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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

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.

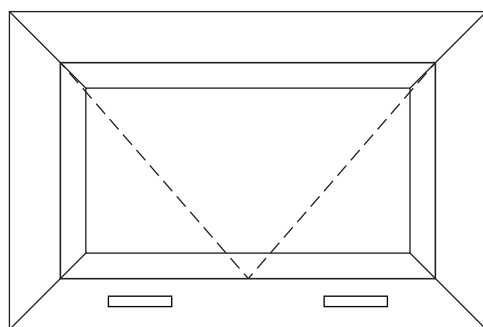
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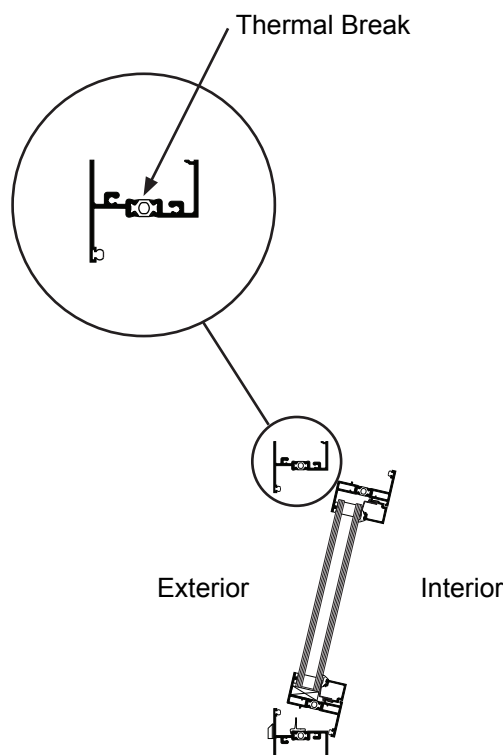
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Features

- Commercial Grade Window
- IsoPort™ Thermal Break
- Mitered, Clipped and Staked Vent Corner Joinery
- Mitered, Screw and Spline Frame Corner Joinery
- Factory fabricated and assembled
- Optional full rain screen capability
- Accommodates 1" (25 mm) sealed glazing units
- Exterior pre-shim butyl glazing tapes
- Interior EPDM rubber glazing gaskets
- Lock-in glass stop
- Architectural Anodized Finishes and Applied Coatings
- Two Year Manufacturer's Warranty
- Compatible with Curtain Wall Systems



Project-in Window



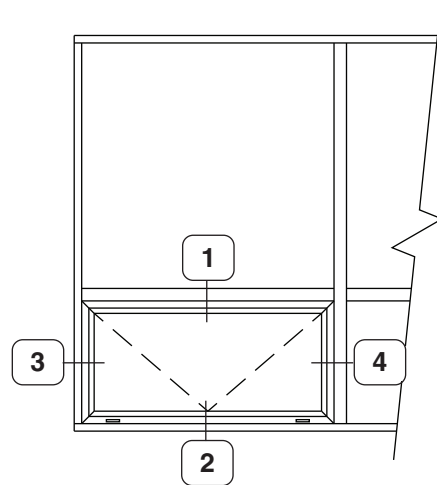
For specific product applications,
Consult your Kawneer representative.

CLASS and GRADE	Commercial Grade CW-PG70-AP
TESTING STANDARD	AAMA / WDMA / CSA 101 / I.S. 2 / A440 (NAFS)
FRAME DEPTH	2-1/4" Overall Frame Depth
TYPICAL WALL THICKNESS	.080 Nominal (frame) / .065 Nominal (vent)
TYPICAL MAXIMUM SIZE	60" x 48"
TYPICAL MINIMUM SIZE	13-1/4" x 13-1/4"
STANDARD INFILL OPTIONS	1"
STANDARD HARDWARE	Stainless Steel 4-Bar Hinges Cast White Bronze Cam Locks
OPTIONAL HARDWARE	Access Control Locks Limit Stop Key Release Limit Arm Pole and Pole Ring
OTHER OPTIONS	Unequal Leg Frames (for curtain wall installation) Insect Screens

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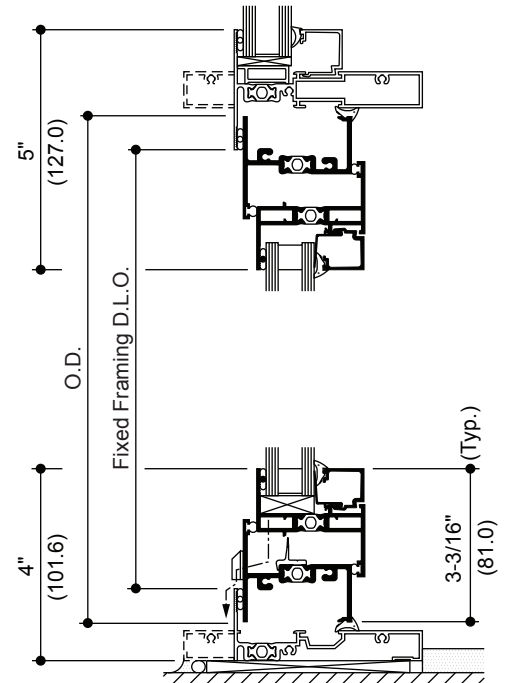
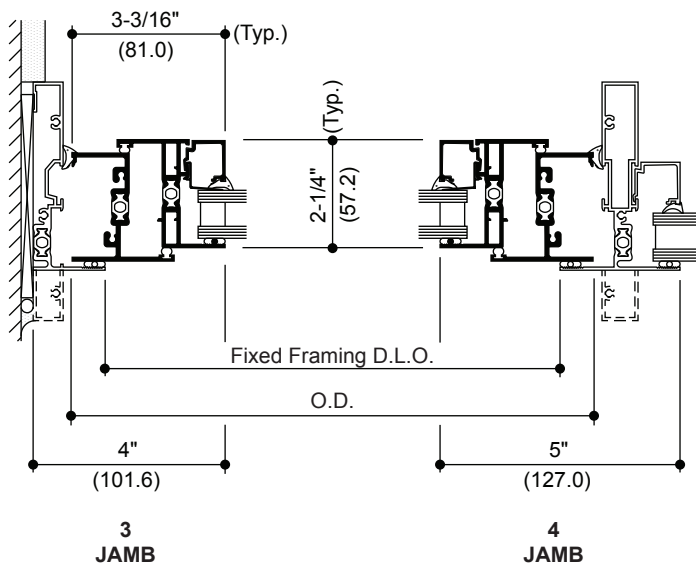
Additional information and CAD details are available at www.kawneer.com



TYPICAL ELEVATION

1
HEAD

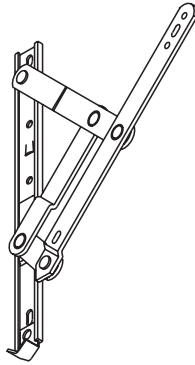
2
SILL



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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STAINLESS STEEL 4 BAR HINGES



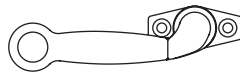
A standard hinge for ventilators providing approximately 45° to 60° openings depending on size. An optional limit stop is available to restrict hinge travel and limit vent opening.

STANDARD CAM HANDLE



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

CAM HANDLE WITH POLE RING



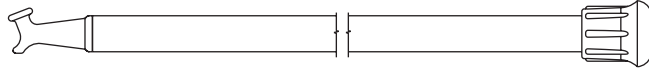
Cast white bronze cam handles with pole ring provide manual operation of ventilators located above reach. These handles are operated with a sash pole.

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



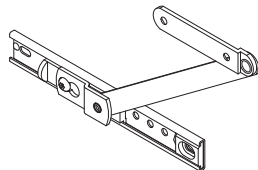
A 3/4" diameter aluminum sash pole with a cast white bronze pull down hook and black rubber tip. Available in 6 ft. and 12 ft. lengths with optional cast white bronze Pole Hanger.

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.

KEY RELEASE LIMIT ARM



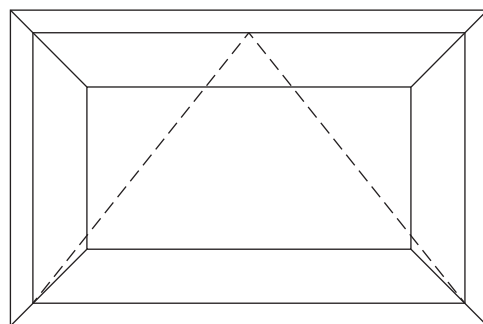
Key released limit arms may be used to restrict ventilator opening.

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.

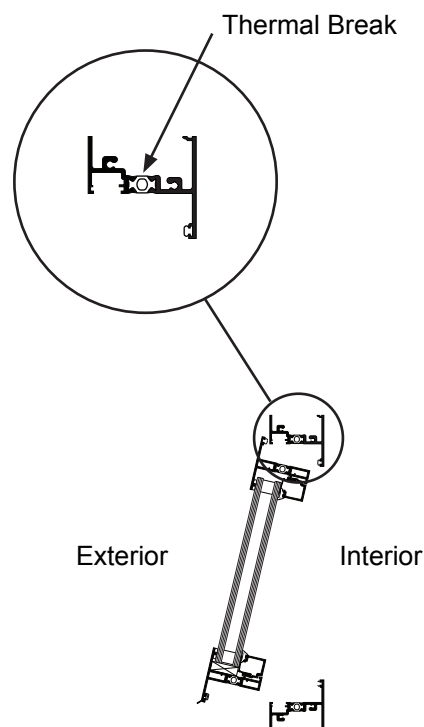
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Features

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- Lock-in glass stop
- Architectural Anodized Finishes and Applied Coatings
- Two Year Manufacturer's Warranty
- Compatible with Curtain Wall Systems



Project-out Window



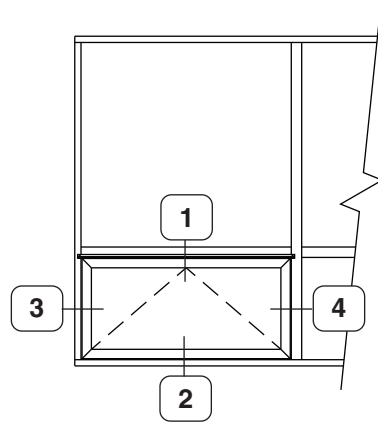
For specific product applications,
Consult your Kawneer representative.

CLASS and GRADE	Commercial Grade CW-PG45-AP
TESTING STANDARD	AAMA / WDMA / CSA 101 / I.S. 2 / A440 (NAFS)
FRAME DEPTH	2-1/4" Overall Frame Depth
TYPICAL WALL THICKNESS	.080 Nominal (frame) / .065 Nominal (vent)
TYPICAL MAXIMUM SIZE	60" x 42" or 54" x 48"
TYPICAL MINIMUM SIZE	13-1/4" x 13-1/4" - Cam Handles 20-5/8" x 19" - Hook Bolt Lock and Pivot Shoe Roto-Operator
STANDARD INFILL OPTIONS	1"
STANDARD HARDWARE	Stainless Steel 4-Bar Hinges Cast White Bronze Cam Locks
OPTIONAL HARDWARE	Access Control Locks Hook Bolt Lock Handle Pivot Shoe Roto-Operator Limit Stop Key Release Limit Arm
OTHER OPTIONS	Unequal Leg Frames (for curtain wall installation) Insect Screens

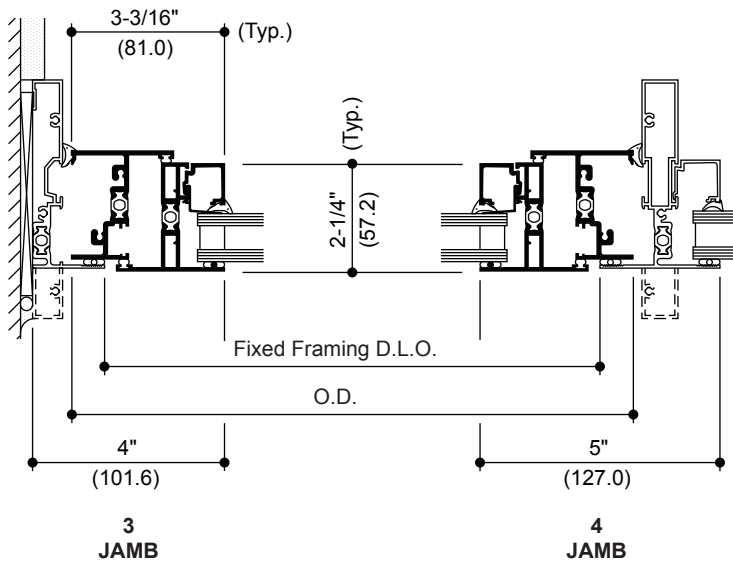
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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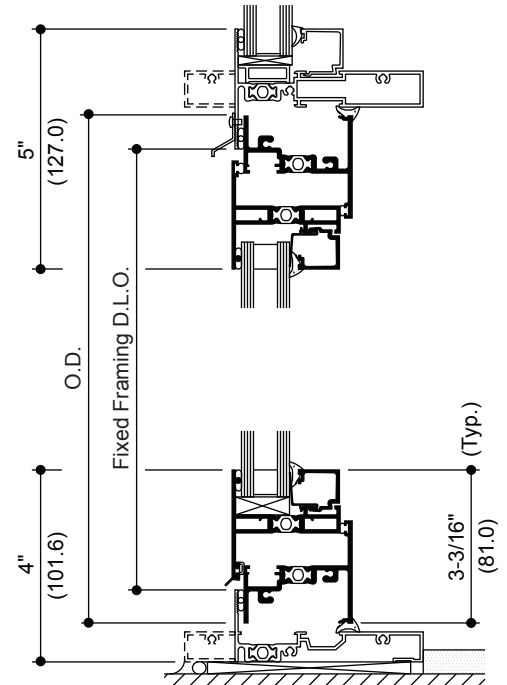


TYPICAL ELEVATION



1
HEAD

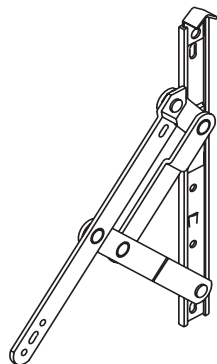
2
SILL



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.

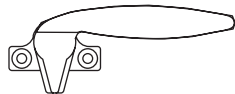
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**STAINLESS
STEEL
4 BAR HINGES**



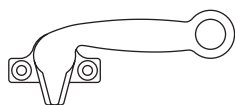
A standard hinge for ventilators providing approximately 45° to 60° openings depending on size. An optional limit stop is available to restrict hinge travel and limit vent opening.

**STANDARD
CAM HANDLE**



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

**CAM HANDLE
WITH POLE RING**



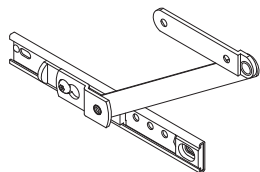
Cast white bronze cam handles with pole ring provide manual operation of ventilators located above reach. These handles are operated with a sash pole.

**ACCESS
CONTROL
LOCK**



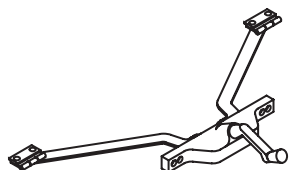
In lieu of the standard cam handles cast white bronze access control locks are offered for managed control of vent operations. Lock is operated with a manganese bronze removable handle.

**KEY RELEASE
LIMIT ARM**



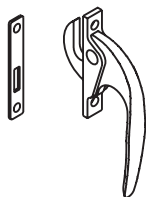
Key released limit arms may be used to restrict ventilator opening.

**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**



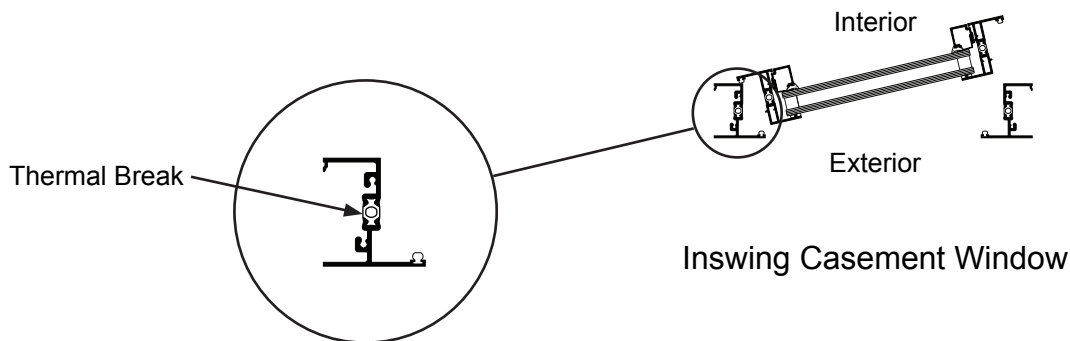
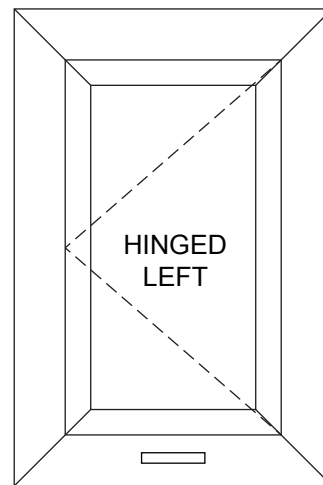
For use with pivot-shoe roto operator in lieu of cam handles. Standard finish shall be US-25-D clear white bronze.

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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- Interior EPDM rubber glazing gaskets
- Lock-in glass stop
- Architectural Anodized Finishes and Applied Coatings
- Two Year Manufacturer's Warranty
- Compatible with Curtain Wall Systems



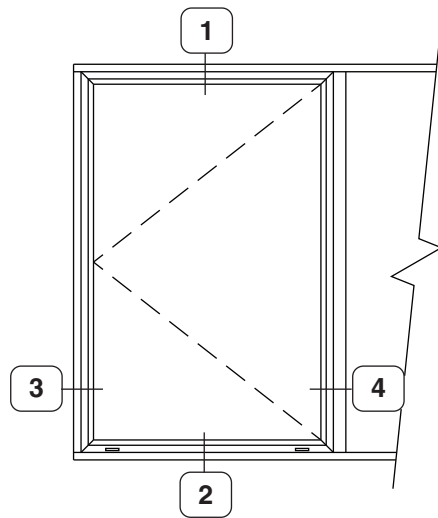
For specific product applications,
Consult your Kawneer representative.

CLASS and GRADE	Commercial Grade CW-PG70-C
TESTING STANDARD	AAMA / WDMA / CSA 101 / I.S. 2 / A440 (NAFS)
FRAME DEPTH	2-1/4" Overall Frame Depth
TYPICAL WALL THICKNESS	.080 Nominal (frame) / .065 Nominal (vent)
TYPICAL MAXIMUM SIZE	36" x 72"
TYPICAL MINIMUM SIZE	13-1/4" x 13-1/4"
STANDARD INFILL OPTIONS	1"
STANDARD HARDWARE	Butt Hinges Cast White Bronze Cam Locks
OPTIONAL HARDWARE	Access Control Locks Limit Stop Butt Hinges Friction Adjuster Key Release Limit Arm
OTHER OPTIONS	Unequal Leg Frames (for curtain wall installation) 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.

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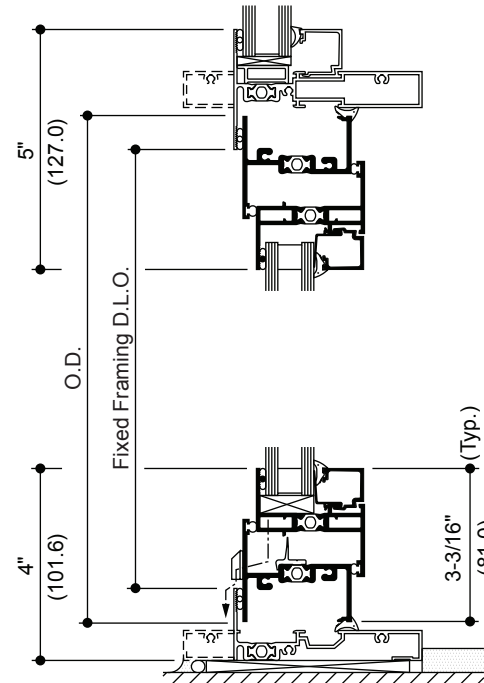
Additional information and CAD details are available at www.kawneer.com



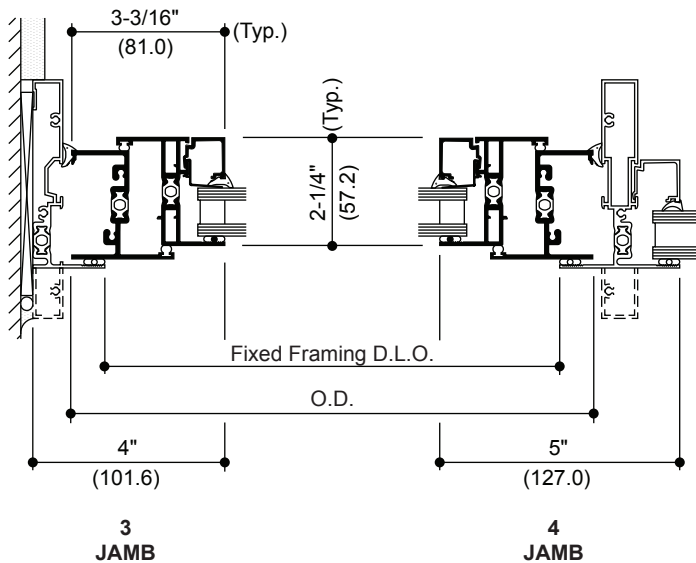
TYPICAL ELEVATION

Log onto www.kawneer.com for other configurations

1
HEAD



2
SILL



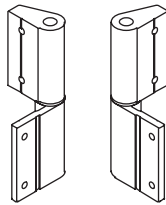
3
JAMB

4
JAMB

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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.

STANDARD CAM HANDLE



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

CAM HANDLE WITH POLE RING



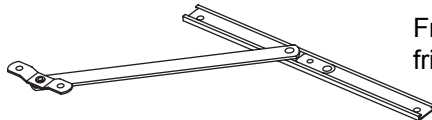
Cast white bronze cam handles with pole ring provide manual operation of ventilators located above reach. These handles are operated with a sash pole.

ACCESS CONTROL LOCK



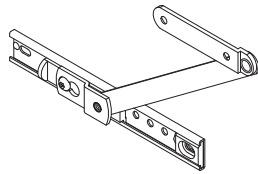
In lieu of the standard cam handles cast white bronze access control locks are offered for managed control of vent operations. Lock is operated with a manganese bronze removable handle.

FRICTION ADJUSTOR



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

KEY RELEASE LIMIT ARM



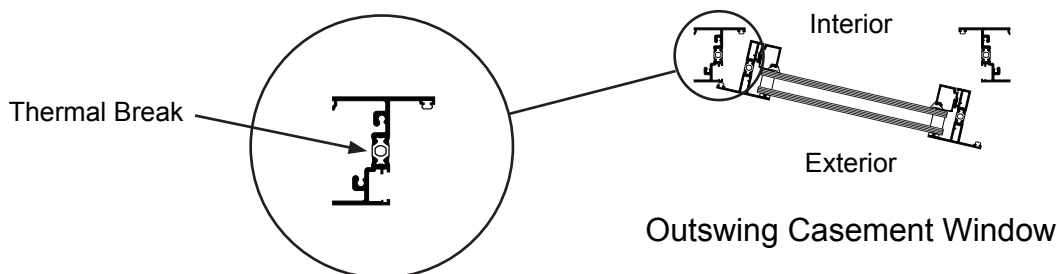
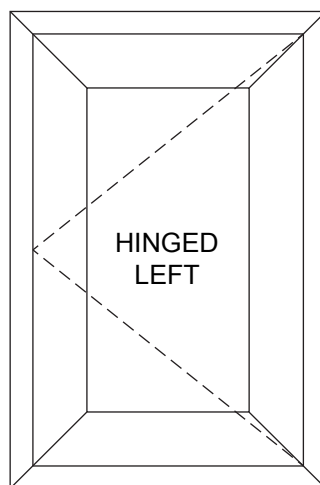
Key released limit arms may be used to restrict ventilator opening.

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Features

- Commercial Grade Window
- IsoPort™ Thermal Break
- Mitered, Clipped and Staked Vent Corner Joinery
- Mitered, Screw and Spline Frame Corner Joinery
- Factory fabricated and assembled
- Optional full rain screen capability
- Accommodates 1" (25 mm) sealed glazing units
- Exterior pre-shim butyl glazing tapes
- Interior EPDM rubber glazing gaskets
- Lock-in glass stop
- Architectural Anodized Finishes and Applied Coatings
- Two Year Manufacturer's Warranty
- Compatible with Curtain Wall Systems



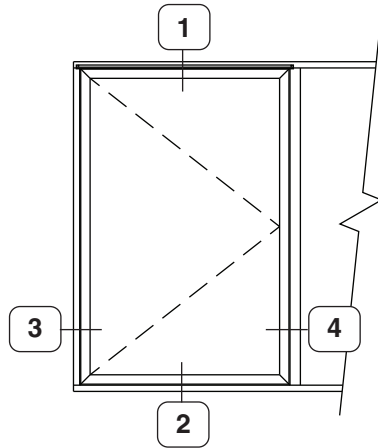
For specific product applications,
Consult your Kawneer representative.

CLASS and GRADE	Commercial Grade CW-PG70-C
TESTING STANDARD	AAMA / WDMA / CSA 101 / I.S. 2 / A440 (NAFS)
FRAME DEPTH	2-1/4" Overall Frame Depth
TYPICAL WALL THICKNESS	.080 Nominal (frame) / .065 Nominal (vent)
TYPICAL MAXIMUM SIZE	36" x 72" - Cam Handles 36" x 60" - Roto Operator
TYPICAL MINIMUM SIZE	13-1/4" x 13-1/4" - Cam Handles 16-3/4" x 16-3/4" - Roto Operator
STANDARD INFILL OPTIONS	1"
STANDARD HARDWARE	Stainless Steel 4-Bar Hinges Cast White Bronze Cam Locks
OPTIONAL HARDWARE	Butt Hinges Access Control Locks Hook Bolt Lock Limit Stop Friction Adjustor Keyed Limit Arm Roto Operator
OTHER OPTIONS	Unequal Leg Frames (for curtain wall installation) Insect Screens

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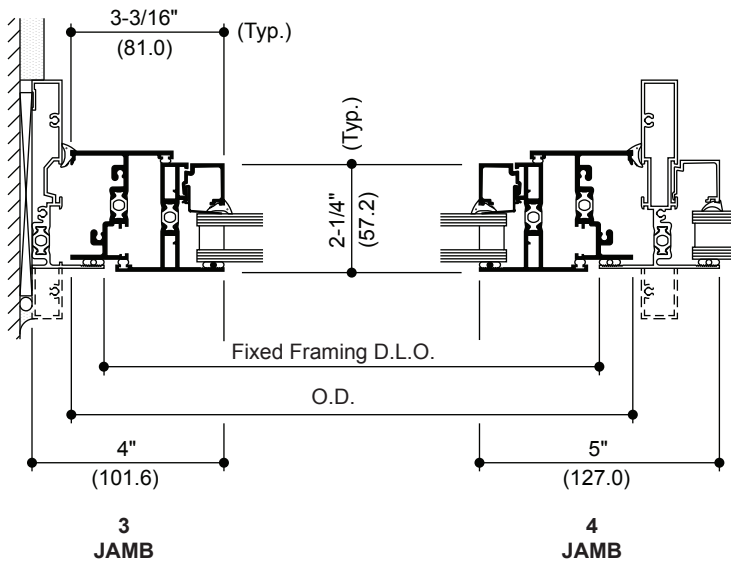
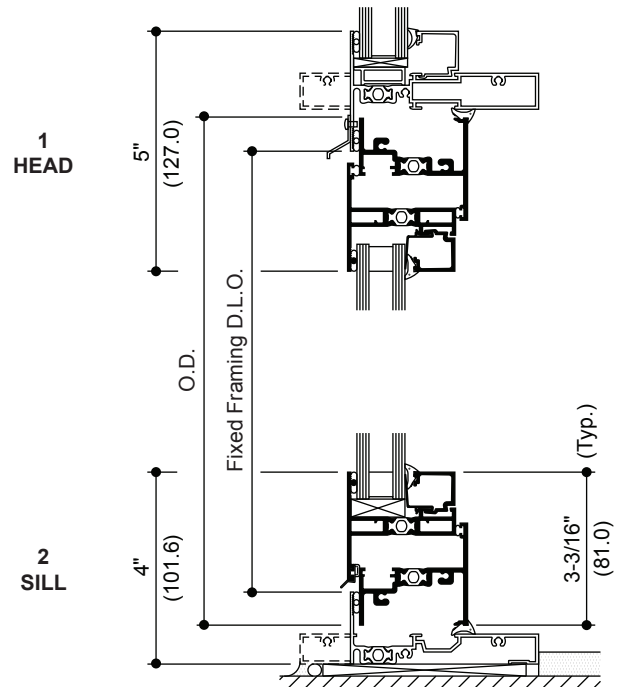
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TYPICAL ELEVATION

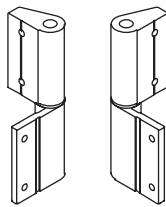
Log onto www.kawneer.com for other configurations



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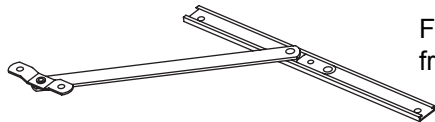
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BUTT HINGES



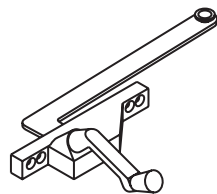
An optional hinge for ventilators providing a full 90° opening. Butt Hinges shall be finished to match the window.

**FRICTION
ADJUSTOR**



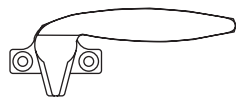
Friction adjustors shall be used with butt hinges for additional friction for control of the ventilator.

**ROTO
OPERATOR**



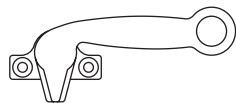
Roto operators are used with butt hinges only and located at the bottom horizontal frame. Standard finish shall be brushed copper nickel to match US-25-D.

**STANDARD
CAM HANDLE**



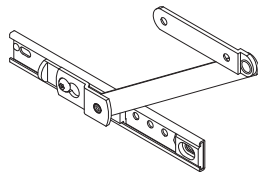
Cast white bronze cam handles are standard for the manual operation and locking of ventilators.

**CAM HANDLE
WITH POLE RING**



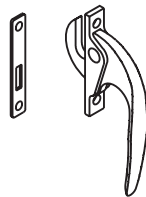
Cast white bronze cam handles with pole ring provide manual operation of ventilators located above reach. These handles are operated with a sash pole.

**KEY RELEASE
LIMIT ARM**



Key released limit arms may be used to restrict ventilator opening.

**HOOK BOLT
LOCK**

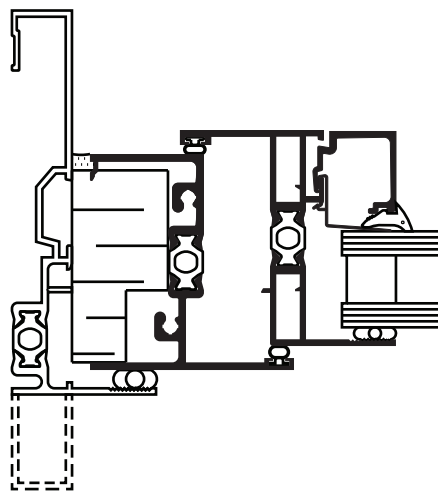


For use with pivot-shoe roto operator in lieu of cam handles. Standard finish shall be US-25-D clear white bronze.

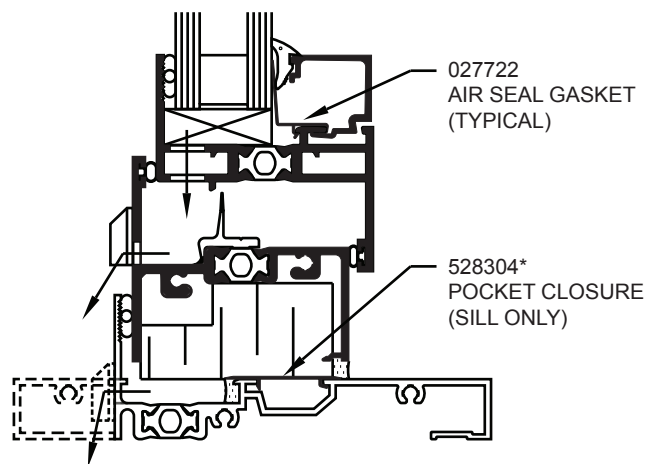
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PROJECT-IN / INSWING CASEMENT

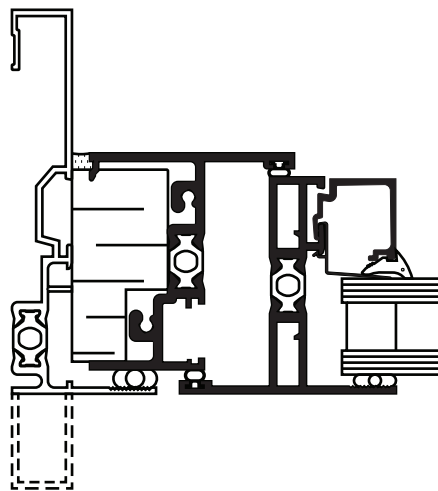


JAMB

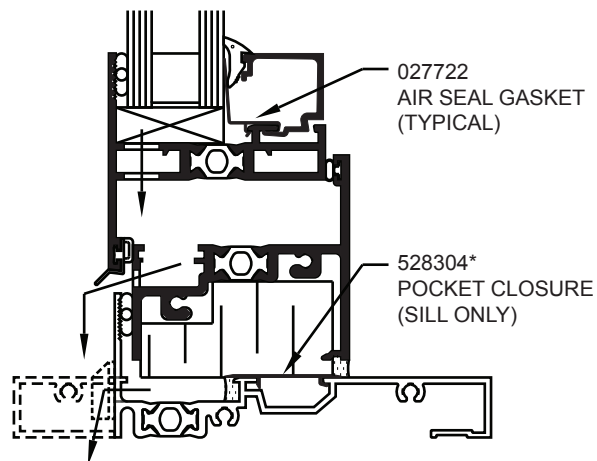


SILL

PROJECT-OUT / OUTSWING CASEMENT



JAMB



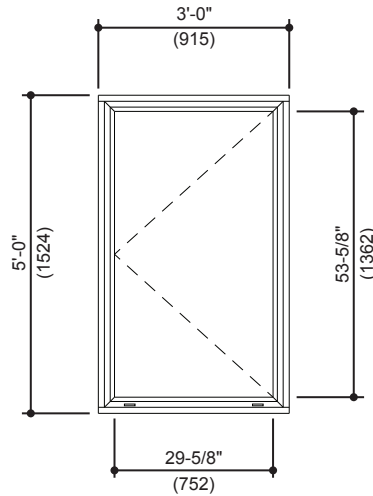
SILL

*** Note:** Use 528304 pocket filler and full perimeter wet seal at interior when rain screen vent frame installation is required.

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



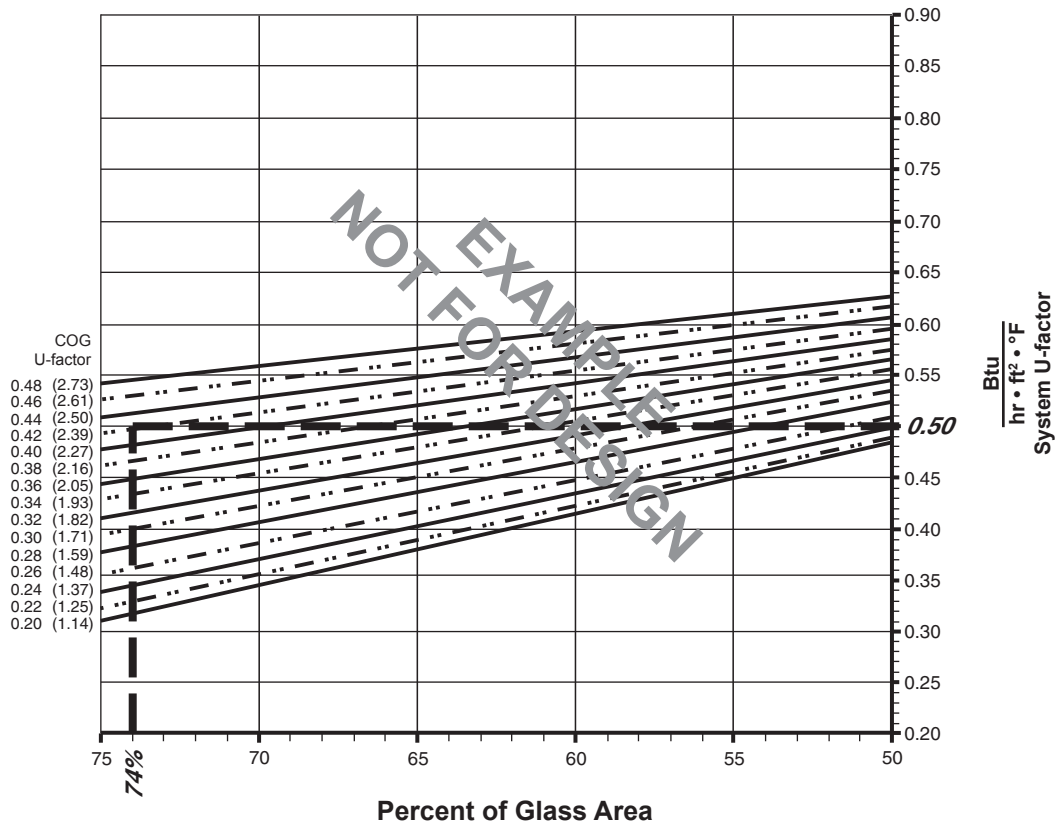
Example Glass U-Factor = $0.42 \text{ Btu/hr} \cdot \text{ft}^2 \cdot ^\circ\text{F}$

Total Daylight Opening = $29\text{-}5/8" \cdot 53\text{-}5/8" = 11.03\text{ft}^2$

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

Percent of Glass = $(\text{Total Daylight Opening} \div \text{Total Projected Area})100$
 $= (11.03 \div 15)100 = 74\%$

System U-factor vs Percent of Glass Area



Based on 74% glass and center of glass (COG) U-factor of 0.42
 System U-factor is equal to $0.50 \text{ Btu/hr} \cdot \text{ft}^2 \cdot ^\circ\text{F}$

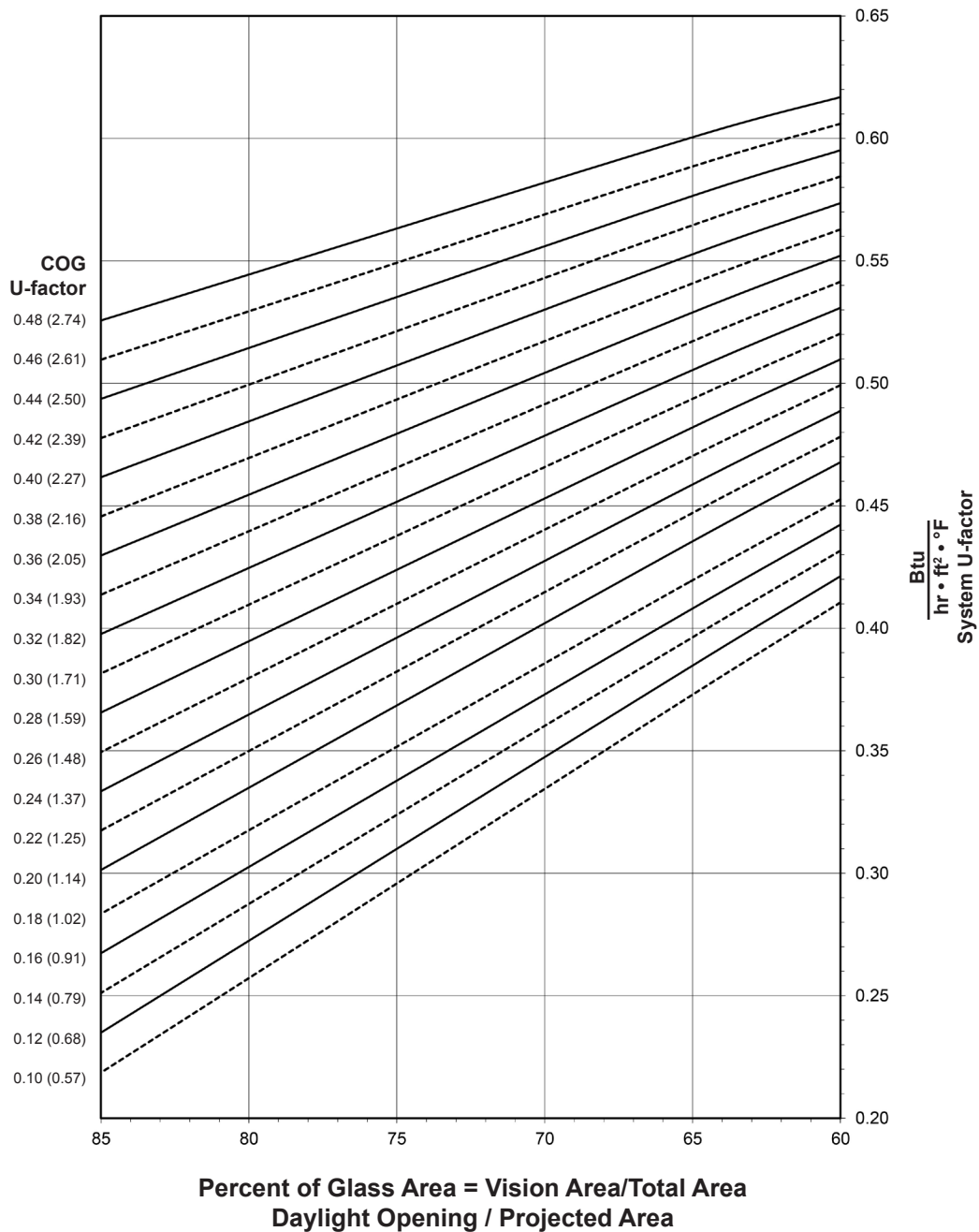
526 PROJECT-IN WINDOW WITH 1" GLAZING

Note:

Values in parentheses are metric.

COG = Center of Glass.

Charts are generated per AMMA 507

System U-factor vs Percent of Glass Area**Notes for System U-factor, SHGC and VT charts:**

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

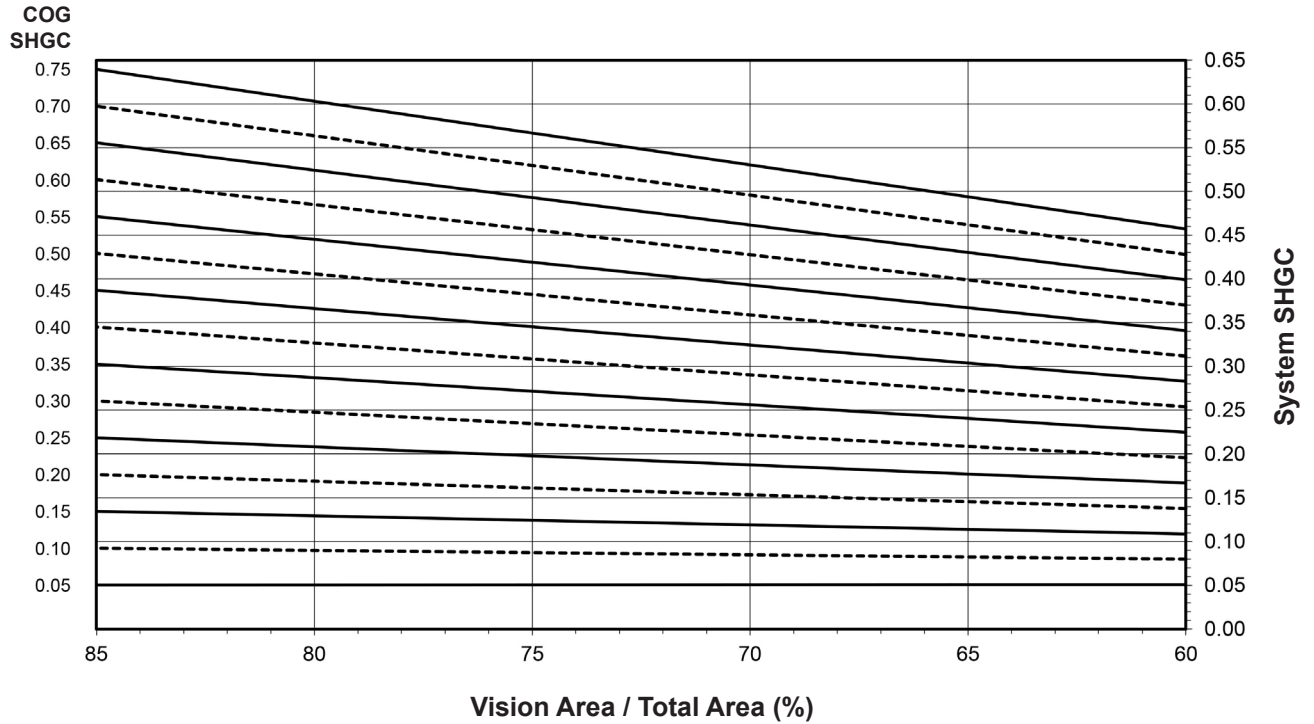
Glass properties are based on center of glass values and are obtained from your glass supplier.

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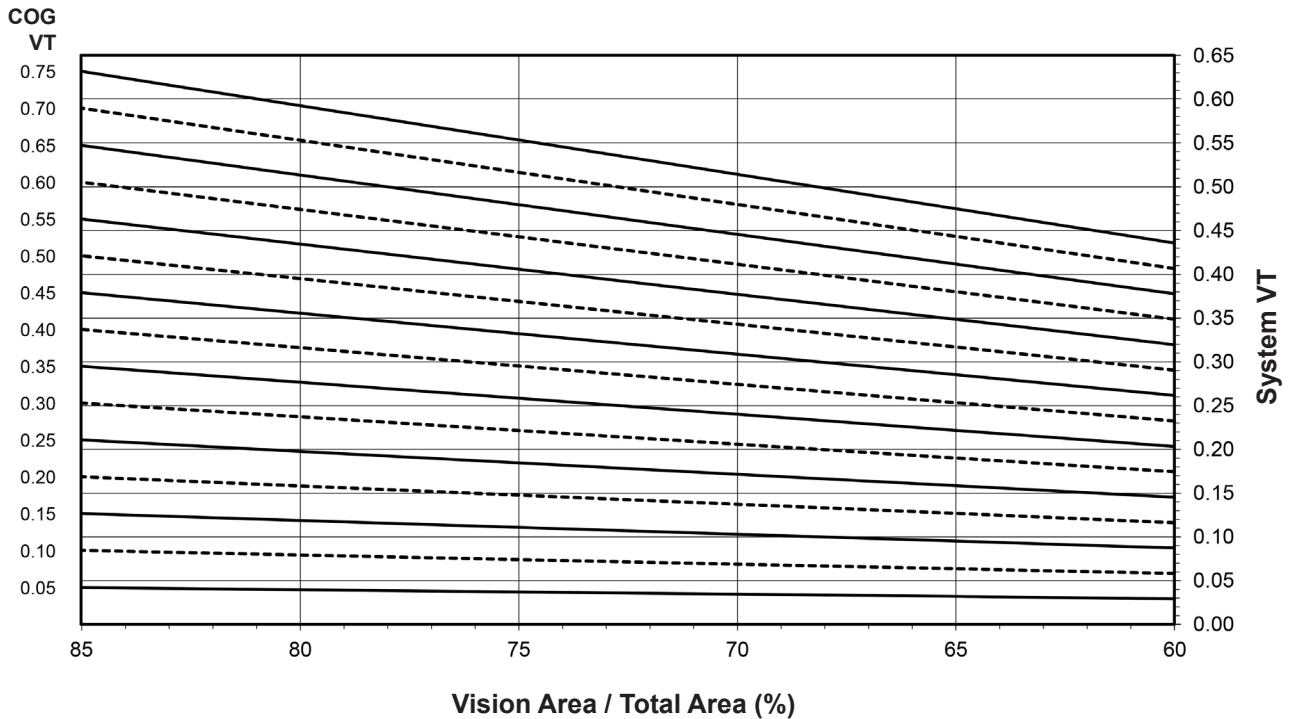
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526 PROJECT-IN WINDOW WITH 1" GLAZING

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



System Visible Transmittance (VT) vs Percent of Vision Area



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

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.60
0.46	0.59
0.44	0.58
0.42	0.56
0.40	0.55
0.38	0.54
0.36	0.53
0.34	0.52
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	0.43
0.18	0.42
0.16	0.41
0.14	0.40
0.12	0.38
0.10	0.37

**526 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 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
0.75	0.49
0.70	0.46
0.65	0.43
0.60	0.40
0.55	0.37
0.50	0.34
0.45	0.30
0.40	0.27
0.35	0.24
0.30	0.21
0.25	0.18
0.20	0.15
0.15	0.11
0.10	0.08
0.05	0.05

Visible Transmittance ²

Glass VT ³	Overall VT ⁴
0.75	0.48
0.70	0.44
0.65	0.41
0.60	0.38
0.55	0.35
0.50	0.32
0.45	0.29
0.40	0.25
0.35	0.22
0.30	0.19
0.25	0.16
0.20	0.13
0.15	0.10
0.10	0.06
0.05	0.03

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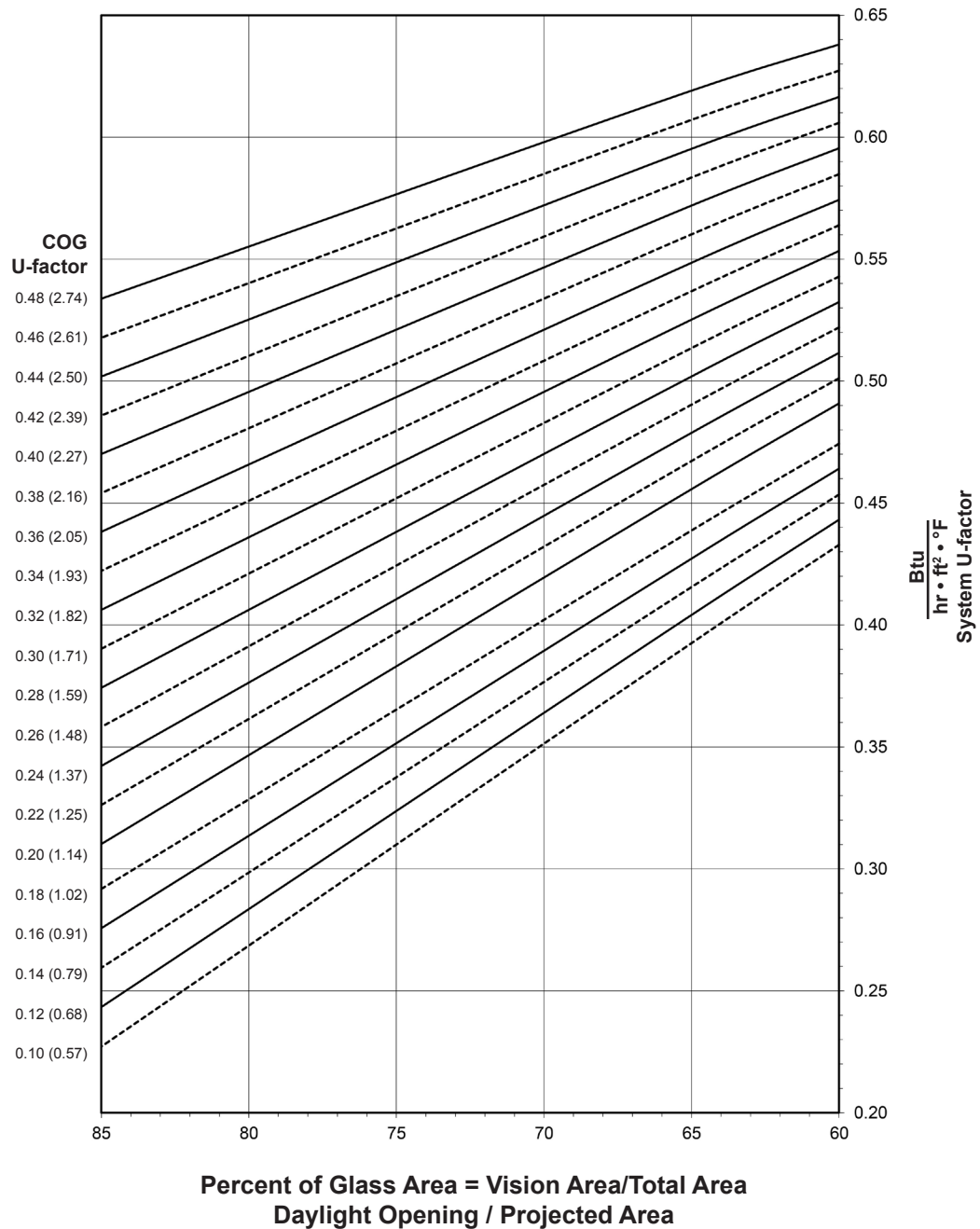
526 PROJECT-OUT WINDOW WITH 1" GLAZING

Note:

Values in parentheses are metric.

COG = Center of Glass.

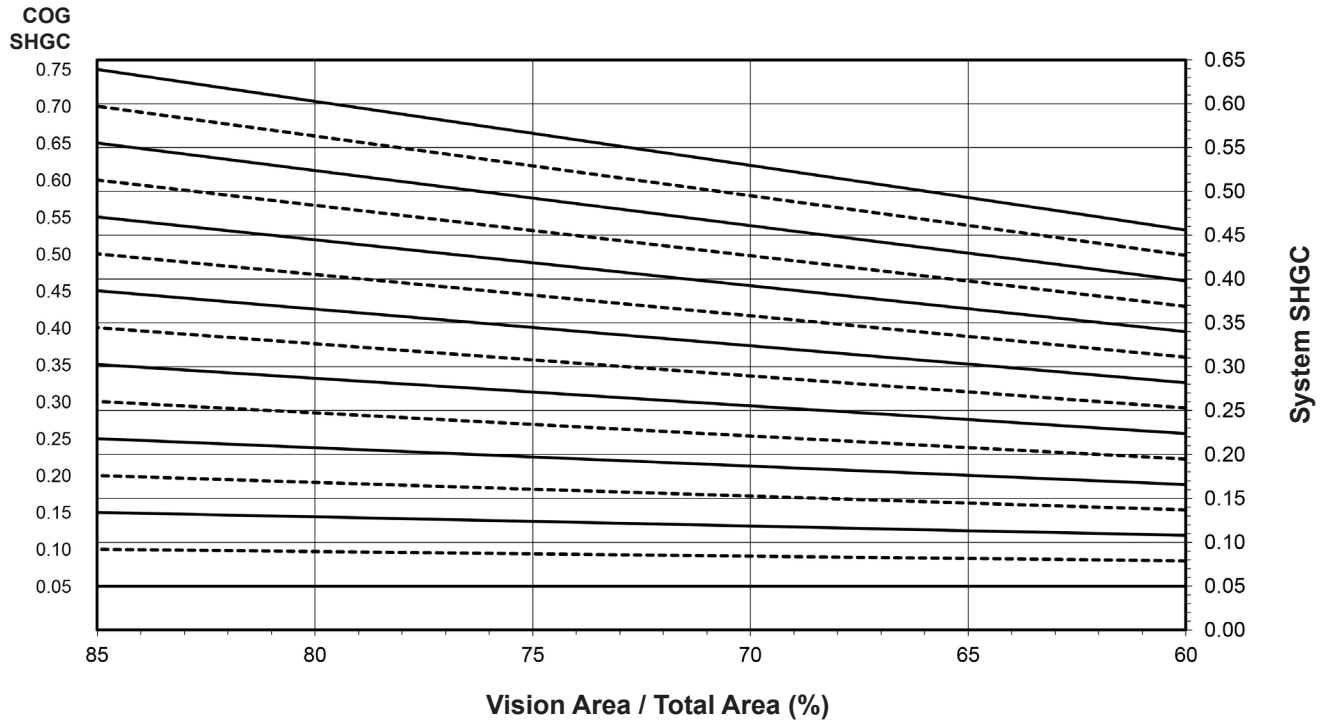
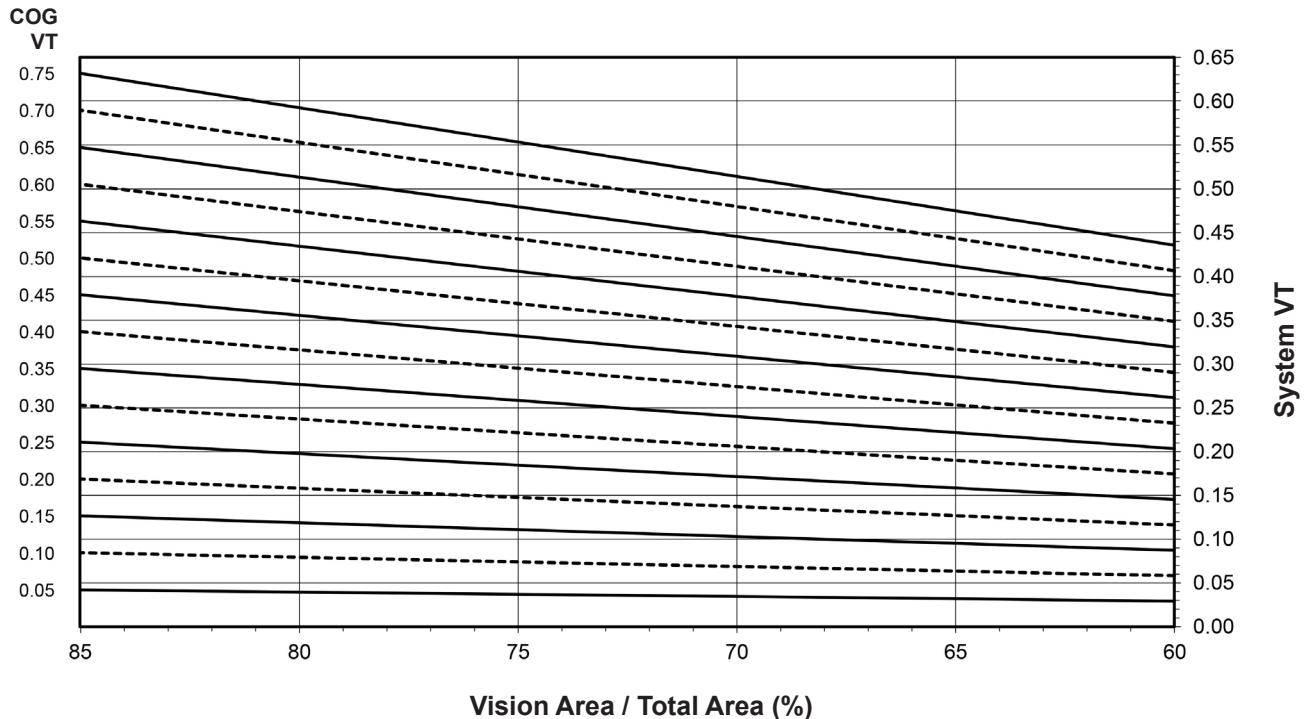
Charts are generated per AMMA 507

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.

526 PROJECT-OUT WINDOW WITH 1" GLAZING

System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision AreaSystem Visible Transmittance (VT) vs Percent of Vision Area

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

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.62
0.46	0.61
0.44	0.59
0.42	0.58
0.40	0.57
0.38	0.56
0.36	0.55
0.34	0.54
0.32	0.52
0.30	0.51
0.28	0.50
0.26	0.49
0.24	0.48
0.22	0.47
0.20	0.45
0.18	0.44
0.16	0.43
0.14	0.41
0.12	0.40
0.10	0.39

**526 PROJECT-OUT WINDOW
WITH 1" GLAZING**

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SHGC Matrix ²

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0.75	0.49
0.70	0.46
0.65	0.43
0.60	0.40
0.55	0.37
0.50	0.34
0.45	0.30
0.40	0.27
0.35	0.24
0.30	0.21
0.25	0.18
0.20	0.14
0.15	0.11
0.10	0.08
0.05	0.05

Visible Transmittance ²

Glass VT ³	Overall VT ⁴
0.75	0.48
0.70	0.44
0.65	0.41
0.60	0.38
0.55	0.35
0.50	0.32
0.45	0.29
0.40	0.25
0.35	0.22
0.30	0.19
0.25	0.16
0.20	0.13
0.15	0.10
0.10	0.06
0.05	0.03

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INSWING CASEMENT WINDOW WITH 1" GLAZING

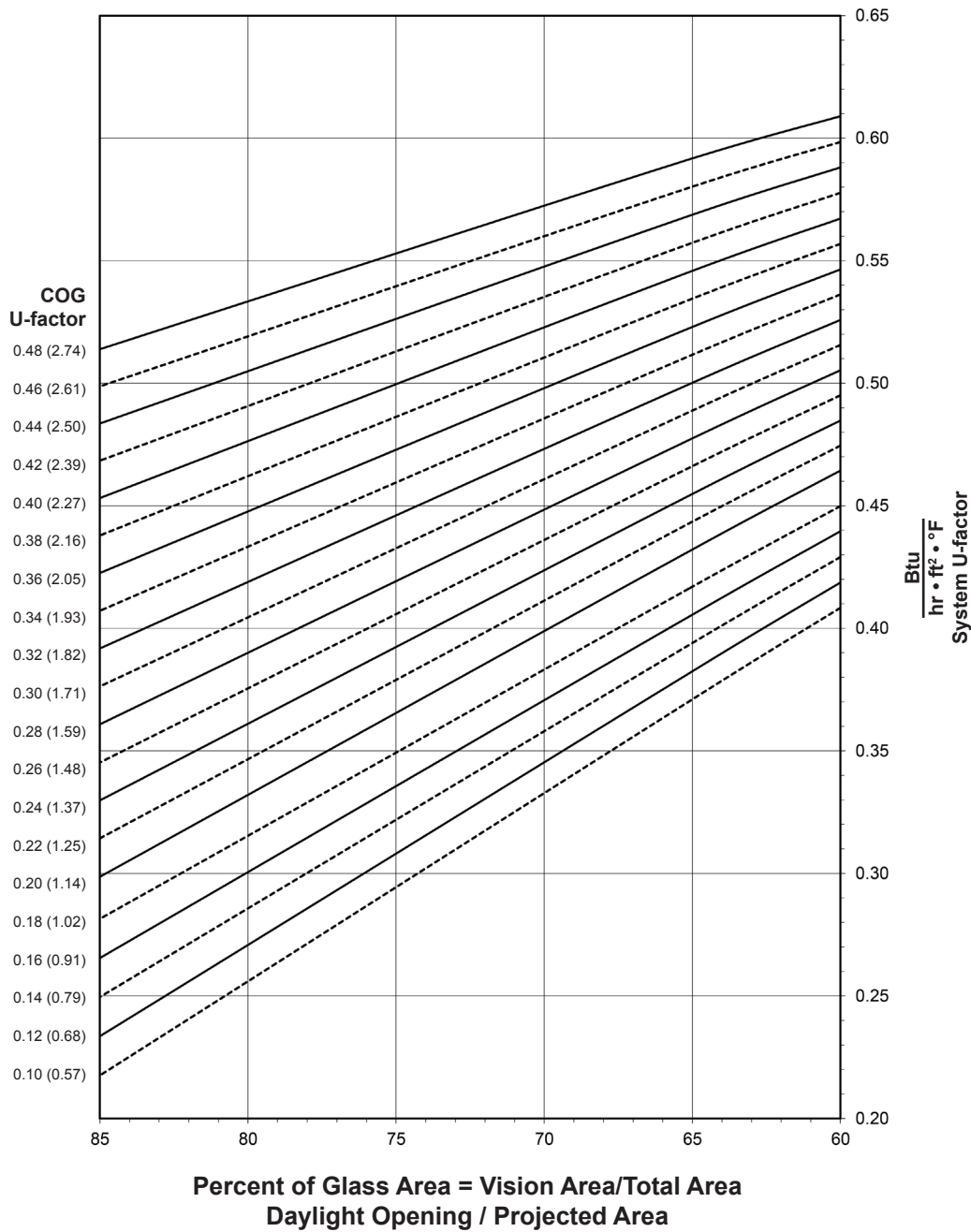
Note:

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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.

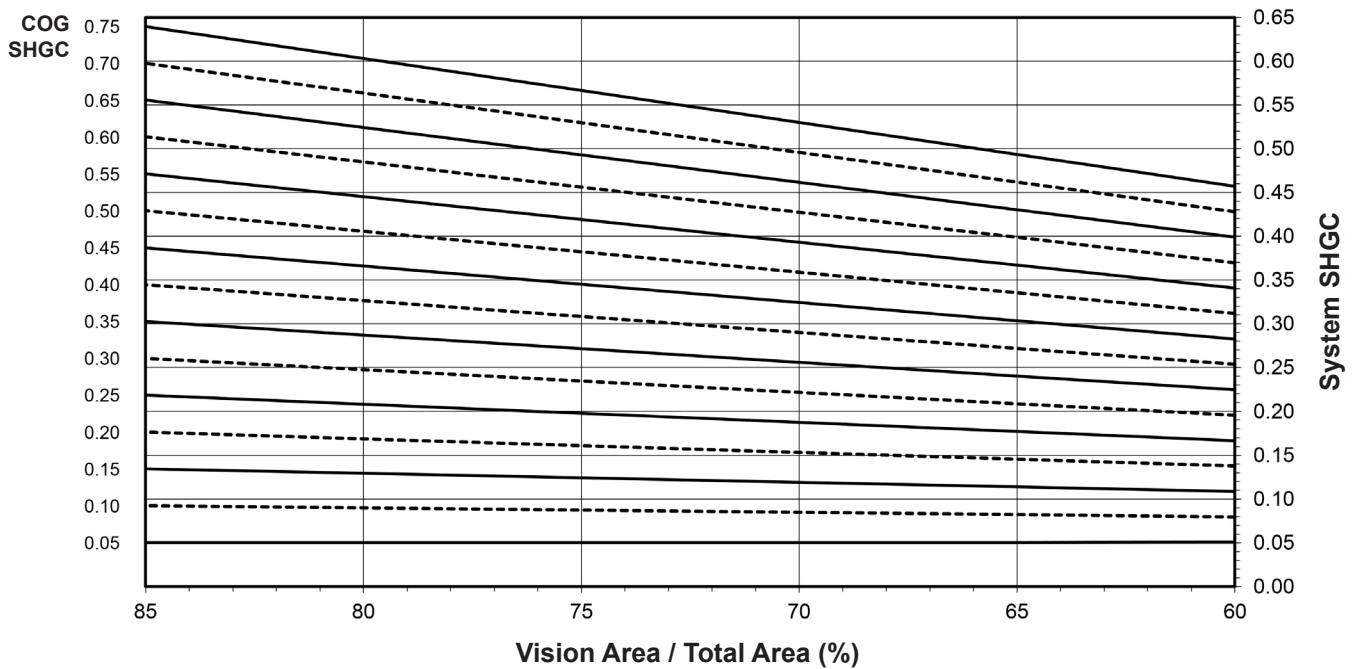
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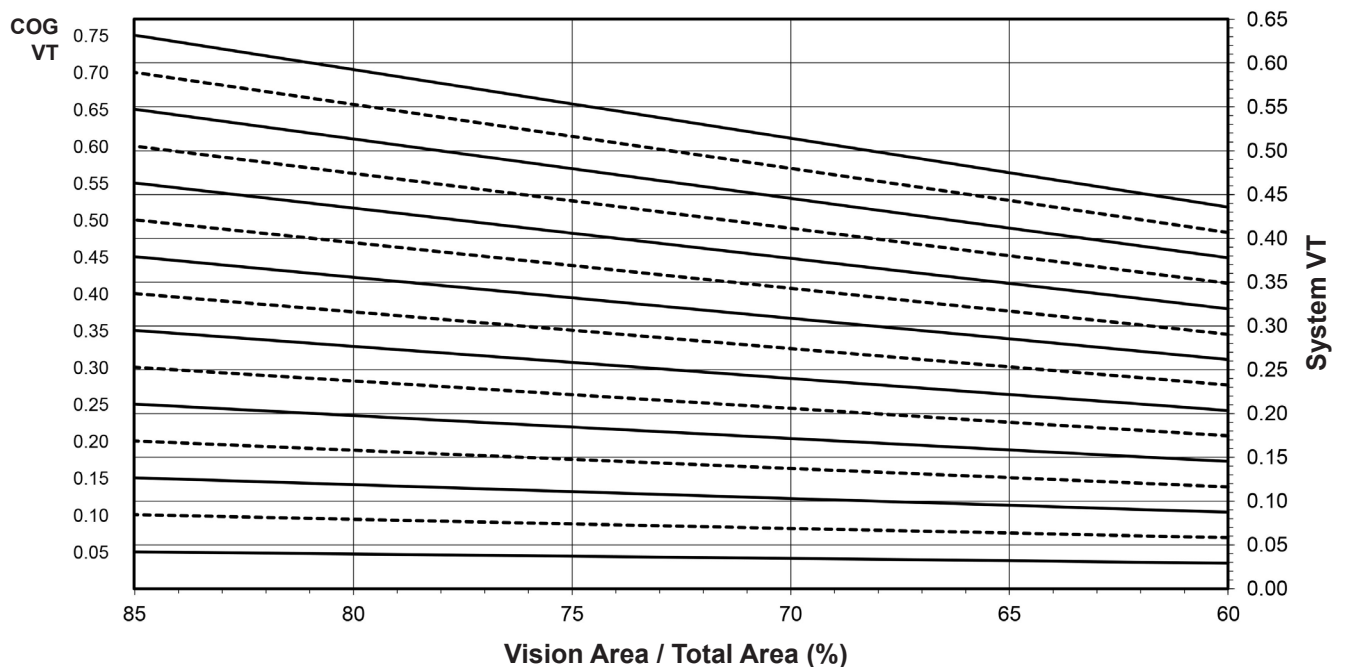
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INSWING CASEMENT WINDOW WITH 1" GLAZING

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 Transmittance ¹ (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	0.53
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	0.45
0.22	0.44
0.20	0.43
0.18	0.42
0.16	0.40
0.14	0.39
0.12	0.38
0.10	0.37

**INSWING CASEMENT WINDOW
WITH 1" GLAZING**

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0.75	0.49
0.70	0.46
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0.55	0.37
0.50	0.34
0.45	0.30
0.40	0.27
0.35	0.24
0.30	0.21
0.25	0.18
0.20	0.15
0.15	0.11
0.10	0.08
0.05	0.05

Visible Transmittance ²

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0.75	0.48
0.70	0.44
0.65	0.41
0.60	0.38
0.55	0.35
0.50	0.32
0.45	0.29
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0.30	0.19
0.25	0.16
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0.15	0.10
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OUTSWING CASEMENT WINDOW WITH 1" GLAZING

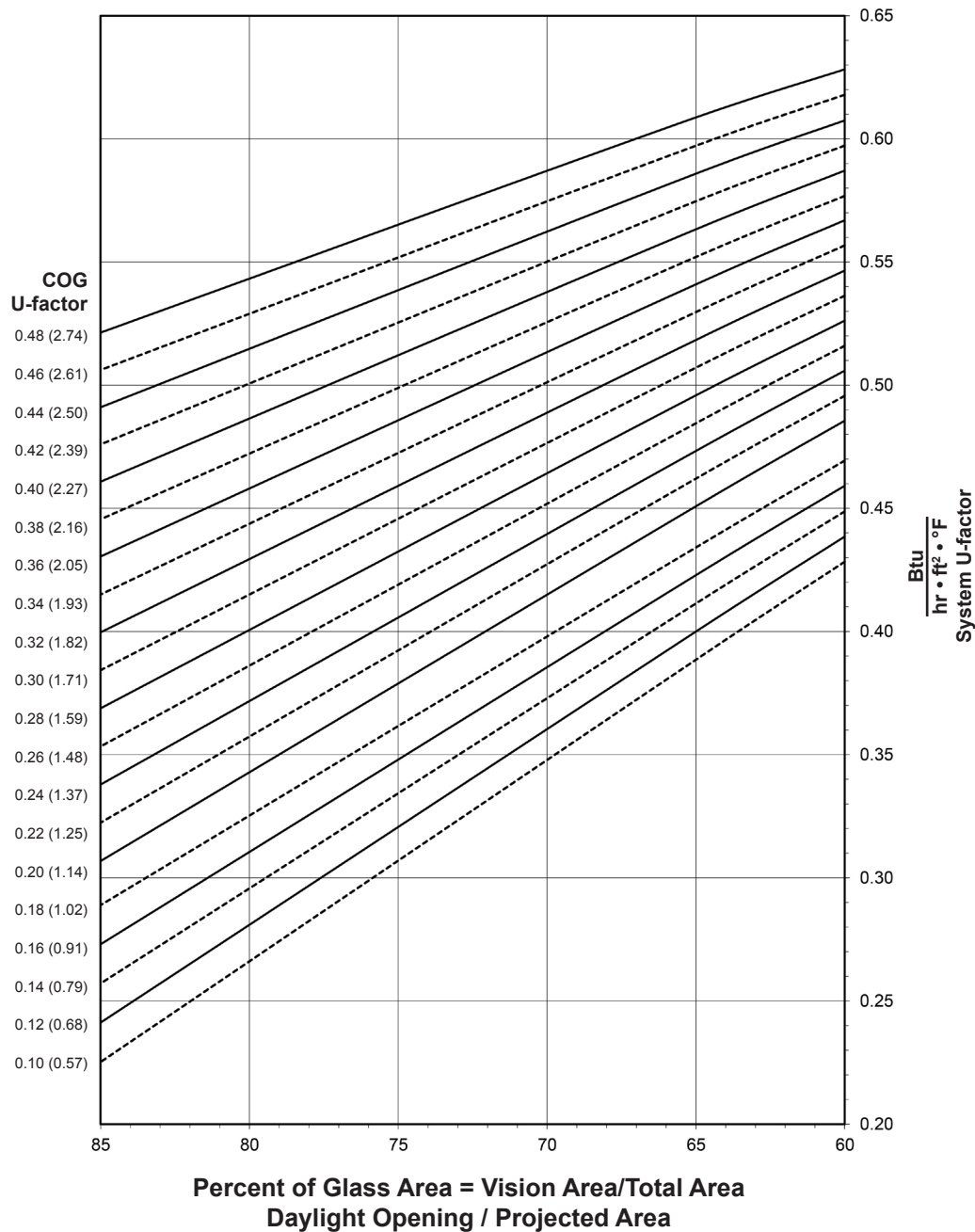
Note:

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System U-factor vs Percent of Glass Area


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

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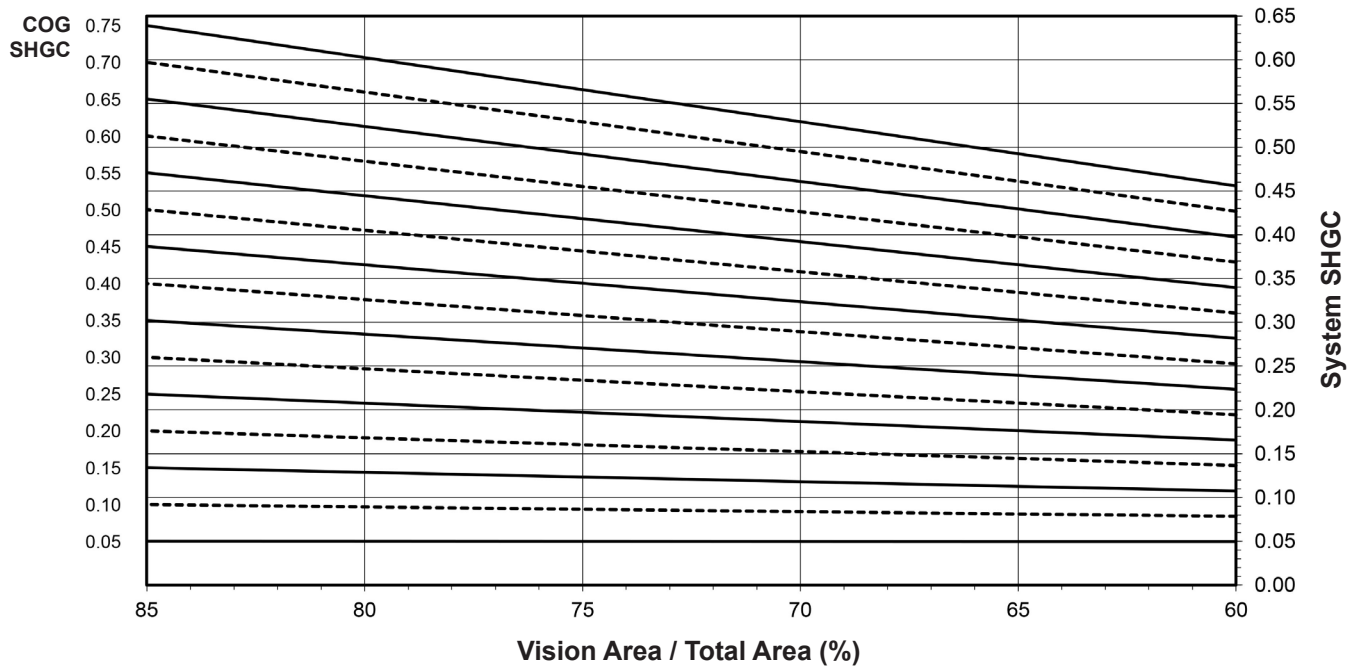
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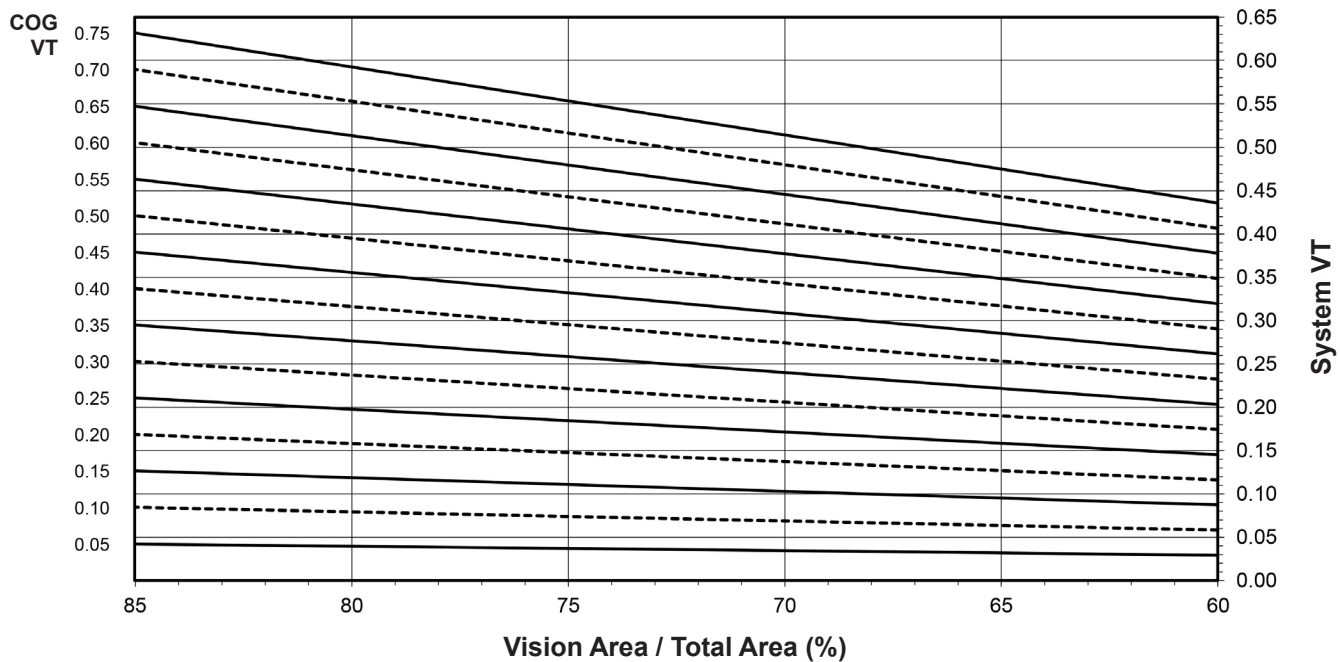
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OUTSWING CASEMENT WINDOW WITH 1" GLAZING

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



System Visible Transmittance (VT) vs Percent of Vision Area



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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	0.48
0.24	0.47
0.22	0.46
0.20	0.45
0.18	0.43
0.16	0.42
0.14	0.41
0.12	0.40
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**OUTSWING CASEMENT WINDOW
WITH 1" GLAZING**

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