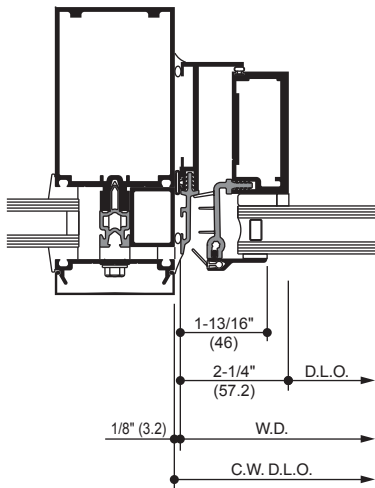
1 HEAD



2 SILL



3 JAMB

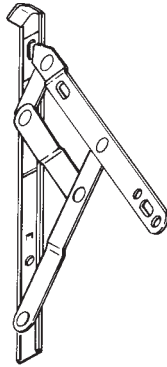


NOTE: THE KAWNEER GLASSvent™ UT WINDOW IS SHOWN IN THESE DETAILS WITH 1600UT SYSTEM™1 CURTAIN WALL FOR REFERENCE. OTHER KAWNEER SYSTEMS CAN BE USED. FOR PRODUCT SPECIFIC APPLICATIONS CONSULT YOUR KAWNEER REPRESENTATIVE.

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.

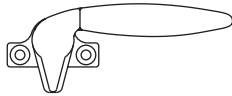
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
© Kawneer Company, Inc., 2014

### STAINLESS STEEL 4 BAR HINGES



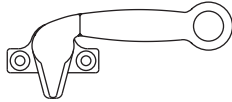
A standard hinge for ventilators providing approximately 45° to 60° openings depending on size. An optional limit stop is available to restrict hinge travel and limit vent opening.

### CAM HANDLE



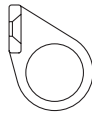
Cast white bronze cam handles are standard for the manual operation and locking of ventilators.

### CAM HANDLE WITH POLE RING



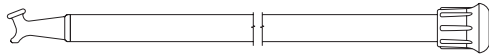
Cast white bronze cam handles with pole ring provide manual operation of ventilators located above reach. These handles are operated with a sash pole.

### POLE RING



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

### SASH POLE

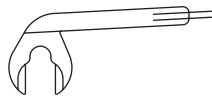


A 3/4" diameter aluminum sash pole with a cast white bronze pull down hook and black rubber tip. Available in 6 ft. and 12 ft. lengths with optional cast white bronze Pole Hanger.

### HANGER FOR SASH POLE



### ACCESS CONTROL LOCK



In lieu of 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.



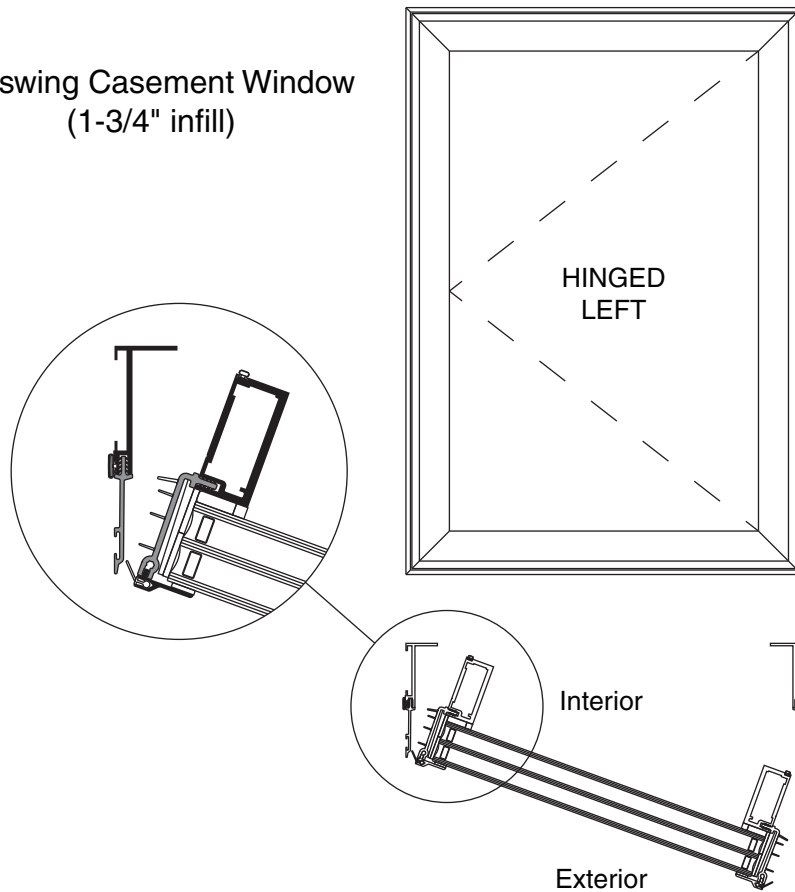
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
© Kawneer Company, Inc., 2014

**Standard Features**

- Architectural Grade Window
- Tested to US and Canadian Standards
- 45° Mitered Vent and Frame Corners
- Staked Corner Joinery
- Architectural Anodized Finishes and Applied Coatings

Outswing Casement Window  
(1-3/4" infill)



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.

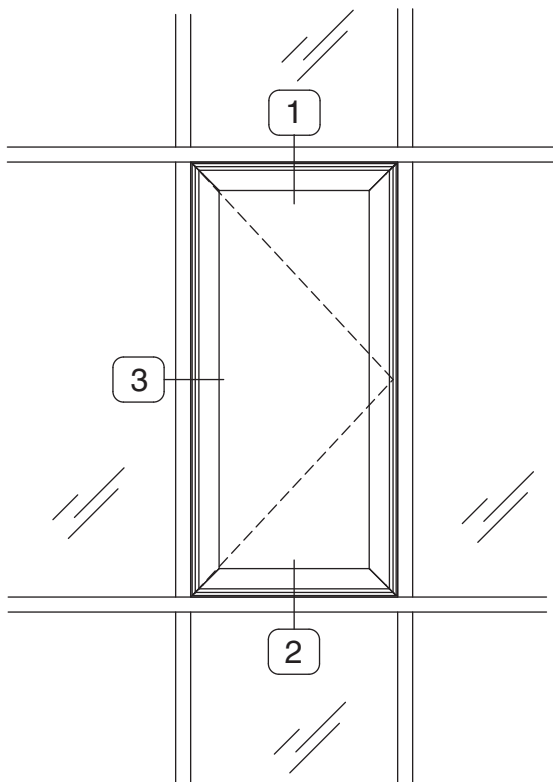
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
© Kawneer Company, Inc., 2014

<b>CLASS and GRADE</b>	Architectural Grade AW-PG90-C
<b>TESTING STANDARD</b>	AAMA / WDMA / CSA / 101 / I.S.2 / A440 (NAFS)
<b>SYSTEM DEPTH</b>	5-1/8" Overall System Depth
<b>TYPICAL WALL THICKNESS</b>	.125 Nominal Frame / .156" Nominal Vent
<b>TYPICAL MAX. VENT SIZE</b>	36" x 60"
<b>TYPICAL MIN. VENT SIZE</b>	17" x 24"
<b>INFILL OPTIONS</b>	1-3/4"
<b>STANDARD HARDWARE</b>	Stainless Steel 4-Bar Hinges Cast White Bronze Cam Handles
<b>OPTIONAL HARDWARE</b>	Access Control Locks Pole and Pole Ring Limit Stop
<b>OTHER OPTIONS</b>	Insect Screens

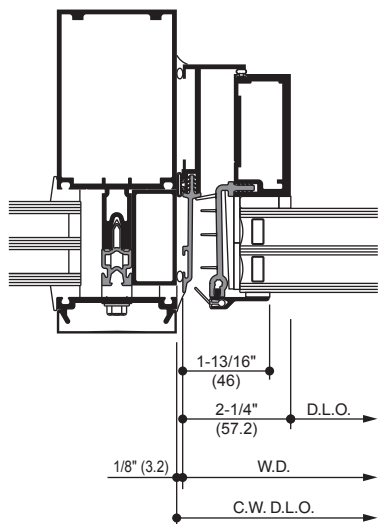
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
© Kawneer Company, Inc., 2014

SCALE : 3" = 1'-0"  
(Nominal Dimensions Shown)

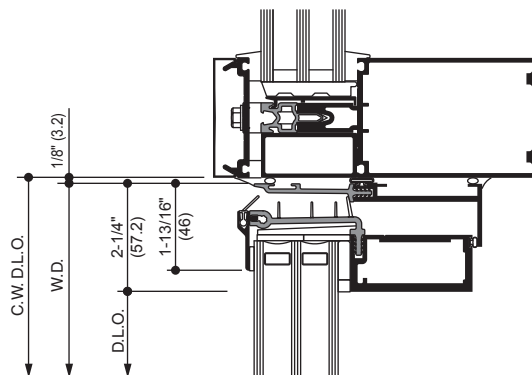


TYPICAL ELEVATION

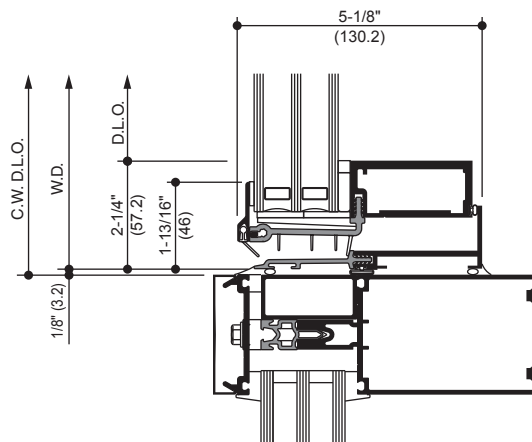


3  
JAMB

1  
HEAD



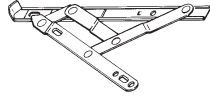
2  
SILL



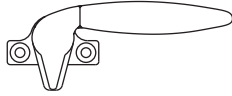
**NOTE:** THE KAWNEER GLASSvent™ UT WINDOW IS SHOWN IN THESE DETAILS WITH 1600UT SYSTEM™1 CURTAIN WALL FOR REFERENCE. OTHER KAWNEER SYSTEMS CAN BE USED. FOR PRODUCT SPECIFIC APPLICATIONS CONSULT YOUR KAWNEER REPRESENTATIVE.

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.

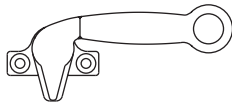
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
© Kawneer Company, Inc., 2014

**STAINLESS STEEL  
4 BAR HINGES**

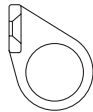
A standard hinge for ventilators providing an opening of up to 45°. An optional limit stop is available to restrict hinge travel and limit vent opening.

**CAM HANDLE**

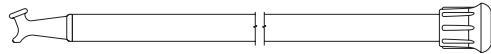
Cast white bronze cam handles are standard for the manual operation and locking of ventilators.

**CAM HANDLE  
WITH POLE RING**

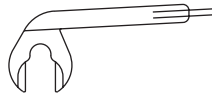
Cast white bronze cam handles with pole ring provide manual operation of ventilators located above reach. These handles are operated with a sash pole.

**POLE RING**

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

**SASH POLE**

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.

**HANGER  
FOR SASH POLE****ACCESS CONTROL  
LOCK**

In lieu of 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.  
© Kawneer Company, Inc., 2014

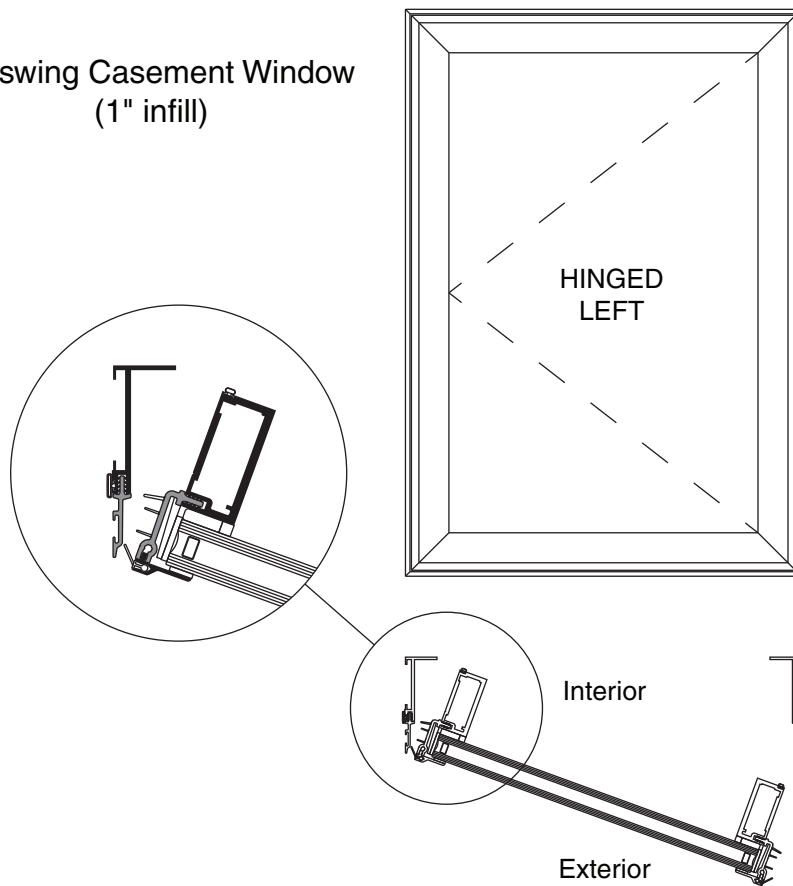
**Standard Features**

- Architectural Grade Window
- Tested to US and Canadian Standards
- 45° Mitered Vent and Frame Corners
- Staked Corner Joinery
- Architectural Anodized Finishes and Applied Coatings

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., 2014

Outswing Casement Window  
(1" infill)



For specific product applications,  
Consult your Kawneer representative.

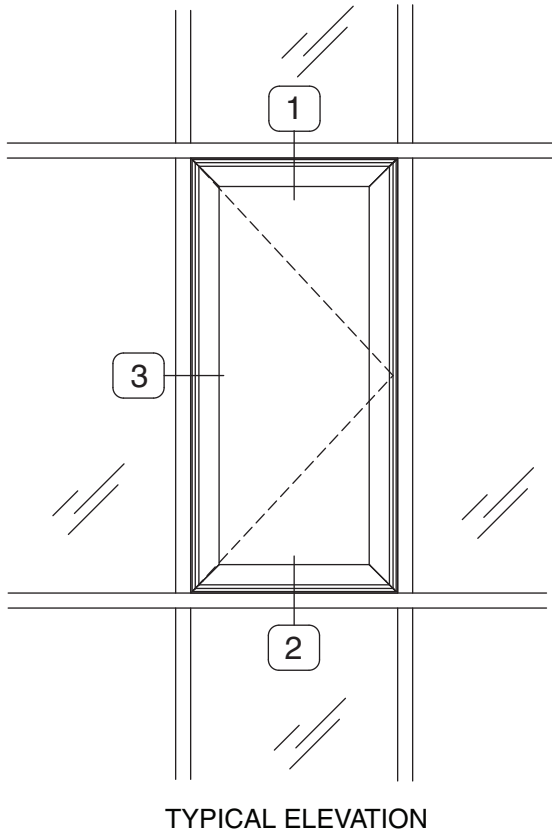
<b>CLASS and GRADE</b>	Architectural Grade AW-PG90-C
<b>TESTING STANDARD</b>	AAMA / WDMA / CSA / 101 / I.S.2 / A440 (NAFS)
<b>SYSTEM DEPTH</b>	4-3/8" Overall System Depth
<b>TYPICAL WALL THICKNESS</b>	.125 Nominal Frame / .156" Nominal Vent
<b>TYPICAL MAX. VENT SIZE</b>	36" x 60"
<b>TYPICAL MIN. VENT SIZE</b>	17" x 24"
<b>INFILL OPTIONS</b>	1"
<b>STANDARD HARDWARE</b>	Stainless Steel 4-Bar Hinges Cast White Bronze Cam Handles
<b>OPTIONAL HARDWARE</b>	Access Control Locks Pole and Pole Ring Limit Stop
<b>OTHER OPTIONS</b>	Insect Screens

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.

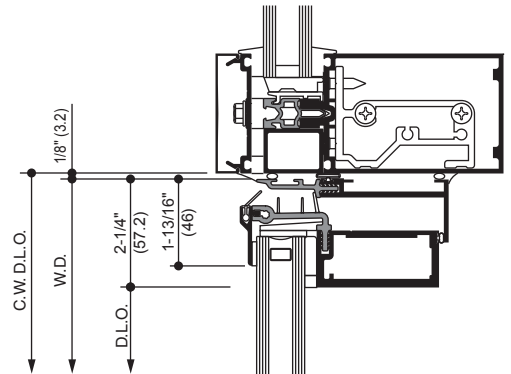
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
© Kawneer Company, Inc., 2014



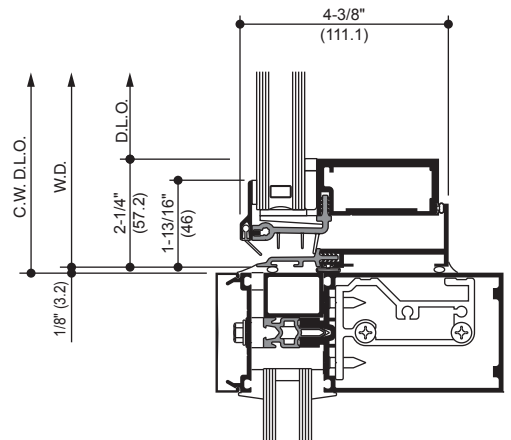
**SCALE : 3" = 1'-0"**  
**(Nominal Dimensions Shown)**



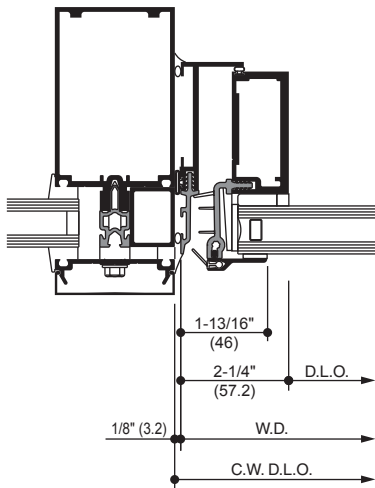
### 1 HEAD



### 2 SILL



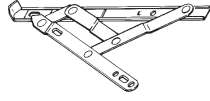
### 3 JAMB



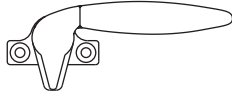
**NOTE:** THE KAWNEER GLASSvent™ UT WINDOW IS SHOWN IN THESE DETAILS WITH 1600UT SYSTEM™1 CURTAIN WALL FOR REFERENCE. OTHER KAWNEER SYSTEMS CAN BE USED. FOR PRODUCT SPECIFIC APPLICATIONS CONSULT YOUR KAWNEER REPRESENTATIVE.

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.

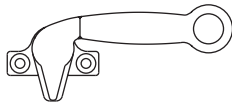
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
© Kawneer Company, Inc., 2014

**STAINLESS STEEL  
4 BAR HINGES**

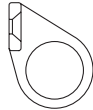
A standard hinge for ventilators providing an opening of up to 45°. An optional limit stop is available to restrict hinge travel and limit vent opening.

**CAM HANDLE**

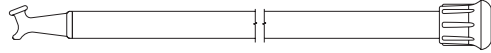
Cast white bronze cam handles are standard for the manual operation and locking of ventilators.

**CAM HANDLE  
WITH POLE RING**

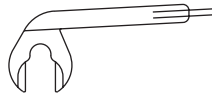
Cast white bronze cam handles with pole ring provide manual operation of ventilators located above reach. These handles are operated with a sash pole.

**POLE RING**

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

**SASH POLE**

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.

**HANGER  
FOR SASH POLE****ACCESS CONTROL  
LOCK**

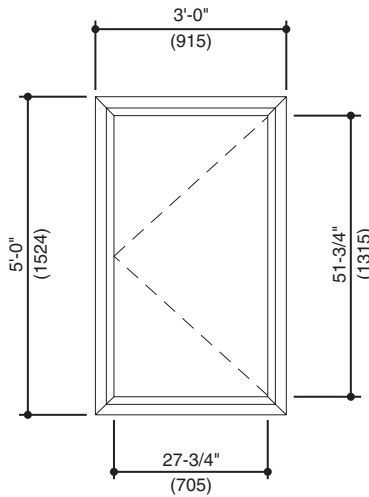
In lieu of cam handles cast white bronze access control locks are offered for managed control of vent operations. Lock is operated with a manganese bronze removable handle.



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.  
© Kawneer Company, Inc., 2014

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



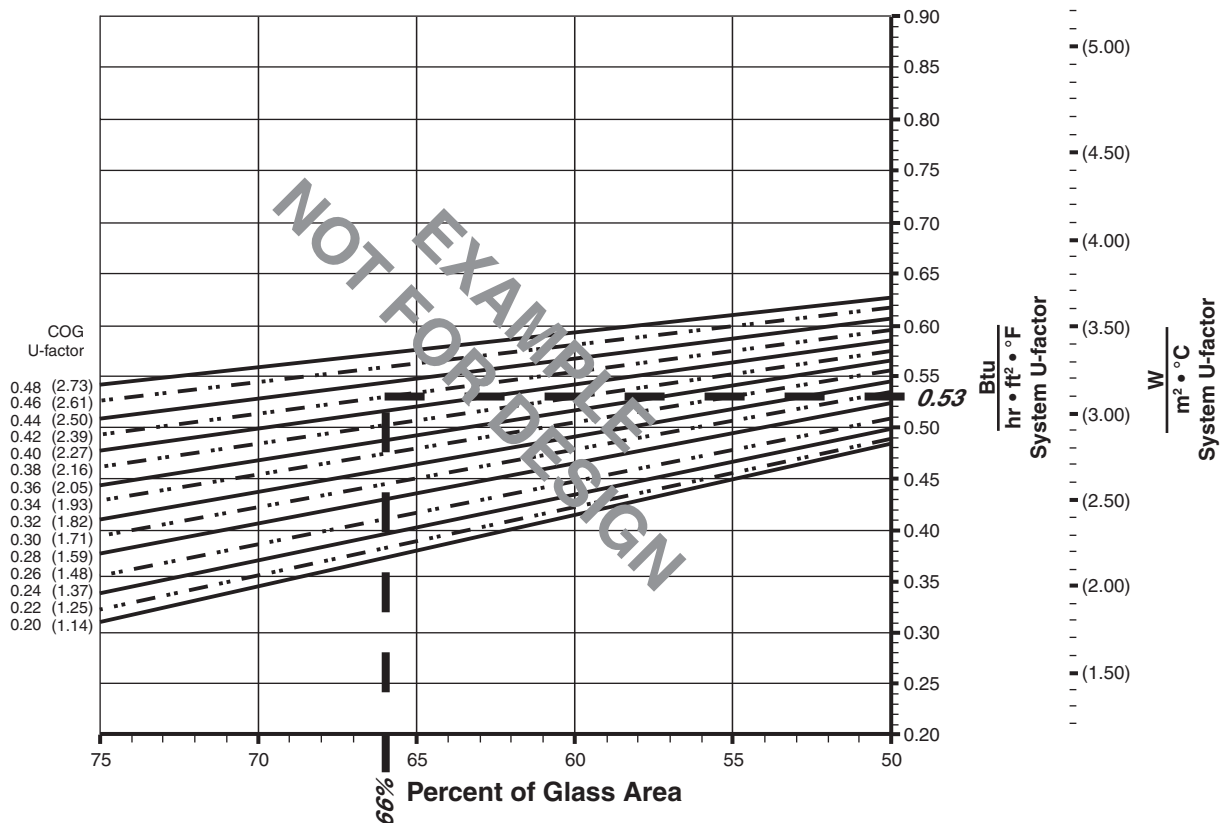
Example Glass U-Factor = 0.42 Btu/hr • ft<sup>2</sup> • °F

Total Daylight Opening = 27-3/4" • 51-3/4" = 9.97ft<sup>2</sup>

Total Projected Area = 3'-0" • 5'-0" = 15 ft<sup>2</sup>

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 • ft<sup>2</sup> • °F

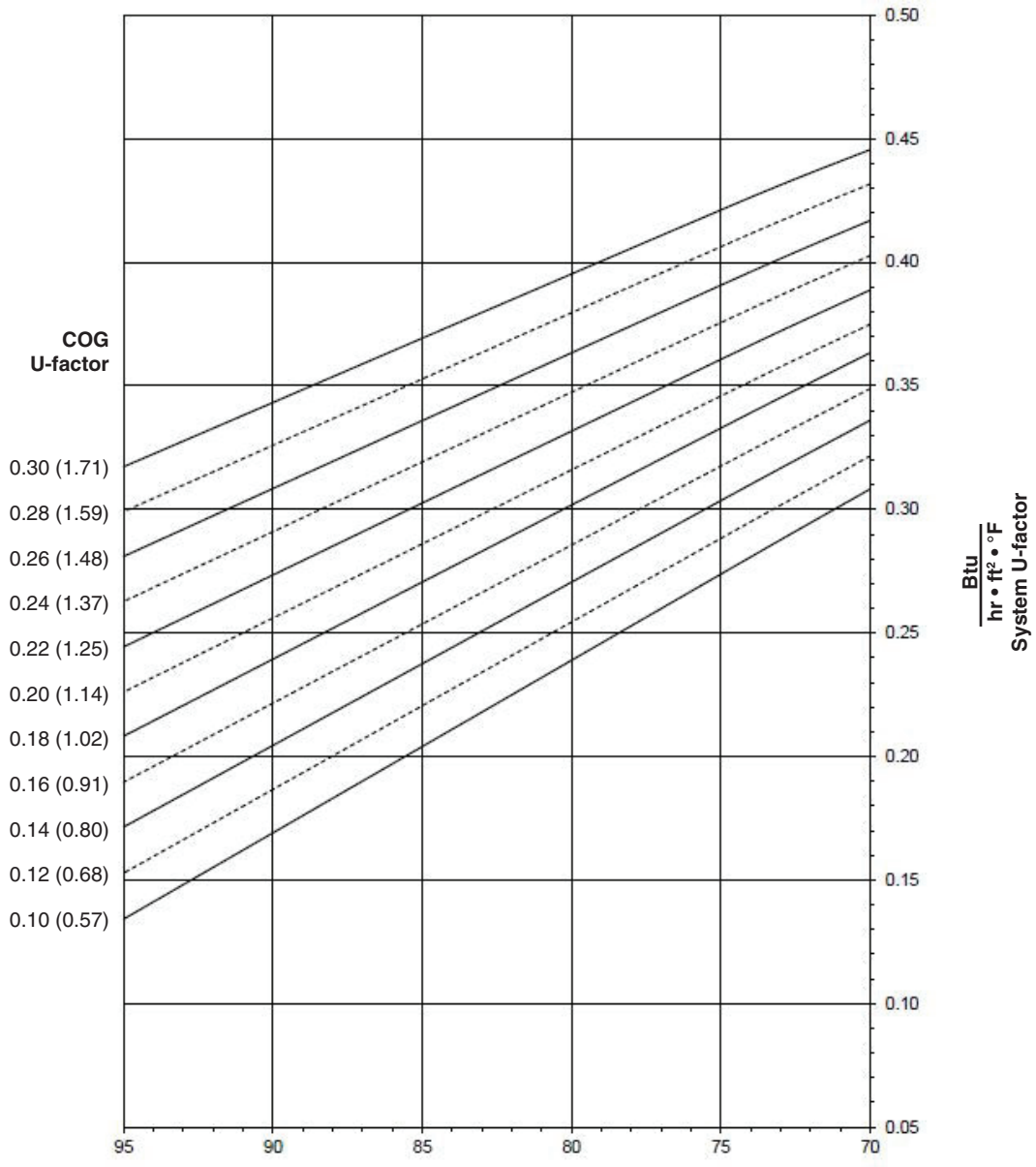
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
 © Kawneer Company, Inc., 2014

**PROJECT-OUT WINDOW WITH 1-3/4" 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**

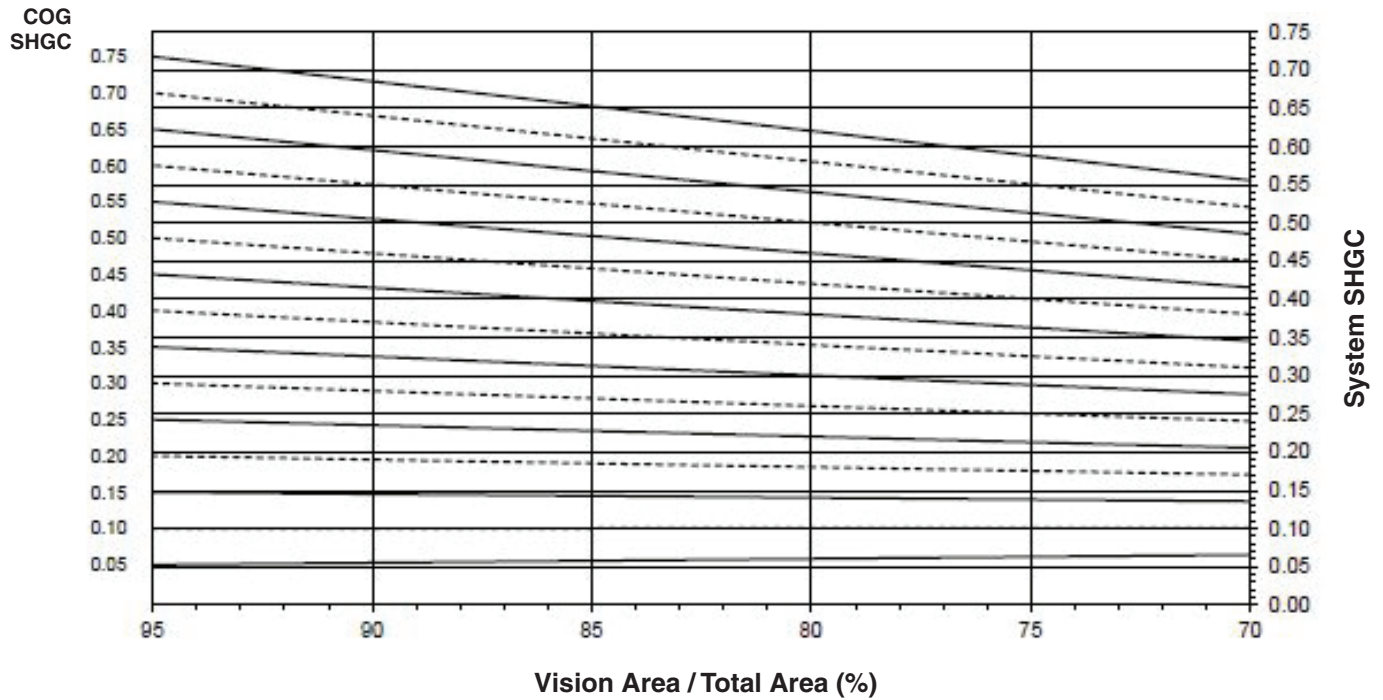
**Notes for System U-factor, SHGC and VT charts:**  
 For glass values that are not listed, linear interpolation is permitted.  
 Glass properties are based on center of glass values and are obtained from your glass supplier.

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.

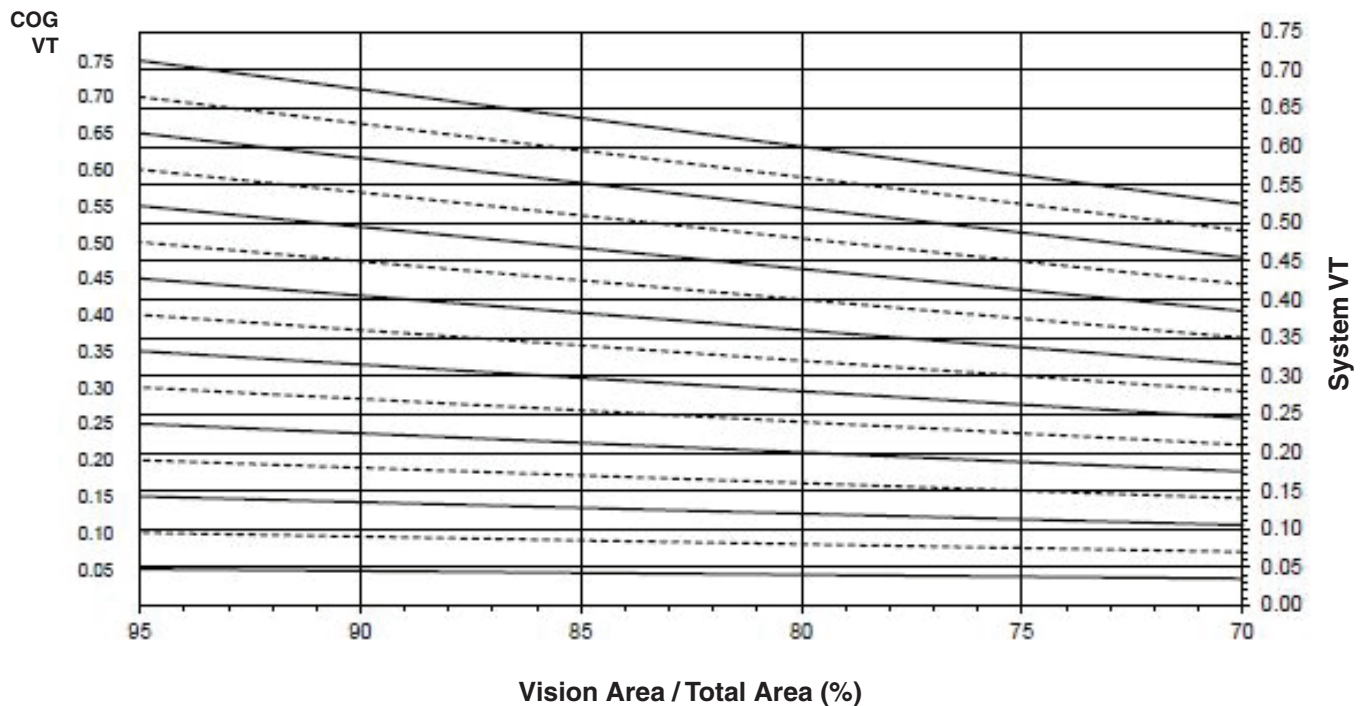
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
 © Kawneer Company, Inc., 2014

### PROJECT-OUT WINDOW WITH 1-3/4" 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.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
© Kawneer Company, Inc., 2014

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

Glass U-Factor <sup>3</sup>	Overall U-Factor <sup>4</sup>	
	Aluminum Spacer	Warm Edge Spacer
0.30	0.42	0.39
0.28	0.41	0.38
0.26	0.39	0.36
0.24	0.38	0.35
0.22	0.36	0.33
0.20	0.35	0.31
0.18	0.34	0.30
0.16	0.32	0.29
0.14	0.31	0.27
0.12	0.29	0.26
0.10	0.28	0.24

## PROJECT-OUT WINDOW WITH 1-3/4" 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 Matrix <sup>2</sup>

Glass SHGC <sup>3</sup>	Overall SHGC <sup>4</sup>	
	Aluminum Spacer	Warm Edge Spacer
0.75	0.58	0.58
0.70	0.55	0.54
0.65	0.51	0.51
0.60	0.47	0.47
0.55	0.44	0.43
0.50	0.40	0.39
0.45	0.36	0.36
0.40	0.32	0.32
0.35	0.29	0.28
0.30	0.25	0.24
0.25	0.21	0.21
0.20	0.17	0.17
0.15	0.14	0.13
0.10	0.10	0.10
0.05	0.06	0.06

Visible Transmittance <sup>2</sup>

Glass VT <sup>3</sup>	Overall VT <sup>4</sup>	
	Aluminum Spacer	Warm Edge Spacer
0.75	0.56	0.56
0.70	0.52	0.52
0.65	0.48	0.48
0.60	0.45	0.45
0.55	0.41	0.41
0.50	0.37	0.37
0.45	0.33	0.33
0.40	0.30	0.30
0.35	0.26	0.26
0.30	0.22	0.22
0.25	0.19	0.19
0.20	0.15	0.15
0.15	0.11	0.11
0.10	0.07	0.07
0.05	0.04	0.04

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.

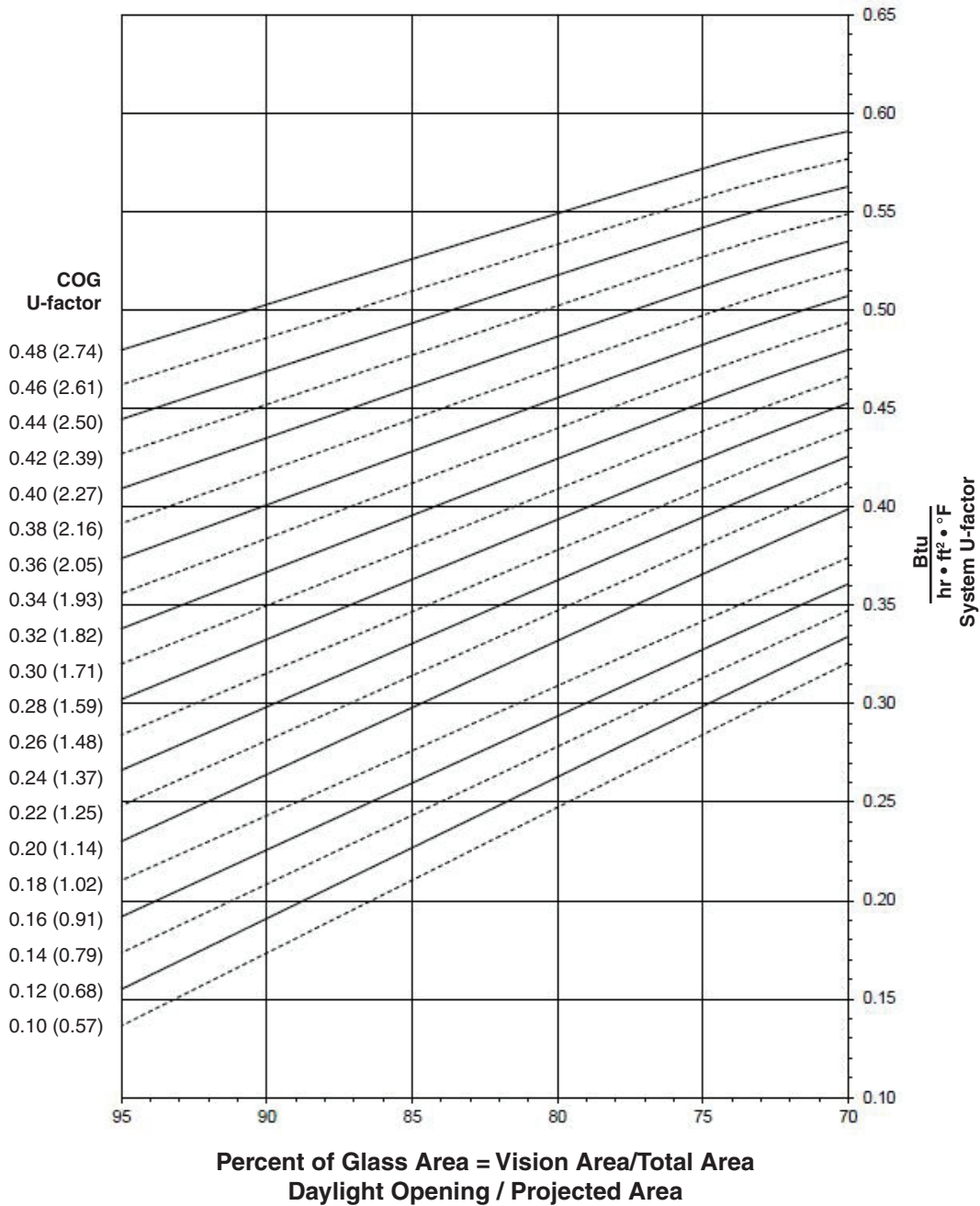
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
© Kawneer Company, Inc., 2014

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



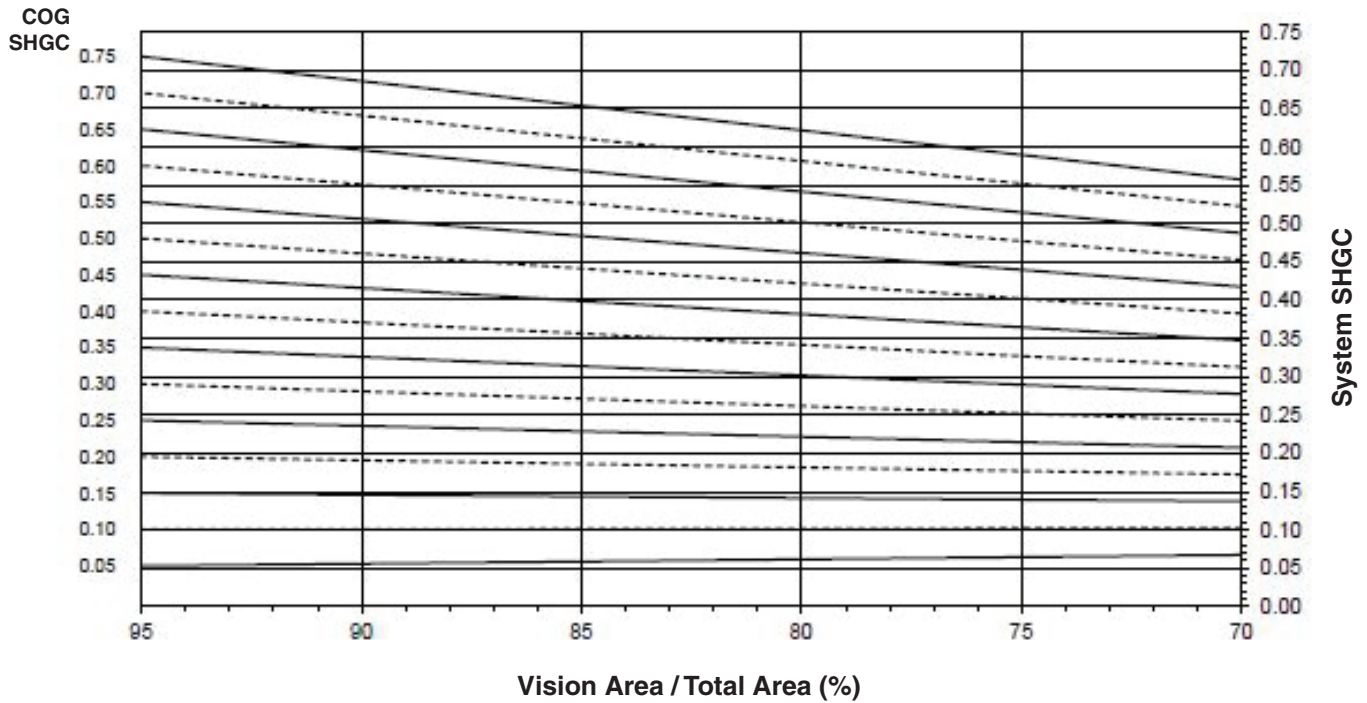
Notes for System U-factor, SHGC and VT charts:  
 For glass values that are not listed, linear interpolation is permitted.  
 Glass properties are based on center of glass values and are obtained from your glass supplier.

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.

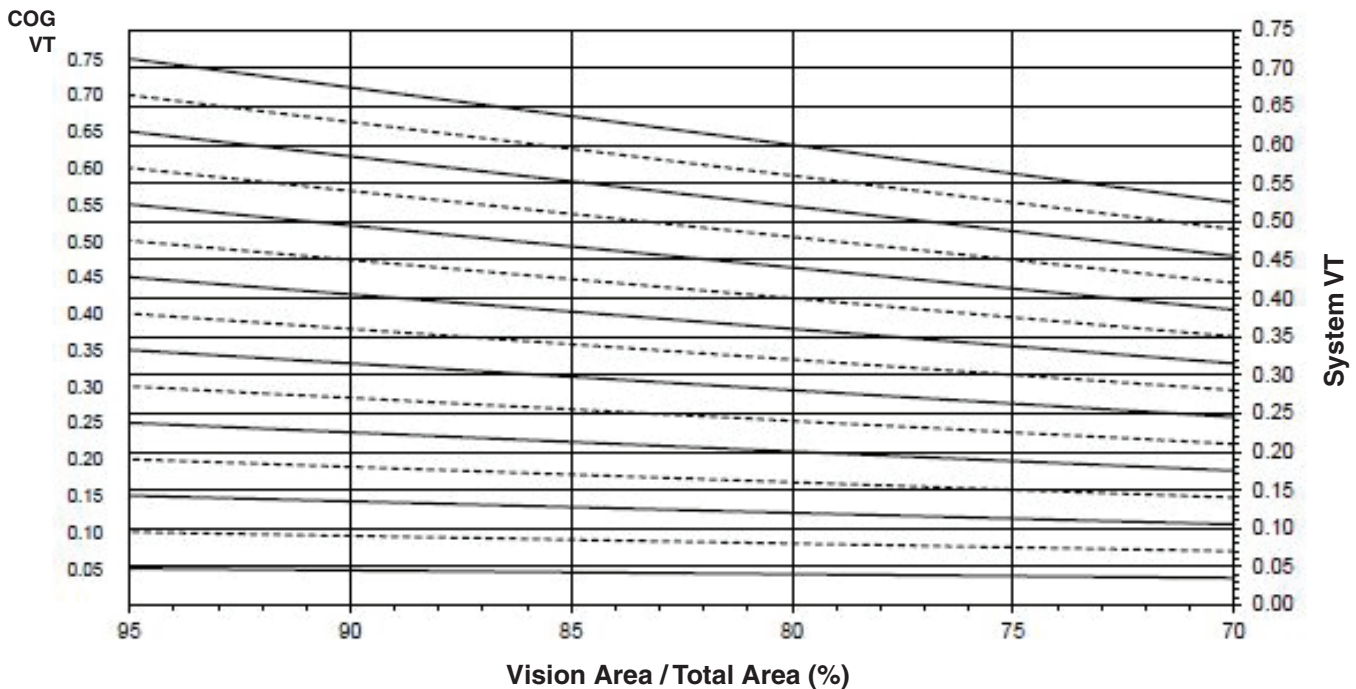
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
 © Kawneer Company, Inc., 2014

**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.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
© Kawneer Company, Inc., 2014



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

Glass U-Factor <sup>3</sup>	Overall U-Factor <sup>4</sup>	
	Aluminum Spacer	Warm Edge Spacer
0.48	0.57	0.55
0.46	0.56	0.53
0.44	0.54	0.52
0.42	0.53	0.50
0.40	0.52	0.49
0.38	0.50	0.47
0.36	0.49	0.46
0.34	0.47	0.44
0.32	0.46	0.43
0.30	0.44	0.41
0.28	0.43	0.40
0.26	0.41	0.38
0.24	0.40	0.37
0.22	0.38	0.35
0.20	0.37	0.34
0.18	0.35	0.32
0.16	0.33	0.31
0.14	0.32	0.29
0.12	0.30	0.28
0.10	0.29	0.26

**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 Matricies are based on the standard NFRC specimen size of 1500mm wide by 600mm high (59-1/16" by 23-5/8").

**SHGC Matrix** <sup>2</sup>

Glass SHGC <sup>3</sup>	Overall SHGC <sup>4</sup>	
	Aluminum Spacer	Warm Edge Spacer
0.75	0.59	0.58
0.70	0.55	0.55
0.65	0.51	0.51
0.60	0.47	0.47
0.55	0.44	0.43
0.50	0.40	0.40
0.45	0.36	0.36
0.40	0.33	0.32
0.35	0.29	0.28
0.30	0.25	0.25
0.25	0.21	0.21
0.20	0.18	0.17
0.15	0.14	0.14
0.10	0.10	0.10
0.05	0.06	0.06

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

Glass VT <sup>3</sup>	Overall VT <sup>4</sup>	
	Aluminum Spacer	Warm Edge Spacer
0.75	0.56	0.56
0.70	0.52	0.52
0.65	0.48	0.48
0.60	0.45	0.45
0.55	0.41	0.41
0.50	0.37	0.37
0.45	0.33	0.33
0.40	0.30	0.30
0.35	0.26	0.26
0.30	0.22	0.22
0.25	0.19	0.19
0.20	0.15	0.15
0.15	0.11	0.11
0.10	0.07	0.07
0.05	0.04	0.04

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.

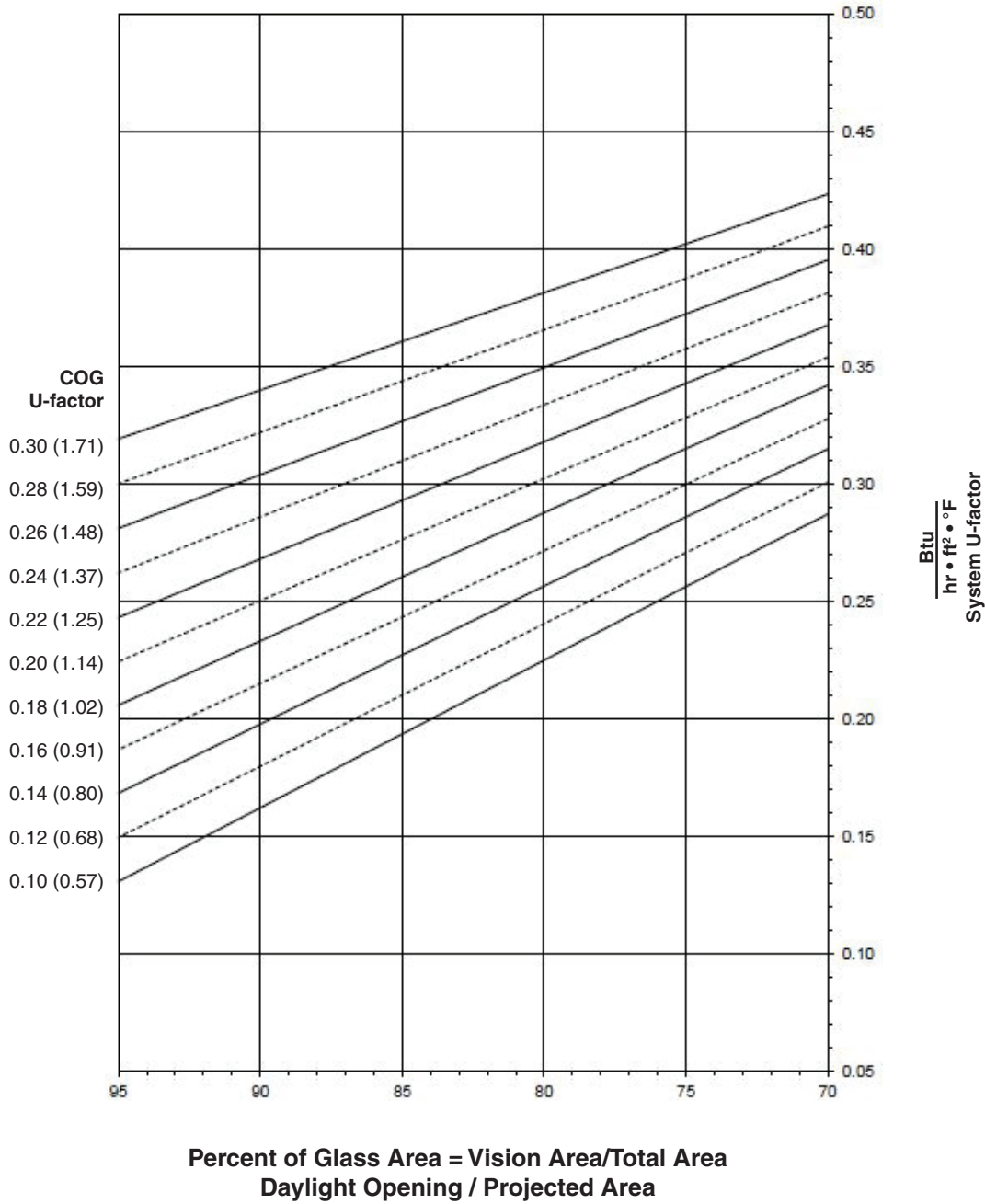
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

© Kawneer Company, Inc., 2014

**OUTSWING CASEMENT WINDOW WITH 1-3/4" 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**



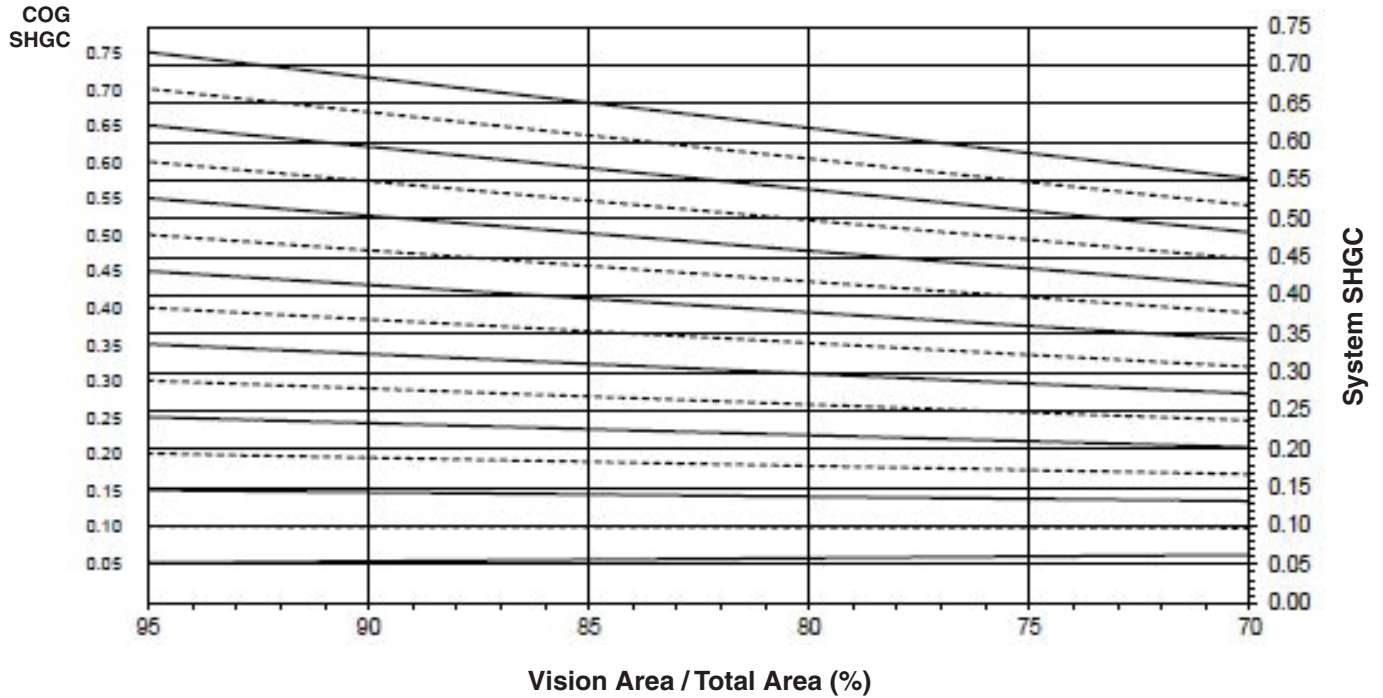
**Notes for System U-factor, SHGC and VT charts:**  
 For glass values that are not listed, linear interpolation is permitted.  
 Glass properties are based on center of glass values and are obtained from your glass supplier.

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.

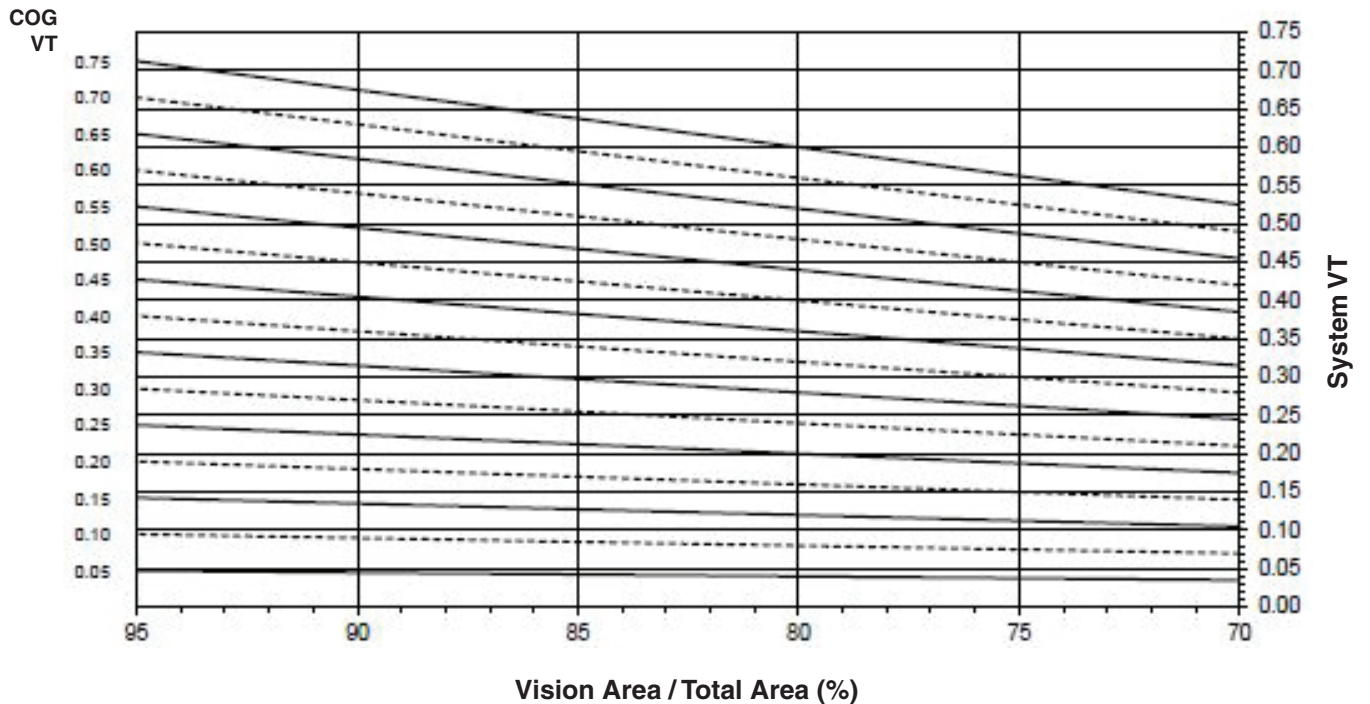
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
 © Kawneer Company, Inc., 2014

### OUTSWING CASEMENT WINDOW WITH 1-3/4" 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.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
© Kawneer Company, Inc., 2014

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

Glass U-Factor <sup>3</sup>	Overall U-Factor <sup>4</sup>	
	Aluminum Spacer	Warm Edge Spacer
0.30	0.40	0.37
0.28	0.39	0.35
0.26	0.38	0.34
0.24	0.36	0.32
0.22	0.35	0.31
0.20	0.33	0.29
0.18	0.32	0.28
0.16	0.30	0.26
0.14	0.29	0.25
0.12	0.27	0.23
0.10	0.26	0.22

OUTSWING CASEMENT WINDOW  
WITH 1-3/4" 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 Matrix <sup>2</sup>

Glass SHGC <sup>3</sup>	Overall SHGC <sup>4</sup>	
	Aluminum Spacer	Warm Edge Spacer
0.75	0.58	0.58
0.70	0.54	0.54
0.65	0.51	0.50
0.60	0.47	0.47
0.55	0.43	0.43
0.50	0.40	0.39
0.45	0.36	0.35
0.40	0.32	0.32
0.35	0.28	0.28
0.30	0.25	0.24
0.25	0.21	0.20
0.20	0.17	0.17
0.15	0.14	0.13
0.10	0.10	0.09
0.05	0.06	0.06

Visible Transmittance <sup>2</sup>

Glass VT <sup>3</sup>	Overall VT <sup>4</sup>	
	Aluminum Spacer	Warm Edge Spacer
0.75	0.56	0.56
0.70	0.52	0.52
0.65	0.48	0.48
0.60	0.45	0.45
0.55	0.41	0.41
0.50	0.37	0.37
0.45	0.33	0.33
0.40	0.30	0.30
0.35	0.26	0.26
0.30	0.22	0.22
0.25	0.19	0.19
0.20	0.15	0.15
0.15	0.11	0.11
0.10	0.07	0.07
0.05	0.04	0.04

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.

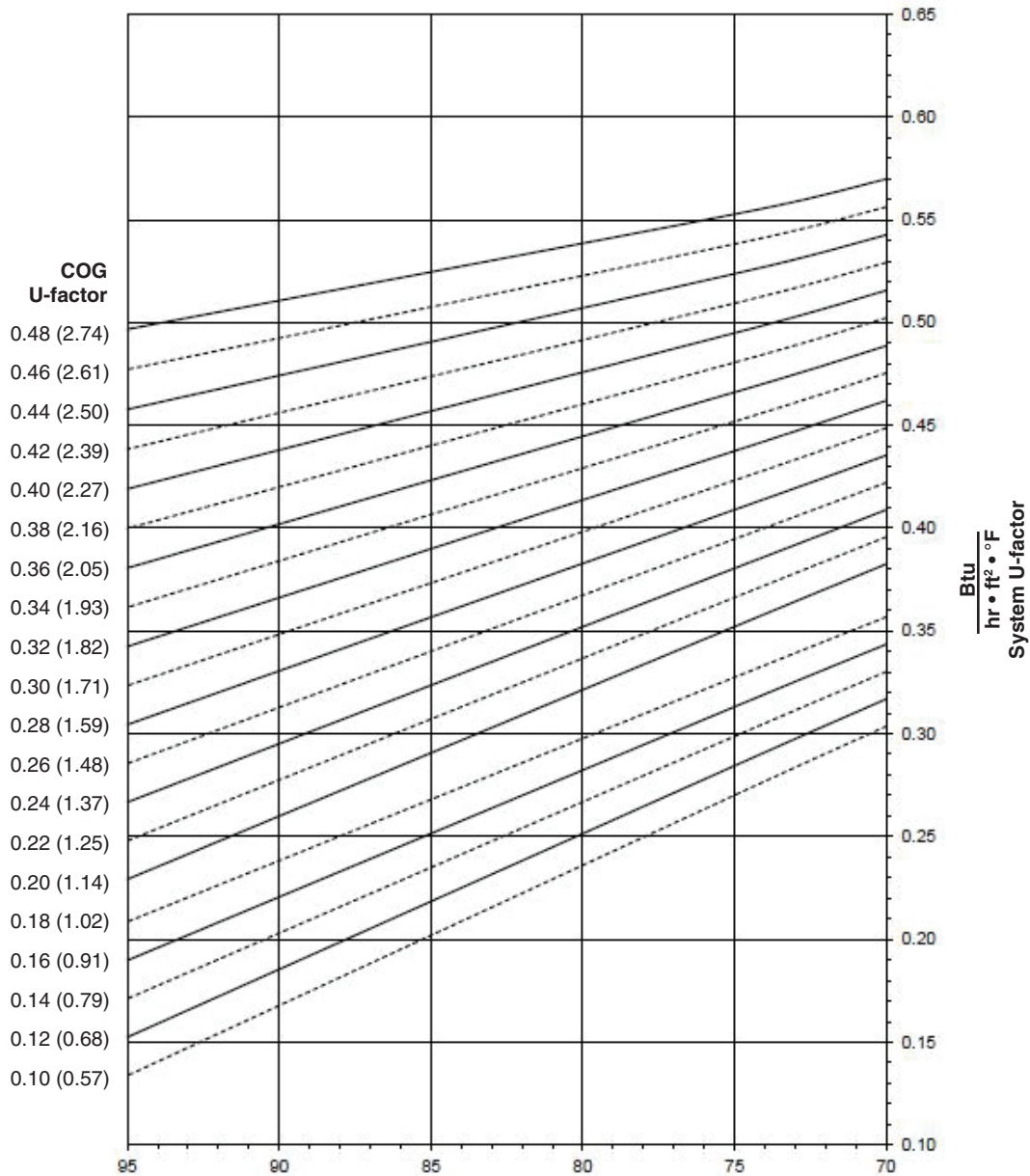
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.  
© Kawneer Company, Inc., 2014

**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**



**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.

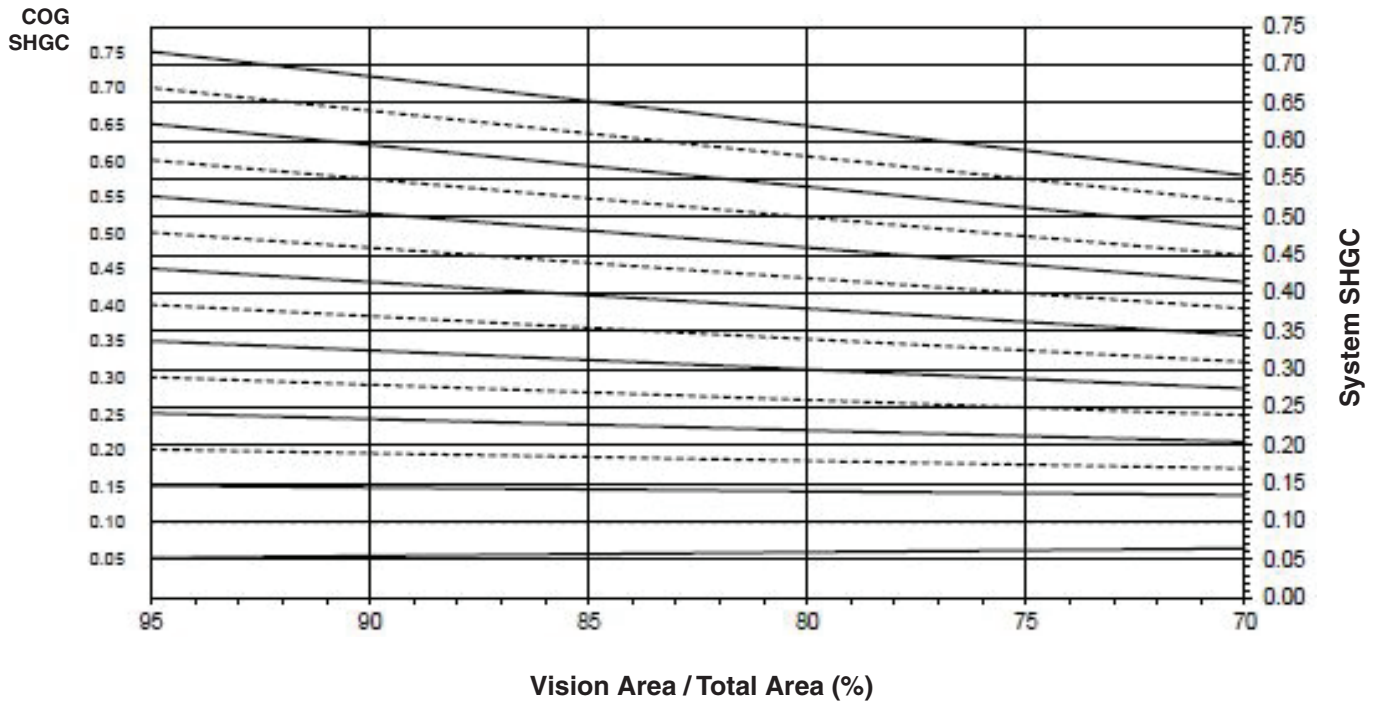
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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

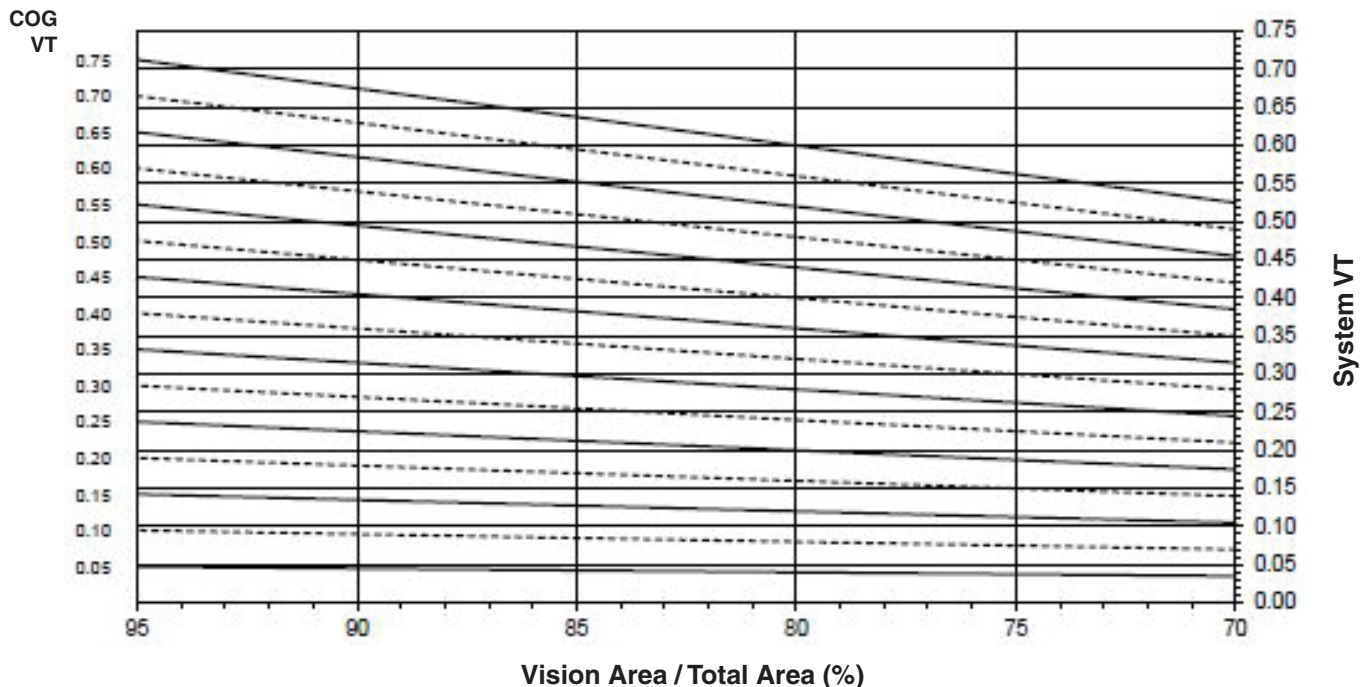
© Kawneer Company, Inc., 2014

**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**



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., 2014

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

Glass U-Factor <sup>3</sup>	Overall U-Factor <sup>4</sup>	
	Aluminum Spacer	Warm Edge Spacer
0.48	0.55	0.52
0.46	0.54	0.51
0.44	0.53	0.49
0.42	0.51	0.48
0.40	0.50	0.46
0.38	0.48	0.45
0.36	0.47	0.44
0.34	0.45	0.42
0.32	0.44	0.41
0.30	0.43	0.39
0.28	0.41	0.38
0.26	0.40	0.36
0.24	0.38	0.35
0.22	0.37	0.33
0.20	0.36	0.32
0.18	0.33	0.30
0.16	0.32	0.29
0.14	0.30	0.27
0.12	0.29	0.26
0.10	0.27	0.24

**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 Matrices are based on the standard NFRC specimen size of 1500mm wide by 600mm high (59-1/16" by 23-5/8").

**SHGC Matrix** <sup>2</sup>

Glass SHGC <sup>3</sup>	Overall SHGC <sup>4</sup>	
	Aluminum Spacer	Warm Edge Spacer
0.75	0.58	0.58
0.70	0.55	0.54
0.65	0.51	0.51
0.60	0.47	0.47
0.55	0.43	0.43
0.50	0.40	0.39
0.45	0.36	0.36
0.40	0.32	0.32
0.35	0.29	0.29
0.30	0.25	0.25
0.25	0.21	0.21
0.20	0.17	0.17
0.15	0.14	0.13
0.10	0.10	0.10
0.05	0.06	0.06

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

Glass VT <sup>3</sup>	Overall VT <sup>4</sup>	
	Aluminum Spacer	Warm Edge Spacer
0.75	0.56	0.56
0.70	0.52	0.52
0.65	0.48	0.48
0.60	0.45	0.45
0.55	0.41	0.41
0.50	0.37	0.37
0.45	0.33	0.33
0.40	0.30	0.30
0.35	0.26	0.26
0.30	0.22	0.22
0.25	0.19	0.19
0.20	0.15	0.15
0.15	0.11	0.11
0.10	0.07	0.07
0.05	0.04	0.04

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., 2014

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., 2014