GLASSVENT® UT WINDOW

Architectural Detail Manual

June 2021

ADME077EN

KAWNEER

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Introduction

Contacting Kawneer

For contact information, visit www.Kawneer.com.

Conventions Used In This Document

These symbols identify special types of information that can help you use the document more effectively.

Symbol	Description
 **NOTE**	Denotes general information that provides additional context or guidance
 **IMPORTANT**	Denotes information to which you should pay special attention
 **TIP**	Denotes information that can help you perform a task more efficiently

Metric (SI) Conversion. Metric (SI) conversion figures are included throughout this document for reference. Numbers in parentheses ( ) are millimeters unless otherwise noted. The following metric (SI) units may also appear: m – meter; cm – centimeter; mm – millimeter; s – second; Pa – pascal; MPa – megapascal.

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Product Overview

NOTE
Additional information and CAD details are available at www.Kawneer.com.

Features

For specific product applications, consult your Kawneer representative.

- Commercial Grade Window (CW) and Architectural Grade Window (AW)
- Tested to US and Canadian Standards
- 45° Mitered Vent and Frame Corners
- Staked Corner Joinery
- Architectural Anodized Finishes and Applied Coatings
- Large Missile and Small Missile Hurricane Impact Tested - AW (Deep) only
- Blast Mitigation Tested - AW (Deep) only

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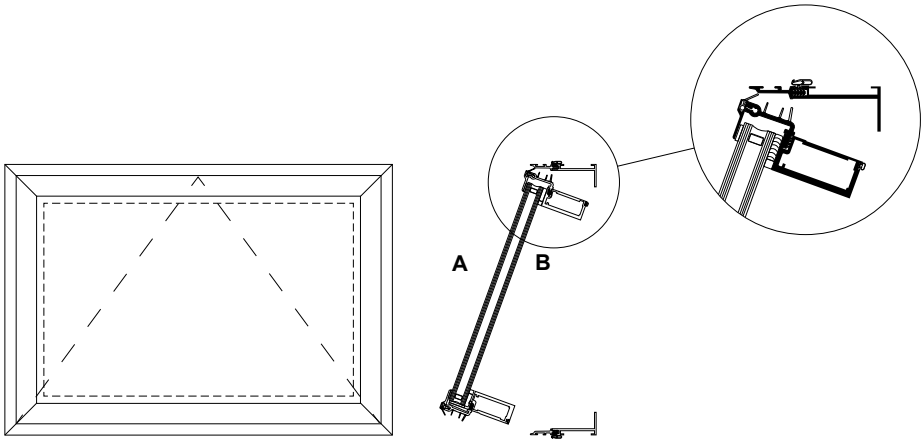
Project-Out Window

Project-Out Window - 1" Infill



A. Exterior
B. Interior

CLASS and GRADE	CLASS CW-PG70-AP / AW-PG90-AP
TESTING STANDARD	AAMA / WDMA / CSA / 101 / I.S.2 / A440 (NAFS)
SYSTEM DEPTH	CW (Shallow) - 3-1/8" / AW (Deep) - 4-3/8" Overall System Depth
TYPICAL WALL THICKNESS	CW (Shallow) - .125 Nominal Frame / .100" Nominal Vent AW (Deep) -. 125 Nominal Frame / .156" Nominal Vent
TYPICAL MAX. VENT SIZE	CW (Shallow) - 48" x 32" / AW (Deep) - 60" x 36"
TYPICAL MIN. VENT SIZE	17" x 17"
INFILL OPTIONS	1"
STANDARD HARDWARE	Stainless Steel 4-Bar Hinges Cast White Bronze Cam Handles
OPTIONAL HARDWARE	Access Control Locks Hook Bolt Lock Handle Pivot Shoe Roto-Operator (Size Limitations - Minimum 26" Wide x 17" High, Maximum 60" Wide x 36" High) Limit Stop Pole and Pole Ring Omni Drive (5 lb) operating force. • AW (Deep version 1" infill) • (Consult Application Engineering on project specific application.)
OTHER OPTIONS	Insect Screens

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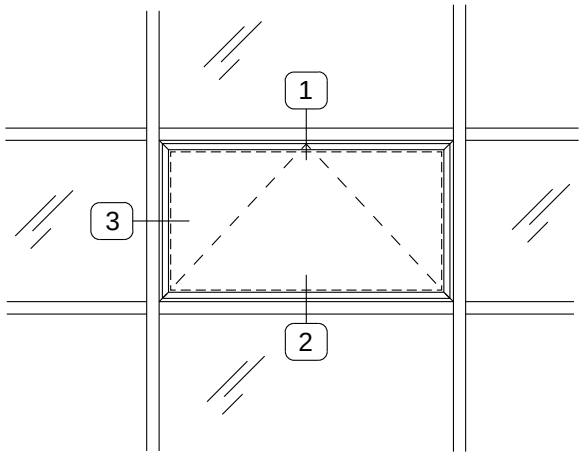
CW (Shallow) - Project-Out Window - 1" Infill

Typical Elevation



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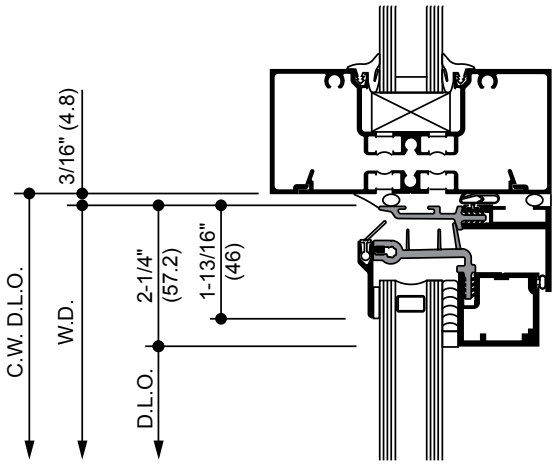
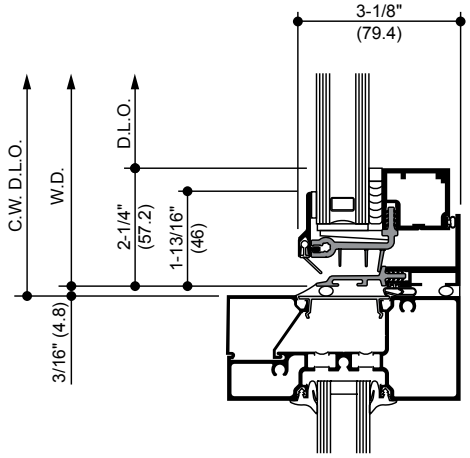


2 Sill



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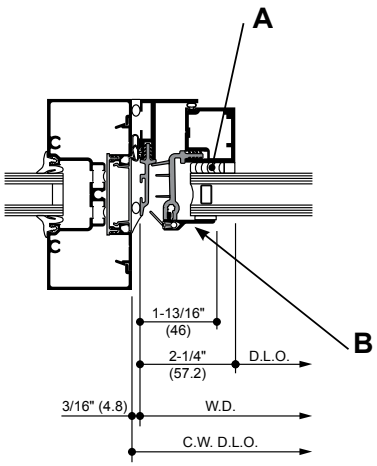


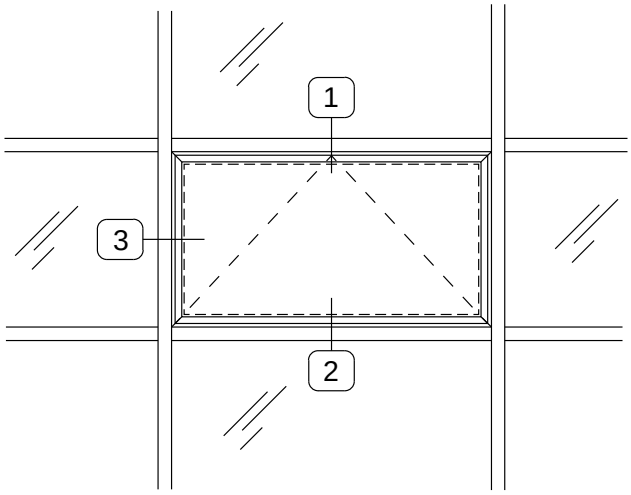
A. Structural Silicone Sealant (by Others)*
B. Trim Cap available in #29 Black anodized finish only.

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

NOTE
The Kawneer GLASSvent® UT Window is shown with Trifab® 451UT Framing System for reference. Other Kawneer systems can be used. For product specific applications, consult your Kawneer representative.

AW (Deep) - Project-Out Window - 1" Infill

Typical Elevation



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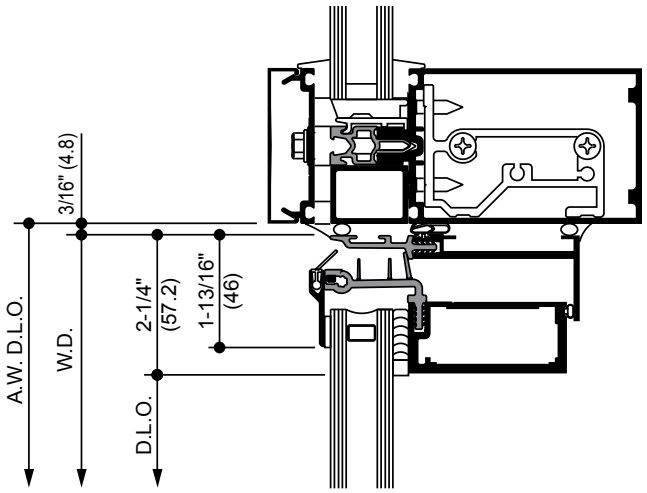

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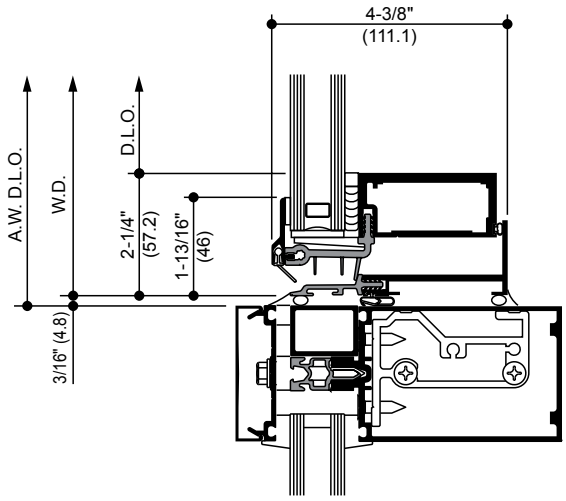

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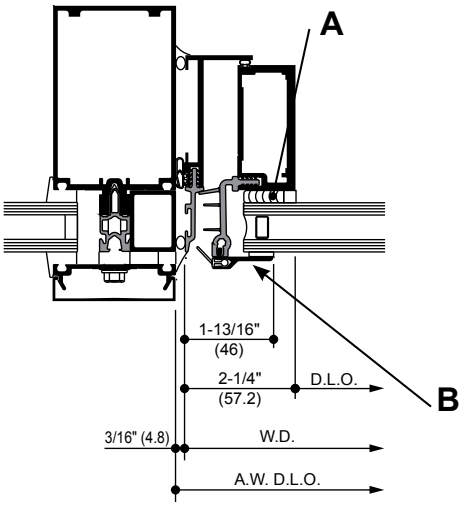

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NOTE
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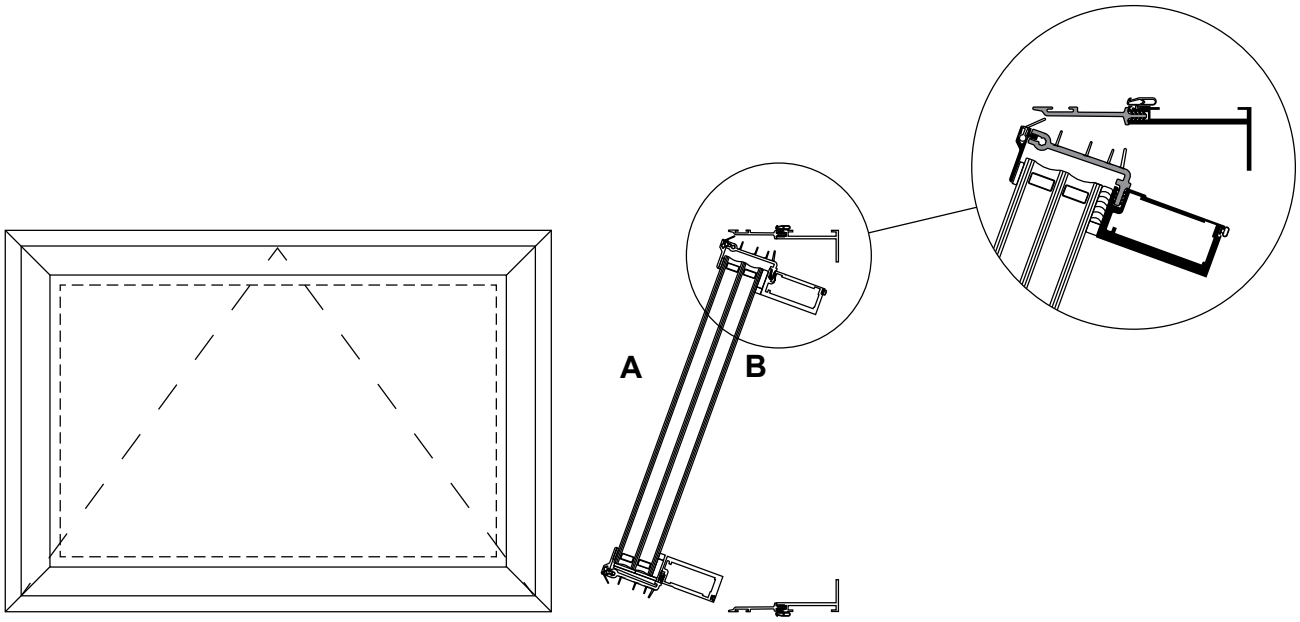
Project-Out Window - 1-3/4" Infill

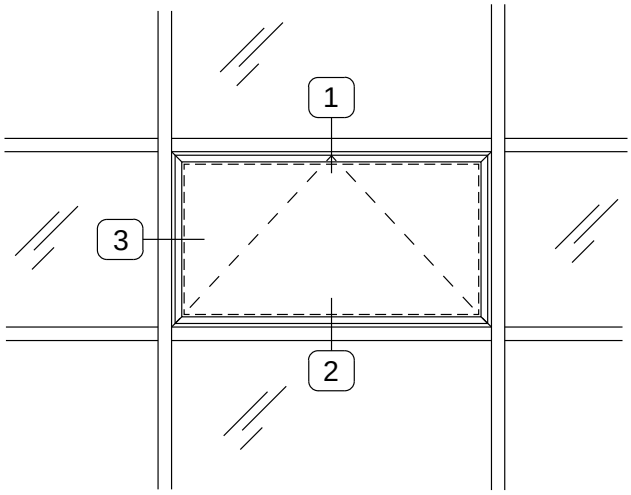


A. Exterior
B. Interior

CLASS and GRADE	CLASS CW-PG70-AP / AW-PG90-AP
TESTING STANDARD	AAMA / WDMA / CSA / 101 / I.S.2 / A440 (NAFS)
SYSTEM DEPTH	CW (Shallow) - 3-7/8" / AW (Deep) - 5-1/8" Overall System Depth
TYPICAL WALL THICKNESS	CW (Shallow) - .125 Nominal Frame / .100" Nominal Vent AW (Deep) -. 125 Nominal Frame / .156" Nominal Vent
TYPICAL MAX. VENT SIZE	CW (Shallow) - 48" x 32" / AW (Deep) - 60" x 36"
TYPICAL MIN. VENT SIZE	17" x 17"
INFILL OPTIONS	1-3/4"
STANDARD HARDWARE	Stainless Steel 4-Bar Hinges Cast White Bronze Cam Handles
OPTIONAL HARDWARE	Access Control Locks Hook Bolt Lock Handle Pivot Shoe Roto-Operator (Size Limitations - Minimum 26" Wide x 17" High, Maximum 60" Wide x 36" High) Limit Stop Pole and Pole Ring
OTHER OPTIONS	Insect Screens

CW (Shallow) - Project-Out Window - 1-3/4" Infill

Typical Elevation



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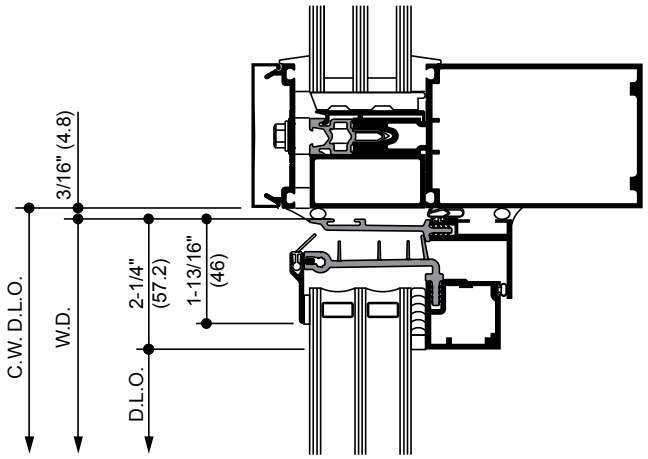

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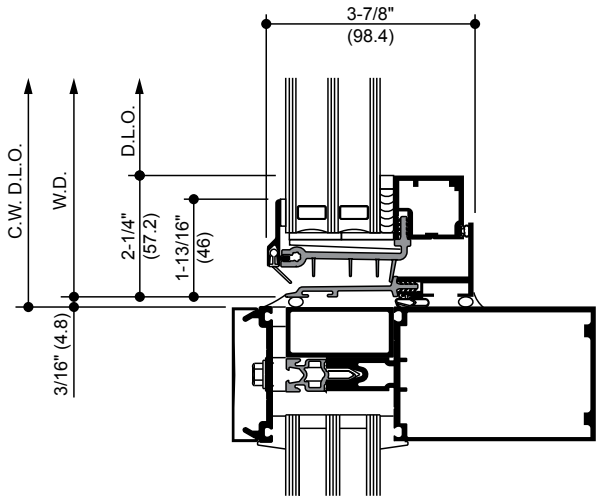

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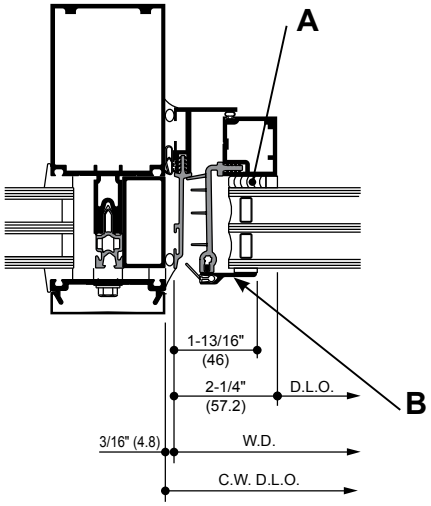

A. Structural Silicone Sealant (by Others)*
B. Trim Cap available in #29 Black anodized finish only.

NOTICE
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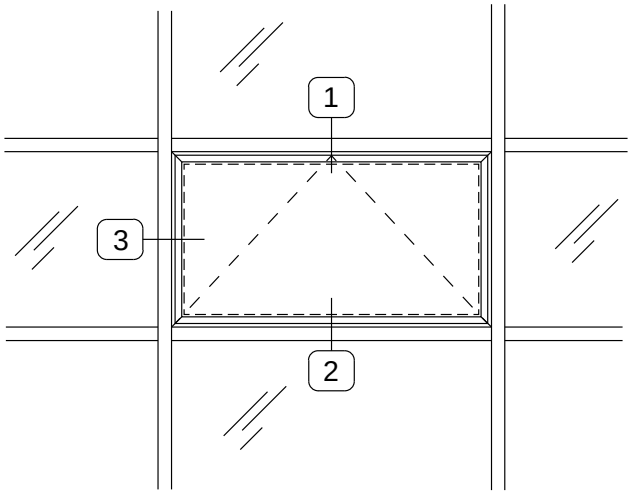
AW (Deep) - Project-Out Window - 1-3/4" Infill

Typical Elevation



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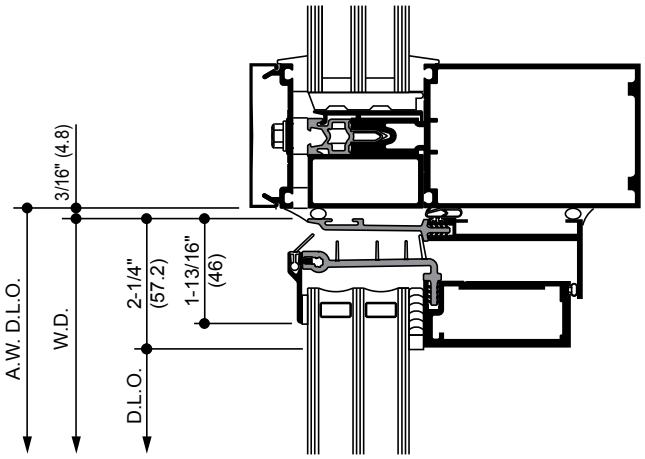

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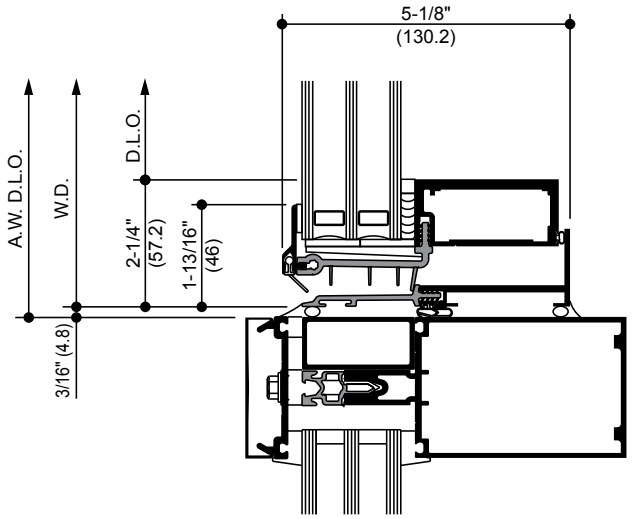

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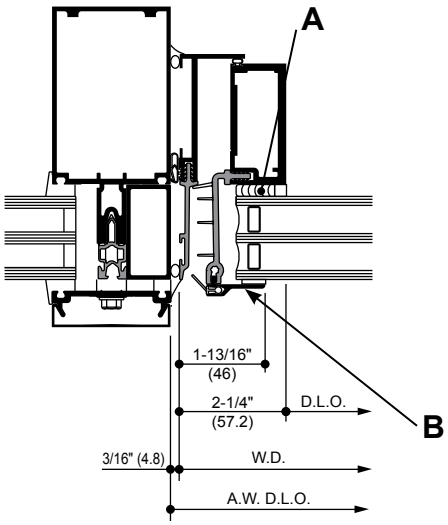

A. Structural Silicone Sealant (by Others)*
B. Trim Cap available in #29 Black anodized finish only.

NOTICE
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NOTE
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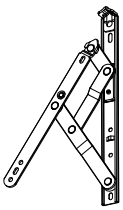
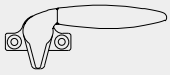
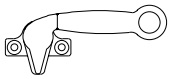
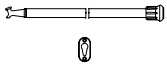
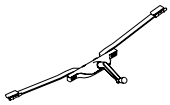
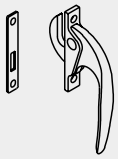
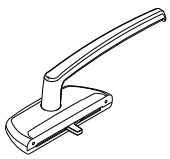
Accessories - Project-Out Window

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 AND HANGER		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.
PIVOT-SHOE ROTO-OPERATOR		Optional pivot shoe roto operator is located on the center line of the bottom horizontal frame. Standard finish shall be gray.
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.
OMNI DRIVE HANDLE		Omni Drive hardware to support 5 lb operating force lock handle. Powder coat: black, white, bronze and silver.

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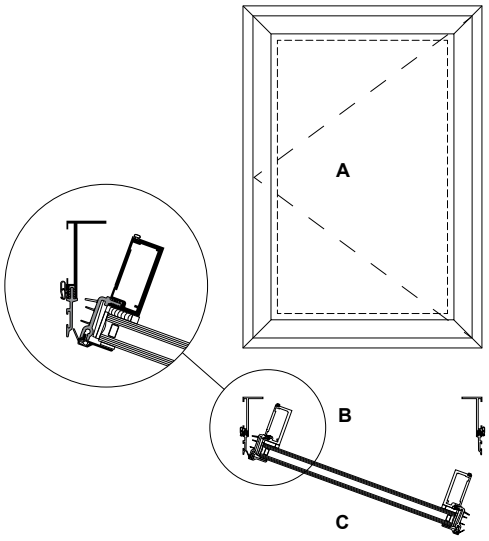
Outswing Casement Window

Outswing Casement Window - 1" Infill

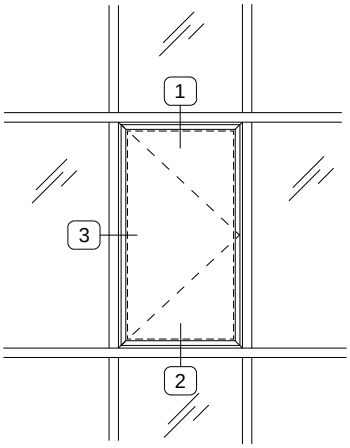


A. Hinged Left
B. Interior
C. Exterior

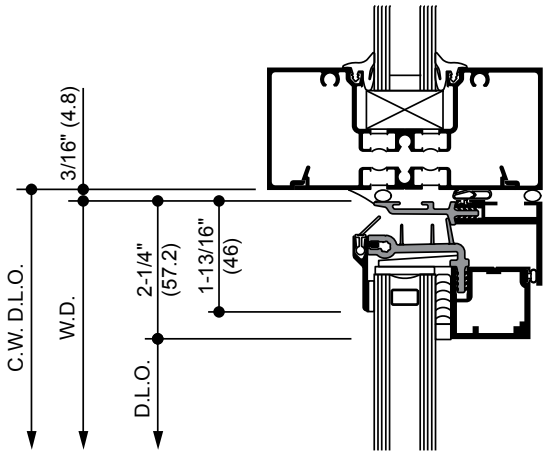
CLASS and GRADE	CLASS CW-PG70-C / AW-PG90-C
TESTING STANDARD	AAMA / WDMA / CSA / 101 / I.S.2 / A440 (NAFS)
SYSTEM DEPTH	CW (Shallow) - 3-1/8" / AW (Deep) - 4-3/8" Overall System Depth
TYPICAL WALL THICKNESS	CW (Shallow) - .125 Nominal Frame / .100" Nominal Vent AW (Deep) -. 125 Nominal Frame / .156" Nominal Vent
TYPICAL MAX. VENT SIZE	CW (Shallow) - 32" x 48" / AW (Deep) - 36" x 60"
TYPICAL MIN. VENT SIZE	17" x 24"
INFILL OPTIONS	1"
STANDARD HARDWARE	Stainless Steel 4-Bar Hinges Cast White Bronze Cam Handles
OPTIONAL HARDWARE	Access Control Locks Hook Bolt Lock of Multi-Point Lock Roto Operator (Size Limitations - Minimum 25" Wide x 24" High, Maximum 36" Wide x 60" High) Limit Stop Pole and Pole Ring
OTHER OPTIONS	Insect Screens

CW (Shallow) - Outswing Casement Window - 1" Infill

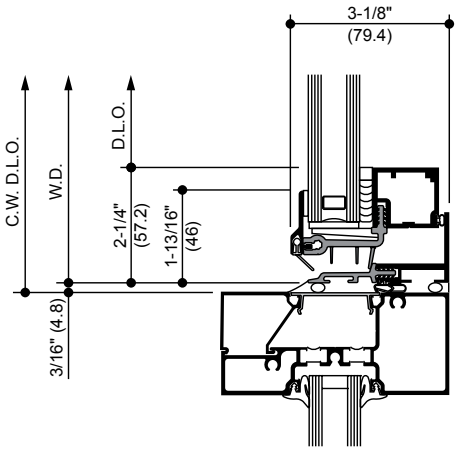
Typical Elevation



1 Head



2 Sill



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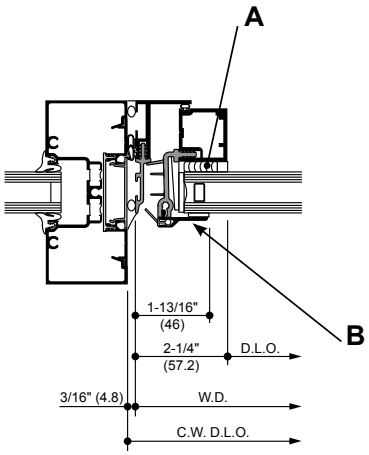

A. Structural Silicone Sealant (by Others)*
B. Trim Cap available in #29 Black anodized finish only.

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

NOTE
The Kawneer GLASSvent® UT Window is shown with Trifab® 451UT Framing System for reference. Other Kawneer systems can be used. For product specific applications, consult your Kawneer representative.

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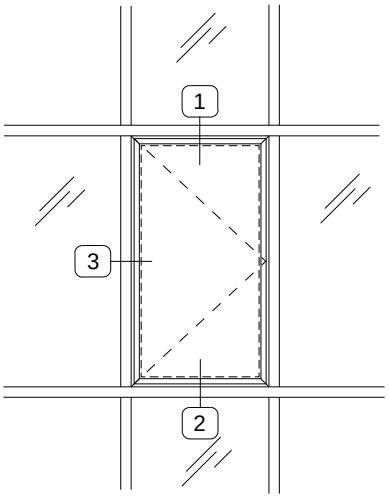
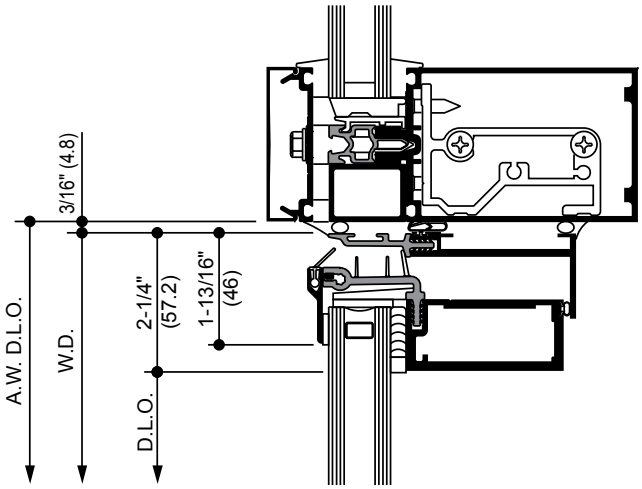
AW (Deep) - Outswing Casement Window - 1" Infill

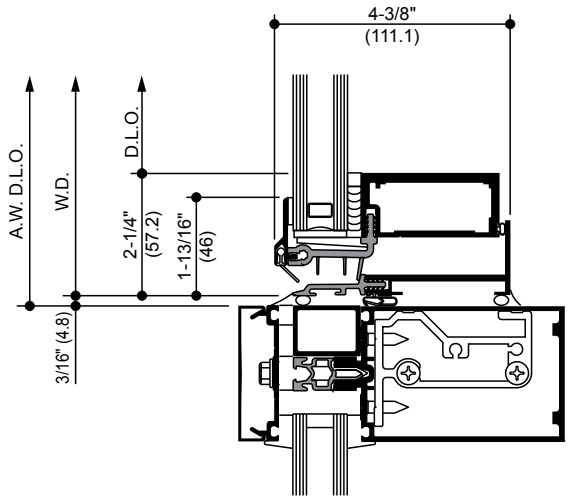
Typical Elevation



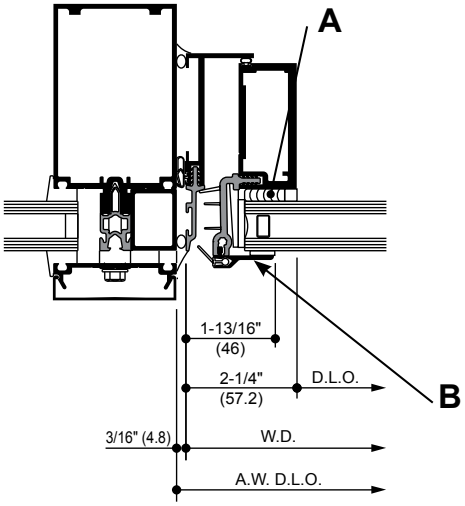
1 Head



2 Sill



3 Jamb

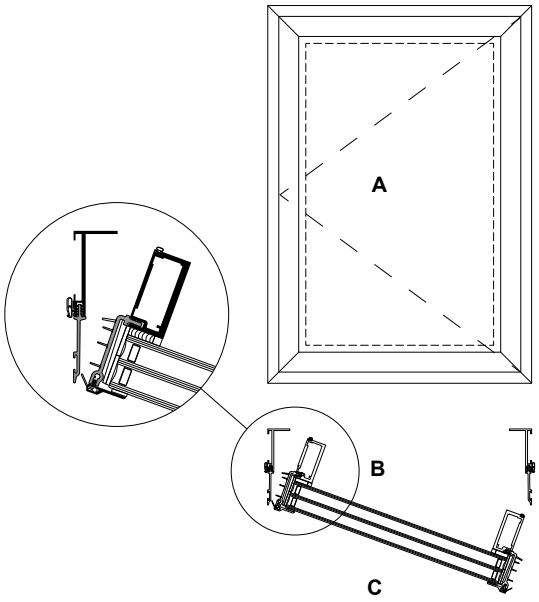


A. Structural Silicone Sealant (by Others)*
B. Trim Cap available in #29 Black anodized finish only.

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

NOTE
The Kawneer GLASSvent® UT Window is shown with 1600UT Framing System®1 Curtain Wall for reference. Other Kawneer systems can be used. For product specific applications, consult your Kawneer representative.

Outswing Casement Window - 1-3/4" Infill



A. Hinged Left
B. Interior
C. Exterior

CLASS and GRADE	CLASS CW-PG70-C / AW-PG90-C
TESTING STANDARD	AAMA / WDMA / CSA / 101 / I.S.2 / A440 (NAFS)
SYSTEM DEPTH	CW (Shallow) - 3-7/8" / AW (Deep) - 5-1/8" Overall System Depth
TYPICAL WALL THICKNESS	CW (Shallow) - .125 Nominal Frame / .100" Nominal Vent AW (Deep) -. 125 Nominal Frame / .156" Nominal Vent
TYPICAL MAX. VENT SIZE	CW (Shallow) - 32" x 48" / AW (Deep) - 36" x 60"
TYPICAL MIN. VENT SIZE	17" x 24"
INFILL OPTIONS	1-3/4"
STANDARD HARDWARE	Stainless Steel 4-Bar Hinges Cast White Bronze Cam Handles
OPTIONAL HARDWARE	Access Control Locks Hook Bolt Lock or Multi-Point Lock Limit Stop Pole and Pole Ring Roto Operator (Size Limitations - Minimum 25" Wide x 24" High, Maximum 36" Wide x 60" High)
OTHER OPTIONS	Insect Screens

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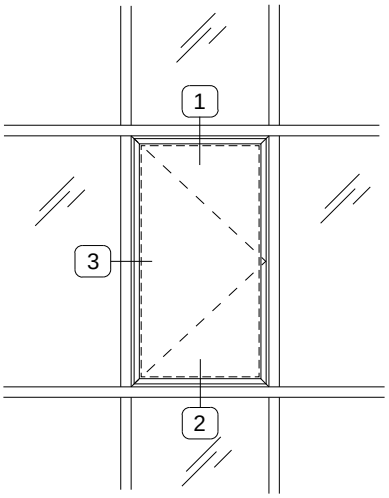
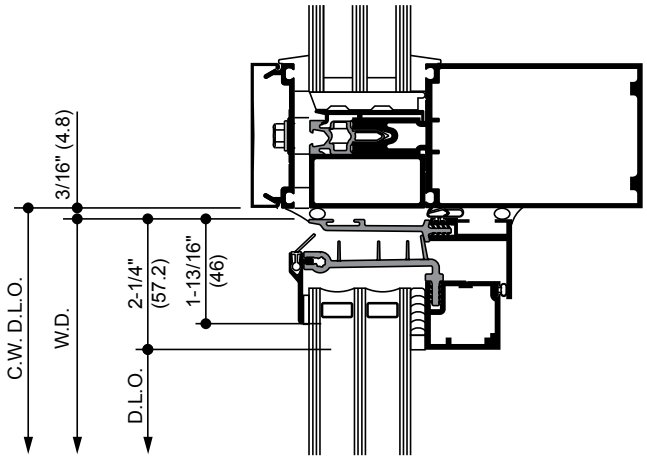
CW (Shallow) - Outswing Casement Window - 1-3/4" Infill

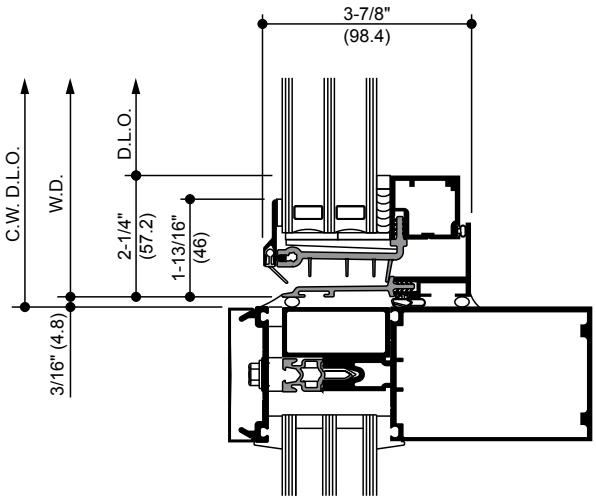
Typical Elevation



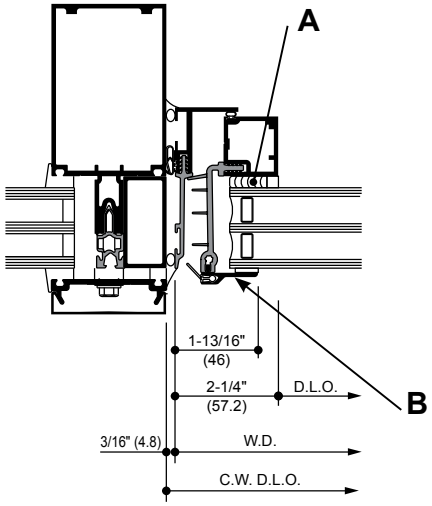
1 Head



2 Sill



3 Jamb



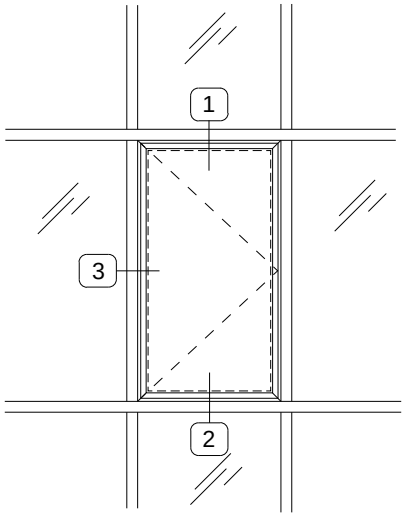
A. Structural Silicone Sealant (by Others)*
B. Trim Cap available in #29 Black anodized finish only.

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

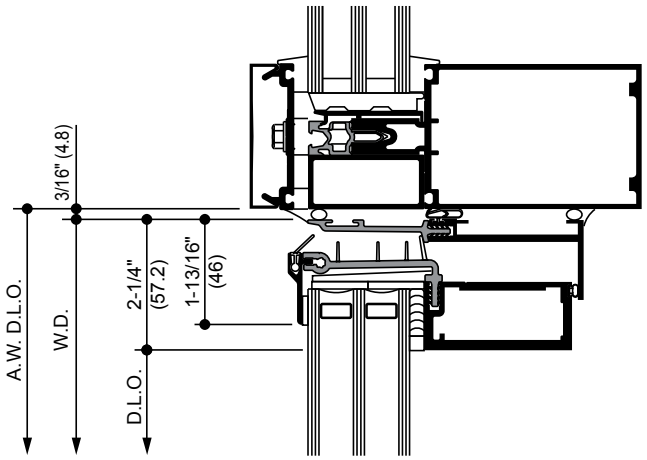
NOTE
The Kawneer GLASSvent® UT Window is shown with 1600UT Framing System®1 Curtain Wall for reference. Other Kawneer systems can be used. For product specific applications, consult your Kawneer representative.

AW (Deep) - Outswing Casement Window - 1-3/4" Infill

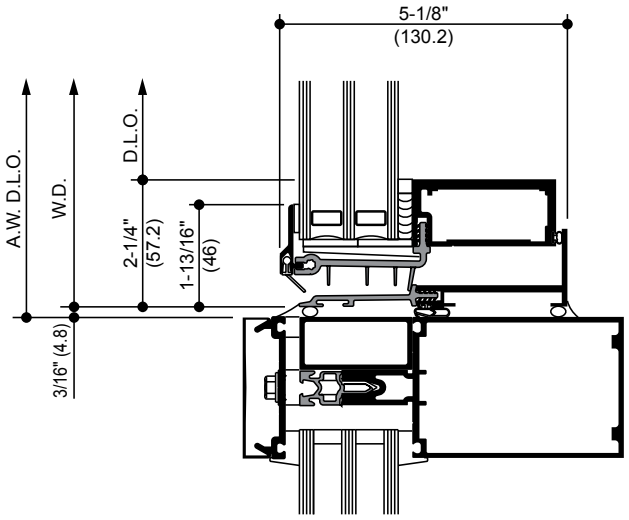
Typical Elevation



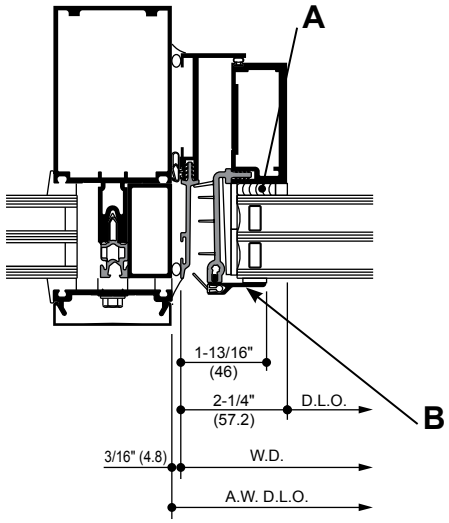
1 Head



2 Sill



3 Jamb



A. Structural Silicone Sealant (by Others)*
B. Trim Cap available in #29 Black anodized finish only.

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

NOTE
The Kawneer GLASSvent® UT Window is shown with 1600UT Framing System®1 Curtain Wall for reference. Other Kawneer systems can be used. For product specific applications, consult your Kawneer representative.

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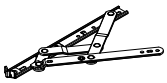
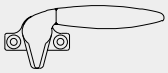
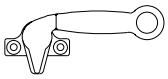
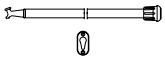
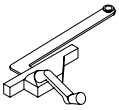
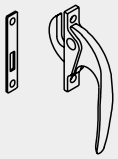
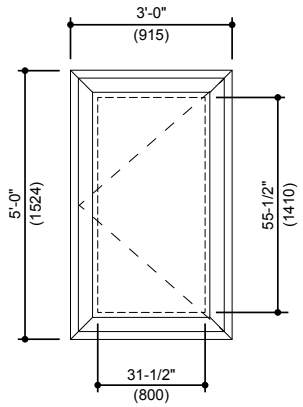
Accessories - Outswing Casement Window

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 AND HANGER		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.
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.
HOOK BOLT LOCK		Optional hook bolt lock in lieu of cam handle. Standard finish shall be US-25-D clear white bronze.
MULTI-POINT LOCK		Optional single locking handle for concealed multipoint locks located on the vertical frame. Standard finish shall be US-25-D clear white bronze.

Thermal Performance

Example of Generic Project-Specific U-Factor Calculation

NOTE
The percent of glass will vary on specific products, depending on sight lines.



Example Glass U-factor	= 0.28 Btu/(ft^2 • h • °F)
Total Daylight Opening	= 31-1/2" • 55-1/2" = 12.14 ft^2
Total Projected Area	= 3'0" • 5' 0" = 15 ft^2
Percentage of Glass	= (Total Daylight Opening ÷ Total Projected Area) • 100
	= (12.14 ÷ 15) • 100 = 81%

Glass Area Chart

Based on 81% glass and center-of-glass U-factor of 0.28, the system U-factor is equal to 0.38 Btu/(h • ft^2 • °F).

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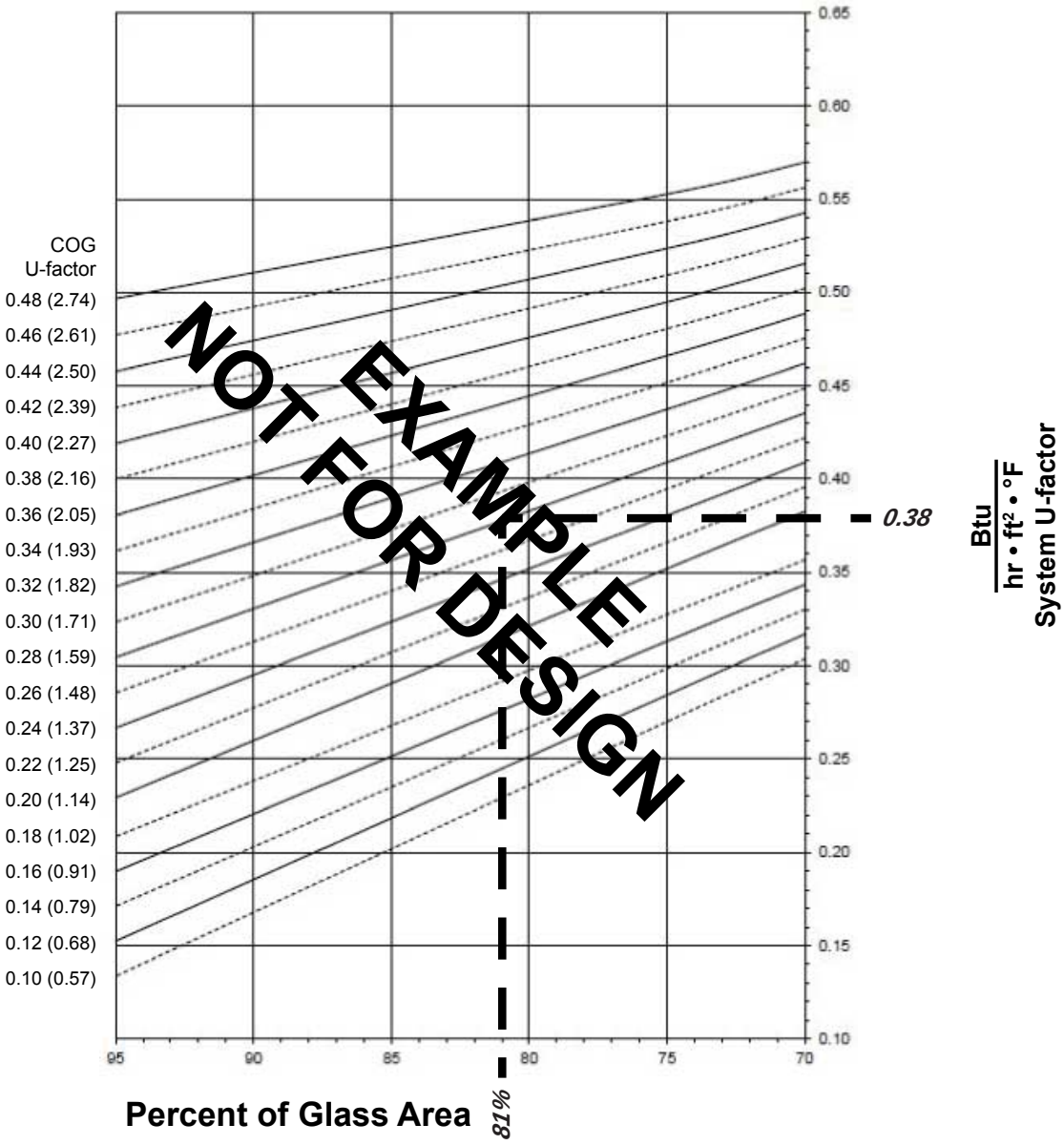
System U-factor vs Percent of Glass Area



AW (Deep) - Project-Out Window with 1" Glazing (Warm-Edge Glazing Spacer)

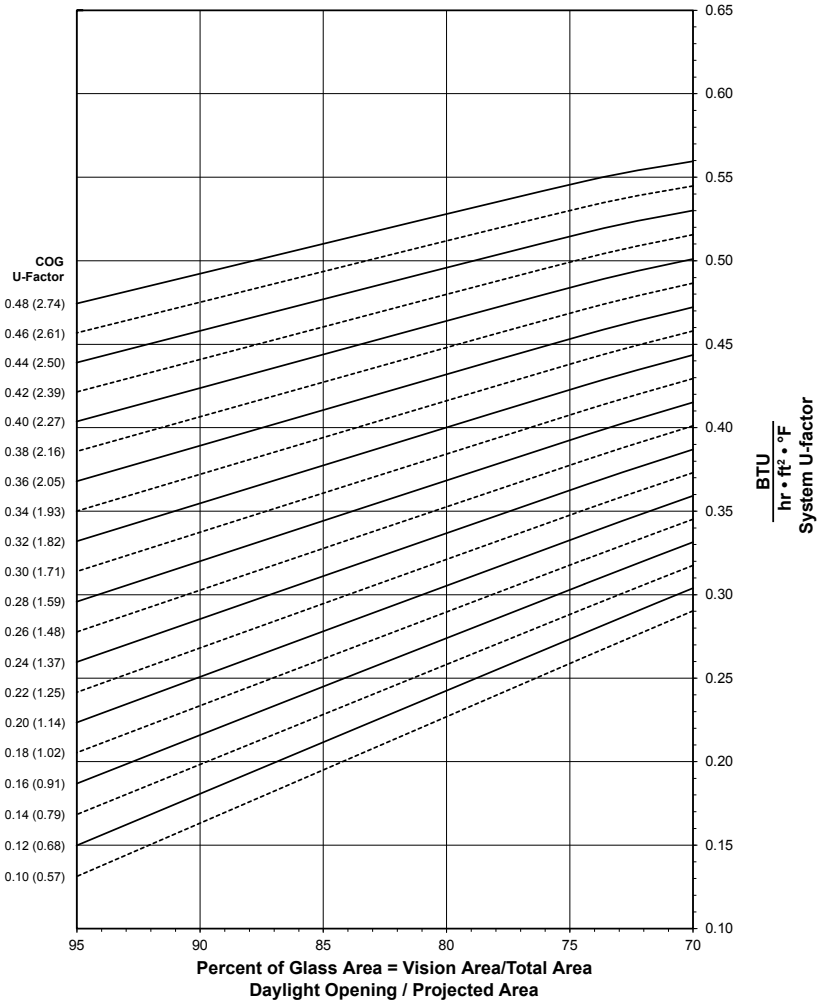
NOTE

These notes apply to the charts for system U-factor, solar heat gain coefficient (SHGC), and visible transmittance (VT):

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

System U-factor for Glass Area

System U-factor vs Percent of Glass Area



See Note, page 25.

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AW (Deep) - Project-Out Window with 1" Glazing

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

Glass U-factor [a] [b] [c]	Overall U-factor [d]
0.48	0.55
0.46	0.53
0.44	0.52
0.42	0.50
0.40	0.49
0.38	0.47
0.36	0.46
0.34	0.44
0.32	0.43
0.30	0.41
0.28	0.40
0.26	0.38
0.24	0.37
0.22	0.35
0.20	0.34

[a]U-factor values are determined in accordance with NFRC 100.

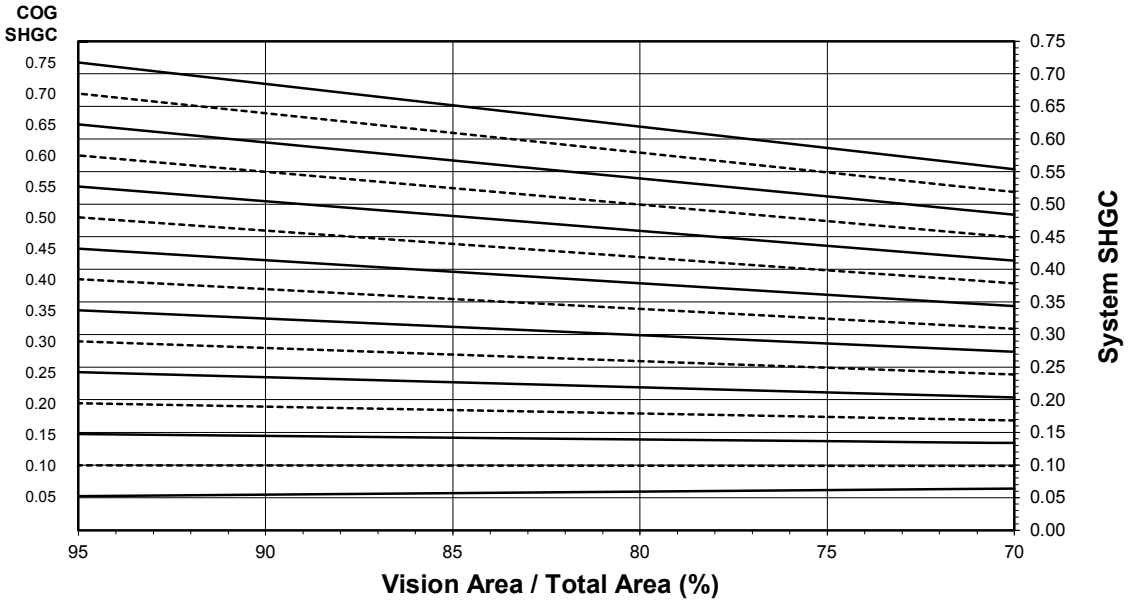
[b]For glass values that are not listed, linear interpolation is permitted.

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall U-factor values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

System Solar Heat Gain Coefficient (SHGC) - AW (Deep) - Project-Out Window with 1" Glazing

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



See Note, page 25.

Solar Heat Gain Coefficient (SHGC) Matrix

Glass SHGC [a] [b] [c]	Overall SHGC [d]
0.75	0.58
0.70	0.55
0.65	0.51
0.60	0.47
0.55	0.43
0.50	0.40
0.45	0.36
0.40	0.32
0.35	0.28
0.30	0.25
0.25	0.21
0.20	0.17
0.15	0.14
0.10	0.10
0.05	0.06

[a]SHGC values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall SHGC values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

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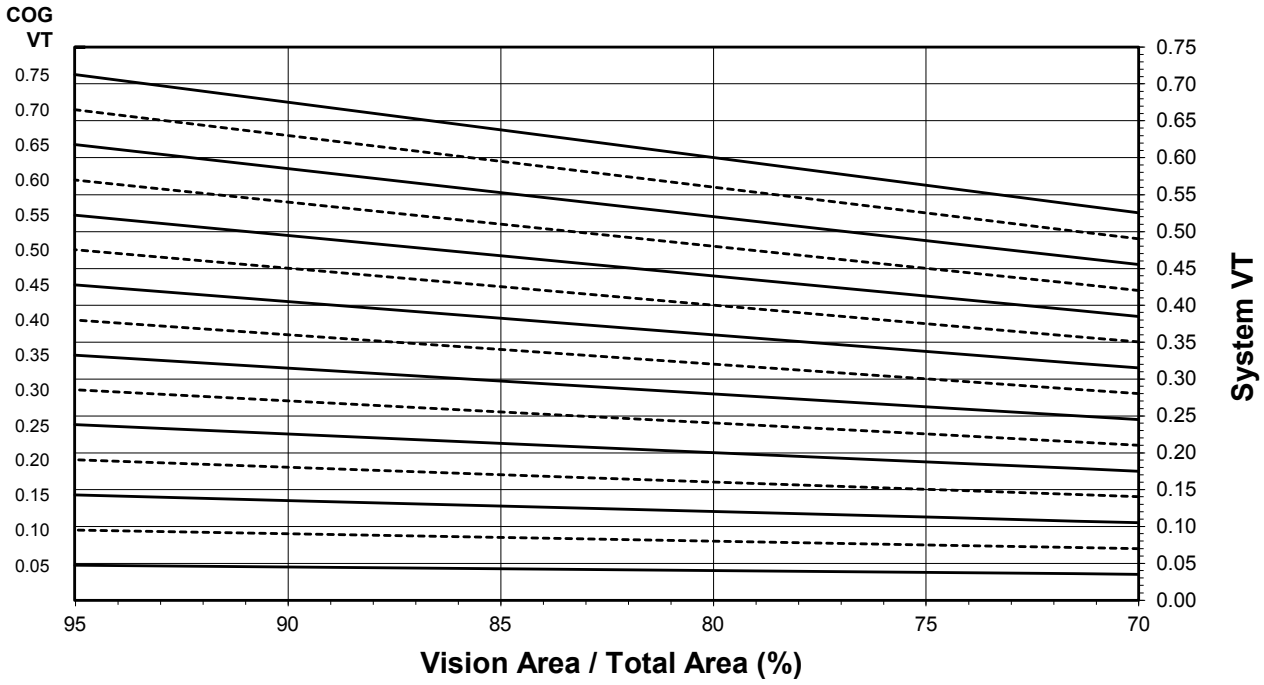
System Visible Transmittance (VT) - AW (Deep) - Project-Out Window with 1" Glazing

System Visible Transmittance (VT) vs Percent of Vision Area



See Note, page 25.

Visible Transmittance (VT)

Glass VT [a] [b] [c]	Overall VT [d]
0.75	0.56
0.70	0.52
0.65	0.48
0.60	0.45
0.55	0.41
0.50	0.37
0.45	0.33
0.40	0.30
0.35	0.26
0.30	0.22
0.25	0.19
0.20	0.15
0.15	0.11
0.10	0.07
0.05	0.04

[a]VT values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall VT values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

AW (Deep) - Project-Out Window with 1-3/4" Glazing (Warm-Edge Glazing Spacer)

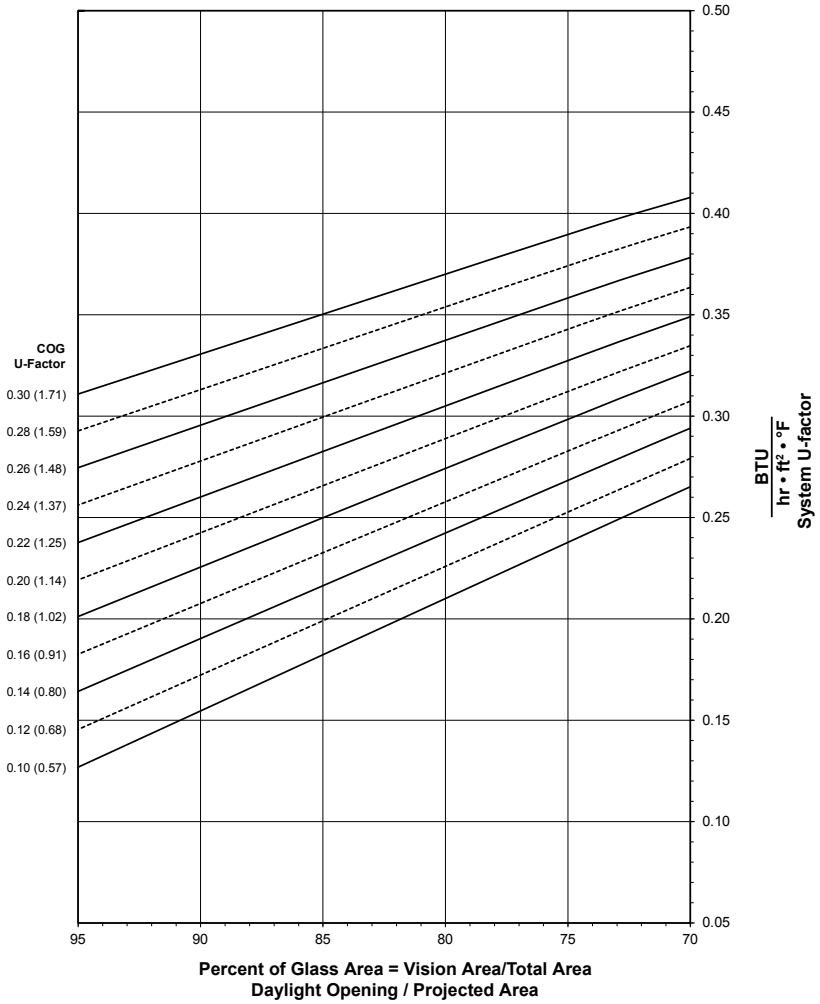
NOTE

These notes apply to the charts for system U-factor, solar heat gain coefficient (SHGC), and visible transmittance (VT):

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

System U-factor for Glass Area

System U-factor vs Percent of Glass Area



See Note, page 30.

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AW (Deep) - Project-Out Window with 1-3/4" Glazing

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

Glass U-factor [a] [b] [c]	Overall U-factor [d]
0.30	0.39
0.28	0.38
0.26	0.36
0.24	0.35
0.22	0.33
0.20	0.31
0.18	0.30
0.16	0.29
0.14	0.27
0.12	0.26
0.10	0.24

[a]U-factor values are determined in accordance with NFRC 100.

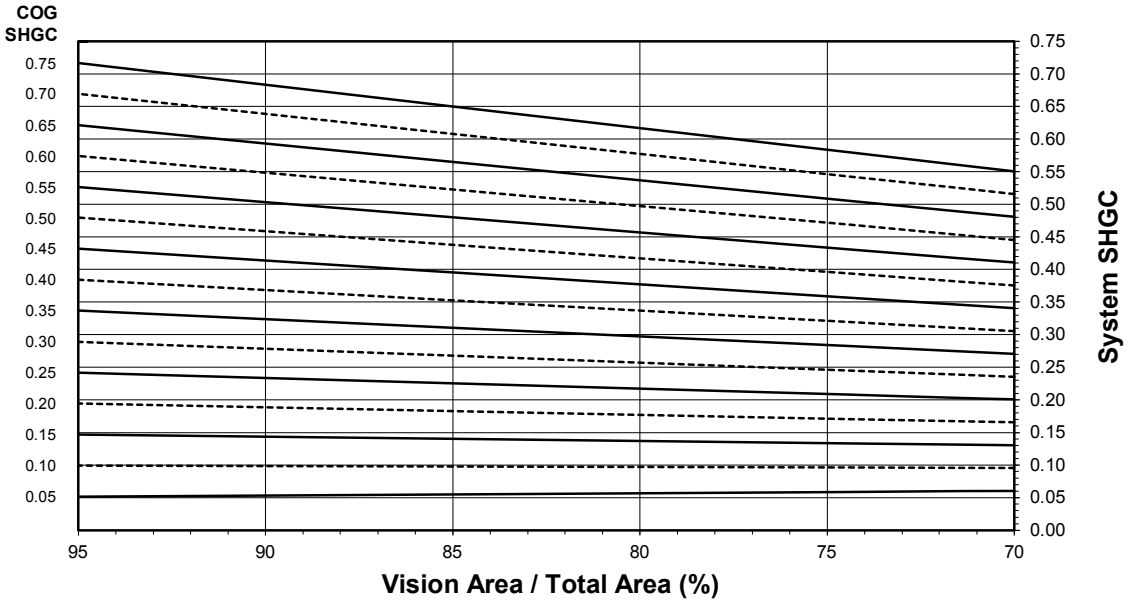
[b]For glass values that are not listed, linear interpolation is permitted.

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall U-factor values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

System Solar Heat Gain Coefficient (SHGC) - AW (Deep) - Project-Out Window with 1-3/4" Glazing

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



See Note, page 30.

Solar Heat Gain Coefficient (SHGC) Matrix

Glass SHGC [a] [b] [c]	Overall SHGC [d]
0.75	0.58
0.70	0.54
0.65	0.51
0.60	0.47
0.55	0.43
0.50	0.39
0.45	0.36
0.40	0.32
0.35	0.28
0.30	0.24
0.25	0.21
0.20	0.17
0.15	0.13
0.10	0.10
0.05	0.06

[a]SHGC values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall SHGC values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

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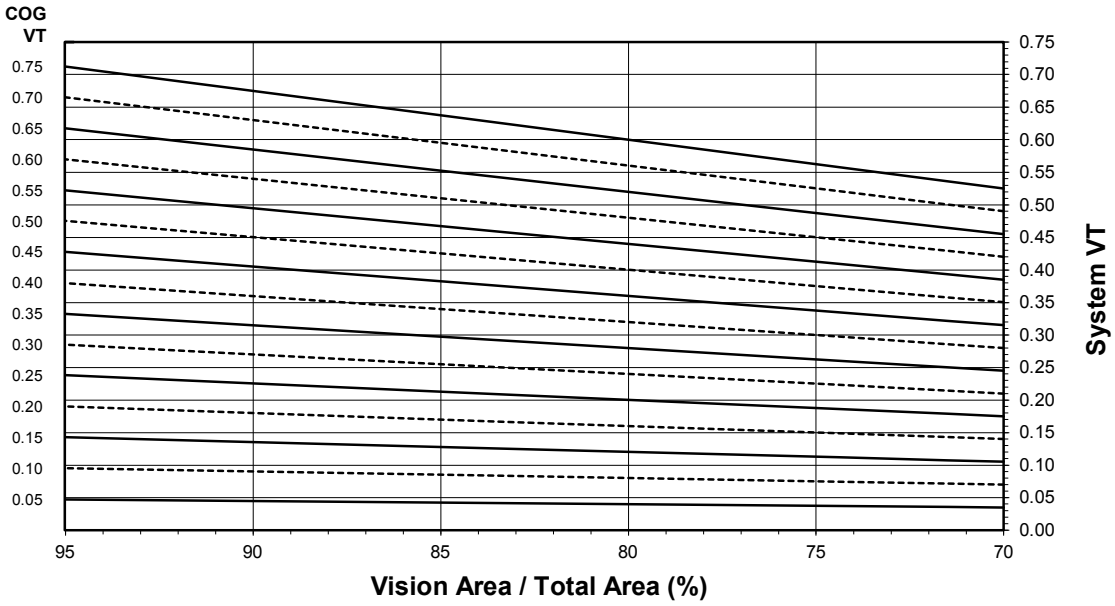
System Visible Transmittance (VT) - AW (Deep) - Project-Out Window with 1-3/4" Glazing

System Visible Transmittance (VT) vs Percent of Vision Area



See Note, page 30.

Visible Transmittance (VT)

Glass VT [a] [b] [c]	Overall VT [d]
0.75	0.56
0.70	0.52
0.65	0.48
0.60	0.45
0.55	0.41
0.50	0.37
0.45	0.33
0.40	0.30
0.35	0.26
0.30	0.22
0.25	0.19
0.20	0.15
0.15	0.11
0.10	0.07
0.05	0.04

[a]VT values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall VT values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

AW (Deep) - Outswing Casement Window with 1" Glazing (Warm-Edge Glazing Spacer)

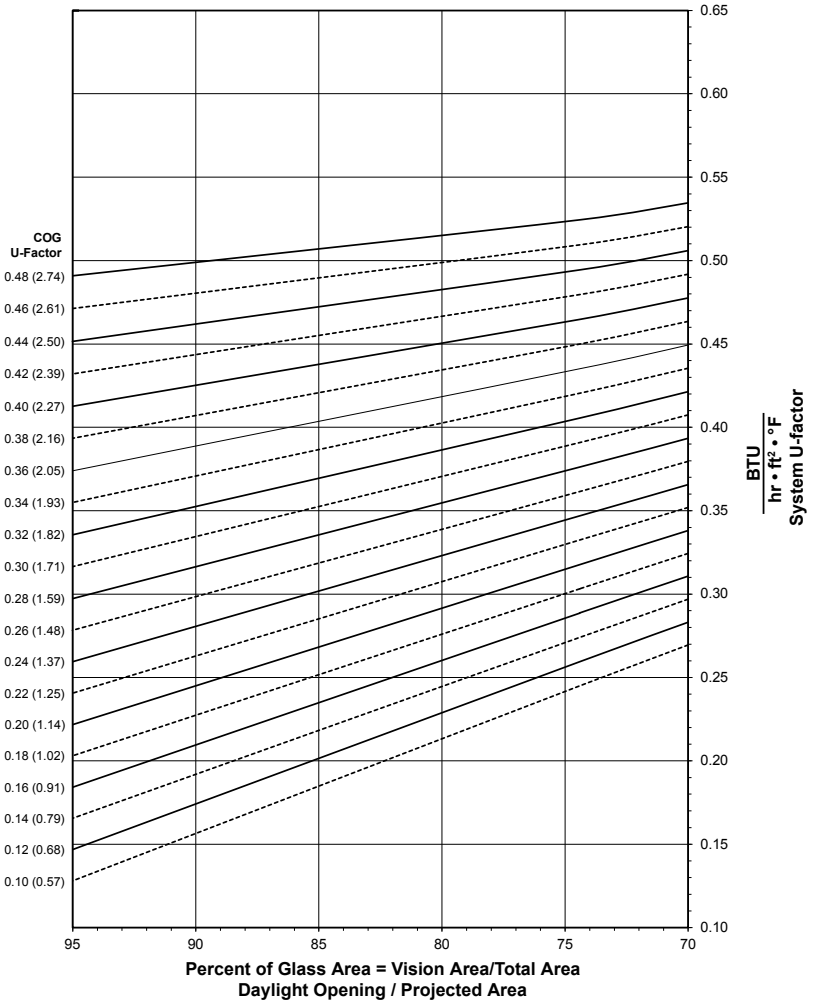
NOTE

These notes apply to the charts for system U-factor, solar heat gain coefficient (SHGC), and visible transmittance (VT):

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

System U-factor for Glass Area

System U-factor vs Percent of Glass Area



See Note, page 34.

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AW (Deep) - Outswing Casement Window with 1" Glazing

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

Glass U-factor [a] [b] [c]	Overall U-factor [d]
0.48	0.52
0.46	0.51
0.44	0.49
0.42	0.48
0.40	0.46
0.38	0.45
0.36	0.44
0.34	0.42
0.32	0.41
0.30	0.39
0.28	0.38
0.26	0.36
0.24	0.35
0.22	0.33
0.20	0.32
0.18	0.30
0.16	0.29
0.14	0.27
0.12	0.26
0.10	0.24

[a]U-factor values are determined in accordance with NFRC 100.

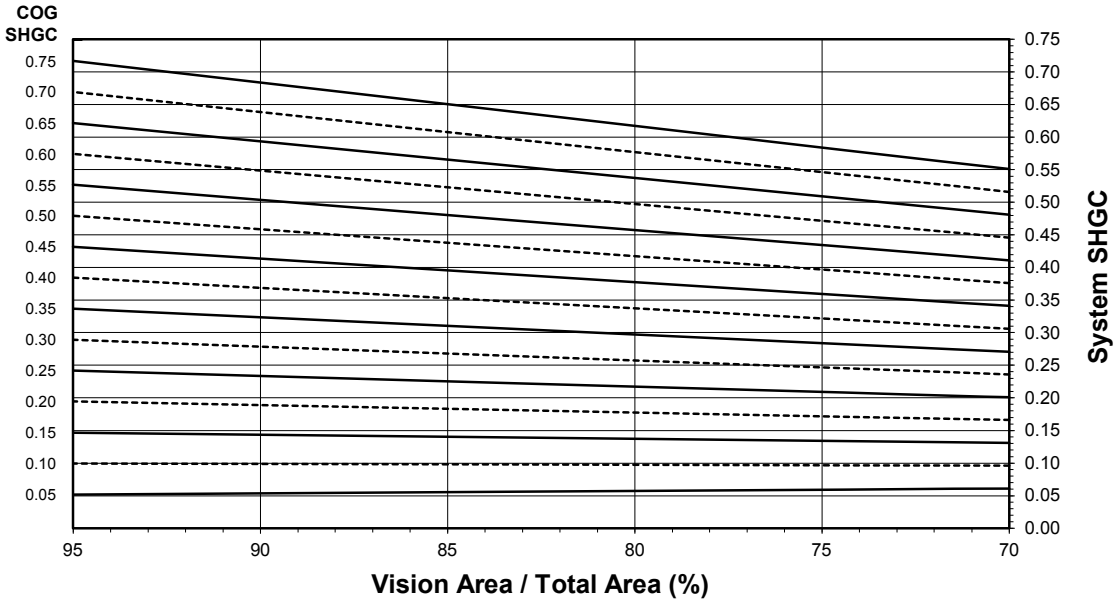
[b]For glass values that are not listed, linear interpolation is permitted.

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall U-factor values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

System Solar Heat Gain Coefficient (SHGC) - AW (Deep) - Outswing Casement Window with 1" Glazing

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



See Note, page 34.

Solar Heat Gain Coefficient (SHGC) Matrix

Glass SHGC [a] [b] [c]	Overall SHGC [d]
0.75	0.58
0.70	0.54
0.65	0.51
0.60	0.47
0.55	0.43
0.50	0.39
0.45	0.36
0.40	0.32
0.35	0.28
0.30	0.25
0.25	0.21
0.20	0.17
0.15	0.13
0.10	0.10
0.05	0.06

[a]SHGC values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall SHGC values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

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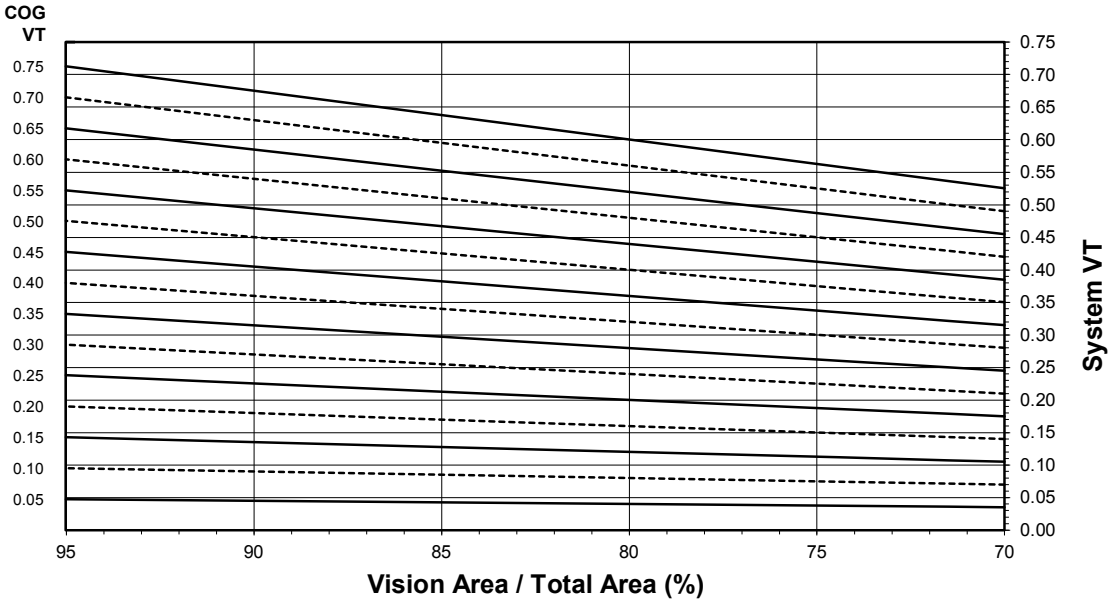
System Visible Transmittance (VT) - AW (Deep) - Outswing Casement Window with 1" Glazing

System Visible Transmittance (VT) vs Percent of Vision Area



See Note, page 34.

Visible Transmittance (VT)

Glass VT [a] [b] [c]	Overall VT [d]
0.75	0.56
0.70	0.52
0.65	0.48
0.60	0.45
0.55	0.41
0.50	0.37
0.45	0.33
0.40	0.30
0.35	0.26
0.30	0.22
0.25	0.19
0.20	0.15
0.15	0.11
0.10	0.07
0.05	0.04

[a]VT values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall VT values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

AW (Deep) - Outswing Casement Window with 1-3/4" Glazing (Warm-Edge Glazing Spacer)

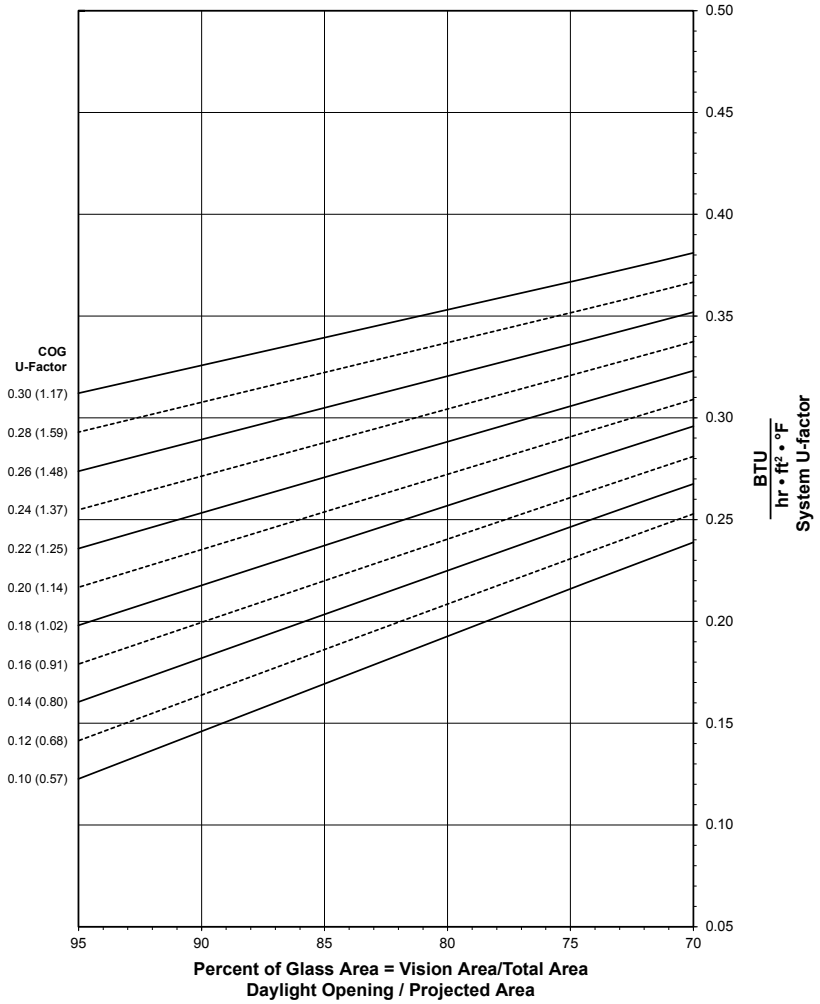
NOTE

These notes apply to the charts for system U-factor, solar heat gain coefficient (SHGC), and visible transmittance (VT):

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

System U-factor for Glass Area

System U-factor vs Percent of Glass Area



See Note, page 38.

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AW (Deep) - Outswing Casement Window with 1-3/4" Glazing

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

Glass U-factor [a] [b] [c]	Overall U-factor [d]
0.30	0.37
0.28	0.35
0.26	0.34
0.24	0.32
0.22	0.31
0.20	0.29
0.18	0.28
0.16	0.26
0.14	0.25
0.12	0.23
0.10	0.22

[a]U-factor values are determined in accordance with NFRC 100.

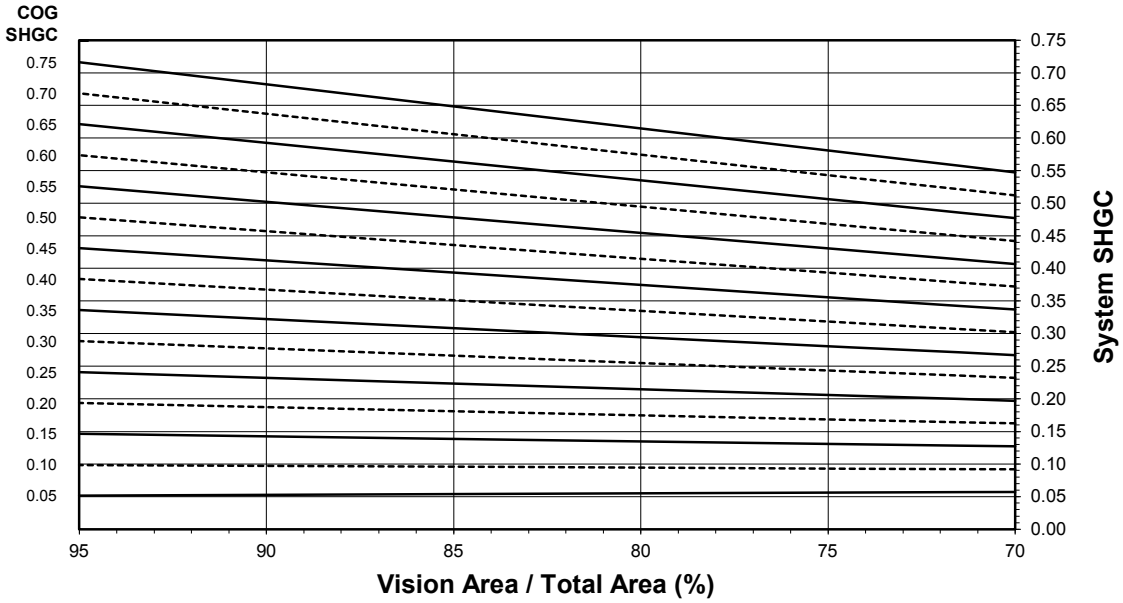
[b]For glass values that are not listed, linear interpolation is permitted.

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall U-factor values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

System Solar Heat Gain Coefficient (SHGC) - AW (Deep) - Outswing Casement Window with 1-3/4" Glazing

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



See Note, page 38.

Solar Heat Gain Coefficient (SHGC) Matrix

Glass SHGC [a] [b] [c]	Overall SHGC [d]
0.75	0.58
0.70	0.54
0.65	0.50
0.60	0.47
0.55	0.43
0.50	0.39
0.45	0.35
0.40	0.32
0.35	0.28
0.30	0.24
0.25	0.20
0.20	0.17
0.15	0.13
0.10	0.09
0.05	0.06

[a]SHGC values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall SHGC values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

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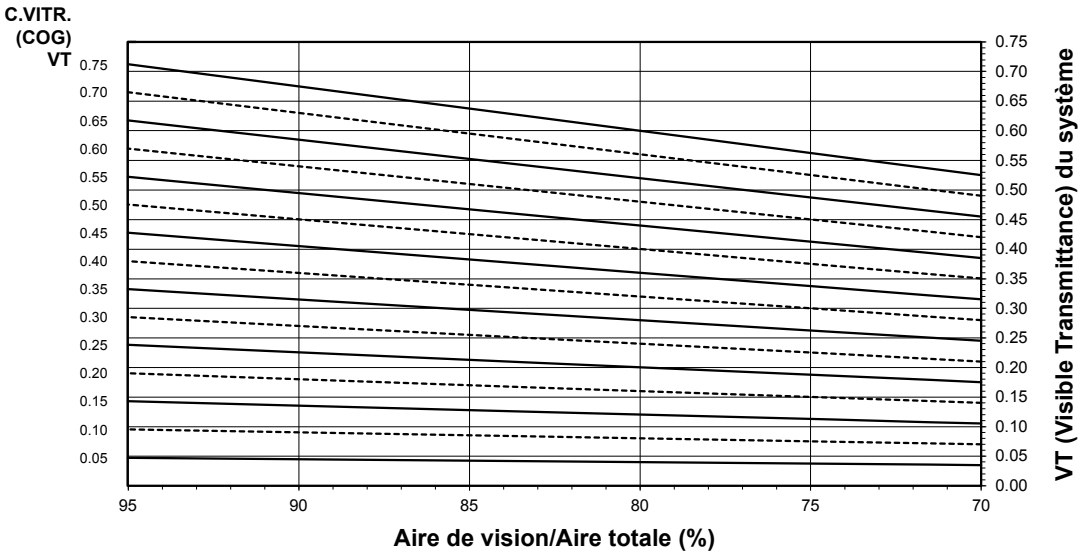
System Visible Transmittance (VT) - AW (Deep) - Outswing Casement Window with 1-3/4" Glazing

System Visible Transmittance (VT) vs Percent of Vision Area



See Note, page 38.

Visible Transmittance (VT)

Glass VT [a] [b] [c]	Overall VT [d]
0.75	0.56
0.70	0.52
0.65	0.48
0.60	0.45
0.55	0.41
0.50	0.37
0.45	0.33
0.40	0.30
0.35	0.26
0.30	0.22
0.25	0.19
0.20	0.15
0.15	0.11
0.10	0.07
0.05	0.04

[a]VT values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall VT values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

AW (Deep) - Project-Out Window with 1" Glazing (Aluminum Glazing Spacer)

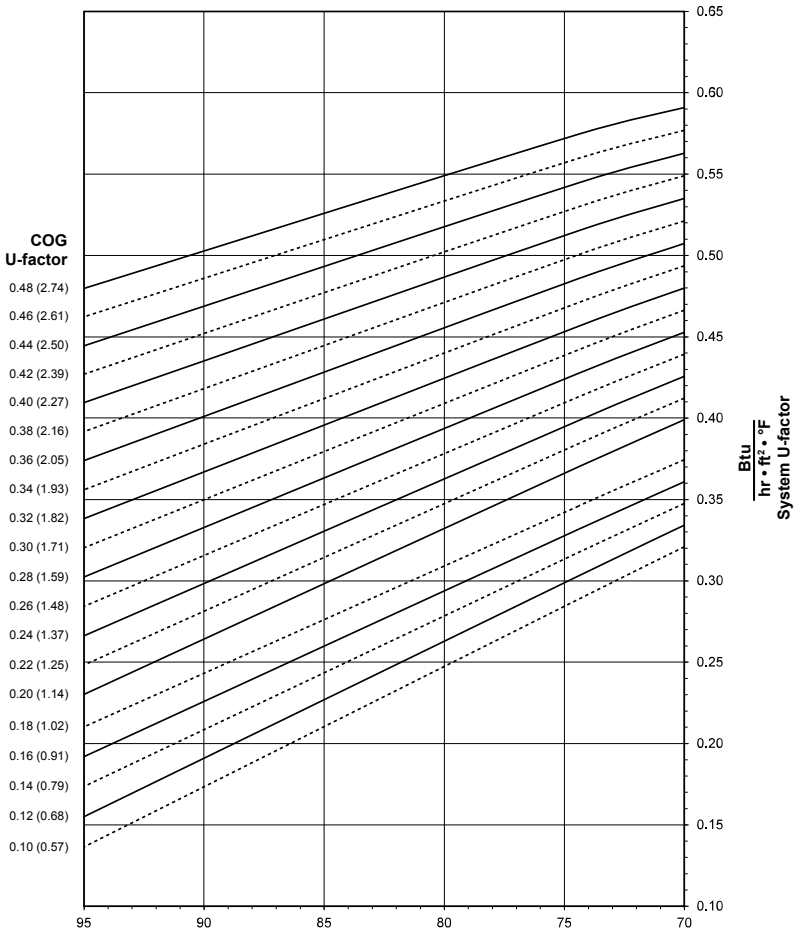
NOTE

These notes apply to the charts for system U-factor, solar heat gain coefficient (SHGC), and visible transmittance (VT):

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

System U-factor for Glass Area

System U-factor vs Percent of Glass Area



See Note, page 42.

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AW (Deep) - Project-Out Window with 1" Glazing

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

Glass U-factor [a] [b] [c]	Overall U-factor [d]
0.48	0.57
0.46	0.56
0.44	0.54
0.42	0.53
0.40	0.52
0.38	0.50
0.36	0.49
0.34	0.47
0.32	0.46
0.30	0.44
0.28	0.43
0.26	0.41
0.24	0.40
0.22	0.38
0.20	0.37

[a]U-factor values are determined in accordance with NFRC 100.

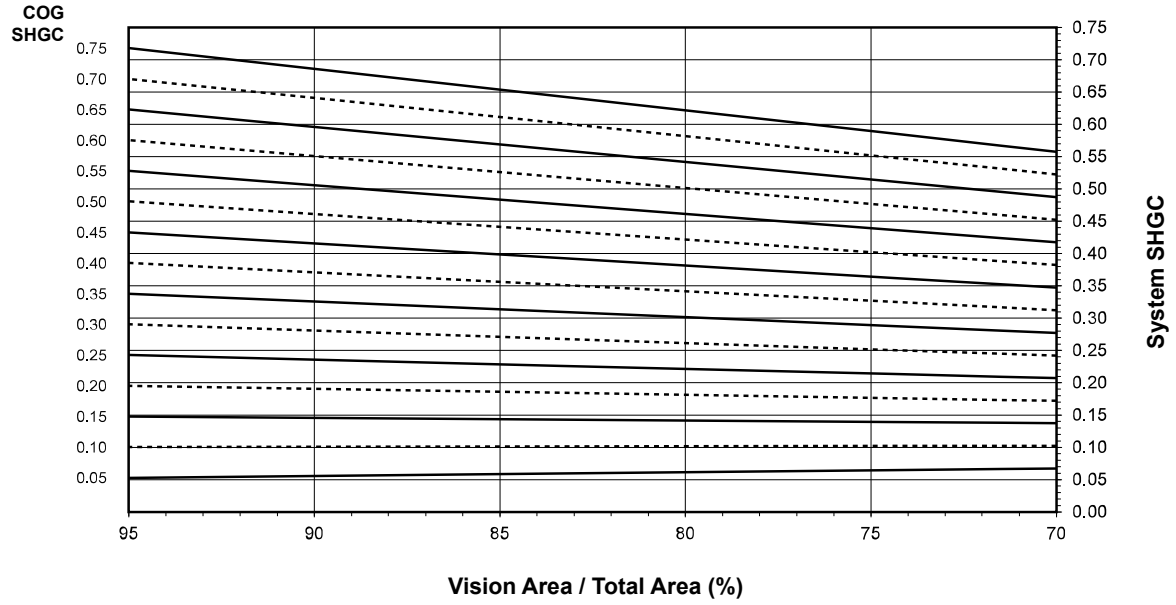
[b]For glass values that are not listed, linear interpolation is permitted.

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall U-factor values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

System Solar Heat Gain Coefficient (SHGC) - AW (Deep) - Project-Out Window with 1" Glazing

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



See Note, page 42.

Solar Heat Gain Coefficient (SHGC) Matrix

Glass SHGC [a] [b] [c]	Overall SHGC [d]
0.75	0.59
0.70	0.55
0.65	0.51
0.60	0.47
0.55	0.44
0.50	0.40
0.45	0.36
0.40	0.33
0.35	0.29
0.30	0.25
0.25	0.21
0.20	0.18
0.15	0.14
0.10	0.10
0.05	0.06

[a]SHGC values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall SHGC values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

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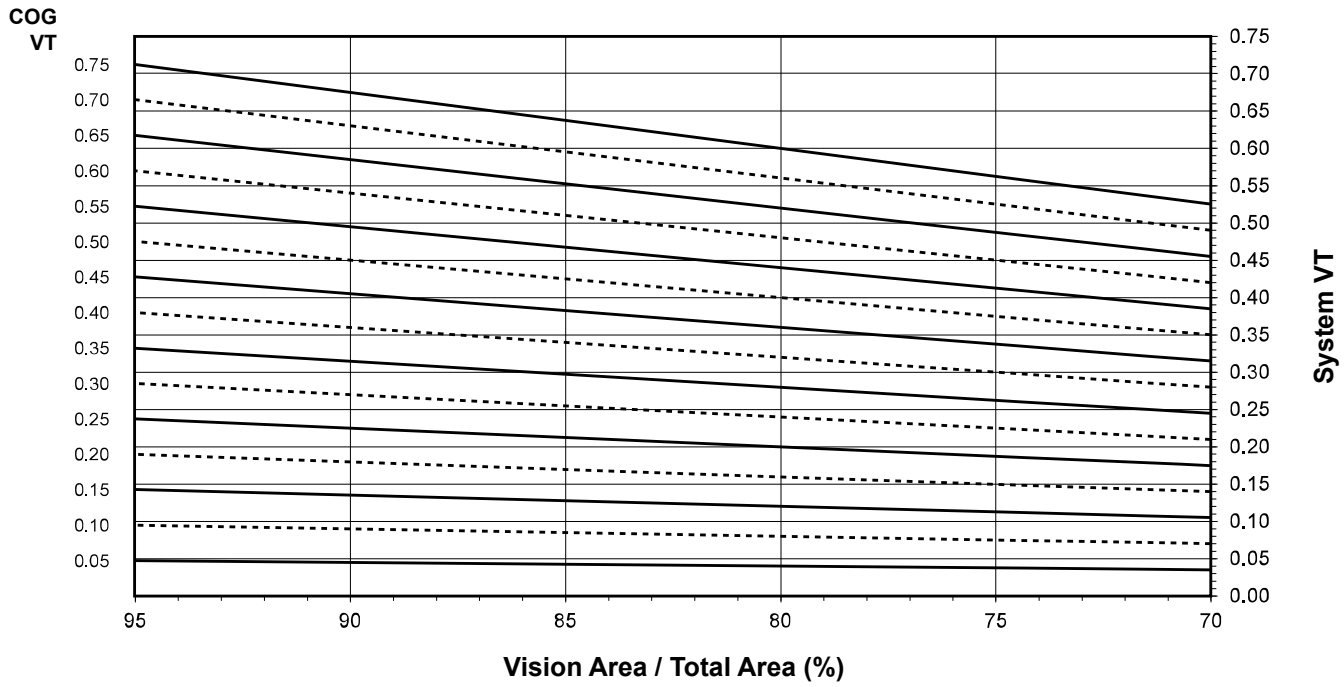
System Visible Transmittance (VT) - AW (Deep) - Project-Out Window with 1" Glazing

System Visible Transmittance (VT) vs Percent of Vision Area



See Note, page 42.

Visible Transmittance (VT)

Glass VT [a] [b] [c]	Overall VT [d]
0.75	0.56
0.70	0.52
0.65	0.48
0.60	0.45
0.55	0.41
0.50	0.37
0.45	0.33
0.40	0.30
0.35	0.26
0.30	0.22
0.25	0.19
0.20	0.15
0.15	0.11
0.10	0.07
0.05	0.04

[a]VT values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall VT values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

AW (Deep) - Project-Out Window with 1-3/4" Glazing (Aluminum Glazing Spacer)

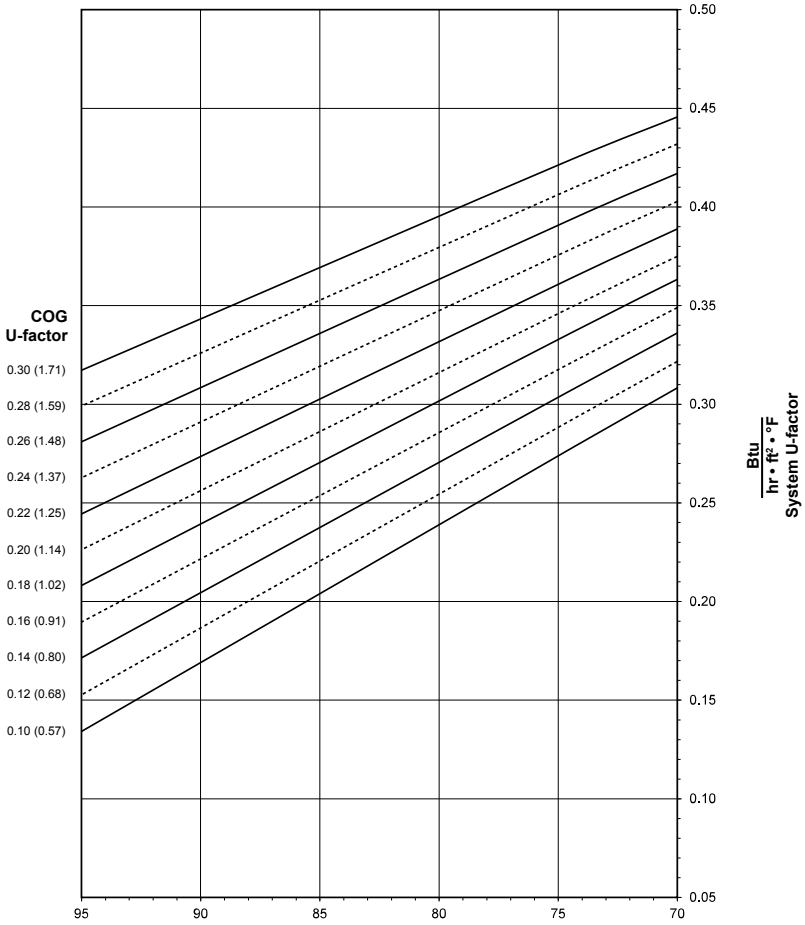
NOTE

These notes apply to the charts for system U-factor, solar heat gain coefficient (SHGC), and visible transmittance (VT):

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

System U-factor for Glass Area

System U-factor vs Percent of Glass Area



See Note, page 46.

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AW (Deep) - Project-Out Window with 1-3/4" Glazing

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

Glass U-factor [a] [b] [c]	Overall U-factor [d]
0.30	0.42
0.28	0.41
0.26	0.39
0.24	0.38
0.22	0.36
0.20	0.35
0.18	0.34
0.16	0.32
0.14	0.31
0.12	0.29
0.10	0.28

[a]U-factor values are determined in accordance with NFRC 100.

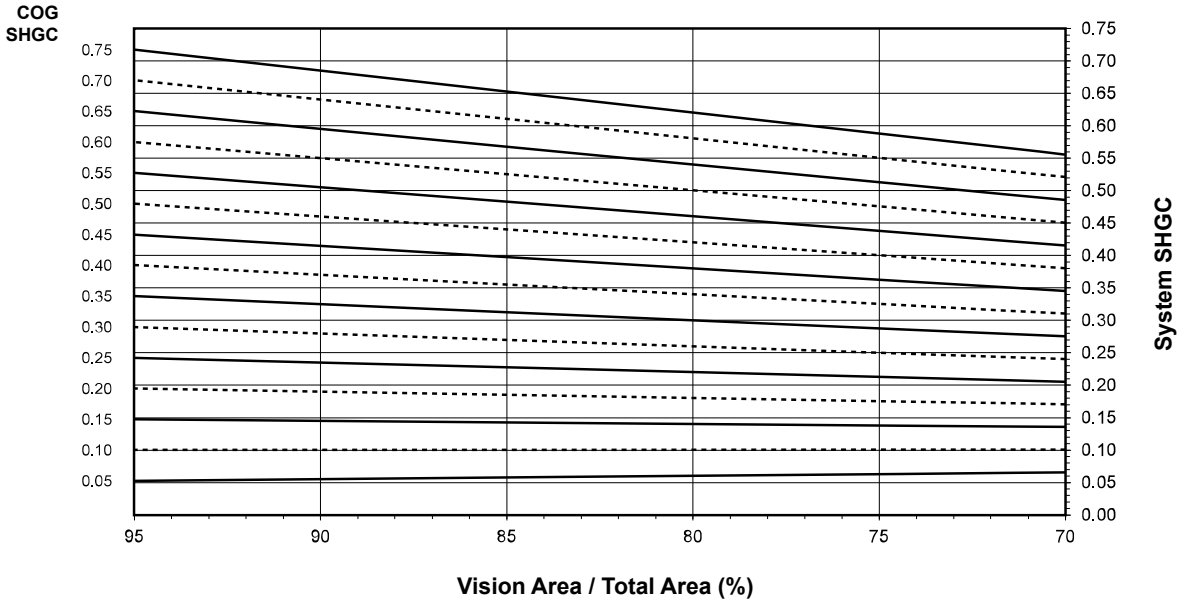
[b]For glass values that are not listed, linear interpolation is permitted.

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall U-factor values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

System Solar Heat Gain Coefficient (SHGC) - AW (Deep) - Project-Out Window with 1-3/4" Glazing

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



See Note, page 46.

Solar Heat Gain Coefficient (SHGC) Matrix

Glass SHGC [a] [b] [c]	Overall SHGC [d]
0.75	0.58
0.70	0.55
0.65	0.51
0.60	0.47
0.55	0.44
0.50	0.40
0.45	0.36
0.40	0.32
0.35	0.29
0.30	0.25
0.25	0.21
0.20	0.17
0.15	0.14
0.10	0.10
0.05	0.06

[a]SHGC values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall SHGC values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

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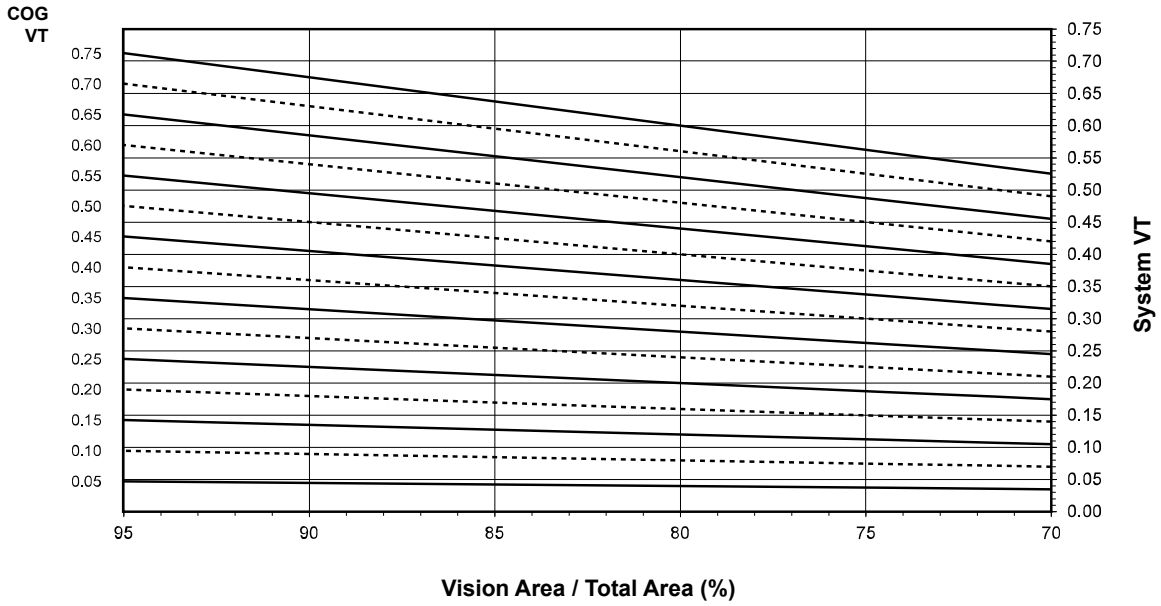
System Visible Transmittance (VT) - AW (Deep) - Project-Out Window with 1-3/4" Glazing

System Visible Transmittance (VT) vs Percent of Vision Area



See Note, page 46.

Visible Transmittance (VT)

Glass VT [a] [b] [c]	Overall VT [d]
0.75	0.56
0.70	0.52
0.65	0.48
0.60	0.45
0.55	0.41
0.50	0.37
0.45	0.33
0.40	0.30
0.35	0.26
0.30	0.22
0.25	0.19
0.20	0.15
0.15	0.11
0.10	0.07
0.05	0.04

[a]VT values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall VT values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

AW (Deep) - Outswing Casement Window with 1" Glazing (Aluminum Glazing Spacer)

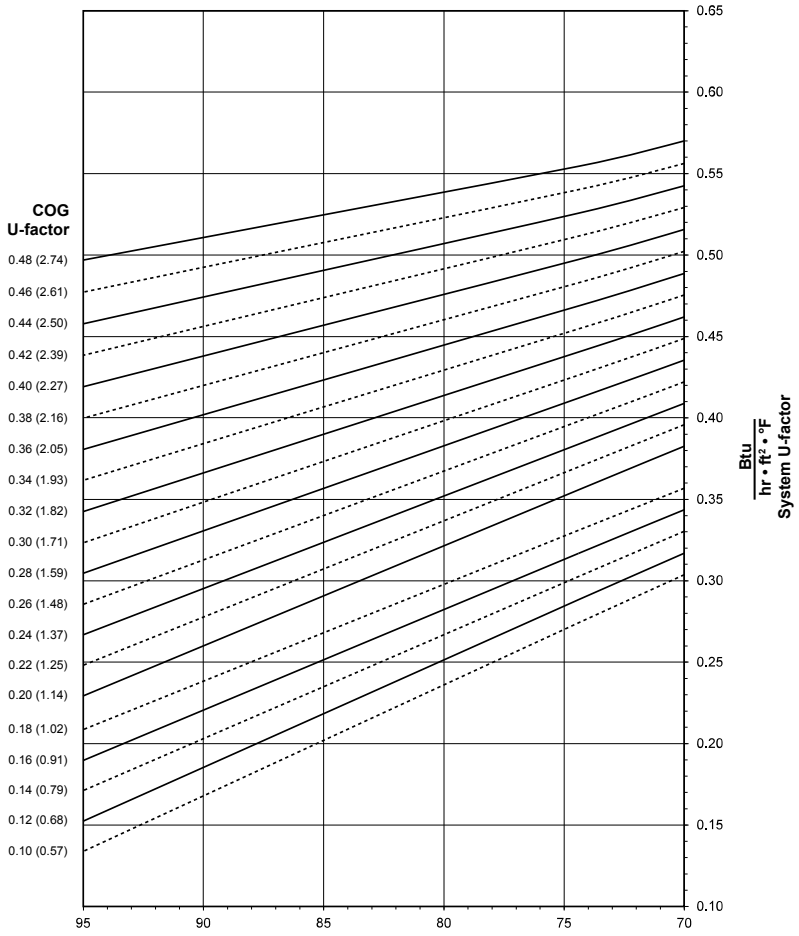
NOTE

These notes apply to the charts for system U-factor, solar heat gain coefficient (SHGC), and visible transmittance (VT):

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

System U-factor for Glass Area

System U-factor vs Percent of Glass Area



See Note, page 50.

AW (Deep) - Outswing Casement Window with 1" Glazing

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

Glass U-factor [a] [b] [c]	Overall U-factor [d]
0.48	0.55
0.46	0.54
0.44	0.53
0.42	0.51
0.40	0.50
0.38	0.48
0.36	0.47
0.34	0.45
0.32	0.44
0.30	0.43
0.28	0.41
0.26	0.40
0.24	0.38
0.22	0.37
0.20	0.36
0.18	0.33
0.16	0.32
0.14	0.30
0.12	0.29
0.10	0.27

[a]U-factor values are determined in accordance with NFRC 100.

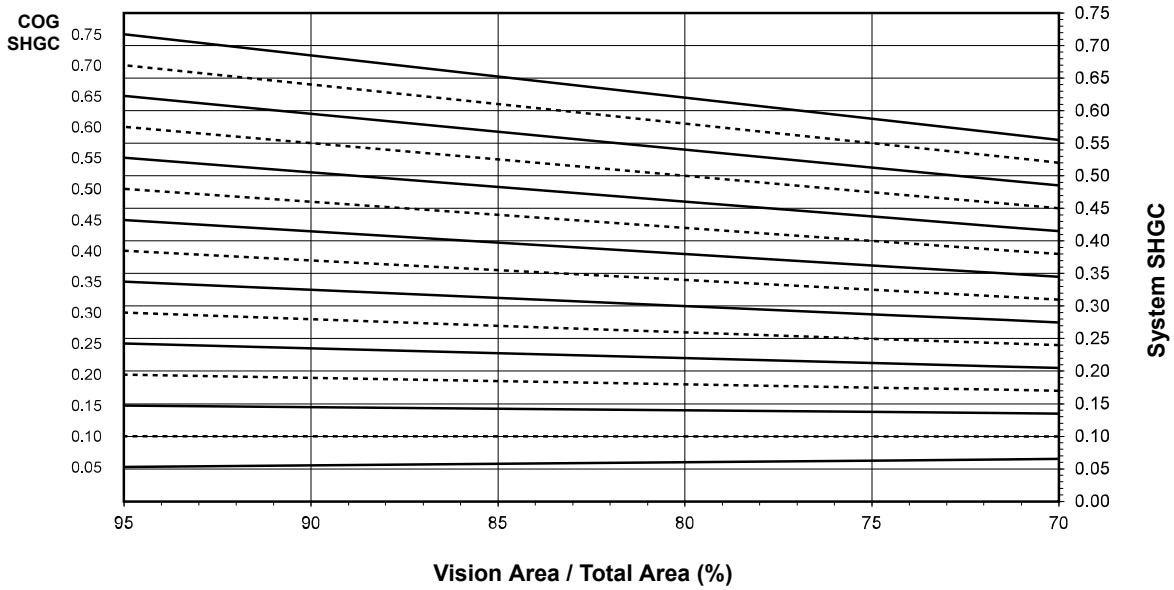
[b]For glass values that are not listed, linear interpolation is permitted.

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall U-factor values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

System Solar Heat Gain Coefficient (SHGC) - AW (Deep) - Outswing Casement Window with 1" Glazing

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



See Note, page 50.

Solar Heat Gain Coefficient (SHGC) Matrix

Glass SHGC [a] [b] [c]	Overall SHGC [d]
0.75	0.58
0.70	0.55
0.65	0.51
0.60	0.47
0.55	0.43
0.50	0.40
0.45	0.36
0.40	0.32
0.35	0.29
0.30	0.25
0.25	0.21
0.20	0.17
0.15	0.14
0.10	0.10
0.05	0.06

[a]SHGC values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall SHGC values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

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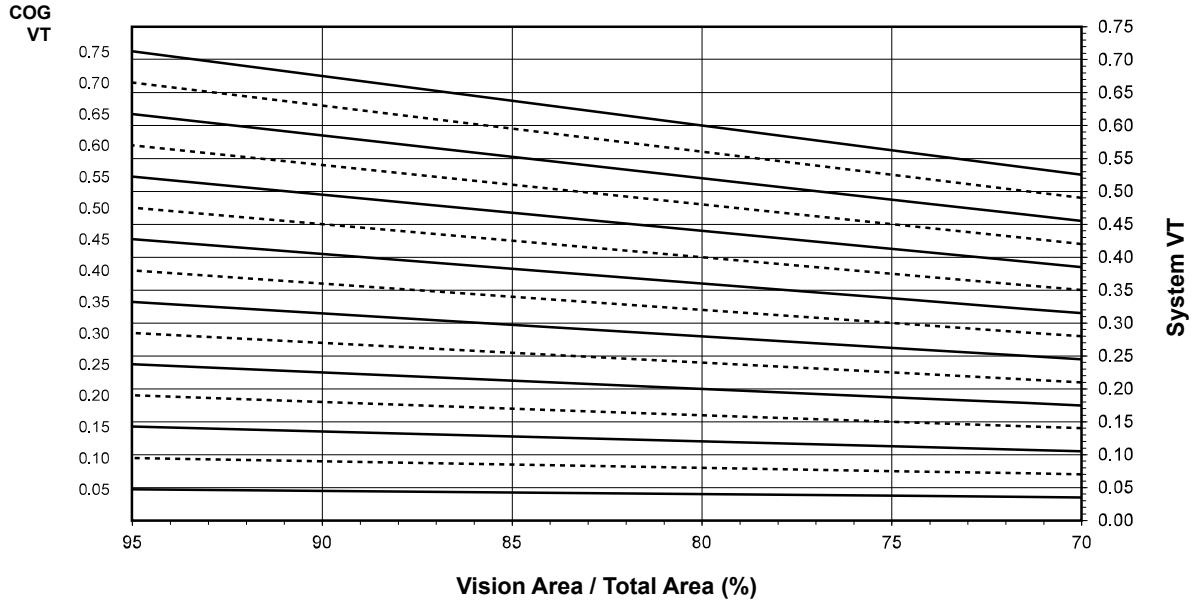
System Visible Transmittance (VT) - AW (Deep) - Outswing Casement Window with 1" Glazing

System Visible Transmittance (VT) vs Percent of Vision Area



See Note, page 50.

Visible Transmittance (VT)

Glass VT [a] [b] [c]	Overall VT [d]
0.75	0.56
0.70	0.52
0.65	0.48
0.60	0.45
0.55	0.41
0.50	0.37
0.45	0.33
0.40	0.30
0.35	0.26
0.30	0.22
0.25	0.19
0.20	0.15
0.15	0.11
0.10	0.07
0.05	0.04

[a]VT values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall VT values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

AW (Deep) - Outswing Casement Window with 1-3/4" Glazing (Aluminum Glazing Spacer)

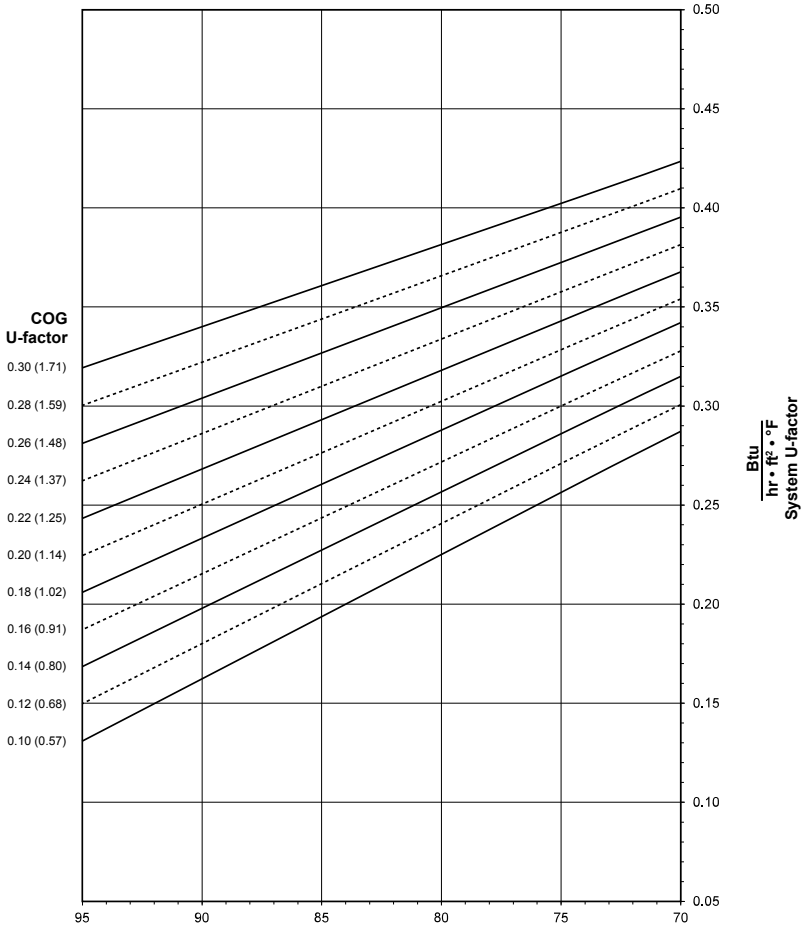
NOTE

These notes apply to the charts for system U-factor, solar heat gain coefficient (SHGC), and visible transmittance (VT):

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

System U-factor for Glass Area

System U-factor vs Percent of Glass Area



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

See Note, page 54.

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AW (Deep) - Outswing Casement Window with 1-3/4" Glazing

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

Glass U-factor [a] [b] [c]	Overall U-factor [d]
0.30	0.40
0.28	0.39
0.26	0.38
0.24	0.36
0.22	0.35
0.20	0.33
0.18	0.32
0.16	0.30
0.14	0.29
0.12	0.27
0.10	0.26

[a]U-factor values are determined in accordance with NFRC 100.

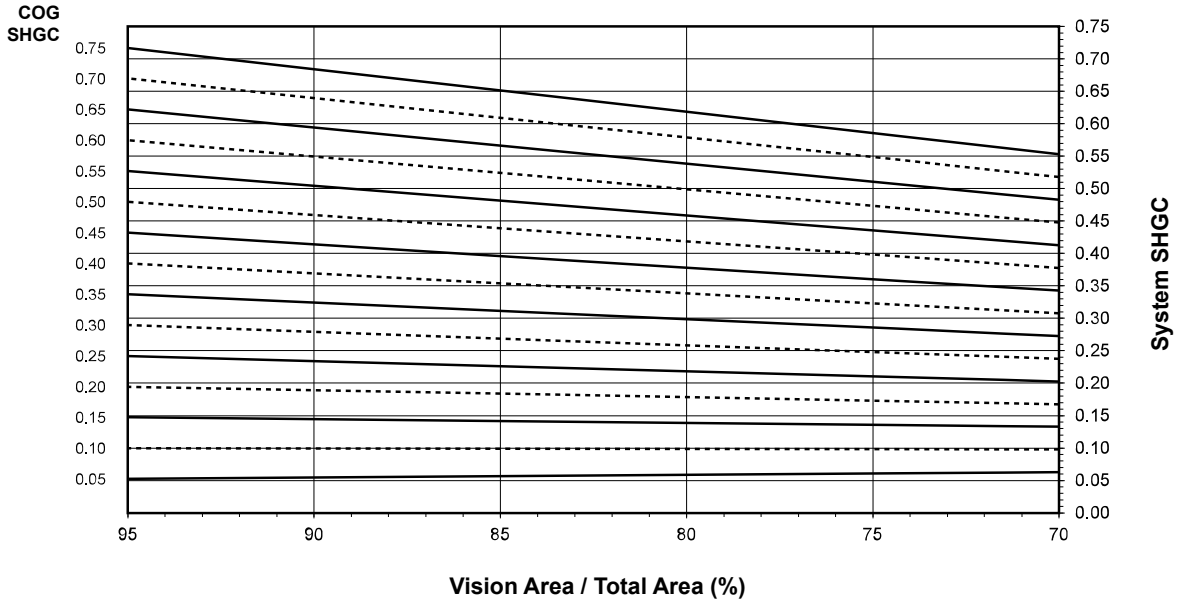
[b]For glass values that are not listed, linear interpolation is permitted.

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall U-factor values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

System Solar Heat Gain Coefficient (SHGC) - AW (Deep) - Outswing Casement Window with 1-3/4" Glazing

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



See Note, page 54.

Solar Heat Gain Coefficient (SHGC) Matrix

Glass SHGC [a] [b] [c]	Overall SHGC [d]
0.75	0.58
0.70	0.54
0.65	0.51
0.60	0.47
0.55	0.43
0.50	0.40
0.45	0.36
0.40	0.32
0.35	0.28
0.30	0.25
0.25	0.21
0.20	0.17
0.15	0.14
0.10	0.10
0.05	0.06

[a]SHGC values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall SHGC values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

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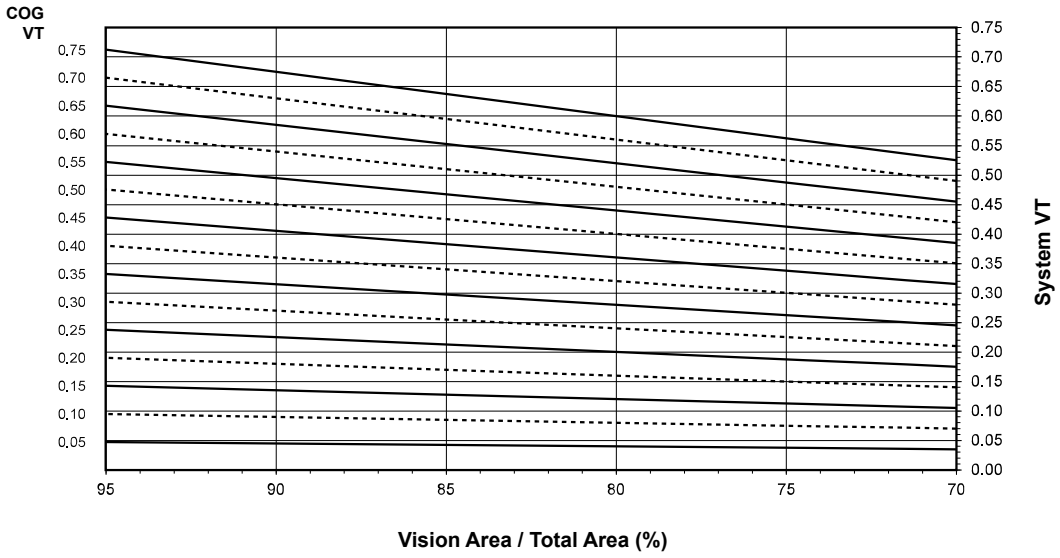
System Visible Transmittance (VT) - AW (Deep) - Outswing Casement Window with 1-3/4" Glazing

System Visible Transmittance (VT) vs Percent of Vision Area



See Note, page 54.

Visible Transmittance (VT)

Glass VT [a] [b] [c]	Overall VT [d]
0.75	0.56
0.70	0.52
0.65	0.48
0.60	0.45
0.55	0.41
0.50	0.37
0.45	0.33
0.40	0.30
0.35	0.26
0.30	0.22
0.25	0.19
0.20	0.15
0.15	0.11
0.10	0.07
0.05	0.04

[a]VT values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall VT values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

CW (Shallow) - Project-Out Window with 1" Glazing (Aluminum Glazing Spacer)

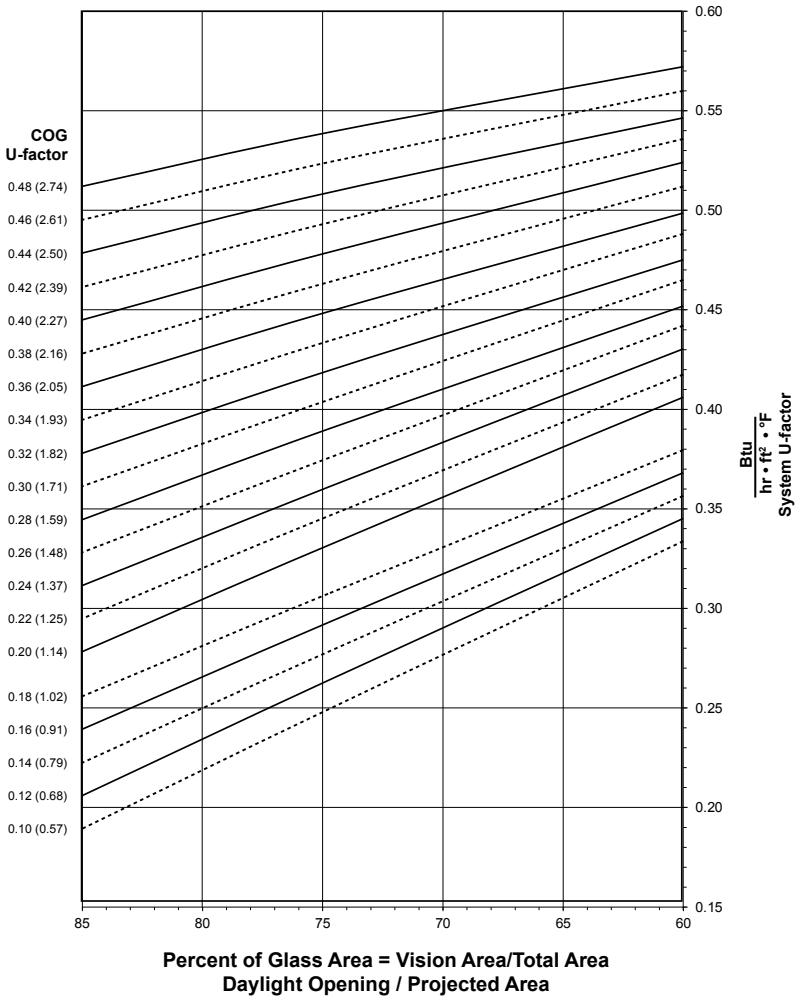
NOTE

These notes apply to the charts for system U-factor, solar heat gain coefficient (SHGC), and visible transmittance (VT):

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

System U-factor for Glass Area

System U-factor vs Percent of Glass Area



See Note, page 58.

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CW (Shallow) - Project-Out Window with 1" Glazing

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

Glass U-factor [a] [b] [c]	Overall U-factor [d]
0.48	0.54
0.46	0.52
0.44	0.51
0.42	0.49
0.40	0.48
0.38	0.46
0.36	0.45
0.34	0.43
0.32	0.42
0.30	0.40
0.28	0.39
0.26	0.38
0.24	036
0.22	0.35
0.20	0.33
0.18	0.31
0.16	0.29
0.14	0.28
0.12	0.26
0.10	0.25

[a]U-factor values are determined in accordance with NFRC 100.

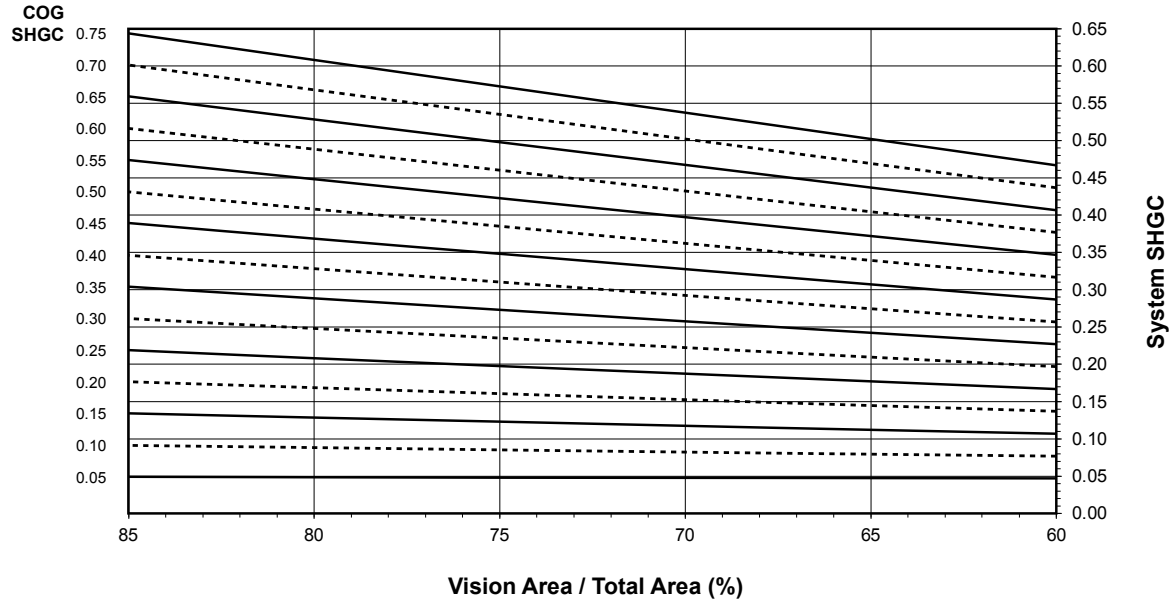
[b]For glass values that are not listed, linear interpolation is permitted.

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall U-factor values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

System Solar Heat Gain Coefficient (SHGC) - CW (Shallow) - Project-Out Window with 1" Glazing

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



See Note, page 58.

Solar Heat Gain Coefficient (SHGC) Matrix

Glass SHGC [a] [b] [c]	Overall SHGC [d]
0.75	0.57
0.70	0.53
0.65	0.50
0.60	0.46
0.55	0.42
0.50	0.38
0.45	0.35
0.40	0.31
0.35	0.27
0.30	0.23
0.25	0.20
0.20	0.16
0.15	0.12
0.10	0.09
0.05	0.05

[a]SHGC values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall SHGC values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

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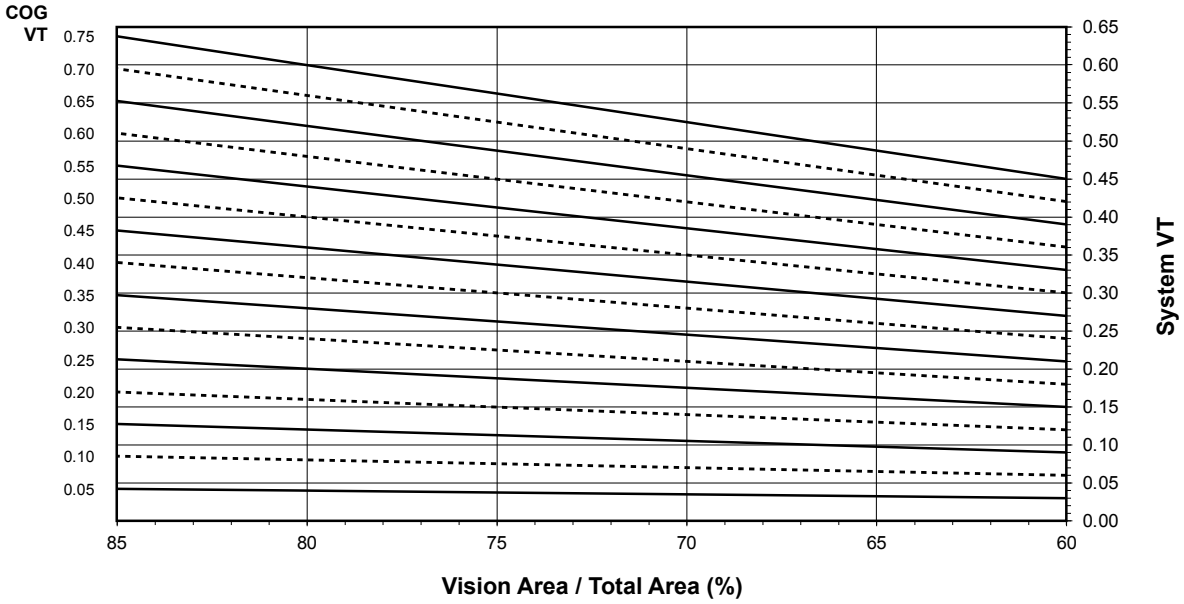
System Visible Transmittance (VT) - CW (Shallow) - Project-Out Window with 1" Glazing

System Visible Transmittance (VT) vs Percent of Vision Area



See Note, page 58.

Visible Transmittance (VT)

Glass VT [a] [b] [c]	Overall VT [d]
0.75	0.56
0.70	0.52
0.65	0.49
0.60	0.45
0.55	0.41
0.50	0.37
0.45	0.34
0.40	0.30
0.35	0.26
0.30	0.22
0.25	0.19
0.20	0.15
0.15	0.11
0.10	0.07
0.05	0.04

[a]VT values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall VT values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

CW (Shallow) - Project-Out Window with 1-3/4" Glazing (Aluminum Glazing Spacer)

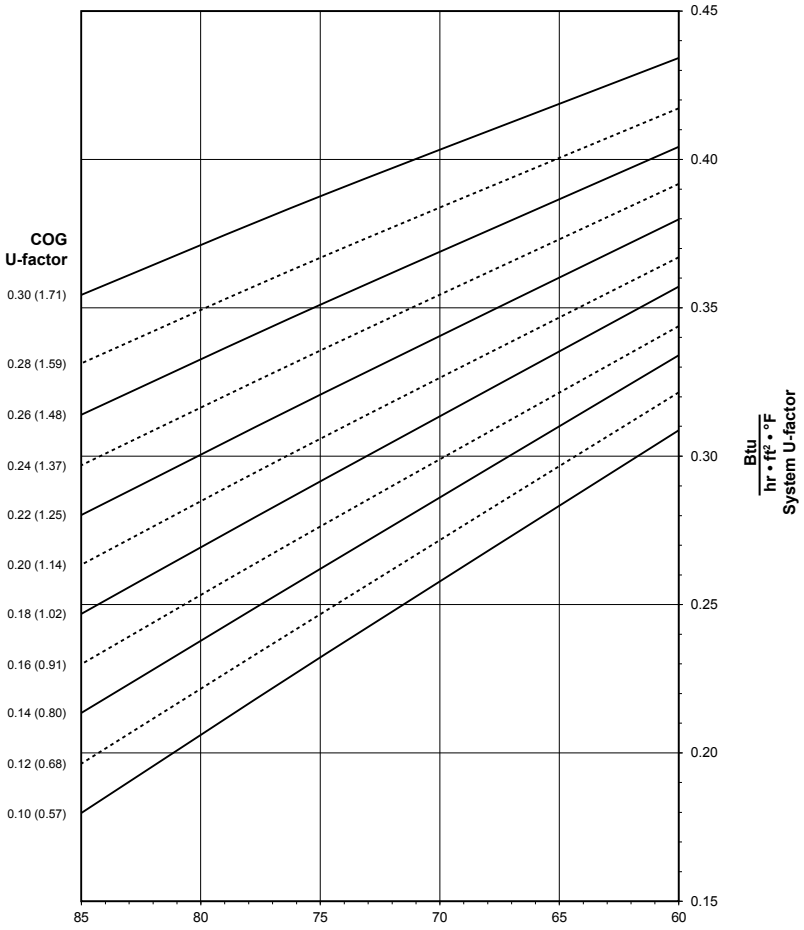
NOTE

These notes apply to the charts for system U-factor, solar heat gain coefficient (SHGC), and visible transmittance (VT):

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

System U-factor for Glass Area

System U-factor vs Percent of Glass Area



See Note, page 62.

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CW (Shallow) - Project-Out Window with 1-3/4" Glazing

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

Glass U-factor [a] [b] [c]	Overall U-factor [d]
0.31	0.39
0.28	0.37
0.26	0.35
0.24	0.34
0.22	0.32
0.20	0.31
0.18	0.29
0.16	0.28
0.14	0.26
0.12	0.25
0.10	0.23

[a]U-factor values are determined in accordance with NFRC 100.

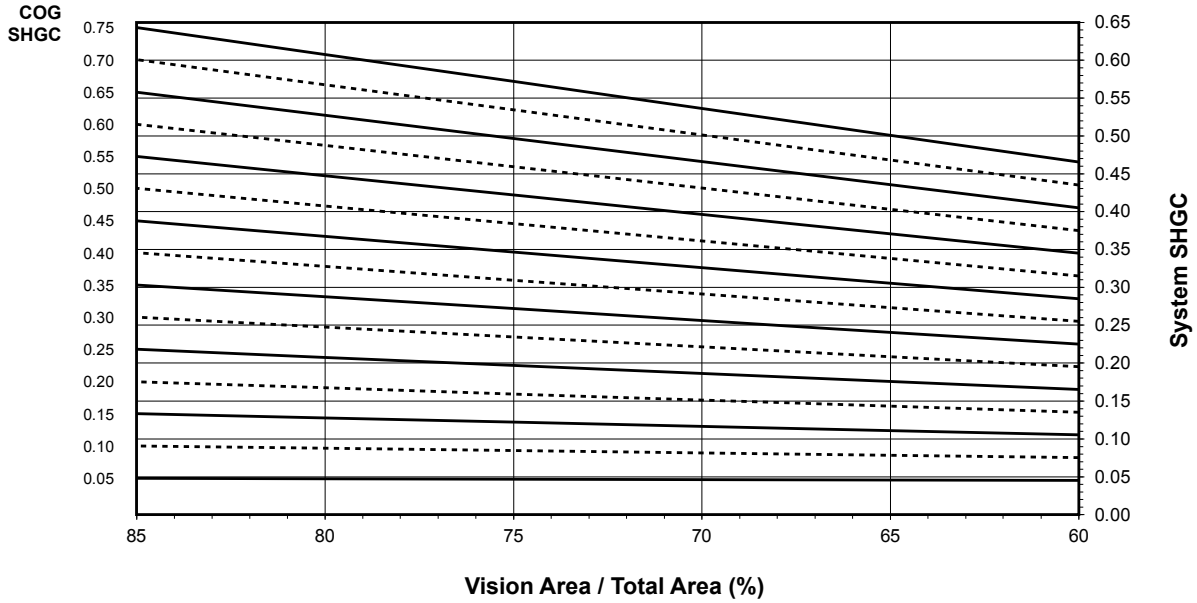
[b]For glass values that are not listed, linear interpolation is permitted.

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall U-factor values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

System Solar Heat Gain Coefficient (SHGC) - CW (Shallow) - Project-Out Window with 1-3/4" Glazing

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



See Note, page 62.

Solar Heat Gain Coefficient (SHGC) Matrix

Glass SHGC [a] [b] [c]	Overall SHGC [d]
0.75	0.57
0.70	0.53
0.65	0.50
0.60	0.46
0.55	0.42
0.50	0.38
0.45	0.35
0.40	0.31
0.35	0.27
0.30	0.23
0.25	0.20
0.20	0.16
0.15	0.12
0.10	0.08
0.05	0.05

[a]SHGC values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall SHGC values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

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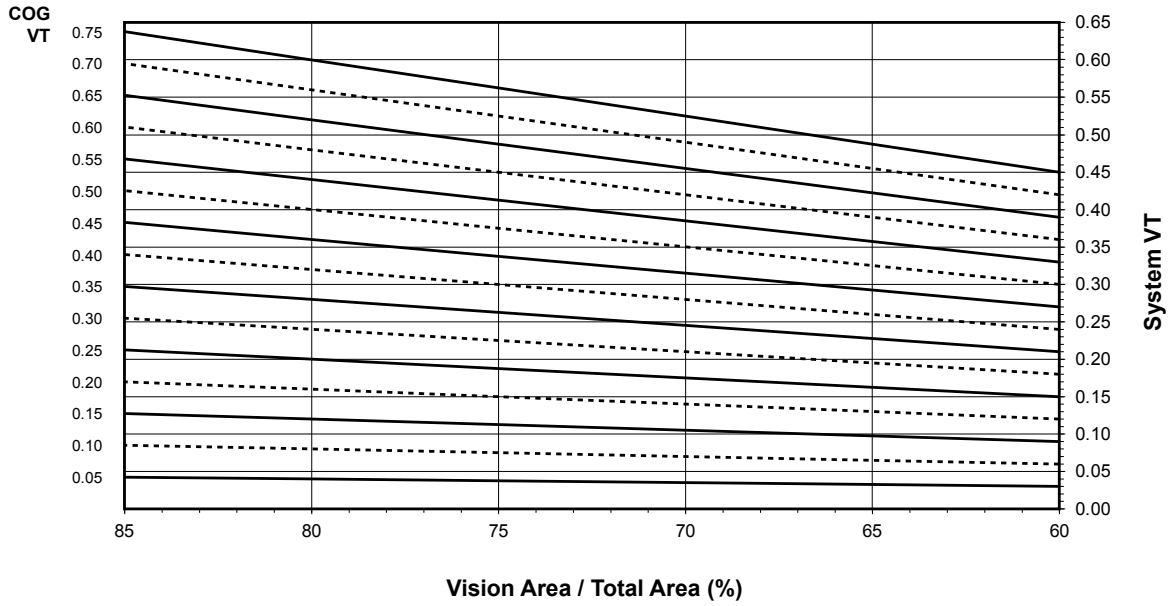
System Visible Transmittance (VT) - CW (Shallow) - Project-Out Window with 1-3/4" Glazing

System Visible Transmittance (VT) vs Percent of Vision Area



See Note, page 62.

Visible Transmittance (VT)

Glass VT [a] [b] [c]	Overall VT [d]
0.75	0.56
0.70	0.52
0.65	0.49
0.60	0.45
0.55	0.41
0.50	0.37
0.45	0.34
0.40	0.30
0.35	0.26
0.30	0.22
0.25	0.19
0.20	0.15
0.15	0.11
0.10	0.07
0.05	0.04

[a]VT values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall VT values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

CW (Shallow) - Outswing Casement Window with 1" Glazing (Aluminum Glazing Spacer)

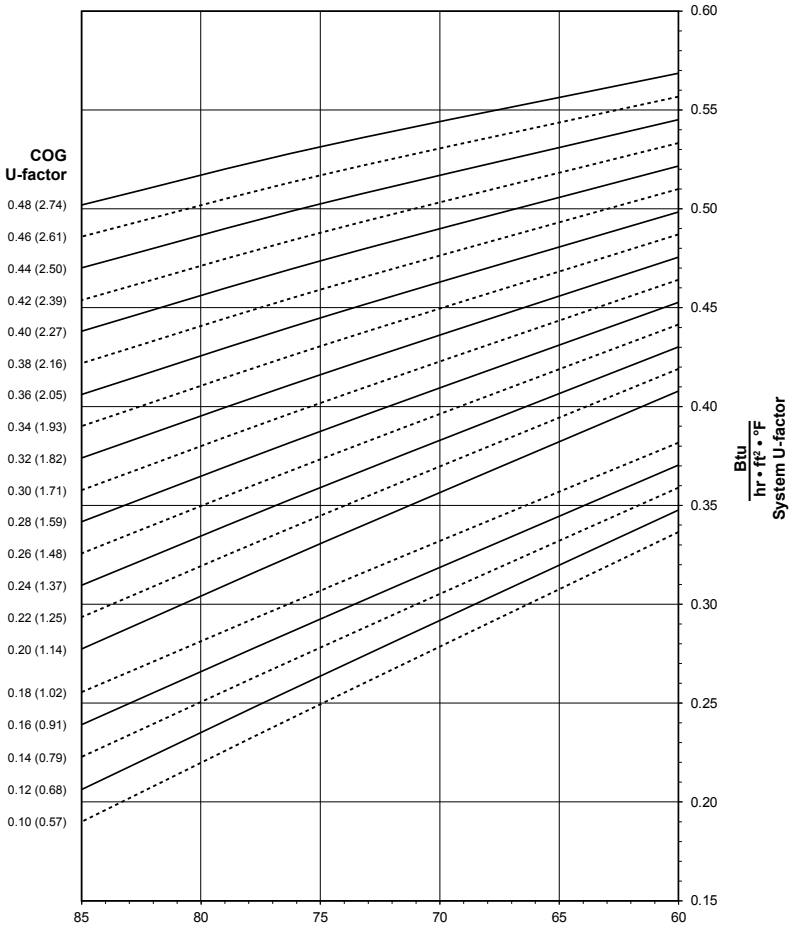
NOTE

These notes apply to the charts for system U-factor, solar heat gain coefficient (SHGC), and visible transmittance (VT):

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

System U-factor for Glass Area

System U-factor vs Percent of Glass Area



See Note, page 66.

CW (Shallow) - Outswing Casement Window with 1" Glazing

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

Glass U-factor [a b c]	Overall U-factor [d]
0.48	0.53
0.46	0.52
0.44	0.50
0.42	0.49
0.40	0.47
0.38	0.46
0.36	0.45
0.34	0.43
0.32	0.42
0.30	0.40
0.28	0.39
0.26	0.37
0.24	0.36
0.22	0.35
0.20	0.33
0.18	0.31
0.16	0.29
0.14	0.28
0.12	0.27
0.10	0.25

[a]U-factor values are determined in accordance with NFRC 100.

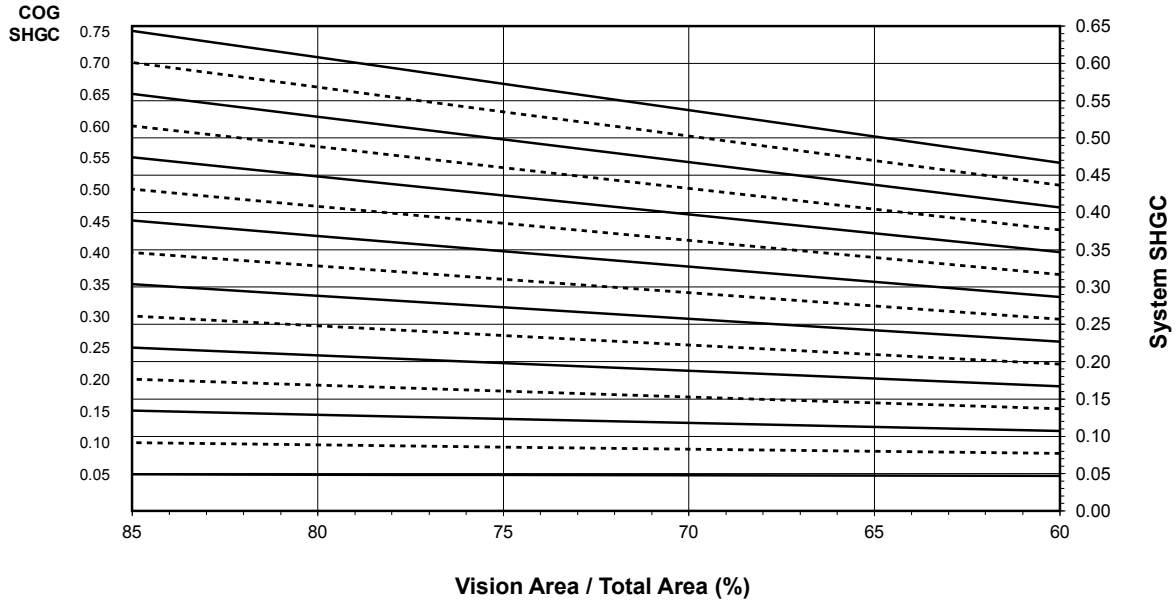
[b]For glass values that are not listed, linear interpolation is permitted.

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall U-factor values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

System Solar Heat Gain Coefficient (SHGC) - CW (Shallow) - Outswing Casement Window with 1" Glazing

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



See Note, page 66.

Solar Heat Gain Coefficient (SHGC) Matrix

Glass SHGC [a] [b] [c]	Overall SHGC [d]
0.75	0.57
0.70	0.53
0.65	0.50
0.60	0.46
0.55	0.42
0.50	0.38
0.45	0.35
0.40	0.31
0.35	0.27
0.30	0.23
0.25	0.20
0.20	0.16
0.15	0.12
0.10	0.09
0.05	0.05

[a]SHGC values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall SHGC values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

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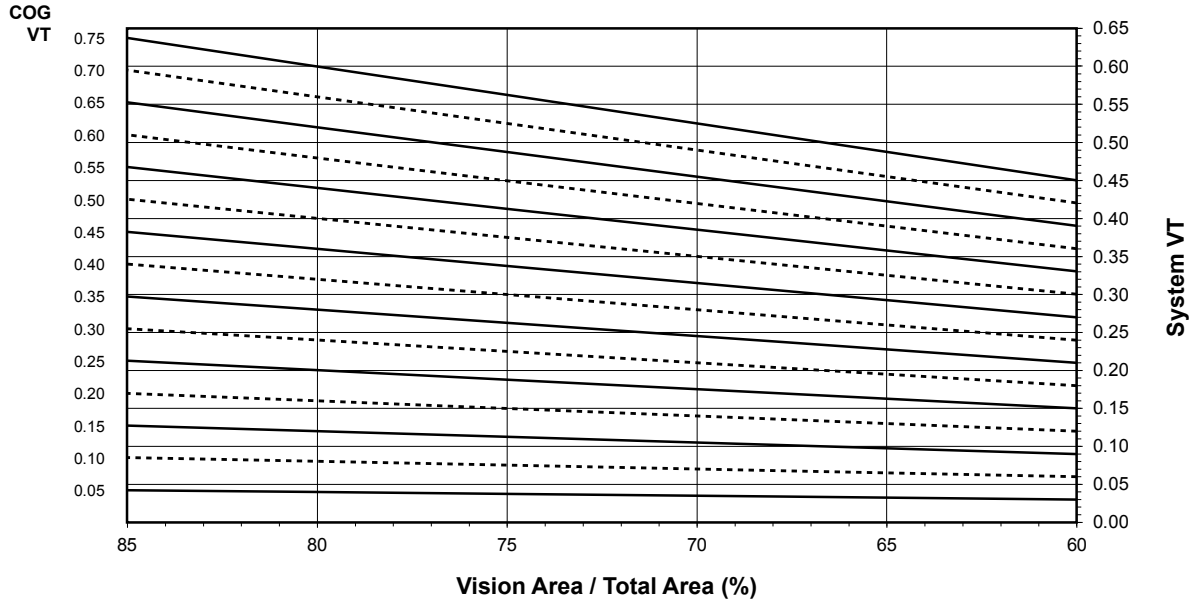
System Visible Transmittance (VT) - CW (Shallow) - Outswing Casement Window with 1" Glazing

System Visible Transmittance (VT) vs Percent of Vision Area



See Note, page 66.

Visible Transmittance (VT)

Glass VT [a] [b] [c]	Overall VT [d]
0.75	0.56
0.70	0.52
0.65	0.49
0.60	0.45
0.55	0.41
0.50	0.37
0.45	0.34
0.40	0.30
0.35	0.26
0.30	0.22
0.25	0.19
0.20	0.15
0.15	0.11
0.10	0.07
0.05	0.04

[a]VT values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall VT values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

CW (Shallow) - Outswing Casement Window with 1-3/4" Glazing (Aluminum Glazing Spacer)

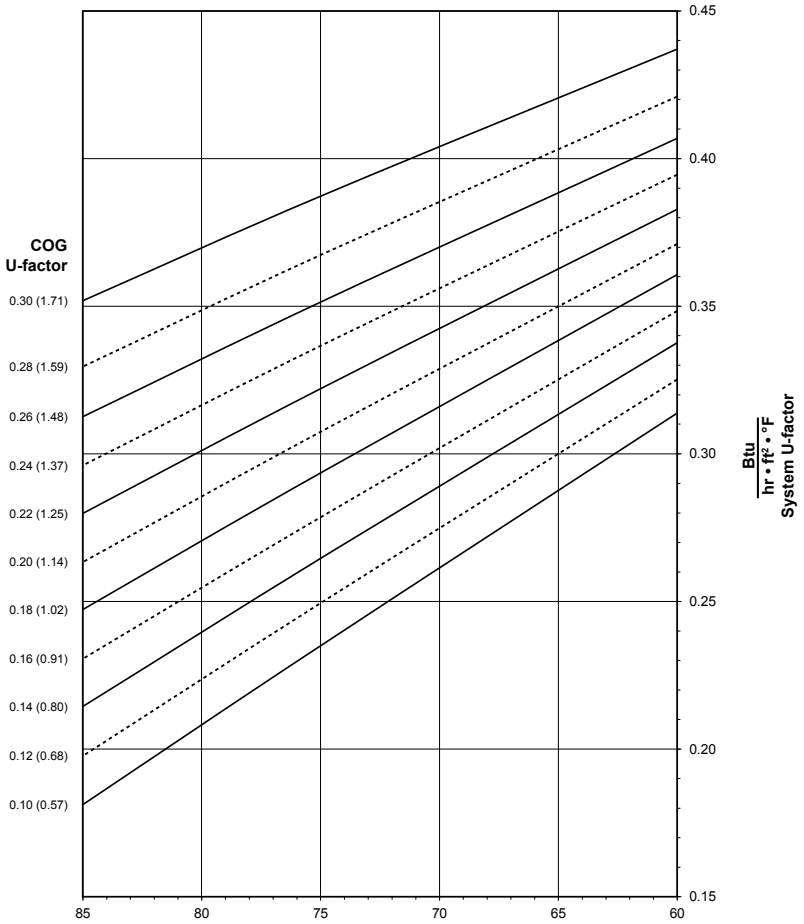
NOTE

These notes apply to the charts for system U-factor, solar heat gain coefficient (SHGC), and visible transmittance (VT):

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

System U-factor for Glass Area

System U-factor vs Percent of Glass Area



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

See Note, page 70.

CW (Shallow) - Outswing Casement Window with 1-3/4" Glazing

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

Glass U-factor [a b c]	Overall U-factor [d]
0.31	0.39
0.28	0.37
0.26	0.35
0.24	0.34
0.22	0.32
0.20	0.31
0.18	0.29
0.16	0.28
0.14	0.27
0.12	0.25
0.10	0.24

[a]U-factor values are determined in accordance with NFRC 100.

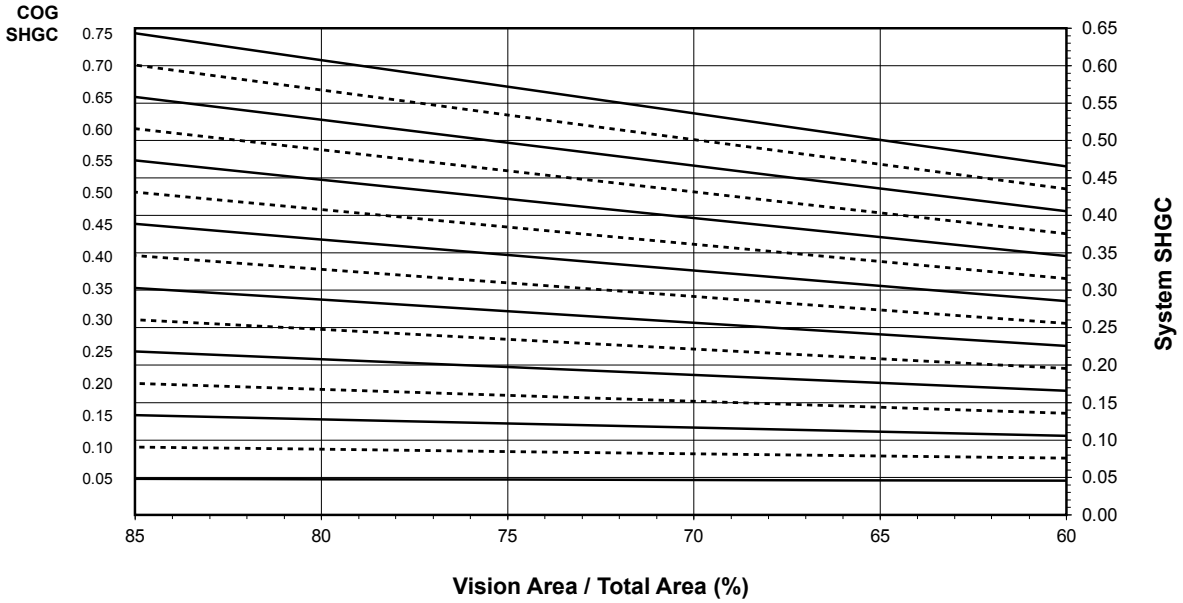
[b]For glass values that are not listed, linear interpolation is permitted.

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall U-factor values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

System Solar Heat Gain Coefficient (SHGC) - CW (Shallow) - Outswing Casement Window with 1-3/4" Glazing

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



See Note, page 70.

Solar Heat Gain Coefficient (SHGC) Matrix

Glass SHGC [a] [b] [c]	Overall SHGC [d]
0.75	0.57
0.70	0.53
0.65	0.50
0.60	0.46
0.55	0.42
0.50	0.38
0.45	0.35
0.40	0.31
0.35	0.27
0.30	0.23
0.25	0.20
0.20	0.16
0.15	0.12
0.10	0.08
0.05	0.05

[a]SHGC values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall SHGC values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

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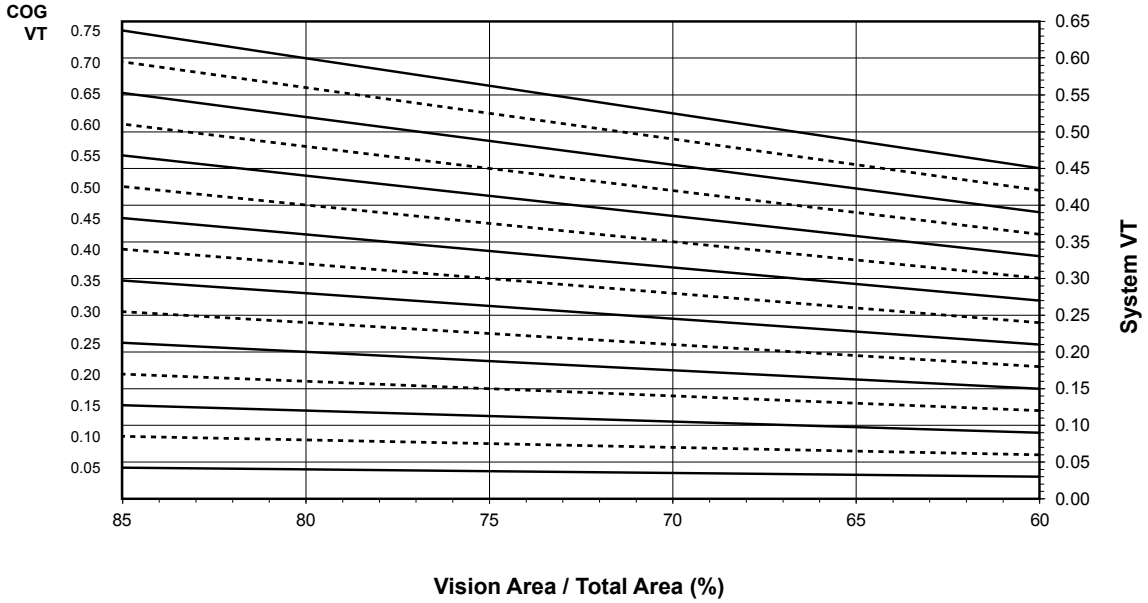
System Visible Transmittance (VT) - CW (Shallow) - Outswing Casement Window with 1-3/4" Glazing

System Visible Transmittance (VT) vs Percent of Vision Area



See Note, page 70.

Visible Transmittance (VT)

Glass VT [a] [b] [c]	Overall VT [d]
0.75	0.56
0.70	0.52
0.65	0.49
0.60	0.45
0.55	0.41
0.50	0.37
0.45	0.34
0.40	0.30
0.35	0.26
0.30	0.22
0.25	0.19
0.20	0.15
0.15	0.11
0.10	0.07
0.05	0.04

[a]VT values are determined in accordance with NFRC 200.

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

[c]Glass properties are based on center-of-glass values and are obtained from your glass supplier.

[d]Overall VT values are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-1/6" by 23-5/8").

Notes And Disclaimers

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