EC 97911-303 INDEX

PROJECT-OUT WINDOW	3-9
OUTSWING CASEMENT WINDOW	10-15
THERMAL CHARTS	16-25

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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EC 97911-303

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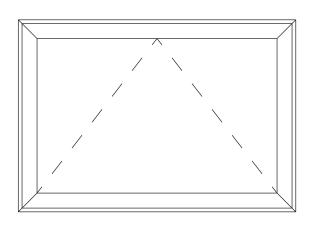
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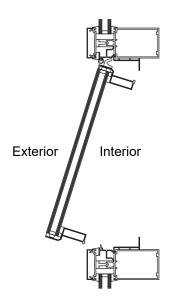


PROJECT-OUT WINDOW EC 97911-303

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





For specific product applications, consult your Kawneer representative.



PROJECT-OUT WINDOW

EC 97911-303

CLASS and GRADE	Architectural Grade AW-PG90 / AW-PG90C	
TESTING STANDARD	AAMA / WDMA / CSA / 101 / I.S.2 / A440 (NAFS)	
SYSTEM DEPTH	3-7/16" Overall System Depth (1" Infill) 2-11/16" Overall System Depth (1/4" Infill)	
TYPICAL WALL THICKNESS	0.125 Nominal Frame	
TYPICAL MAX. VENT SIZE	60" x 72"	
TYPICAL MIN. VENT SIZE	12" x 12"	
INFILL OPTIONS	1" and 1/4"	
STANDARD HARDWARE	Stainless Steel 4-Bar Hinges Cast White Bronze Cam Lock 4-Bar Limit Stop 88SS Support Arms	
OPTIONAL HARDWARE	Cam Lock with Pole Ring Sash Pole Pole Ring Access Control Lock Concealed Lock with removable key	
OTHER OPTIONS	Insect Screens	

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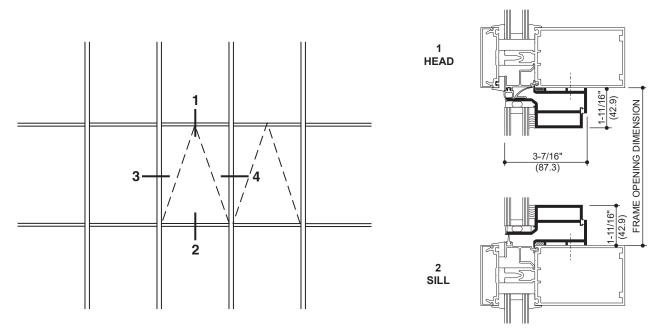
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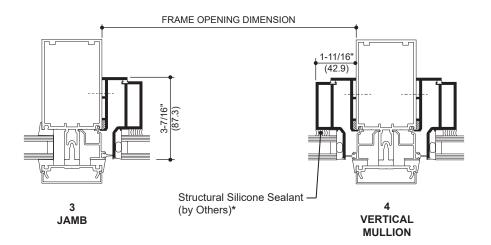
PROJECT-OUT WINDOW IN 1600 WALL SYSTEM®1 (1" INFILL)

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

1" STRUCTURAL SILICONE GLAZING



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



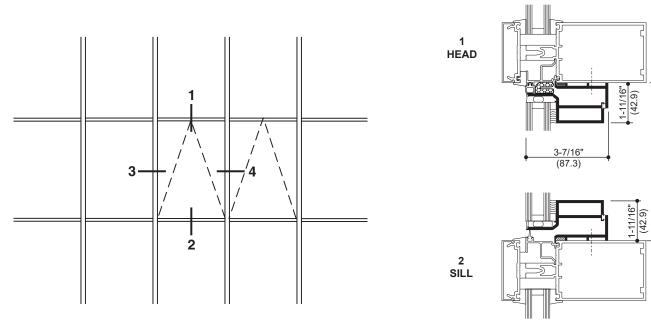
NOTE: THE KAWNEER GLASSvent® WINDOW IS SHOWN IN THESE DETAILS WITH 1600 WALL SYSTEM®1 CURTAIN WALL FOR REFERENCE. OTHER KAWNEER SYSTEMS CAN BE USED. FOR PRODUCT SPECIFIC APPLICATIONS CONSULT YOUR KAWNEER REPRESENTATIVE.



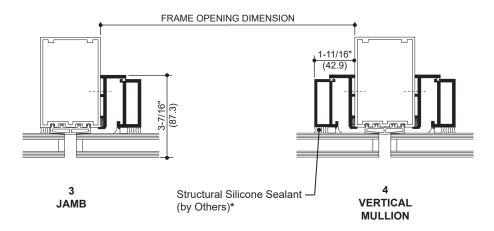
FRAME OPENING DIMENSION

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

1" STRUCTURAL SILICONE GLAZING



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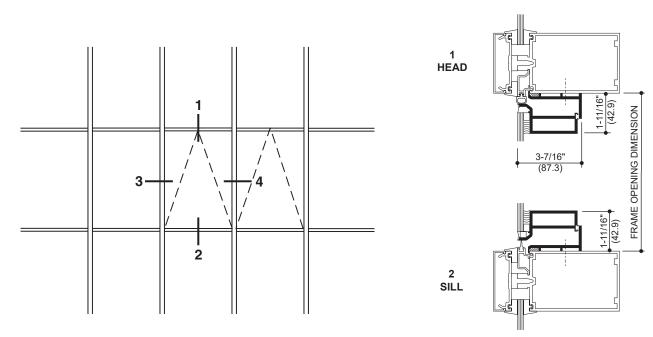
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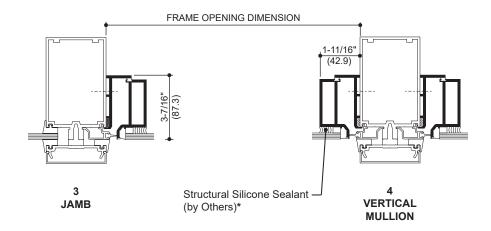
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Additional information and CAD details are available at www.kawneer.com

1/4" STRUCTURAL SILICONE GLAZING



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

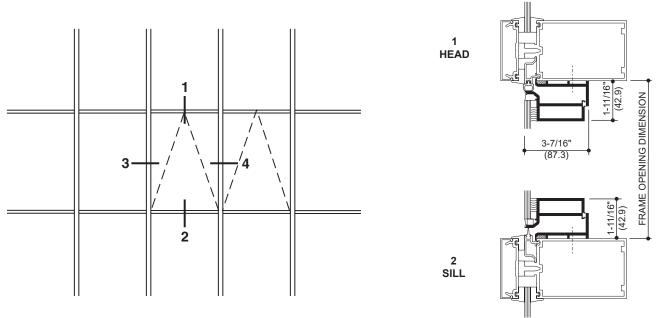


EC 97911-303

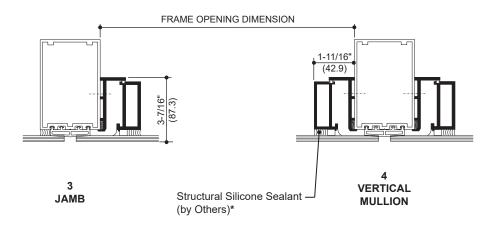
PROJECT-OUT WINDOW IN 1600 WALL SYSTEM®2 (1/4" INFILL)

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

1/4" STRUCTURAL SILICONE GLAZING



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



NOTE: THE KAWNEER GLASSvent® WINDOW IS SHOWN IN THESE DETAILS WITH 1600 WALL SYSTEM®2 CURTAIN WALL FOR REFERENCE. OTHER KAWNEER SYSTEMS CAN BE USED. FOR PRODUCT SPECIFIC APPLICATIONS CONSULT YOUR KAWNEER REPRESENTATIVE.

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GLASSvent® Windows for Curtain Wall

EC 97911-303

PROJECT-OUT WINDOW HARDWARE

Laws and building and safety codes governing the design and use on nawneer products, such as glazzed entrance, window, and curtain wall products, vary widely. Kawneer does n control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

CONCEALED LOCK

STAINLESS STEEL 4 BAR HINGES	000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	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. Verify with application engineering project specific limit stop requirements based on window size.
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 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.
88 SS SUPPORT ARMS		Support Arms are used when the curtain wall day light opening height exceeds 48". When fully extended, the hardware automatically retains the ventilator in an open position.



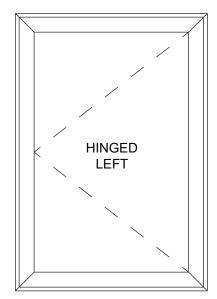
In lieu of cam handles cast white bronze

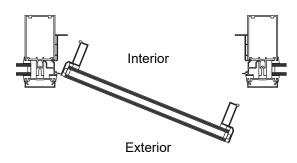
removable key.

concealed locks are offered for managed control of vent operations. Lock is operated with a

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





For specific product applications, consult your Kawneer representative.



caws and building and safety codes governing the design and use of Kawneer products. Such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does control the selection of product configurations, operating hardware, or glazing materials,

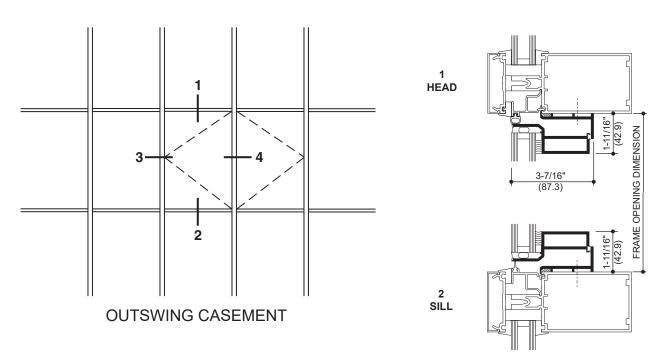
OUTSWING CASEMENT WINDOW

CLASS and GRADE	Architectural Grade AW-PG90 / AW-PG90C	
TESTING STANDARD	AAMA / WDMA / CSA / 101 / I.S.2 / A440 (NAFS)	
SYSTEM DEPTH	3-7/16" Overall System Depth (1" Infill) 2-11/16" Overall System Depth (1/4" Infill)	
TYPICAL WALL THICKNESS	0.125 Nominal Frame	
TYPICAL MAX. VENT SIZE	31" x 72" or 36" x 63" (1" Infill) 36" x 72" (1/4" Infill)	
TYPICAL MIN. VENT SIZE	14" x 14"	
INFILL OPTIONS	1" and 1/4"	
STANDARD HARDWARE	Stainless Steel 4-Bar Hinges Cast White Bronze Cam Handles	
OPTIONAL HARDWARE	Cam Lock with Pole Ring SashPole Pole Ring Access Control Locks Multi-Point Lock Hook Bolt Lock Concealed Lock with removable key	
OTHER OPTIONS	Insect Screens	

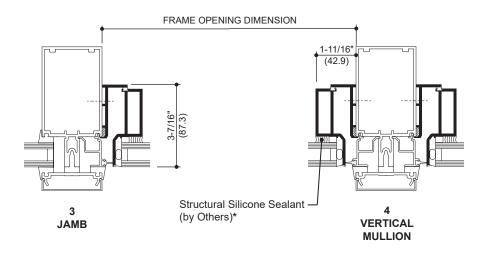
EC 97911-303

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

1" STRUCTURAL SILICONE GLAZING



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

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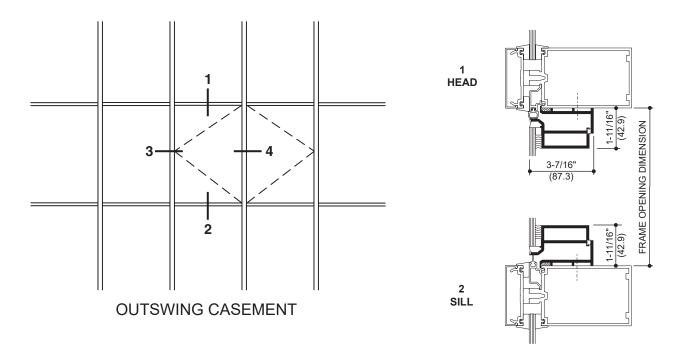
EC 97911-303

OUTSWING CASEMENT WINDOW IN 1600 WALL SYSTEM®1 (1/4" INFILL)

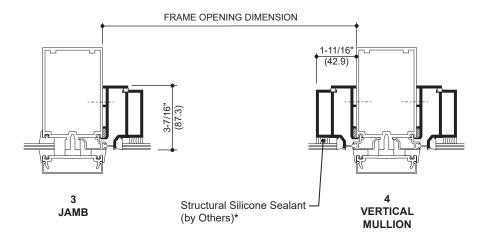
GLASSvent® Windows for Curtain Wall

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

1/4" STRUCTURAL SILICONE GLAZING



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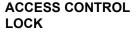


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GLASSvent® Windows for Curtain Wall

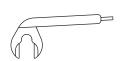
STAINLESS STEEL A standard hinge for ventilators providing **4 BAR HINGES** approximately 45° to 60° openings depending on size. An optional limit stop is available to restrict hinge travel and limit vent opening. Verify with application engineering project specific limit stop requirements based on window size. **CAM HANDLE** Cast white bronze cam handles are standard for the manual operation and locking of ventilators. **CAM HANDLE** Cast white bronze cam handles with pole ring 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.



FOR SASH POLE

HANGER





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.

Available in 6 ft. and 12 ft. lengths with optional

cast white bronze Pole Hanger.

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.

MULTI-POINT LOCK



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

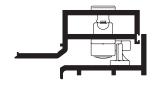


GLASSvent® Windows for Curtain Wall

EC 97911-303

OUTSWING CASEMENT WINDOW HARDWARE

CONCEALED LOCK



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

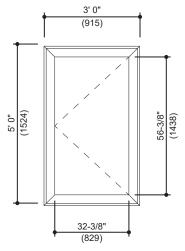
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THERMAL CHARTS

EC 97911-303

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



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

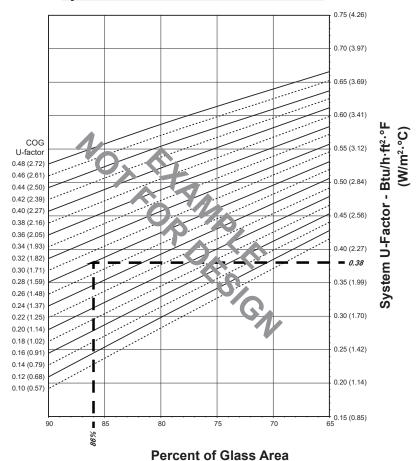
Total Daylight Opening = 32-3/8" • 56-3/8" = 12.83ft²

Total Projected Area = $3' \ 0" \cdot 5' \ 0" = 15 \ ft^2$

Percent of Glass = (Total Daylight Opening ÷ Total Projected Area)100

 $= (12.83 \div 15)100 = 86\%$

System U-factor vs Percent of Glass Area



Based on 86% glass and center of glass (COG) U-factor of 0.28 System U-factor is equal to 0.38 Btu/hr • ft² • °F



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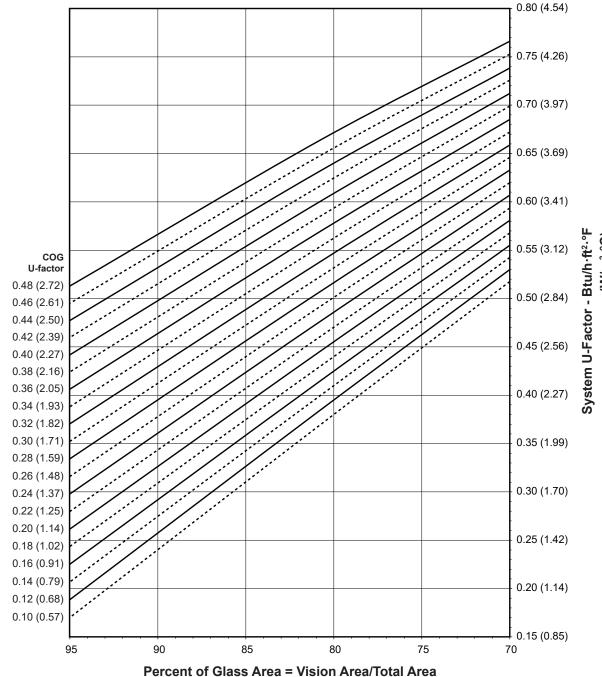
EC 97911-303 THERMAL CHARTS

Note:

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

GLASSvent® - Projecting (Awning - Single) 1" Double Glazed - Warm-Edge Glazing Spacer

System U-Factor for Vision Glass



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.

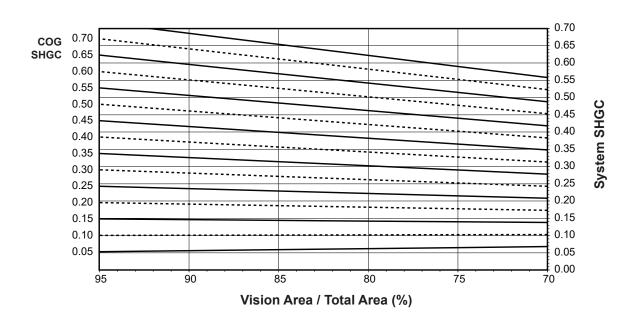


THERMAL CHARTS

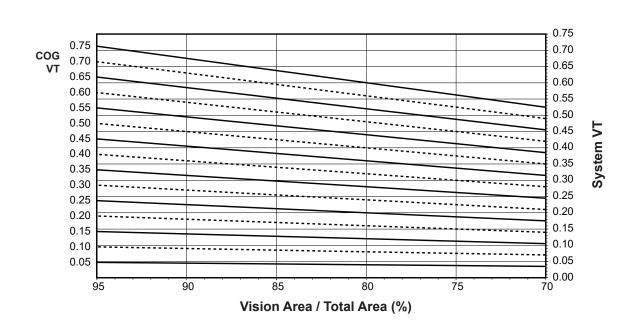
EC 97911-303

GLASSvent® - Projecting (Awning - Single)
1" Double Glazed - Warm-Edge Glazing Spacer

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 PERFORMANCE MATRIX (NFRC SIZE)

EC 97911-303

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

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.66
0.46	0.65
0.44	0.63
0.42	0.62
0.40	0.60
0.38	0.58
0.36	0.57
0.34	0.55
0.32	0.54
0.30	0.52
0.28	0.51
0.26	0.49
0.24	0.48
0.22	0.46
0.20	0.44
0.18	0.43
0.16	0.41
0.14	0.40
0.12	0.38
0.10	0.37

GLASSvent® Projecting (Awning - Single) 1" Double Glazed Warm-Edge Glazing Spacer

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

- 1. U-Factors are determined in accordance with NFRC 100.
- 2. SHGC and VT values are determined in accordance with NFRC 200.
- 3. Glass properties are based on center of glass values and are obtained from your glass supplier.
- 4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/16" by 23-5/8").

SHGC Matrix ²

Overall SHGC ⁴
0.63
0.59
0.55
0.51
0.47
0.43
0.38
0.34
0.30
0.26
0.22
0.18
0.14
0.10
0.06

Visible Transmittance 2

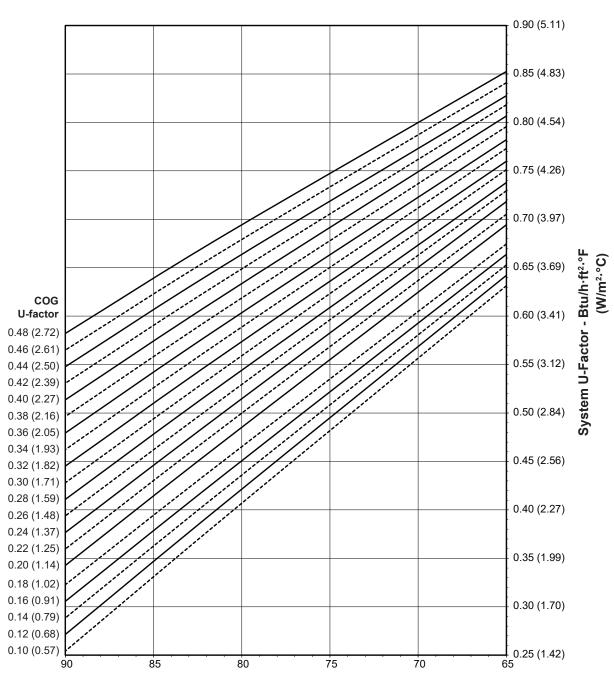
Glass VT ³	Overall VT 4
0.75	0.61
0.70	0.57
0.65	0.53
0.60	0.48
0.55	0.44
0.50	0.40
0.45	0.36
0.40	0.32
0.35	0.28
0.30	0.24
0.25	0.20
0.20	0.16
0.15	0.12
0.10	0.08
0.05	0.04



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

THERMAL CHARTS

GLASSvent® - Projecting (Awning - Single) 1" Double Glazed - Aluminum Glazing Spacer **System U-Factor for Vision Glass**



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.



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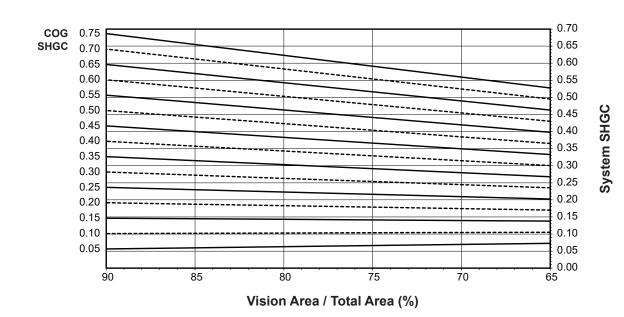
ADME071EN kawneer.com © 2015, Kawneer Company, Inc.

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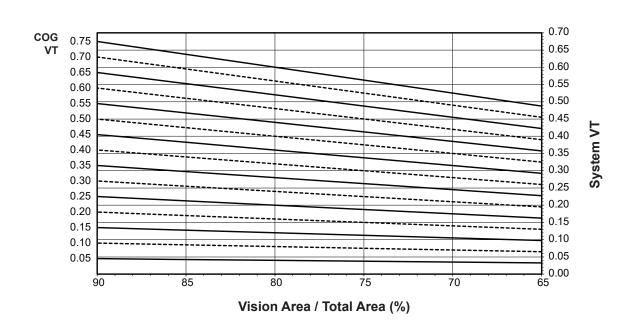
EC 97911-303 THERMAL CHARTS

GLASSvent® - Projecting (Awning - Single) 1" Double Glazed - Aluminum Glazing Spacer

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



System Visible Transmittance (VT) vs Percent of Vision Area





kawneer.com ADME071EN

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

Themai manamitance (DTO/III TIL TI)	
Glass U-Factor ³	Overall U-Factor 4
0.48	0.69
0.46	0.67
0.44	0.65
0.42	0.64
0.40	0.62
0.38	0.61
0.36	0.59
0.34	0.58
0.32	0.56
0.30	0.55
0.28	0.53
0.26	0.52
0.24	0.50
0.22	0.49
0.20	0.47
0.18	0.45
0.16	0.44
0.14	0.42
0.12	0.41
0.10	0.39
	

GLASSvent® Projecting (Awning - Single) 1" Double Glazed Aluminum Glazing Spacer

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

- 1. U-Factors are determined in accordance with NFRC 100.
- SHGC and VT values are determined in accordance with NFRC 200.
- 3. Glass properties are based on center of glass values and are obtained from your glass supplier.
- 4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/16" by 23-5/8").

SHGC Matrix 2

SHGC Matrix ²	
Glass SHGC ³	Overall SHGC 4
0.75	0.63
0.70	0.59
0.65	0.55
0.60	0.51
0.55	0.47
0.50	0.43
0.45	0.39
0.40	0.35
0.35	0.30
0.30	0.26
0.25	0.22
0.20	0.18
0.15	0.14
0.10	0.10
0.05	0.06

Visible Transmittance ²

Glass VT ³	Overall VT ⁴
0.75	0.61
0.70	0.57
0.65	0.53
0.60	0.48
0.55	0.44
0.50	0.40
0.45	0.36
0.40	0.32
0.35	0.28
0.30	0.24
0.25	0.20
0.20	0.16
0.15	0.12
0.10	0.08
0.05	0.04



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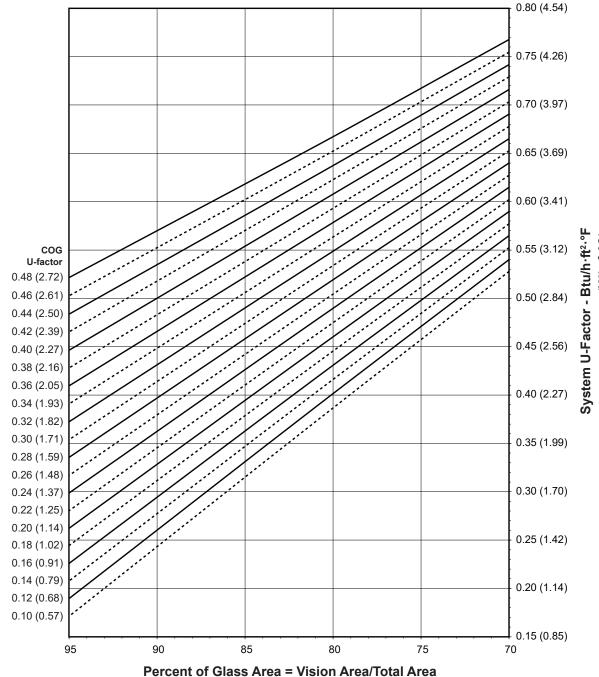
EC 97911-303

THERMAL CHARTS

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

GLASSvent® - Casement (Single Vent) 1" Double Glazed - Warm-Edge Glazing Spacer

System U-Factor for Vision Glass



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.

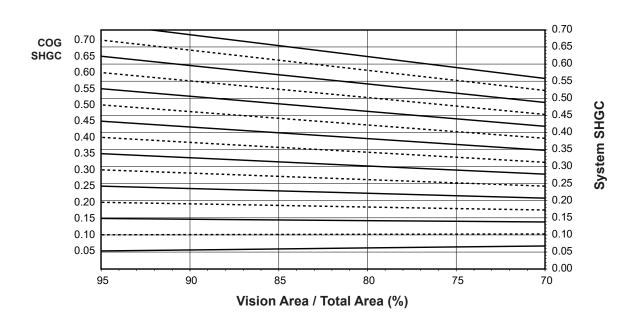


THERMAL CHARTS

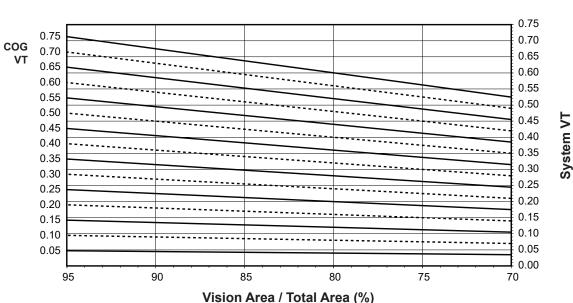
EC 97911-303

GLASSvent® - Casement (Single Vent) 1" Double Glazed - Warm-Edge Glazing Spacer

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



System Visible Transmittance (VT) vs Percent of Vision Area



95 90 85 80 Vision Area / Total Area (%) Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials,

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

THERMAL PERFORMANCE MATRIX (NFRC SIZE)

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

Glass U-Factor ³	Overall U-Factor 4
0.48	0.66
0.46	0.64
0.44	0.63
0.42	0.61
0.40	0.60
0.38	0.58
0.36	0.57
0.34	0.55
0.32	0.54
0.30	0.52
0.28	0.51
0.26	0.49
0.24	0.48
0.22	0.46
0.20	0.45
0.18	0.43
0.16	0.42
0.14	0.40
0.12	0.39
0.10	0.38

GLASSvent® Casement (Single Vent) 1" Double Glazed Warm-Edge Glazing Spacer

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 600 mm wide by 1,500 mm high (23-5/8" by 59-1/16").

SHGC Matrix ²

Glass SHGC ³	Overall SHGC ⁴
0.75	0.63
0.70	0.59
0.65	0.55
0.60	0.51
0.55	0.47
0.50	0.43
0.45	0.38
0.40	0.34
0.35	0.30
0.30	0.26
0.25	0.22
0.20	0.18
0.15	0.14
0.10	0.10
0.05	0.06

Visible Transmittance 2

Glass VT ³	Overall VT 4
0.75	0.61
0.70	0.57
0.65	0.53
0.60	0.48
0.55	0.44
0.50	0.40
0.45	0.36
0.40	0.32
0.35	0.28
0.30	0.24
0.25	0.20
0.20	0.16
0.15	0.12
0.10	0.08
0.05	0.04



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26

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