Features

- Clearwall™ is a 4-sided Toggle Glazed (TG) curtain wall system
- Achieves an all-glass monolithic aesthetic in a field glazed; screw spline or shear block fabricated application
  - 5/8" (15.9) exterior vertical and horizontal weatherseal sightline
  - 2-1/2" (63.5) interior metal sightline
- Innovative toggle assembly captures glass, eliminating field application of structural silicone
- All 3 glazing options, use the toggle based glass retention system
  - Clearwall™ SS (Screw Spline) or SB (Shear Block)
    - ¨ Toggles capture Viracon®'s 1-1/8" insulating glass unit, with a recessed spacer
    - ¨ Inside lite of insulating glass unit is directly engaged by toggles
    - ¨ No structural silicone required
  - Clearwall™ SSI (Screw Spline Interface) or SBI (Shear Block Interface)
    - ¨ Toggles capture standard 1" insulating glass unit attached with shop applied metal interface using structural silicone
  - Clearwall™ SSIT (Screw Spline Interface Tape) or SBIT (Shear Block Interface Tape)
    - ¨ Toggles capture standard 1" insulating glass unit attached with shop applied metal interface using 3M™ VHB™ Structural Glazing Tape
- Screw spline joinery method allows shop assembly of ladder sections, reducing field labor
- Shear Block joinery and deeper mullions allow for higher free-spans (up to 26' with steel reinforcing)
- Clearwall™ can be supplied fabricated and KD, or in stock lengths
- Silicone compatible EPDM glazing materials for long-lasting seals
- Offers integrated entrance framing systems
- Available in multiple anodized and painted finishes
- Comprehensively tested to latest high performance standards
- Full technical support from 3M™ for application of the 3M™ VHB™ SG Tape for Clearwall™ SSIT and SBIT

Optional Features

- Air barrier and back pan applications available
- Profit$maker® Plus die sets available

Product Applications

- Ideal for low-rise applications of four floors or less requiring a sleek, uninterrupted all-glass facade
- Ideal for office buildings, and lobbies or accent walls of high profile buildings

For specific product applications,
Consult your Kawneer representative.

Architects – Most extrusions illustrated in this catalog are standard products for Kawneer. These concepts have been expanded and modified to afford you design freedom. Some miscellaneous details are non-standard and are intended to demonstrate how the system can be modified to expand design flexibility. Please contact your Kawneer representative for further assistance.

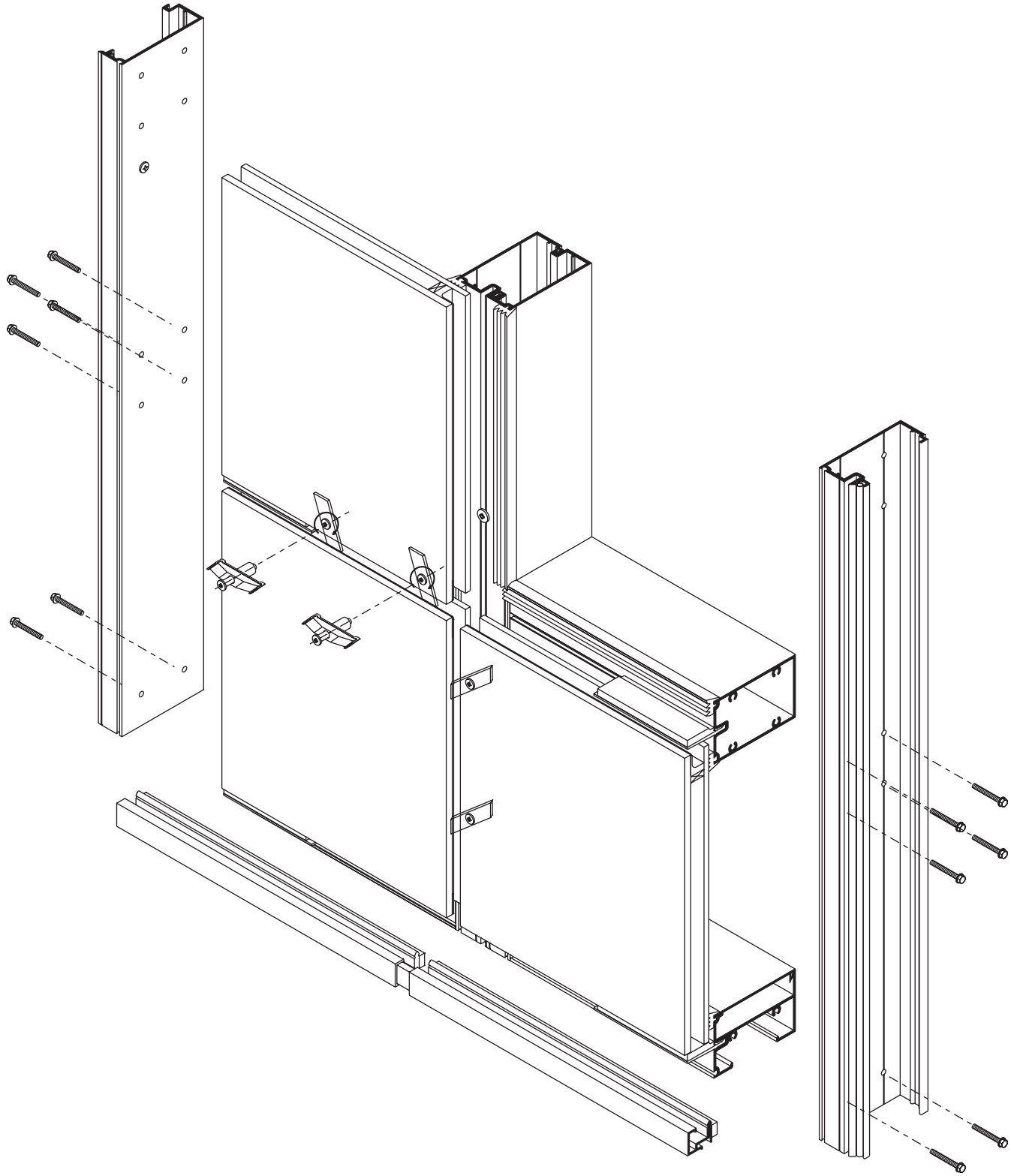
LAWS AND BUILDING AND SAFETY CODES GOVERNING THE DESIGN AND USE OF GLAZED ENTRANCE, WINDOW, AND CURTAIN WALL PRODUCTS VARY WIDELY. KAWNEER DOES NOT CONTROL THE SELECTION OF PRODUCT CONFIGURATIONS, OPERATING HARDWARE, OR GLAZING MATERIALS, AND ASSUMES NO RESPONSIBILITY THEREFOR.

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

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

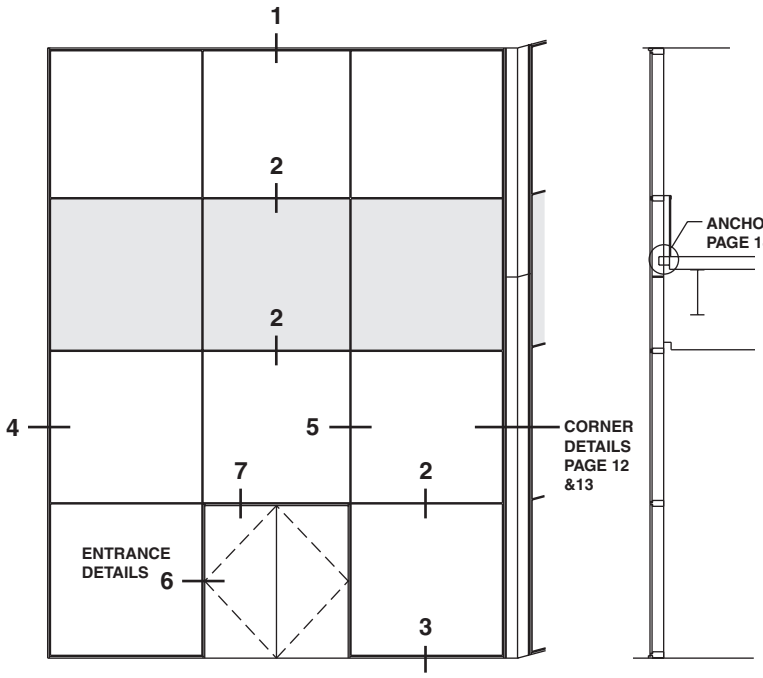
m – meter
cm – centimeter
mm – millimeter
s – second
Pa – pascal
MPa – megapascal

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

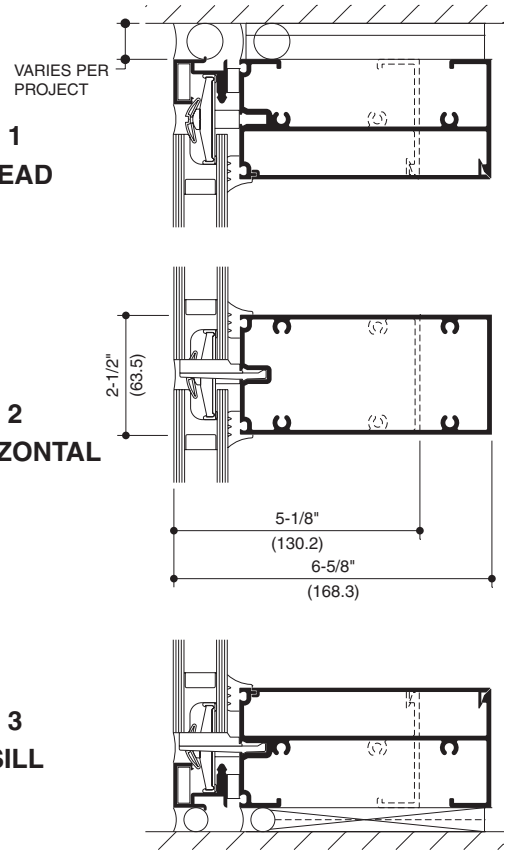


CLEARWALL^{TD} SS (Screw Spline) shown

SCALE 3" = 1'-0"



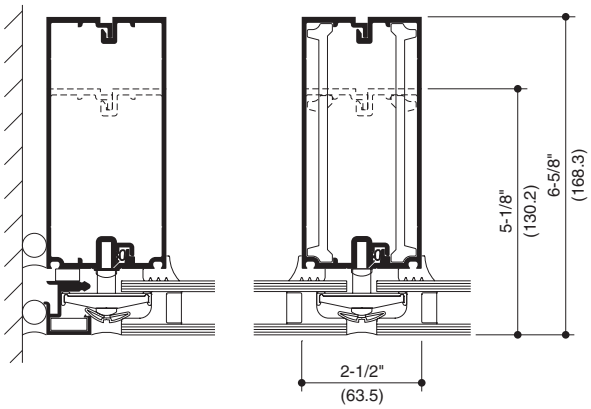
ELEVATION IS NUMBER KEYED TO DETAILS



1
HEAD

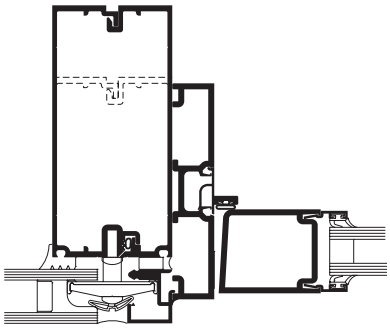
2
HORIZONTAL

3
SILL



4
JAMB

5
VERTICAL INTERMEDIATE



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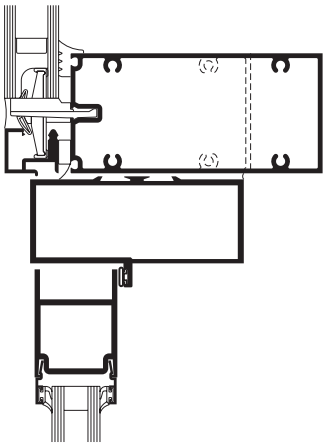
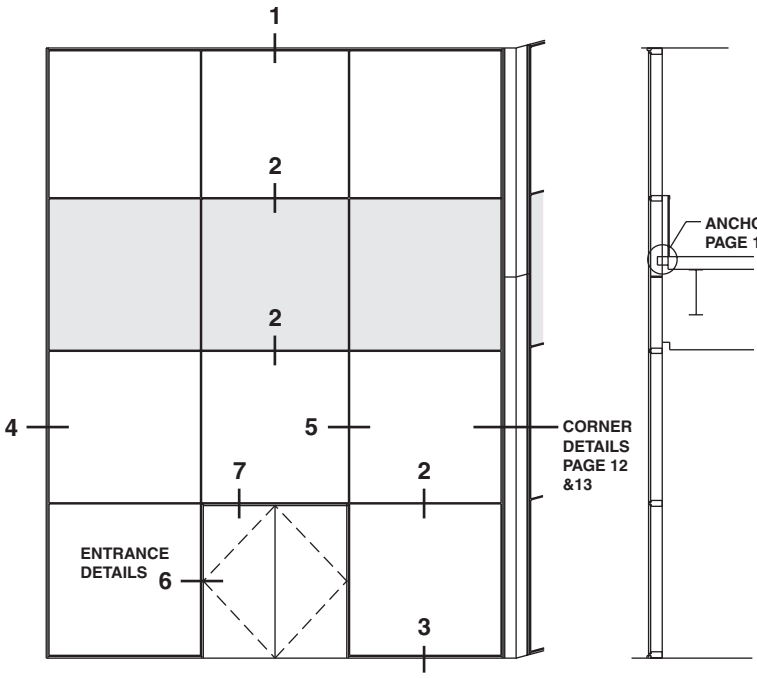
DOOR JAMB
BUTT HUNG OR OFFSET PIVOT



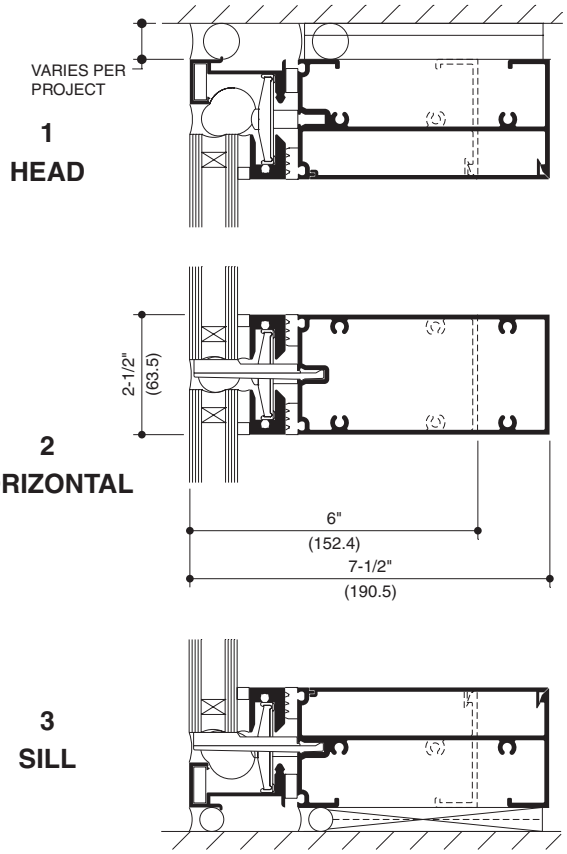
7
DOOR JAMB
BUTT HUNG OR OFFSET PIVOT

Note: Viracon supplies the 1-1/8" insulating glass unit with recessed spacer.

SCALE 3" = 1'-0"



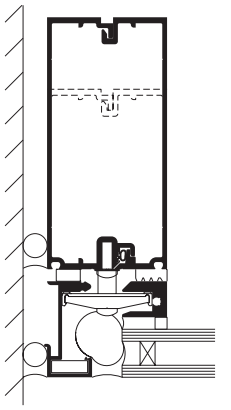
ELEVATION IS NUMBER KEYED TO DETAILS



1
HEAD

2
HORIZONTAL

3
SILL



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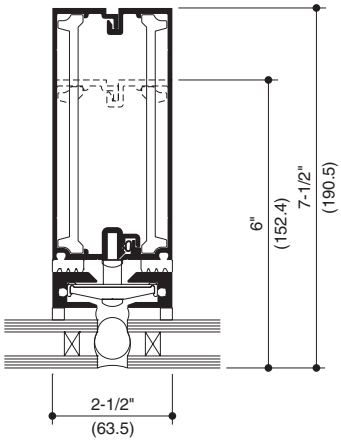
JAMB



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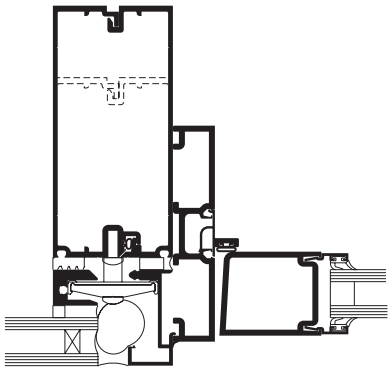
VERTICAL INTERMEDIATE



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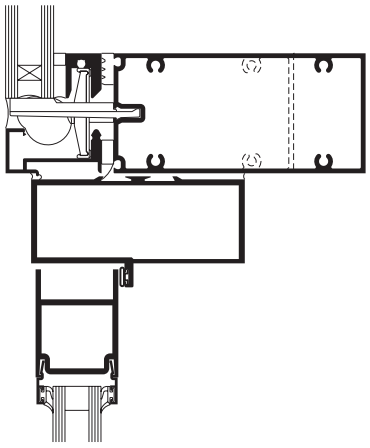
DOOR JAMB
BUTT HUNG OR OFFSET PIVOT



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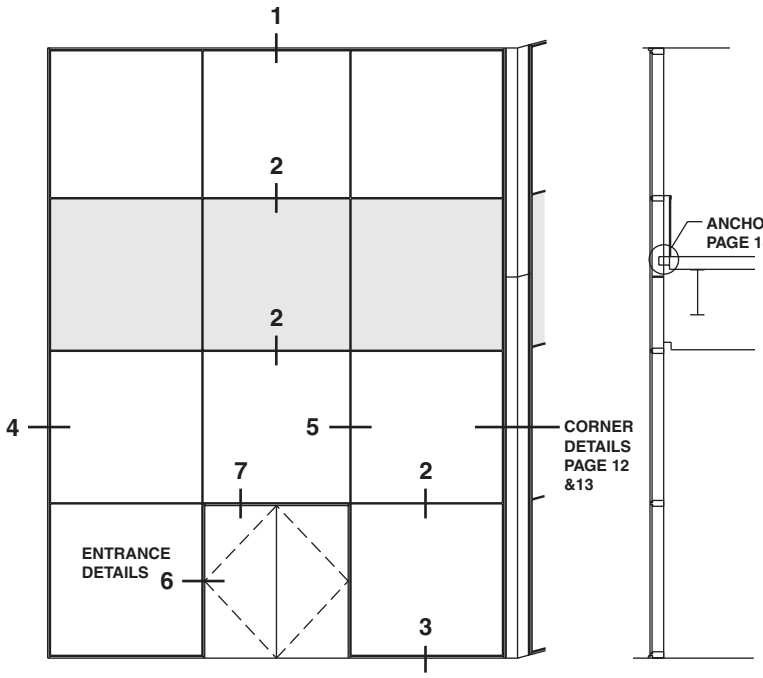
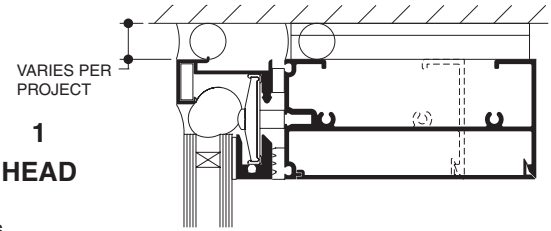
DOOR JAMB
BUTT HUNG OR OFFSET PIVOT

SCALE 3" = 1'-0"



ELEVATION IS NUMBER KEYED TO DETAILS



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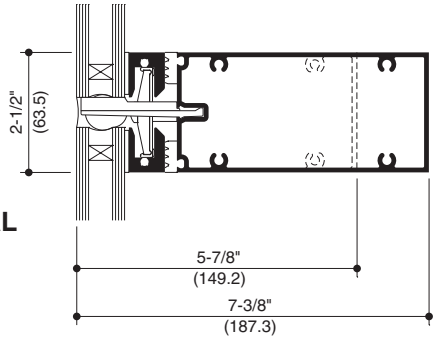
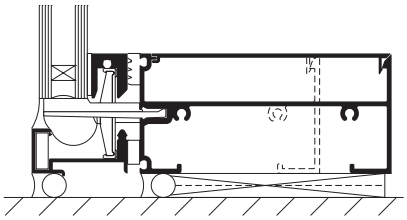
HEAD



2
HORIZONTAL



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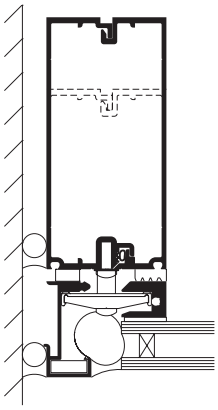
SILL



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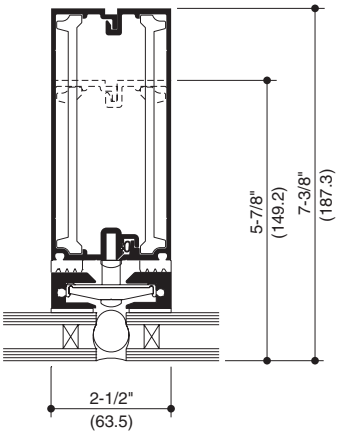
JAMB



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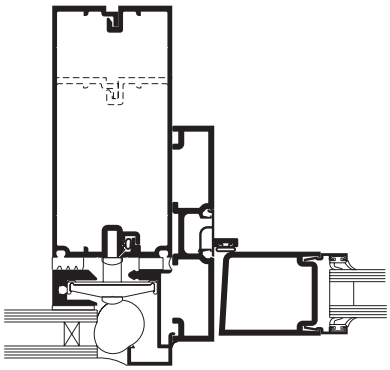
VERTICAL INTERMEDIATE



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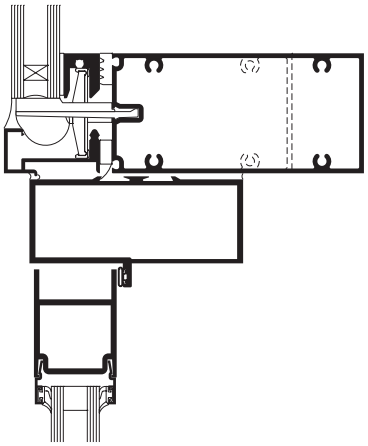
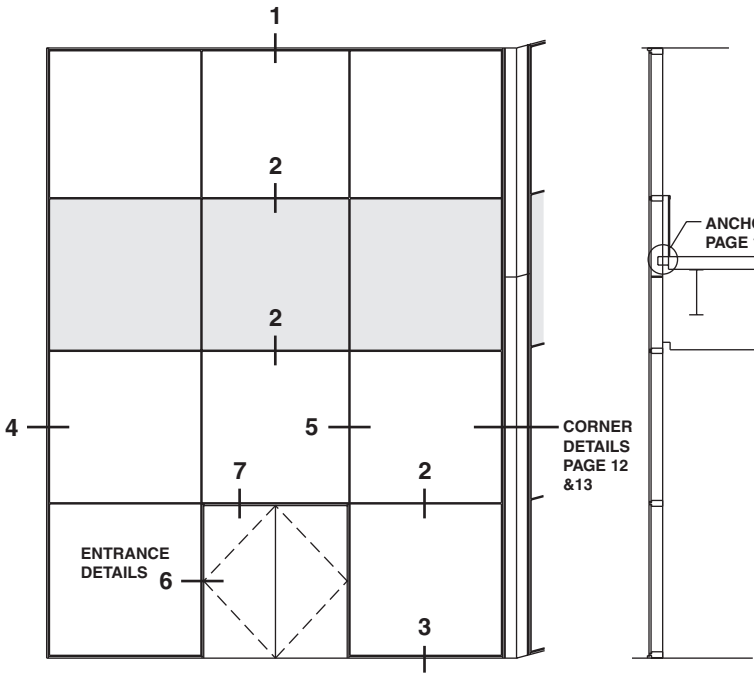
DOOR JAMB
BUTT HUNG OR OFFSET PIVOT



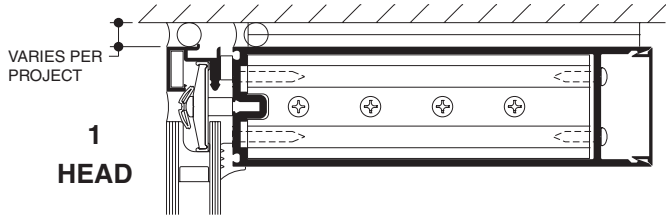
7
DOOR JAMB
BUTT HUNG OR OFFSET PIVOT

Note: Structural glazing tape (SGT) is 3M™ VHB™ B23F.

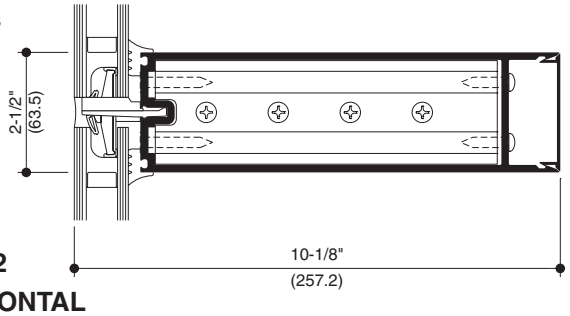
SCALE 3" = 1'-0"



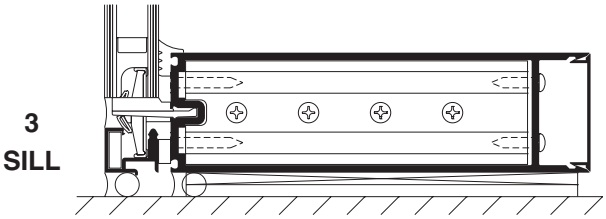
ELEVATION IS NUMBER KEYED TO DETAILS



1
HEAD



2
HORIZONTAL



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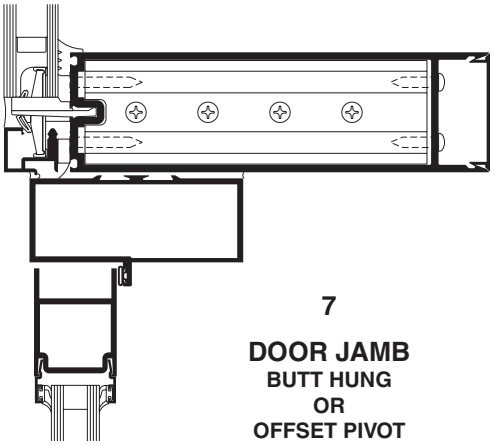
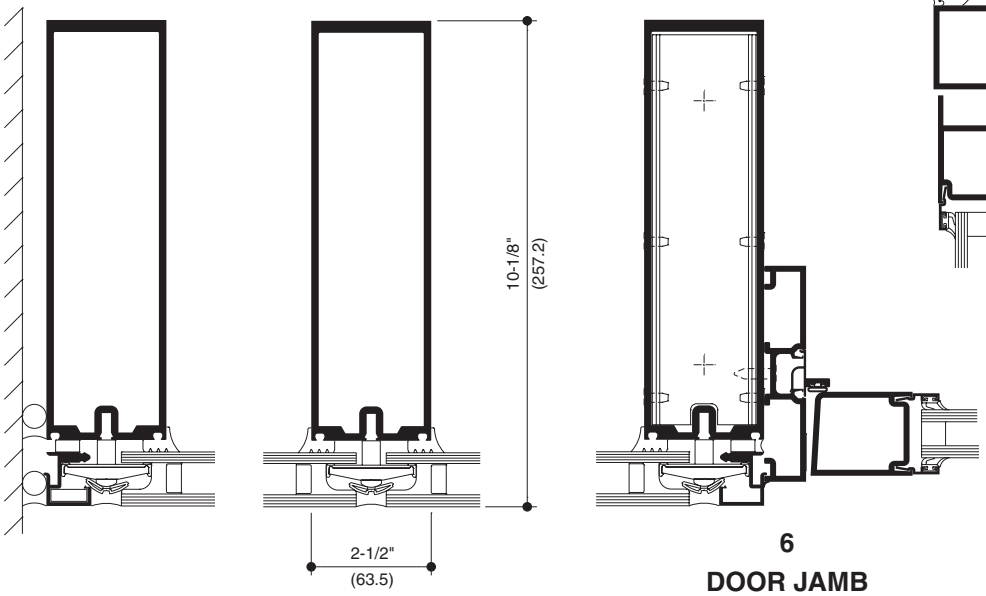
SILL



7
DOOR JAMB
BUTT HUNG
OR
OFFSET PIVOT



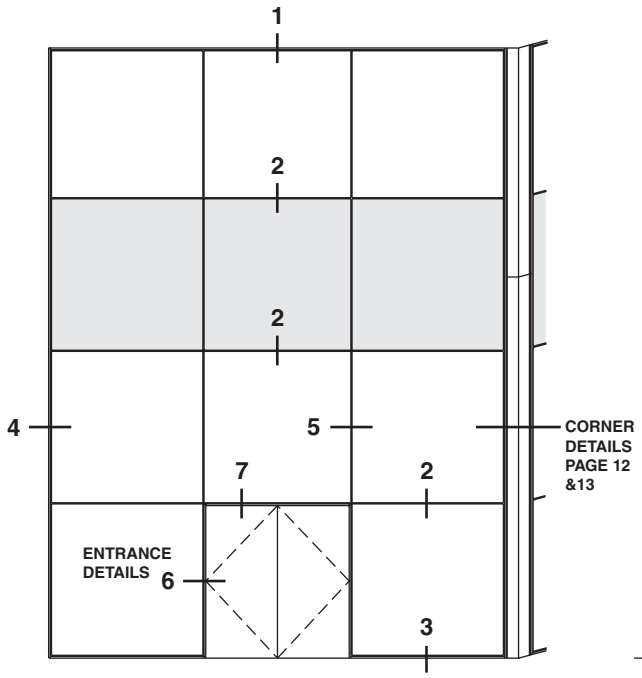
4
JAMB

5
VERTICAL
INTERMEDIATE

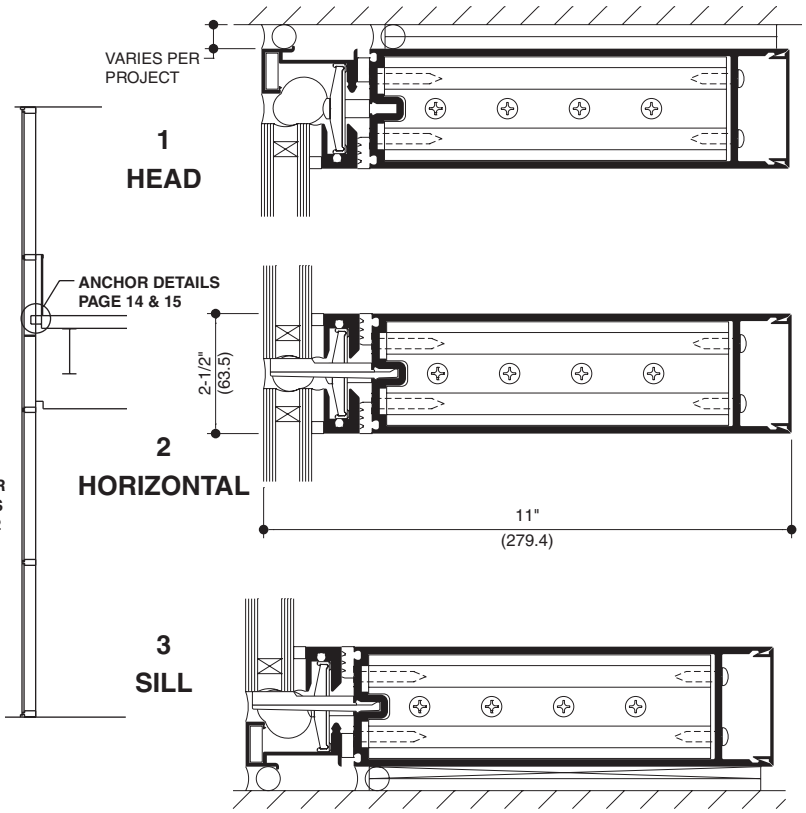
6
DOOR JAMB
BUTT HUNG
OR
OFFSET PIVOT

Note: Viracon supplies the 1-1/8" insulating glass unit with recessed spacer.

SCALE 3" = 1'-0"



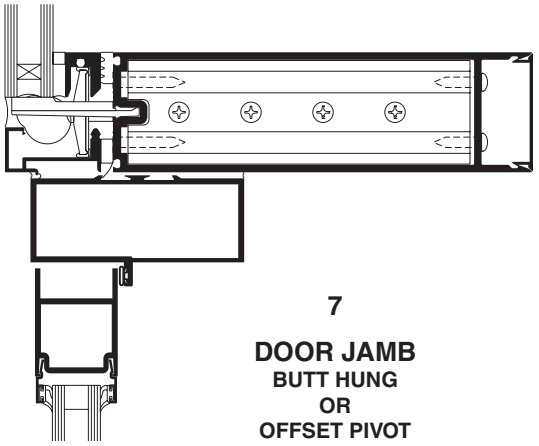
ELEVATION IS NUMBER KEYED TO DETAILS



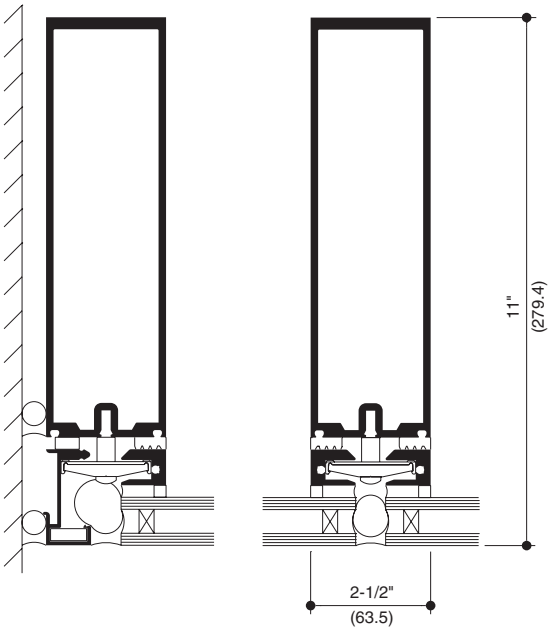
1
HEAD

2
HORIZONTAL

3
SILL

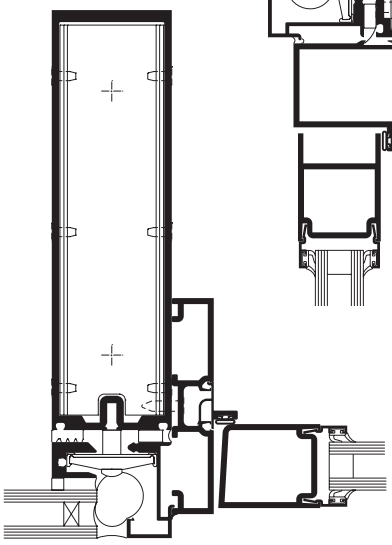


7
DOOR JAMB
BUTT HUNG
OR
OFFSET PIVOT



4
JAMB

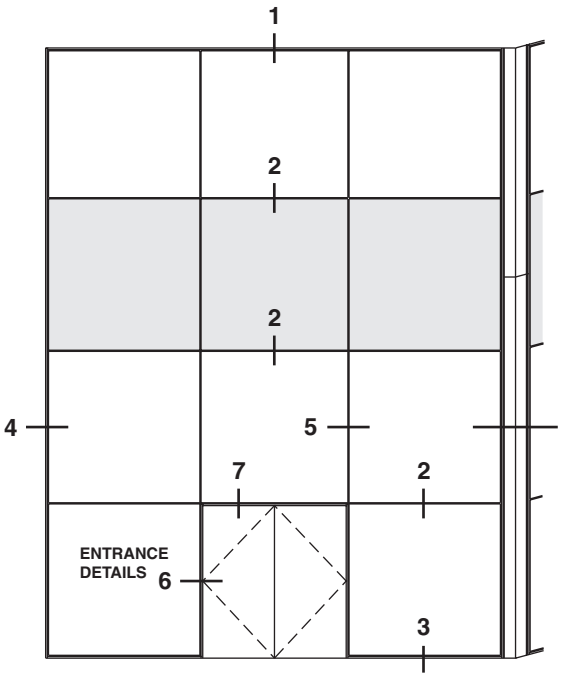
5
VERTICAL
INTERMEDIATE



6
DOOR JAMB
BUTT HUNG
OR
OFFSET PIVOT

Note: Viracon supplies the 1-1/8" insulating glass unit with recessed spacer.

SCALE 3" = 1'-0"



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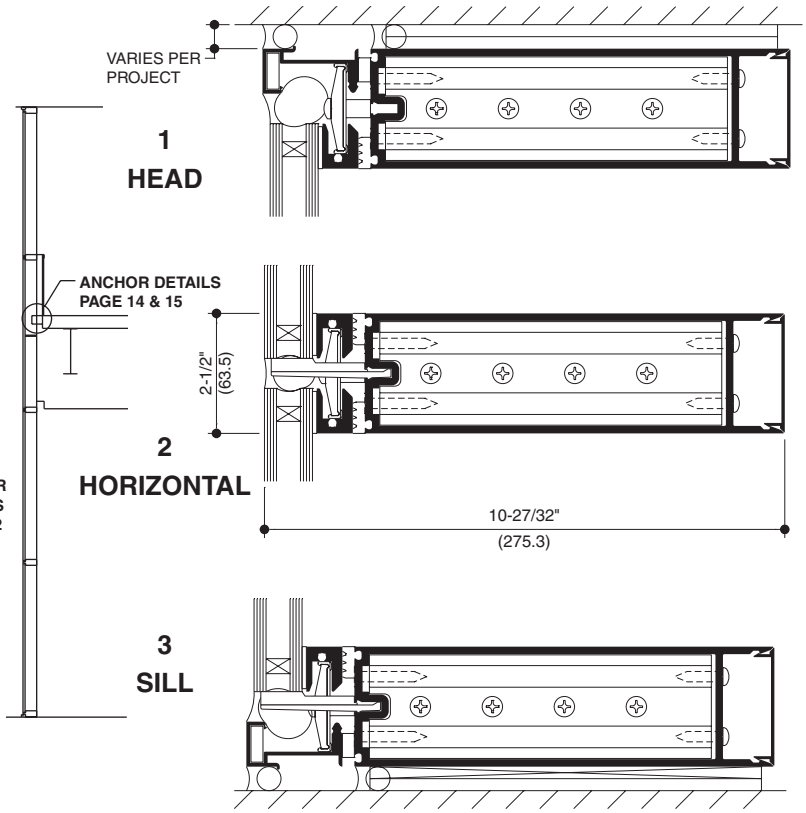
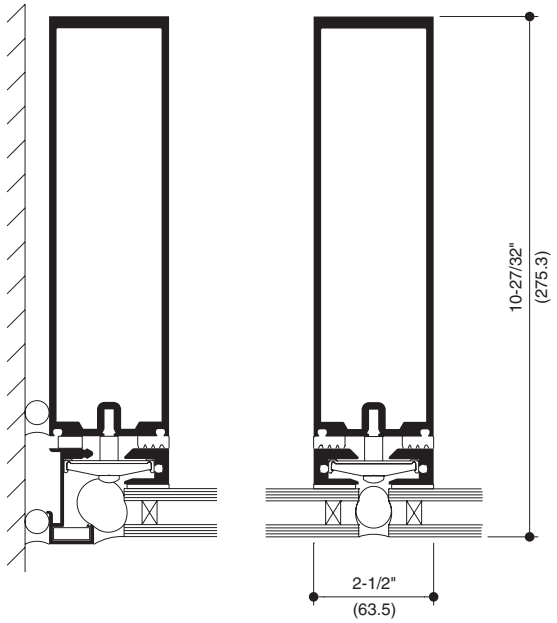
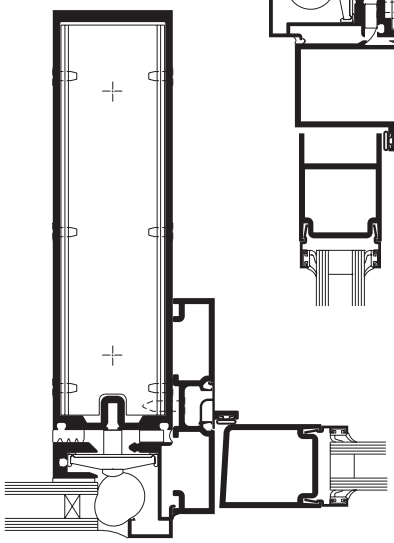


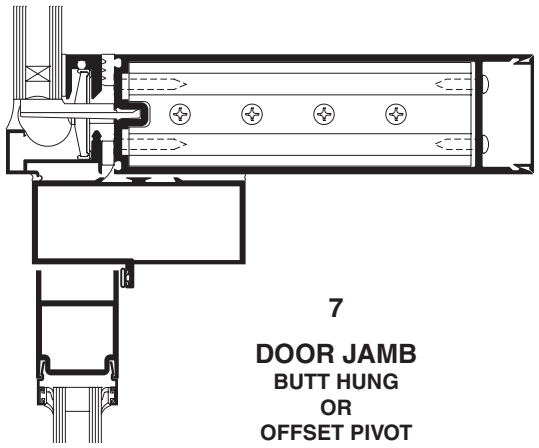


4
JAMB

5
VERTICAL INTERMEDIATE



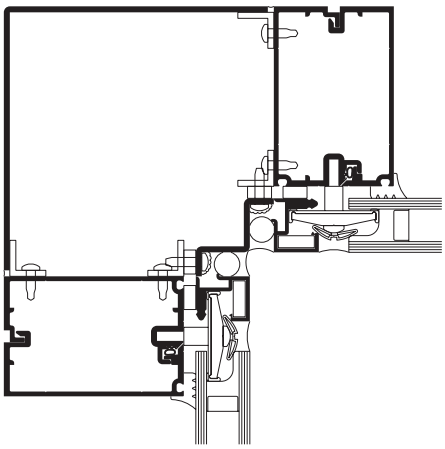
6
DOOR JAMB
BUTT HUNG
OR
OFFSET PIVOT



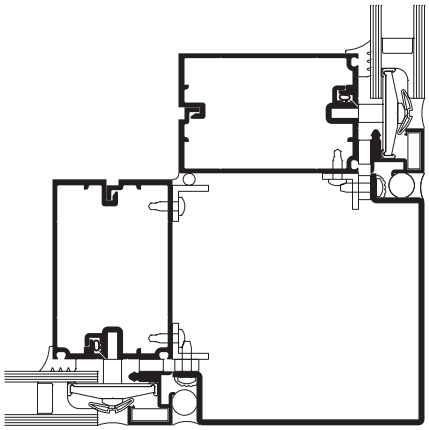
7
DOOR JAMB
BUTT HUNG
OR
OFFSET PIVOT

Note: Structural glazing tape (SGT) is 3M™ VHB™ B23F.

SCALE 3" = 1'-0"

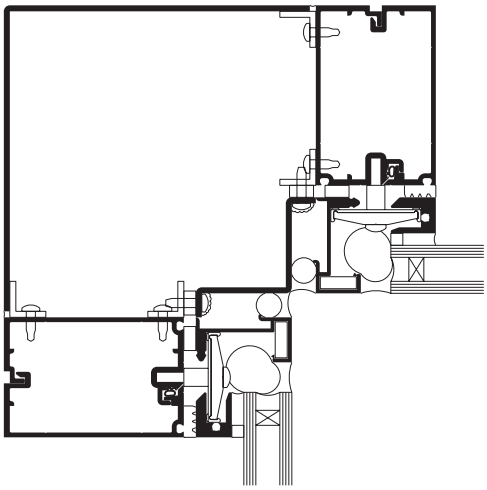


90° INSIDE (SS) CORNER

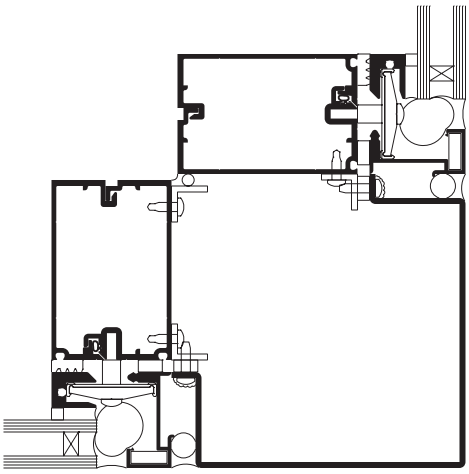


90° OUTSIDE (SS) CORNER

Note: 5-1/8" (130.2) System shown, 6-5/8" (168.3) System similar.

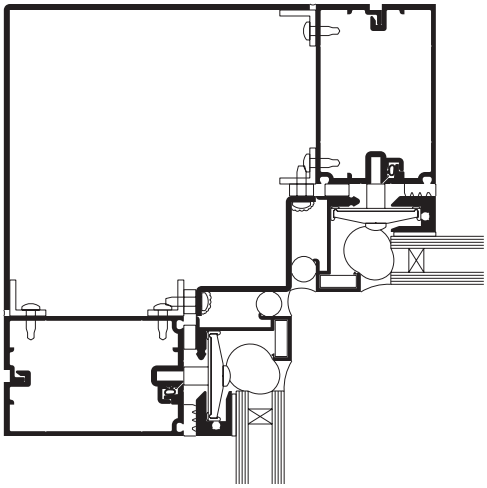


90° INSIDE (SSI) CORNER

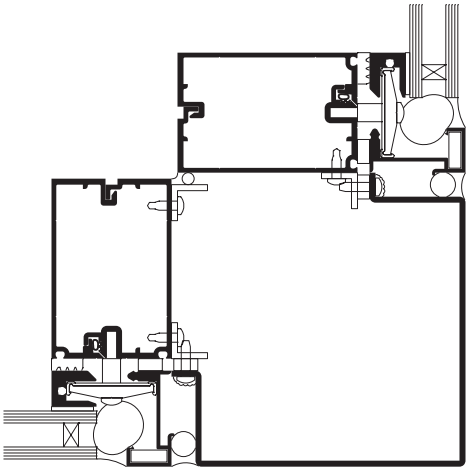


90° OUTSIDE (SSI) CORNER

Note: 6" (152.4) System shown, 7-1/2" (190.5) System similar.



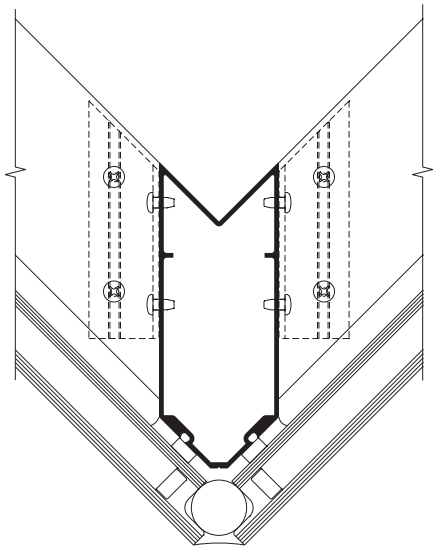
90° INSIDE (SSIT) CORNER



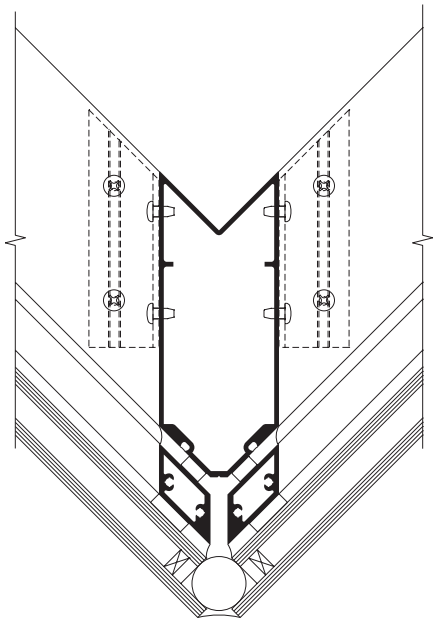
90° OUTSIDE (SSIT) CORNER

Note: 5-7/8" (149.2) System shown, 7-3/8" (187.3) System similar.

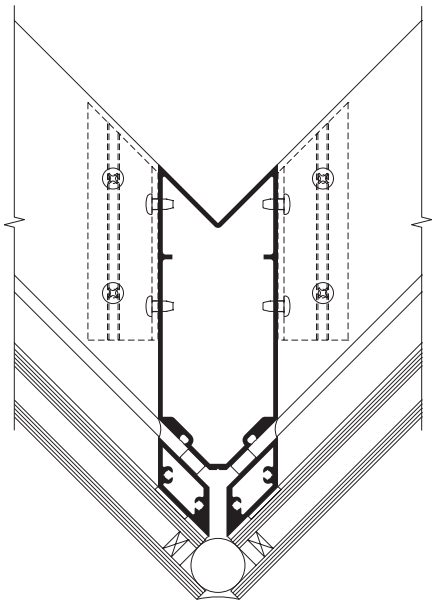
SCALE 3" = 1'-0"



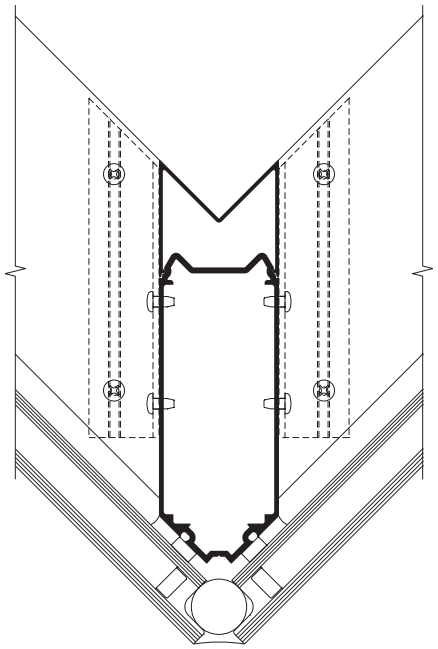
90° OUTSIDE (SS) CORNER
5-1/8" (130.2) System



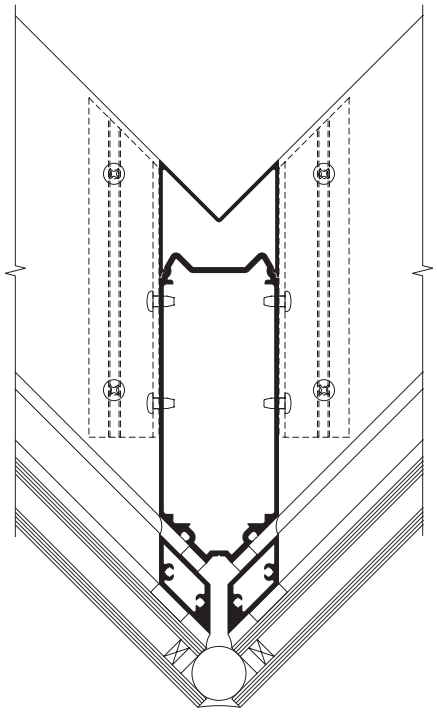
90° OUTSIDE (SSI) CORNER
6" (152.4) System



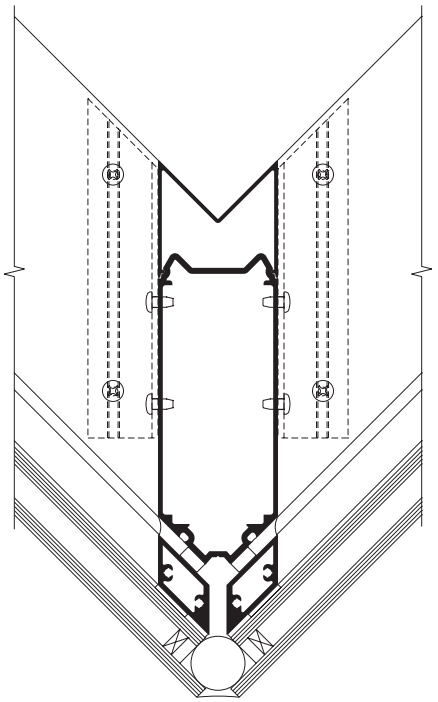
90° OUTSIDE (SSIT) CORNER
5-7/8" (149.2) System



90° OUTSIDE (SS) CORNER
6-5/8" (168.3) System

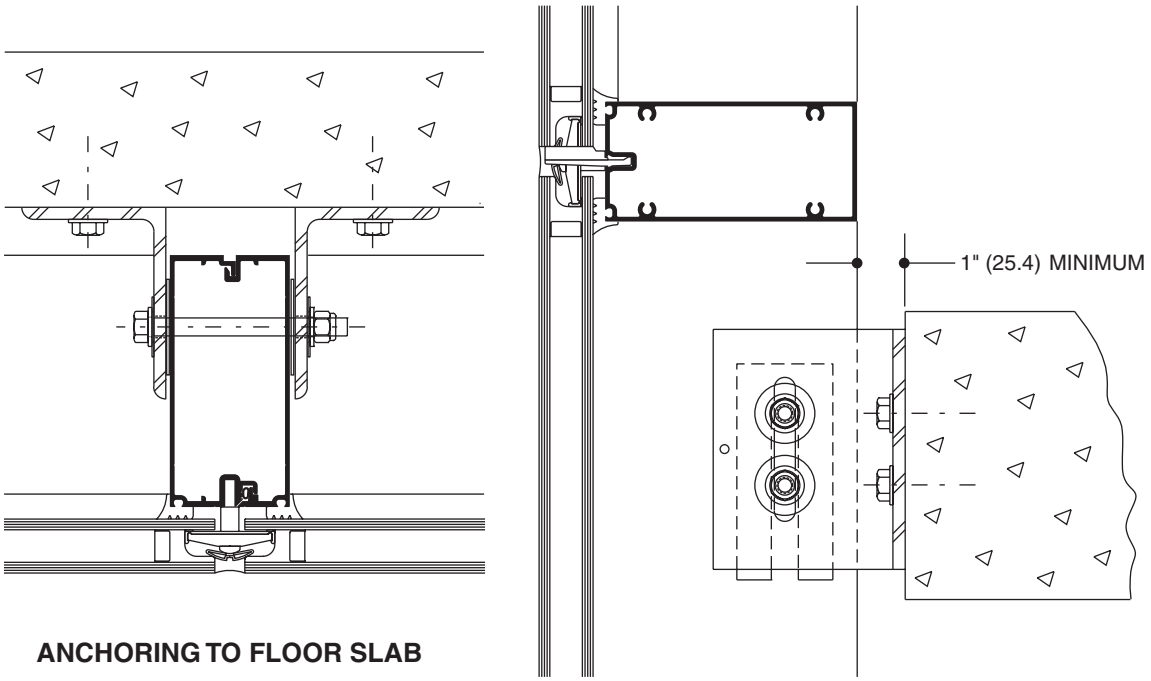


90° OUTSIDE (SSI) CORNER
7-1/2" (190.5) System

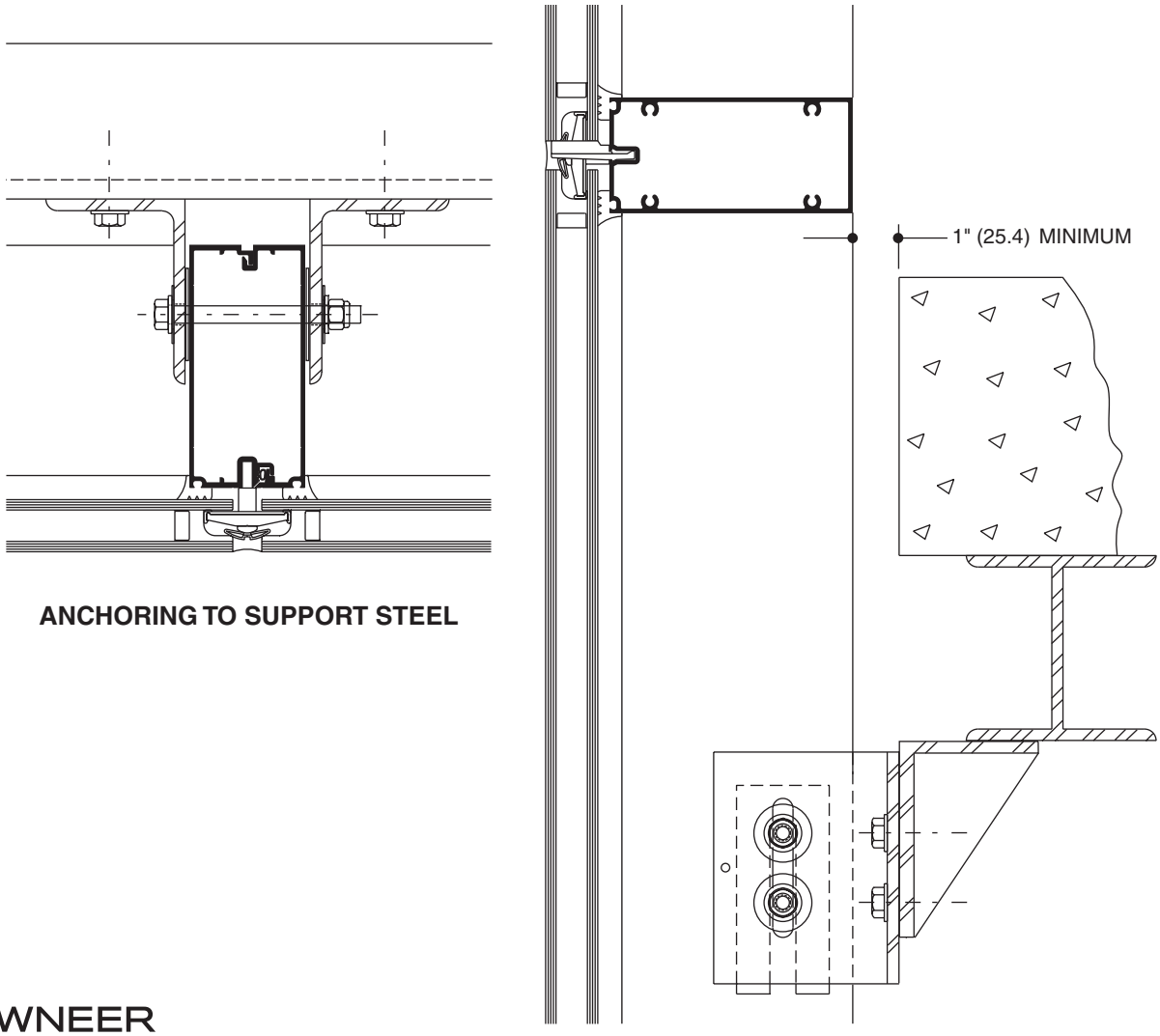


90° OUTSIDE (SSIT) CORNER
7-3/8" (187.3) System

Actual project conditions will determine specific anchor design. Details on this page are for reference only.
Note: Clearwall 6-5/8" Screw Spline (SS) system shown, other Clearwall systems are similar.

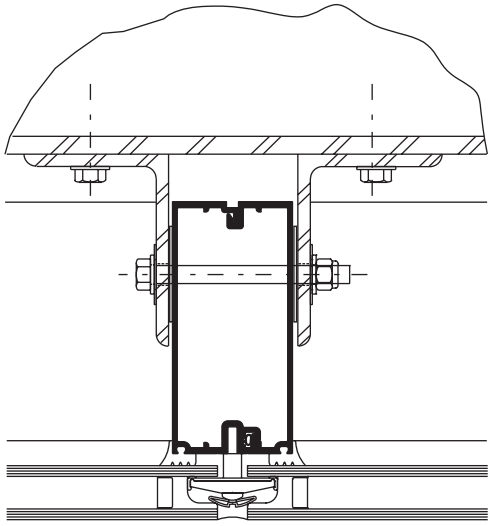


ANCHORING TO FLOOR SLAB

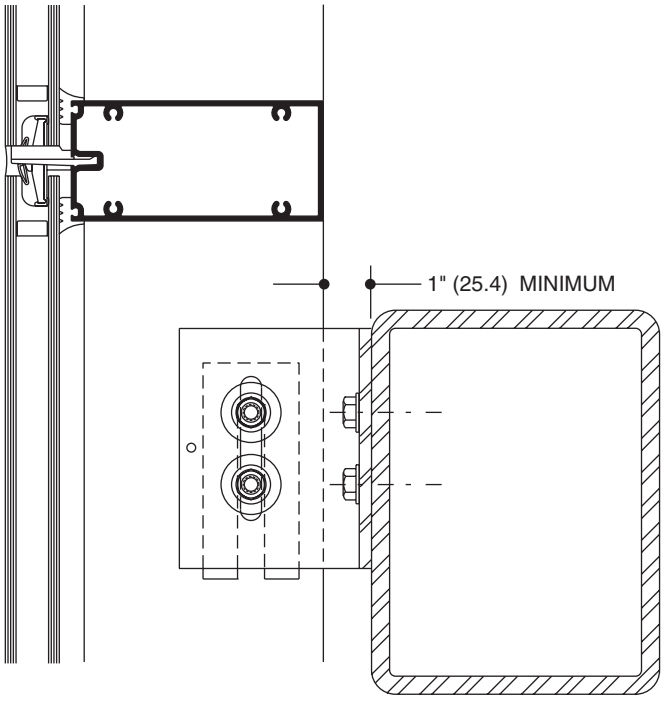


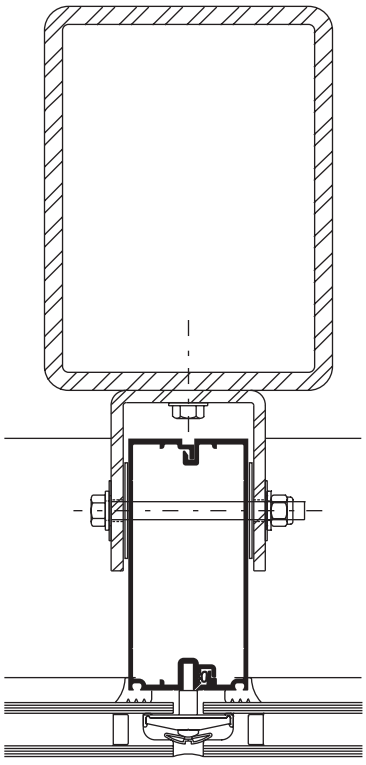
ANCHORING TO SUPPORT STEEL

Actual project conditions will determine specific anchor design. Details on this page are for reference only.
Note: Clearwall 6-5/8" Screw Spline (SS) system shown, other Clearwall systems are similar.

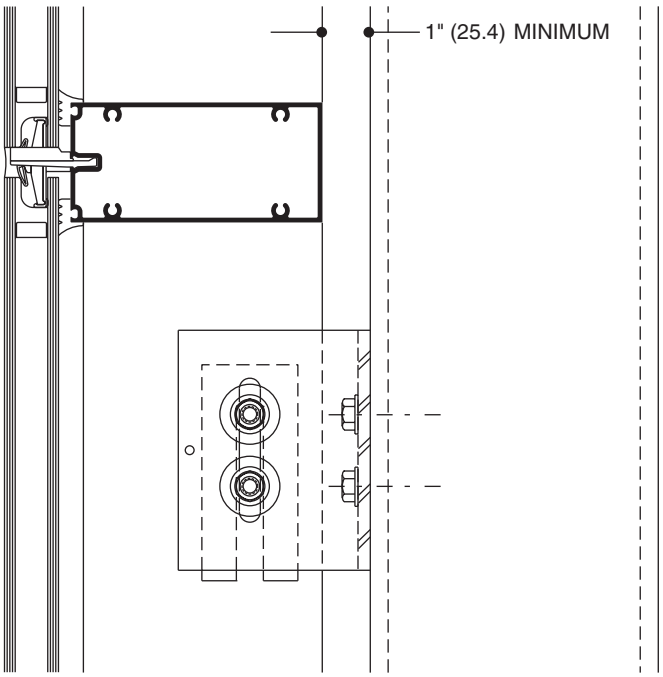


ANCHORING TO HORIZONTAL STRUCTURAL STEEL





ANCHORING TO VERTICAL STRUCTURAL STEEL



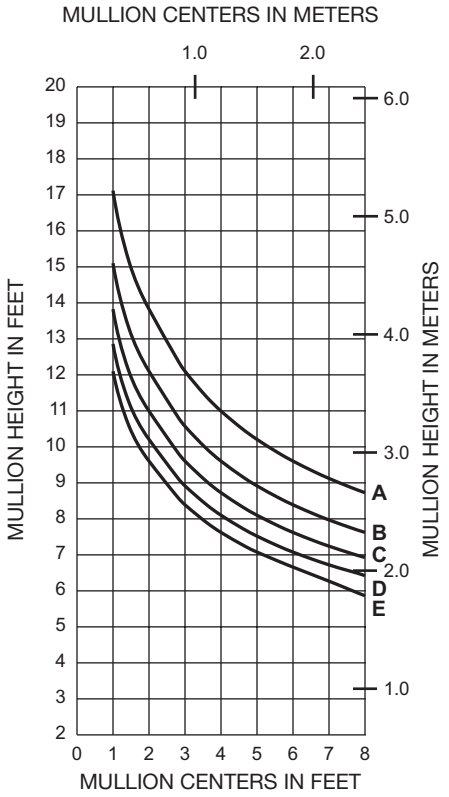
WIND LOAD CHARTS

Mullions are designed for deflection limitations in accordance with AAMA TIR-A11 of L/175 up to 13'-6" and L/240 +1/4" above 13'-6". These curves are for mullions WITH HORIZONTALS and are based on engineering calculations for stress and deflection. Allowable wind load stress for ALUMINUM 15,152 p.s.i. (104MPa). Charted curves, in all cases are for the limiting value. A 4/3 increase in allowable stress has not been used to develop these curves. For special situations not covered by these curves, contact your Kawneer representative for additional information.

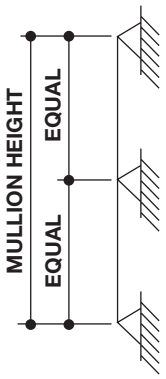
DEAD LOAD CHARTS

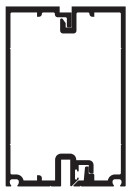
Horizontal or deadload limitations are based upon 1/8" (3.2), maximum allowable deflection at the center of an intermediate horizontal member. The accompanying charts are calculated for 1" (25.4) and 1-1/8" (28.6) thick insulating glass supported on two setting blocks placed at the loading points shown.

SINGLE SPAN



A = 20 PSF (960)
B = 30 PSF (1440)
C = 40 PSF (1920)
D = 50 PSF (2400)
E = 60 PSF (2880)

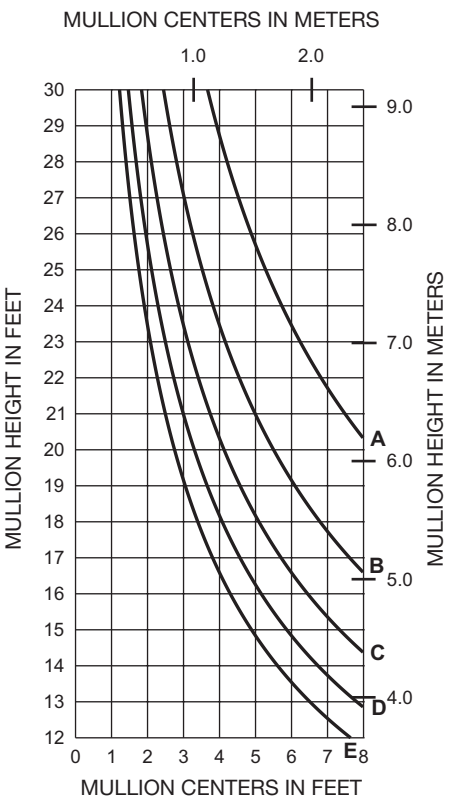




(SS) 172001 **(SS) 172002**

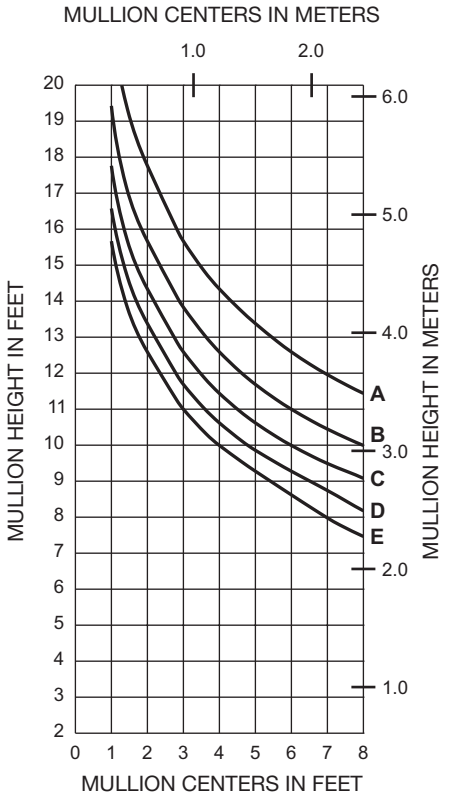
Combined I = 3.494 (145.43 x 10^4)
Combined S = 1.634 (26.78 x 10^3)

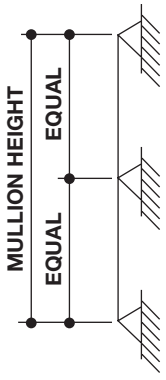
TWIN SPAN

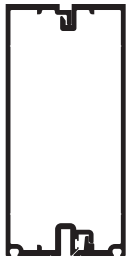


Note:
These curves are for 6" (152.4) on center toggles with 1-1/8" (28.6) glass.

SINGLE SPAN



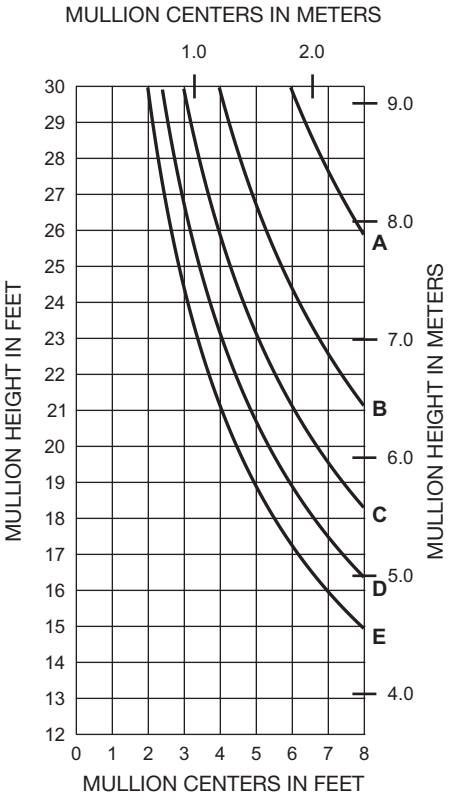




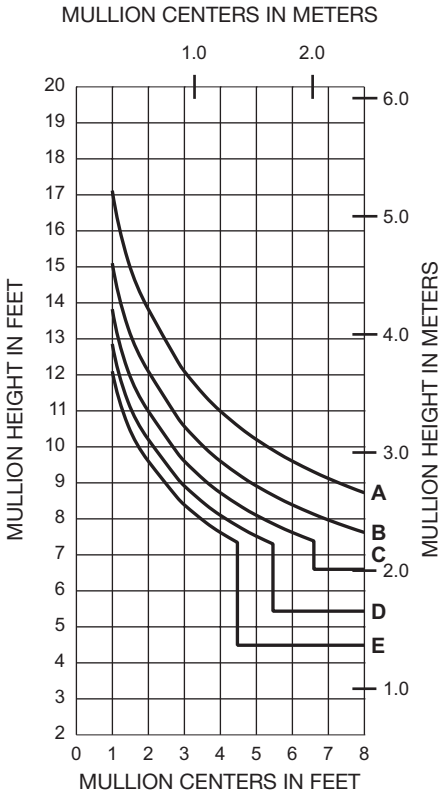
(SS) 172003 **(SS) 172004**

Combined I = 7.871 (327.61 x 10^4)
Combined S = 2.648 (43.39 x 10^3)

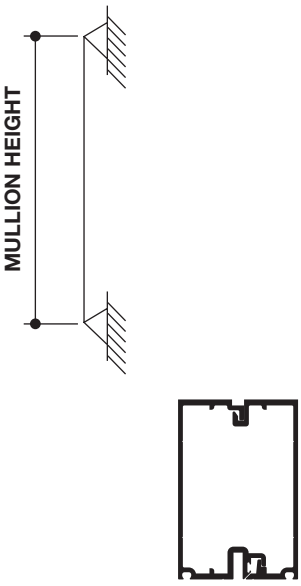
TWIN SPAN

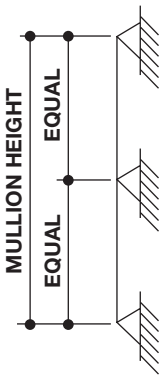


SINGLE SPAN



A = 20 PSF (960)
B = 30 PSF (1440)
C = 40 PSF (1920)
D = 50 PSF (2400)
E = 60 PSF (2880)

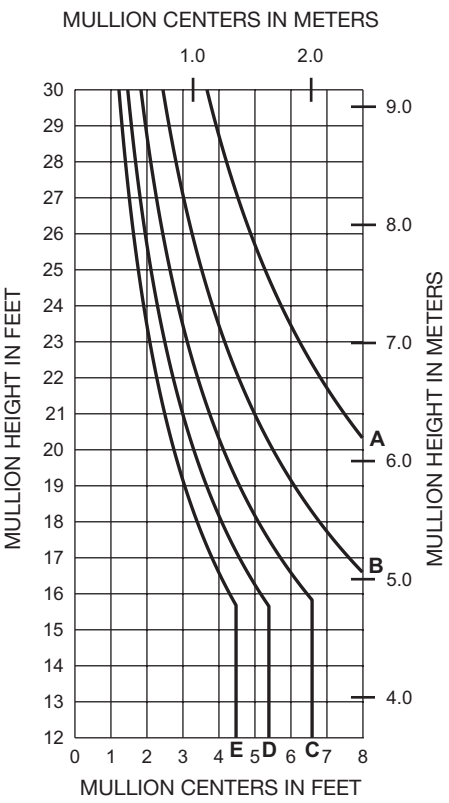




(SS) 172001 **(SS) 172002**

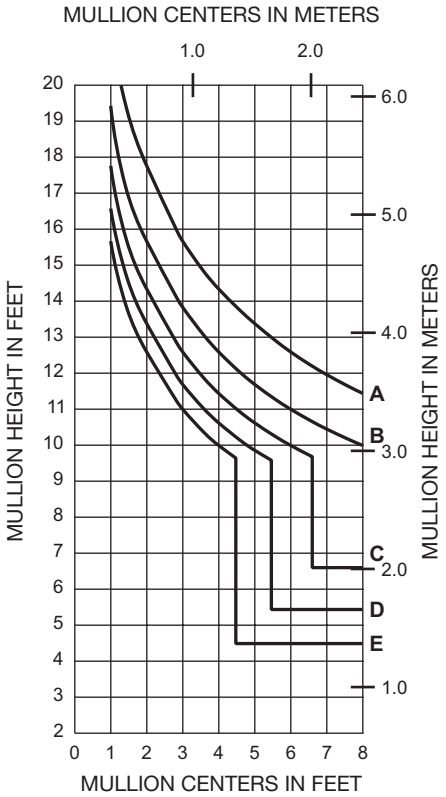
Combined I = 3.494 (145.43 x 10^4)
Combined S = 1.634 (26.78 x 10^3)

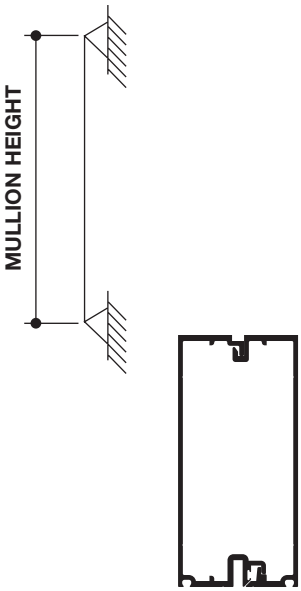
TWIN SPAN

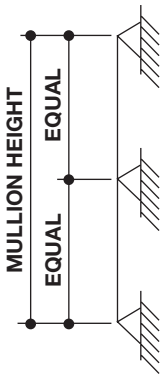


Note:
These curves are for 9" (228.6) on center toggles with 1-1/8" (28.6) glass.

SINGLE SPAN



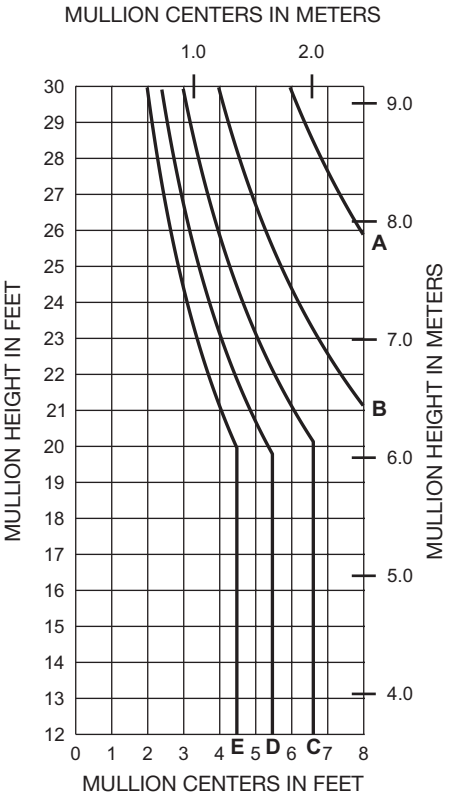




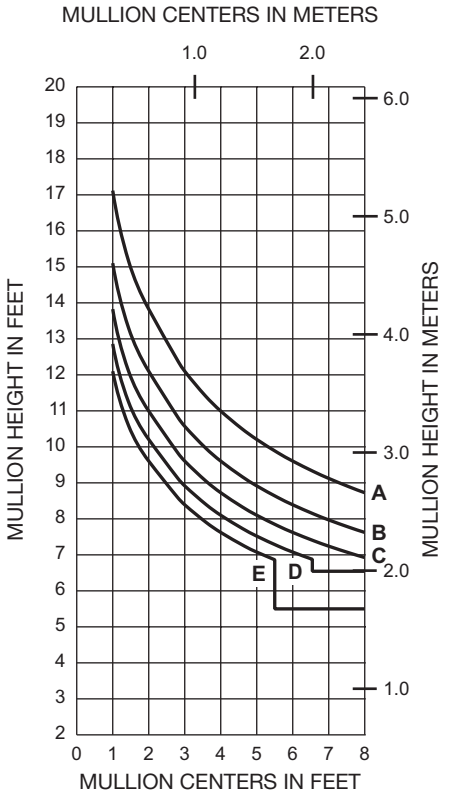
(SS) 172003 **(SS) 172004**

Combined I = 7.871 (327.61 x 10^4)
Combined S = 2.648 (43.39 x 10^3)

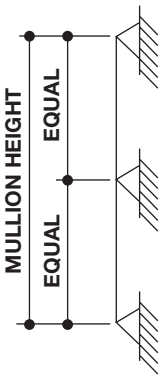
TWIN SPAN

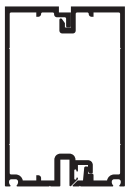


SINGLE SPAN



A = 20 PSF (960)
B = 30 PSF (1440)
C = 40 PSF (1920)
D = 50 PSF (2400)
E = 60 PSF (2880)

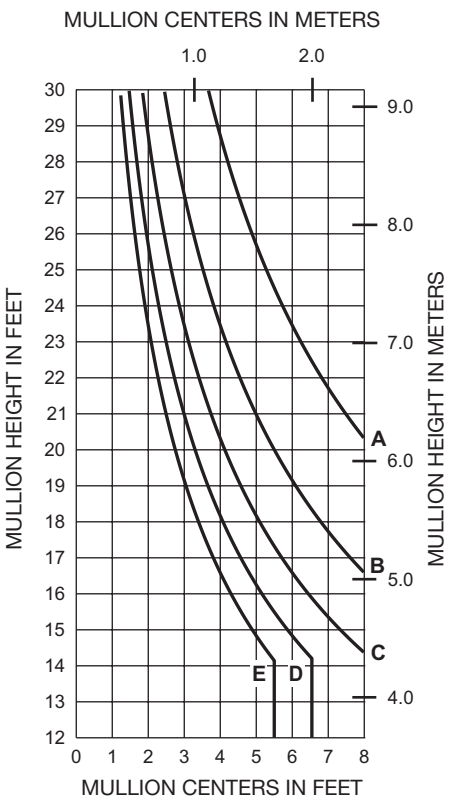




(SSI) 172001 (SSI) 172002

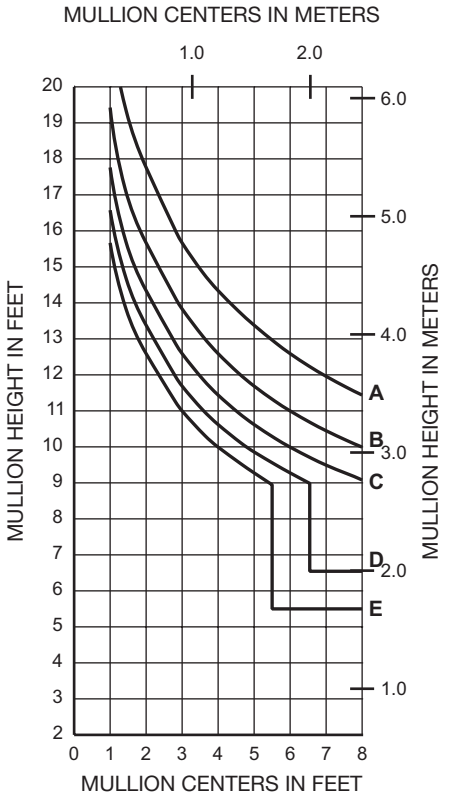
Combined I = 3.494 (145.43 x 10^4)
Combined S = 1.634 (26.78 x 10^3)

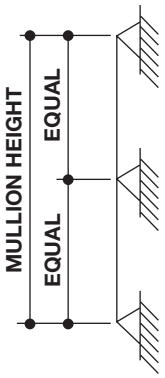
TWIN SPAN

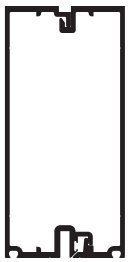


Note:
These curves are for 9" (228.6) on center toggles with 1" (25.4) glass.

SINGLE SPAN



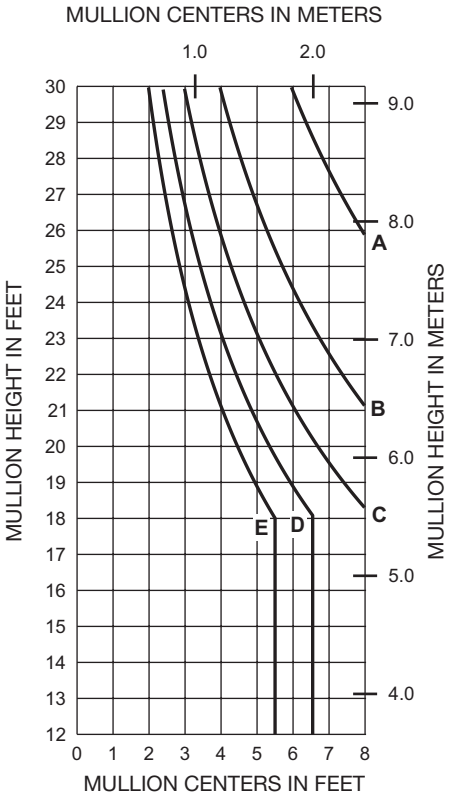




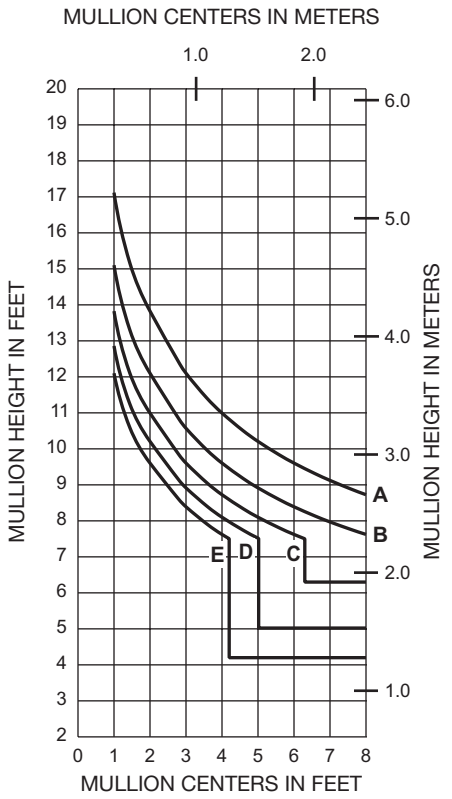
(SSI) 172003 (SSI) 172004

Combined I = 7.871 (327.61 x 10^4)
Combined S = 2.648 (43.39 x 10^3)

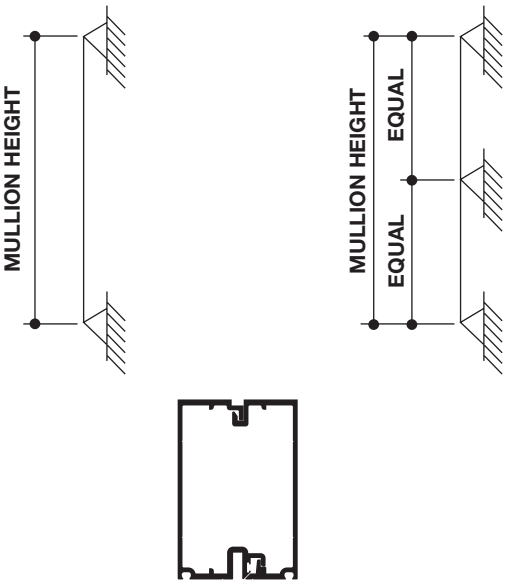
TWIN SPAN



SINGLE SPAN



A = 20 PSF (960)
B = 30 PSF (1440)
C = 40 PSF (1920)
D = 50 PSF (2400)
E = 60 PSF (2880)

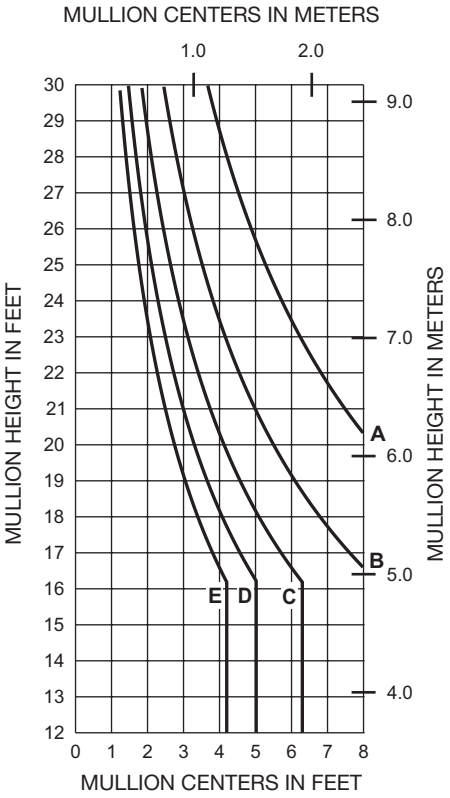


(SSIT) 172001 **(SSIT) 172002**

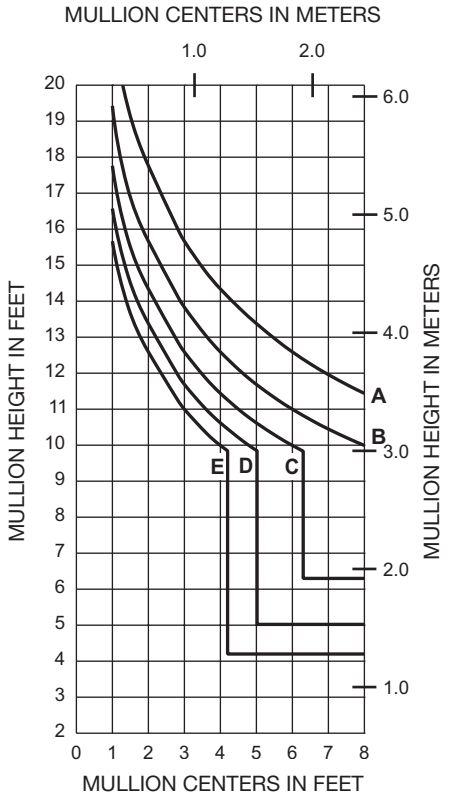
Combined I = 3.494 (145.43 x 10^4)
Combined S = 1.634 (26.78 x 10^3)

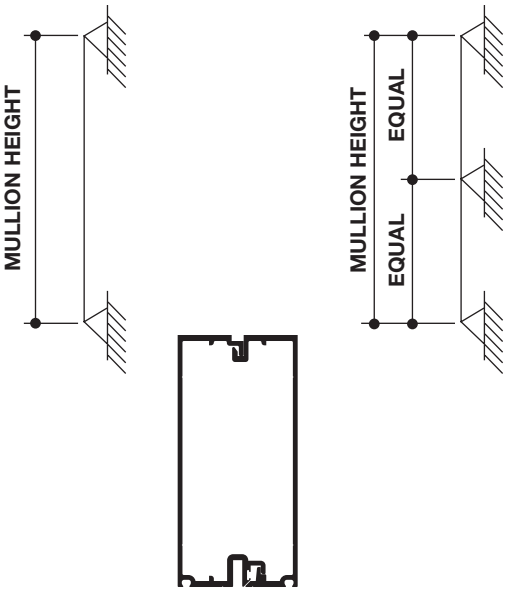
Note:
These curves are for 9" (228.6) on center toggles with 1" (25.4) glass.

TWIN SPAN



SINGLE SPAN

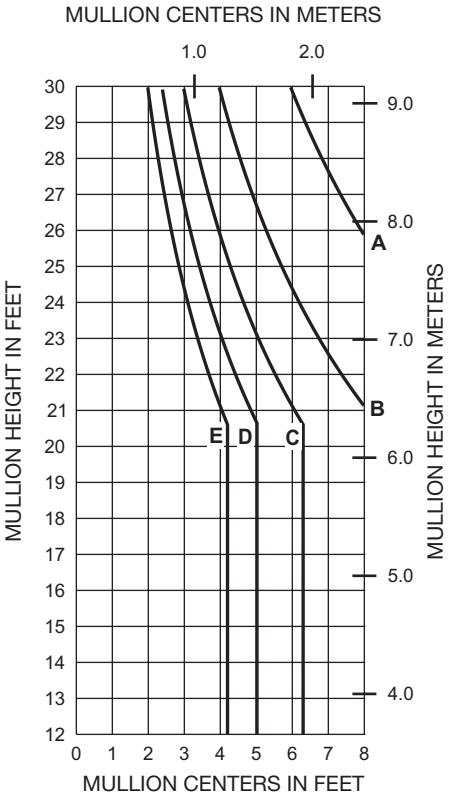




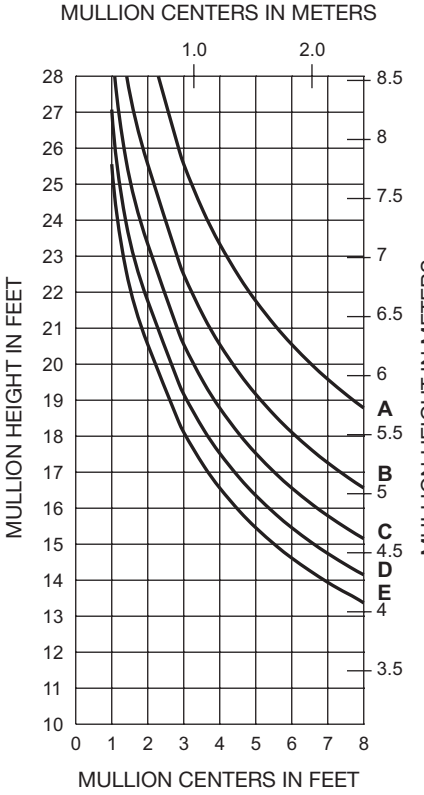
(SSIT) 172003 **(SSIT) 172004**

Combined I = 7.871 (327.61 x 10^4)
Combined S = 2.648 (43.39 x 10^3)

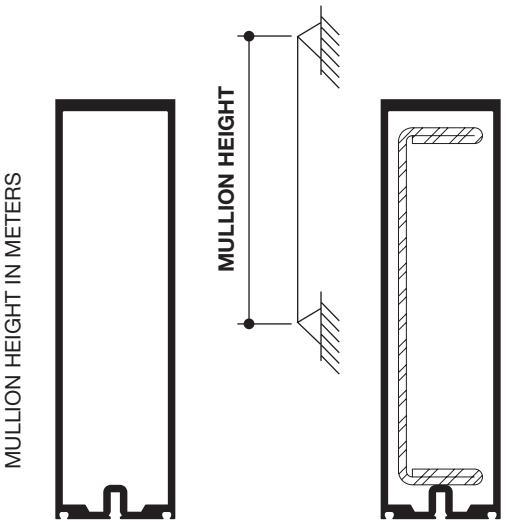
TWIN SPAN



SINGLE SPAN



A = 20 PSF (960)
B = 30 PSF (1440)
C = 40 PSF (1920)
D = 50 PSF (2400)
E = 60 PSF (2880)



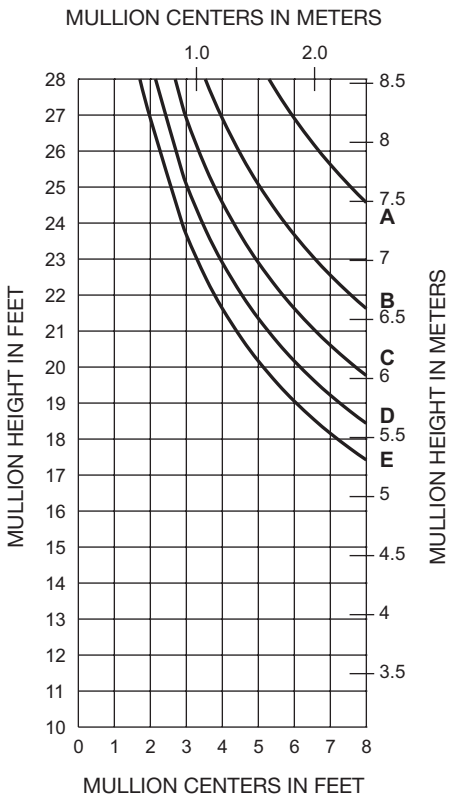
(SB) 172023

I = 37.690 (1568.77 x 10^4)
S = 8.525 (139.70 x 10^3)

(SB) 172023
W/162-363

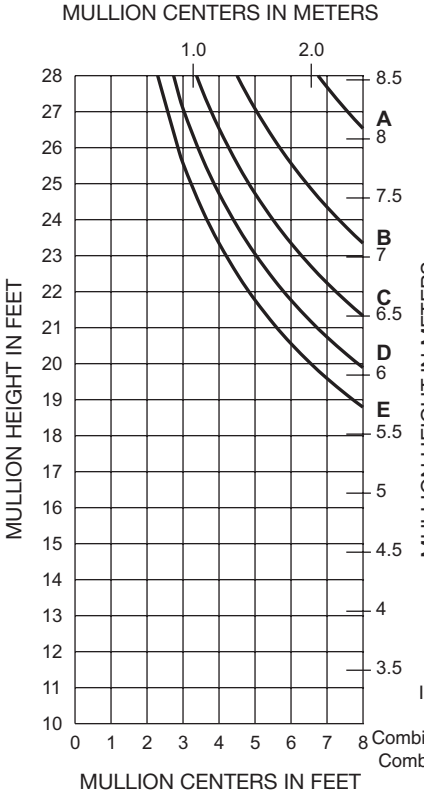
Ia = 37.690 (1568.77 x 10^4)
Sa = 8.525 (139.70 x 10^3)
Is = 17.600 (732.56 x 10^4)
Ss = 4.732 (77.54 x 10^3)

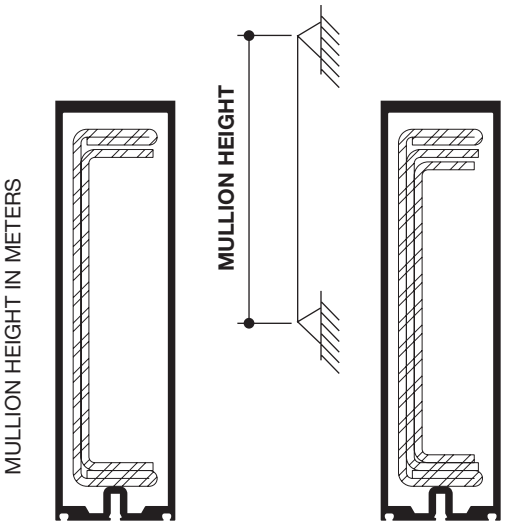
SINGLE SPAN



Note:
These curves are for 6" (152.4) on center toggles with 1-1/8" (28.6) glass.

SINGLE SPAN





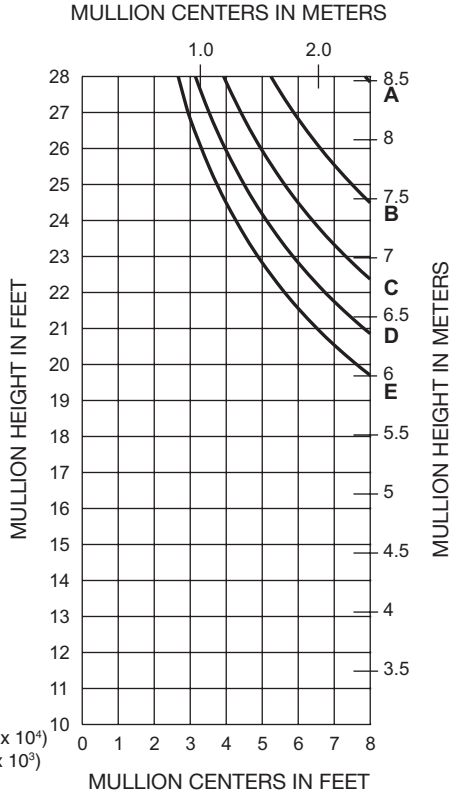
(SB) 172023
W/162-363/364

Ia = 37.690 (1568.77 x 10^4)
Sa = 8.525 (139.70 x 10^3)
Combined Is = 26.033 (1083.57 x 10^4)
Combined Ss = 7.000 (114.71 x 10^3)

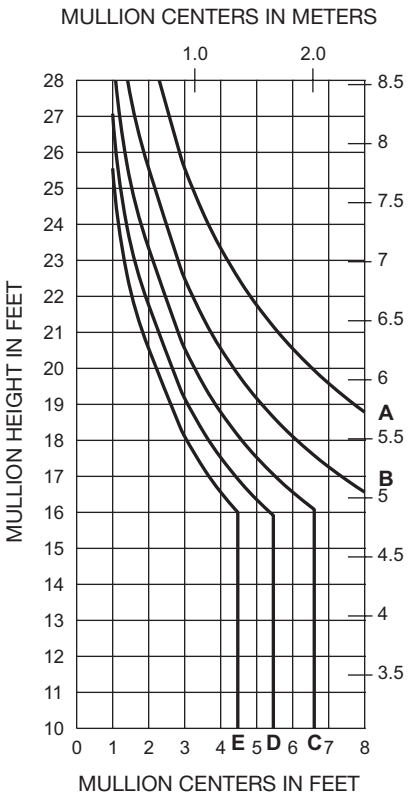
(SB) 172023
W/162-363/364/365

Ia = 37.690 (1568.77 x 10^4)
Sa = 8.525 (139.70 x 10^3)
Combined Is = 32.432 (1349.92 x 10^4)
Combined Ss = 8.721 (142.91 x 10^3)

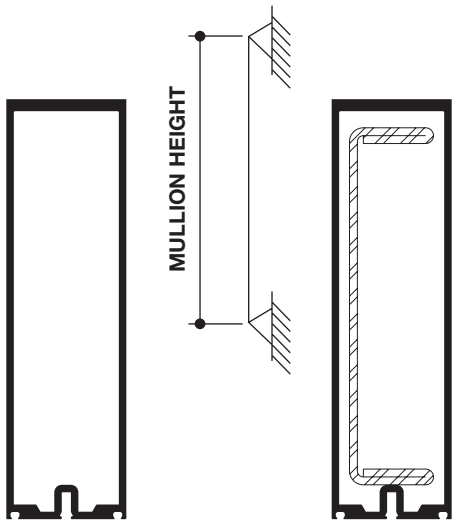
SINGLE SPAN



SINGLE SPAN



A = 20 PSF (960)
B = 30 PSF (1440)
C = 40 PSF (1920)
D = 50 PSF (2400)
E = 60 PSF (2880)



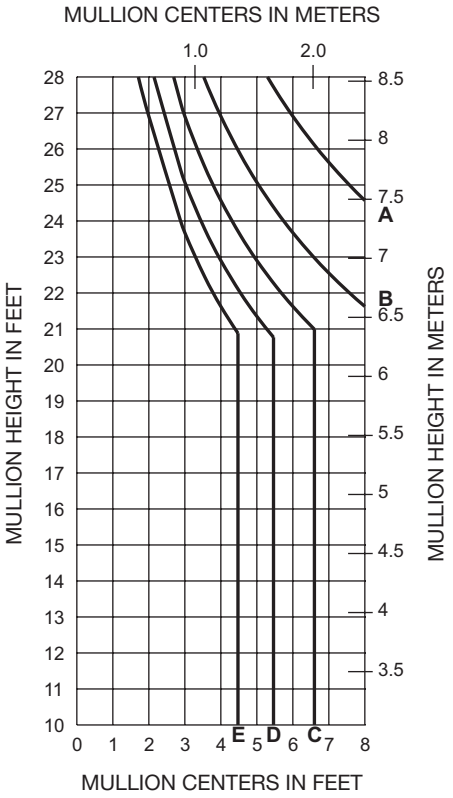
(SB) 172023

I = 37.690 (1568.77 x 10^4)
S = 8.525 (139.70 x 10^3)

(SB) 172023
W/162-363

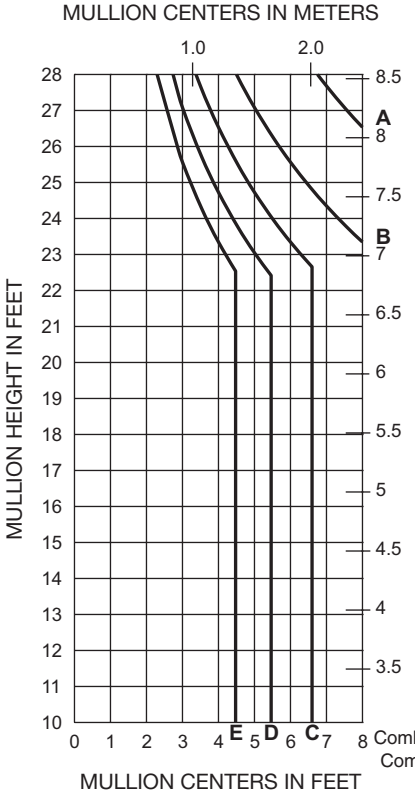
Ia = 37.690 (1568.77 x 10^4)
Sa = 8.525 (139.70 x 10^3)
Is = 17.600 (732.56 x 10^4)
Ss = 4.732 (77.54 x 10^3)

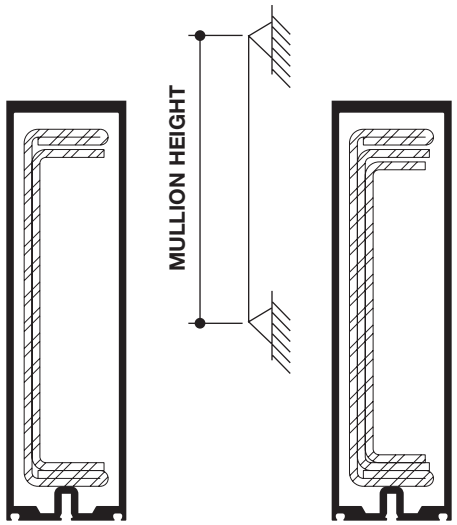
SINGLE SPAN



Note:
These curves are for 9" (228.6) on center toggles with 1-1/8" (28.6) glass.

SINGLE SPAN





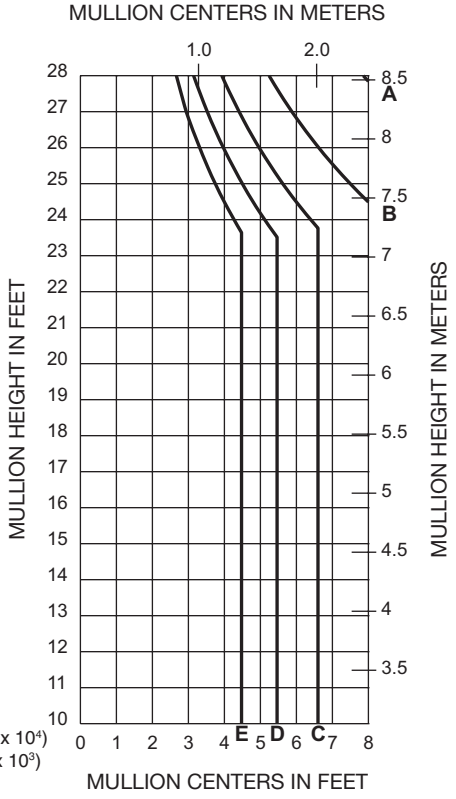
(SB) 172023
W/162-363/364

Ia = 37.690 (1568.77 x 10^4)
Sa = 8.525 (139.70 x 10^3)
Combined Is = 26.033 (1083.57 x 10^4)
Combined Ss = 7.000 (114.71 x 10^3)

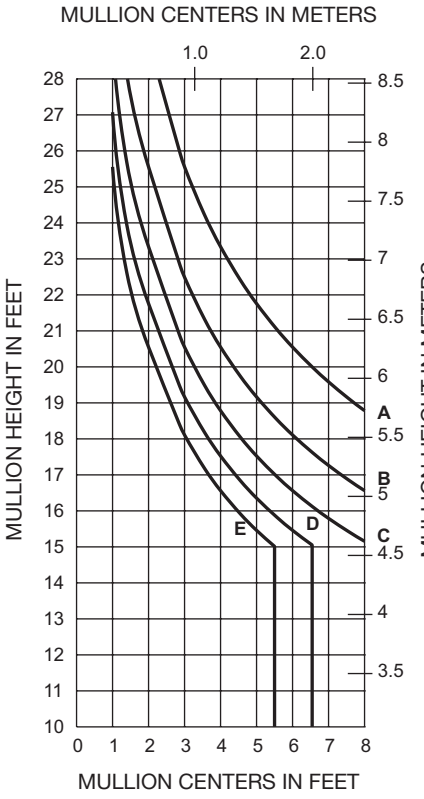
(SB) 172023
W/162-363/364/365

Ia = 37.690 (1568.77 x 10^4)
Sa = 8.525 (139.70 x 10^3)
Combined Is = 32.432 (1349.92 x 10^4)
Combined Ss = 8.721 (142.91 x 10^3)

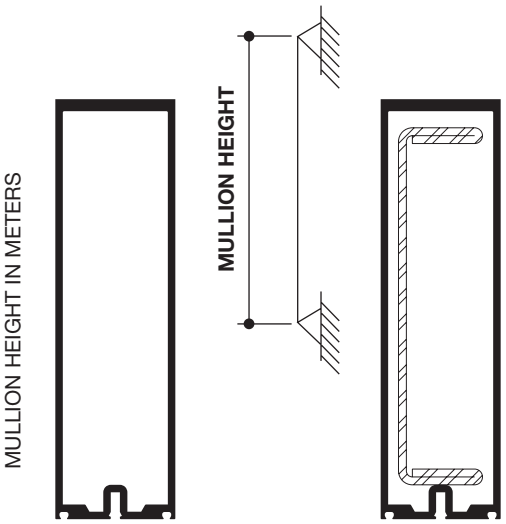
SINGLE SPAN



SINGLE SPAN



A = 20 PSF (960)
B = 30 PSF (1440)
C = 40 PSF (1920)
D = 50 PSF (2400)
E = 60 PSF (2880)



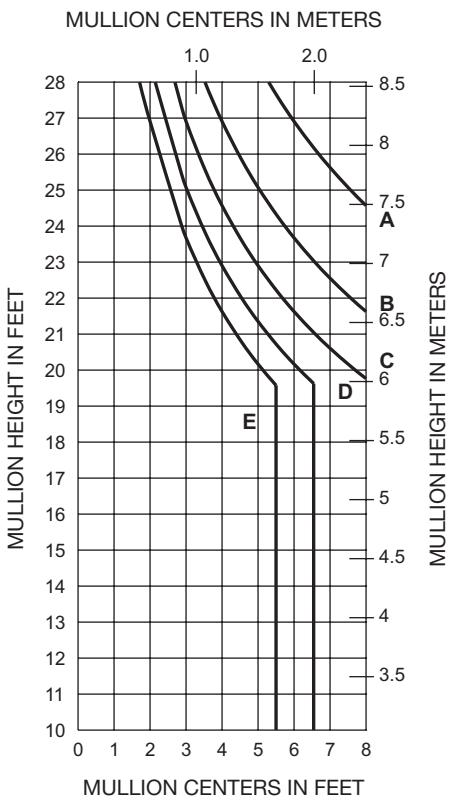
(SBI) 172023

I = 37.690 (1568.77 x 10^4)
S = 8.525 (139.70 x 10^3)

(SBI) 172023
W/162-363

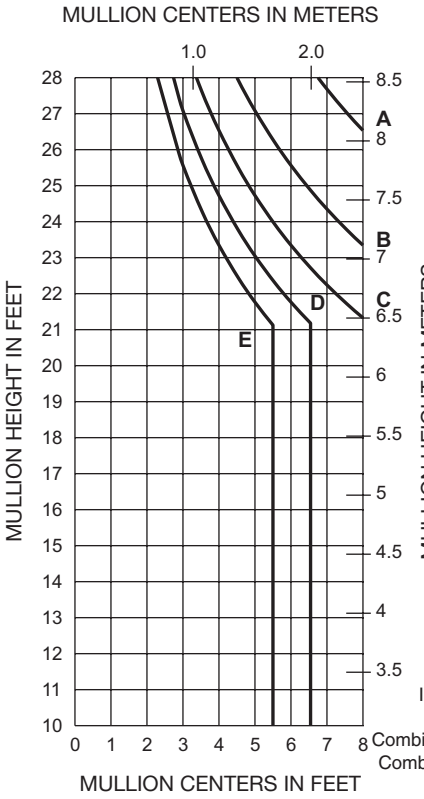
Ia = 37.690 (1568.77 x 10^4)
Sa = 8.525 (139.70 x 10^3)
Is = 17.600 (732.56 x 10^4)
Ss = 4.732 (77.54 x 10^3)

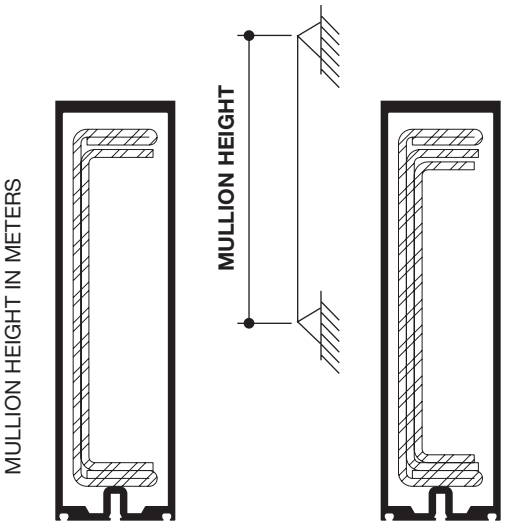
SINGLE SPAN



Note:
These curves are for 9" (228.6) on center toggles with 1" (25.4) glass.

SINGLE SPAN





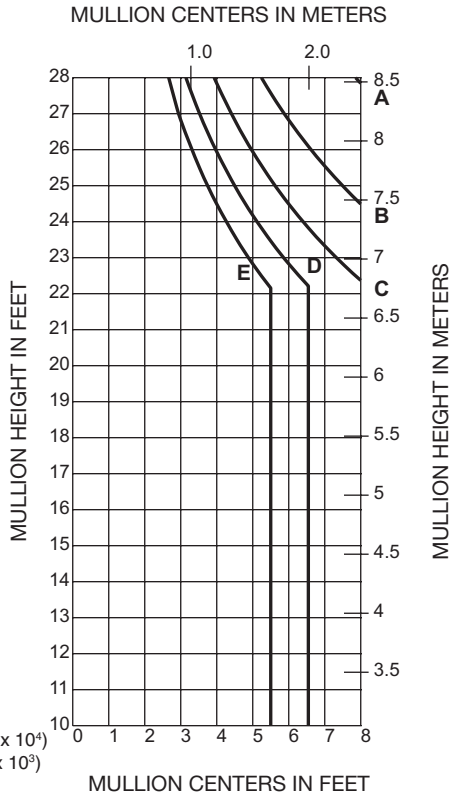
(SBI) 172023
W/162-363/364

Ia = 37.690 (1568.77 x 10^4)
Sa = 8.525 (139.70 x 10^3)
Combined Is = 26.033 (1083.57 x 10^4)
Combined Ss = 7.000 (114.71 x 10^3)

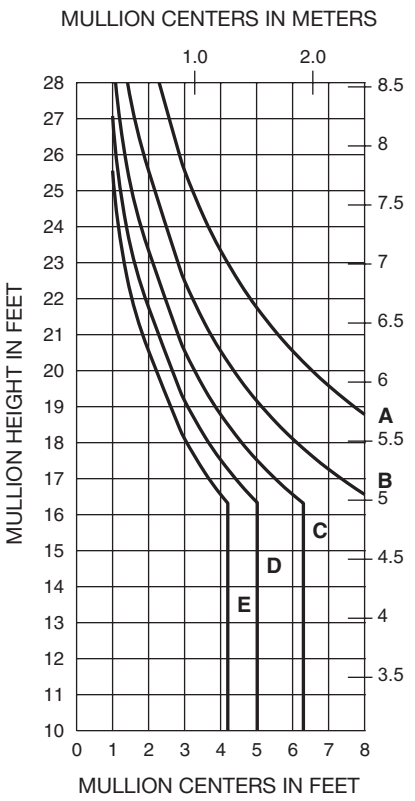
(SBI) 172023
W/162-363/364/365

Ia = 37.690 (1568.77 x 10^4)
Sa = 8.525 (139.70 x 10^3)
Combined Is = 32.432 (1349.92 x 10^4)
Combined Ss = 8.721 (142.91 x 10^3)

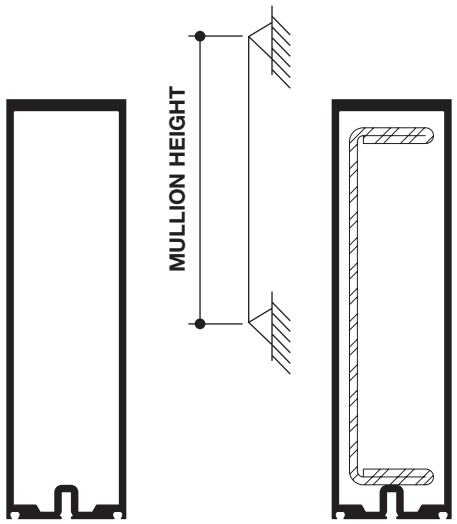
SINGLE SPAN



SINGLE SPAN



A = 20 PSF (960)
B = 30 PSF (1440)
C = 40 PSF (1920)
D = 50 PSF (2400)
E = 60 PSF (2880)



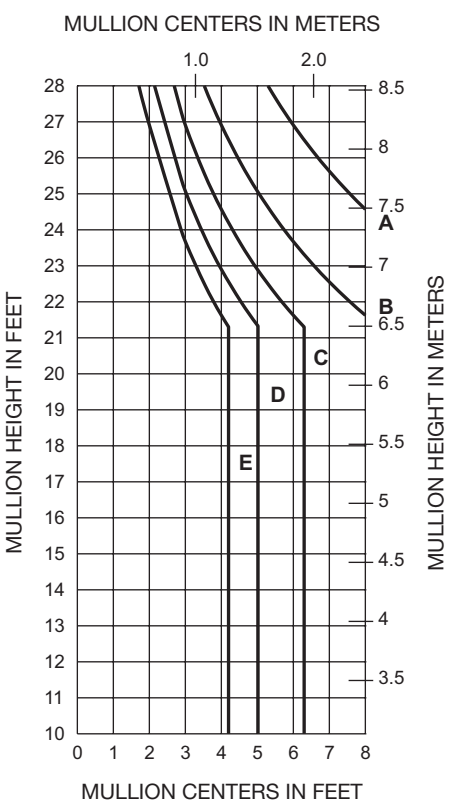
(SBIT) 172023

I = 37.690 (1568.77 x 10^4)
S = 8.525 (139.70 x 10^3)

(SBIT) 172023
W/162-363

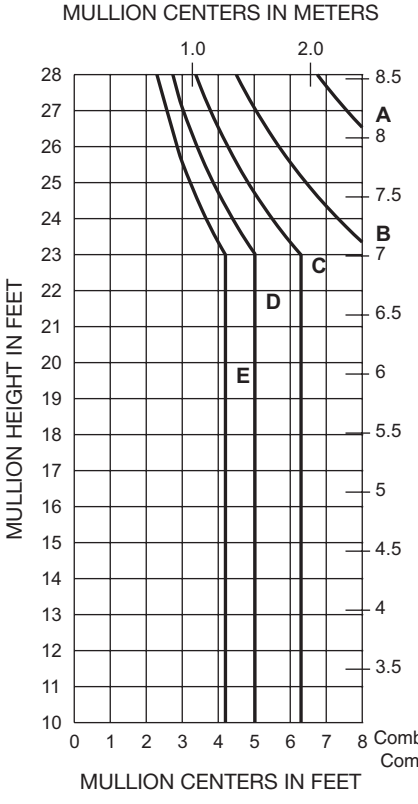
Ia = 37.690 (1568.77 x 10^4)
Sa = 8.525 (139.70 x 10^3)
Is = 17.600 (732.56 x 10^4)
Ss = 4.732 (77.54 x 10^3)

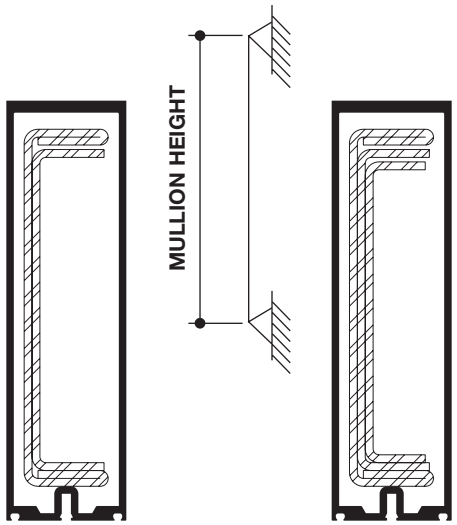
SINGLE SPAN



Note:
These curves are for 9" (228.6) on center toggles with 1" (25.4) glass.

SINGLE SPAN





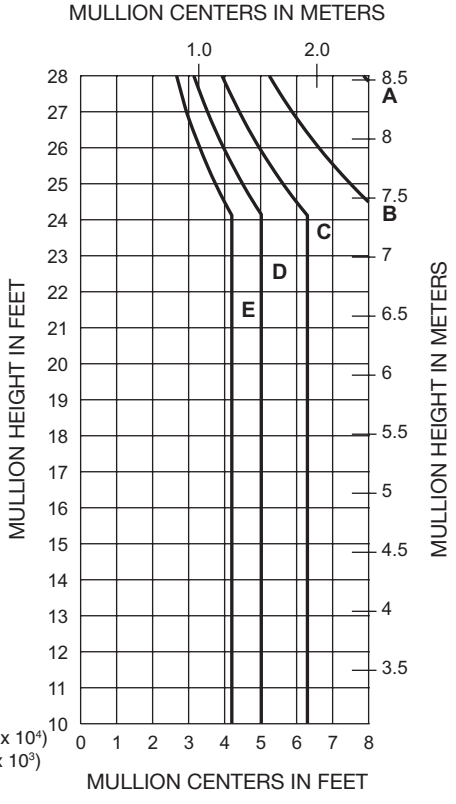
(SBIT) 172023
W/162-363/364

Ia = 37.690 (1568.77 x 10^4)
Sa = 8.525 (139.70 x 10^3)
Combined Is = 26.033 (1083.57 x 10^4)
Combined Ss = 7.000 (114.71 x 10^3)

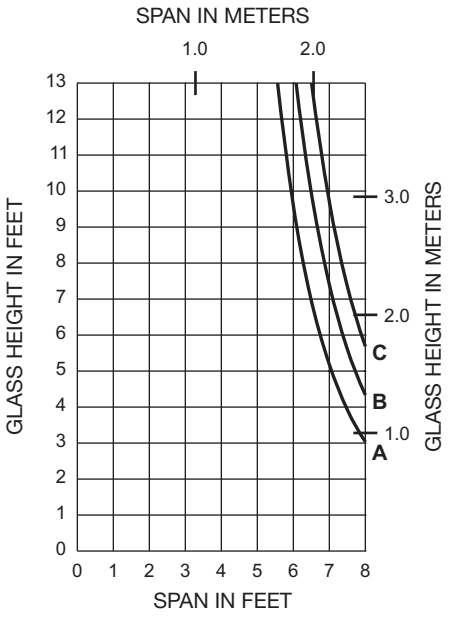
(SBIT) 172023
W/162-363/364/365

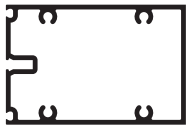
Ia = 37.690 (1568.77 x 10^4)
Sa = 8.525 (139.70 x 10^3)
Combined Is = 32.432 (1349.92 x 10^4)
Combined Ss = 8.721 (142.91 x 10^3)

SINGLE SPAN



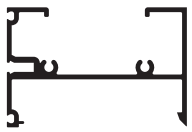
(1" or 1-1/8" INFILL)





172-007

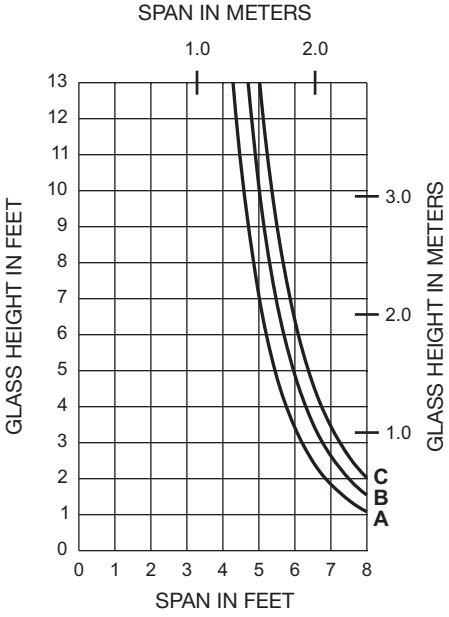
I = 1.621 (67.47 x 10^4)
S = 1.281 (20.99 x 10^3)



172-008

I = 0.570 (23.73 x 10^4)
S = 0.428 (7.02 x 10^3)

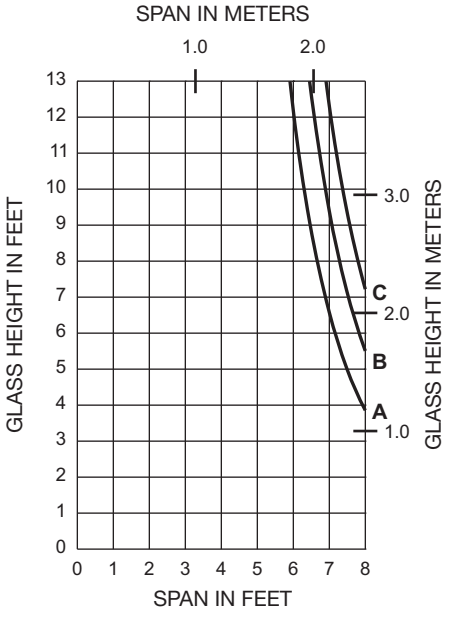
(1" or 1-1/8" INFILL)



GLASS TYPE AND LOADING:

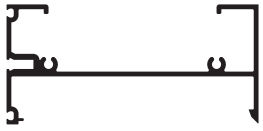
A = 1" OR 1 1/8" GLASS - 1/4 POINT LOADING
B = 1" OR 1 1/8" GLASS - 1/6 POINT LOADING
C = 1" OR 1 1/8" GLASS - 1/8 POINT LOADING

(1" or 1-1/8" INFILL)



172-009

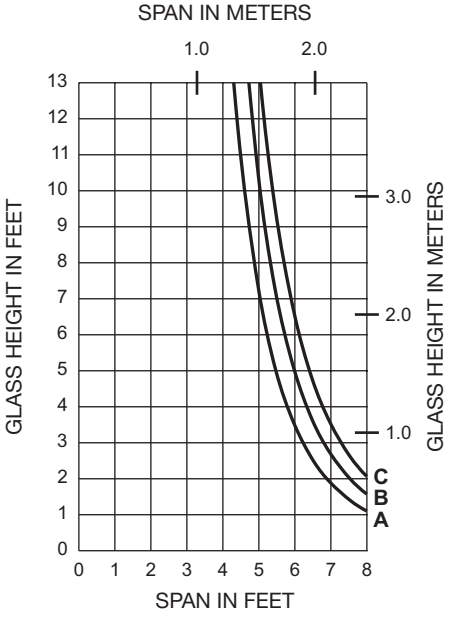
I = 2.033 (84.62 x 10^4)
S = 1.627 (26.66 x 10^3)



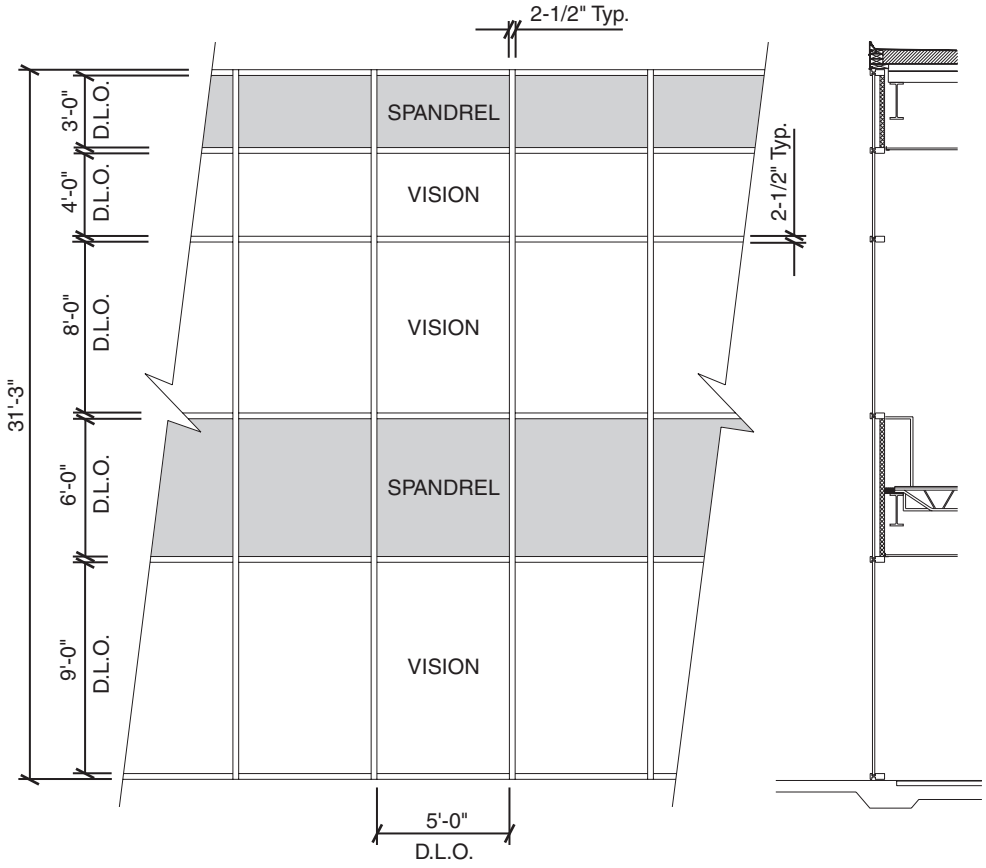
172-010

I = 0.581 (24.18 x 10^4)
S = 0.446 (7.31 x 10^3)

(1" or 1-1/8" INFILL)



Project Specific U-factor
Example Calculation
(Based on single bay of Curtain Wall/Window Wall)



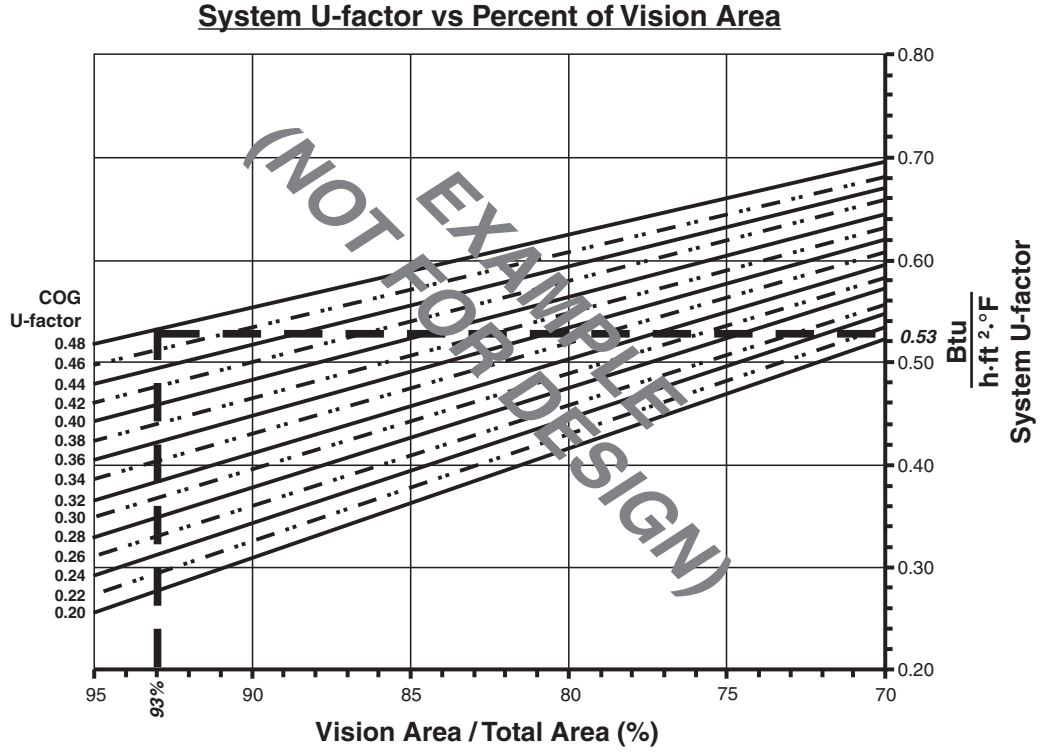
Vision Area

Example Glass U-factor	= 0.48 Btu/(ft² · h · °F)
Vision Area	= 5(9 + 8 + 4) = 105.0 ft²
Total Area (Vision)	= 5' 2-1/2" (9' 3-3/4" + 8' 2-1/2" + 4' 2-1/2") = 113.2 ft²
Percentage of Vision Glass	= (Vision Area ÷ Total Area)100 = (105.0 ÷ 113.2)100 = 93%

Spandrel Area

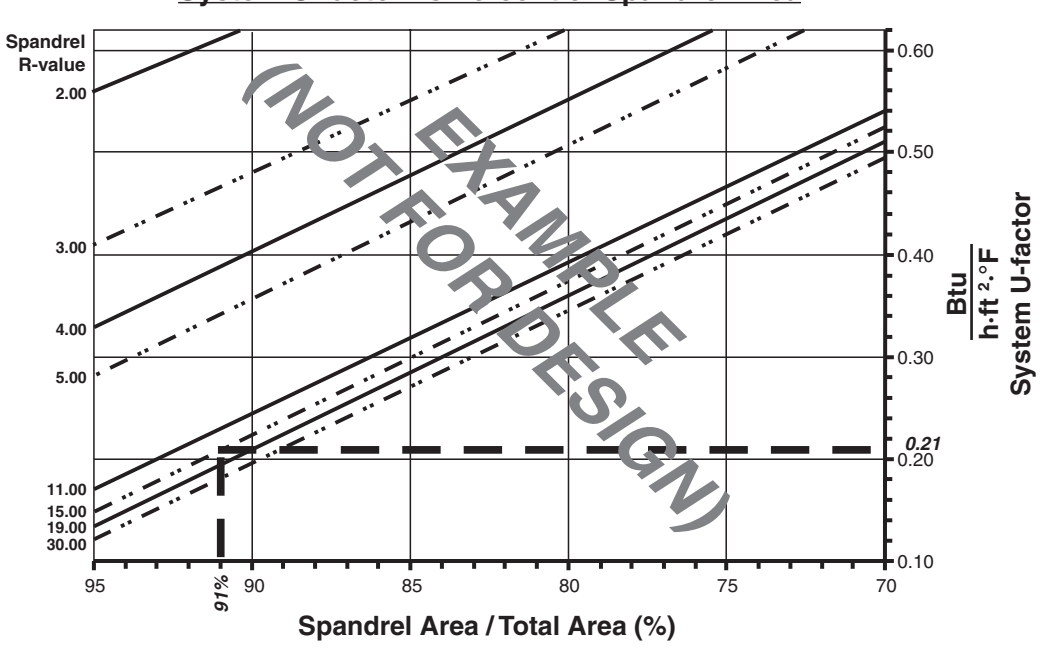
Example Spandrel R-value	= 15 (ft² · h · °F)/Btu
Spandrel Area	= 5(6 + 3) = 45.0 ft²
Total Area (Spandrel)	= 5' 2-1/2" (6' 2-1/2" + 3' 3-3/4") = 49.6 ft²
Percent of Spandrel	= (Spandrel Area ÷ Total Area)100 = (49.0 ÷ 49.6)100 = 91%

Vision Area Chart



Based on a single curtain wall bay of 93% vision glass and center of glass U-factor of 0.48, System U-factor is equal to 0.53 Btu/(h·ft²·°F)

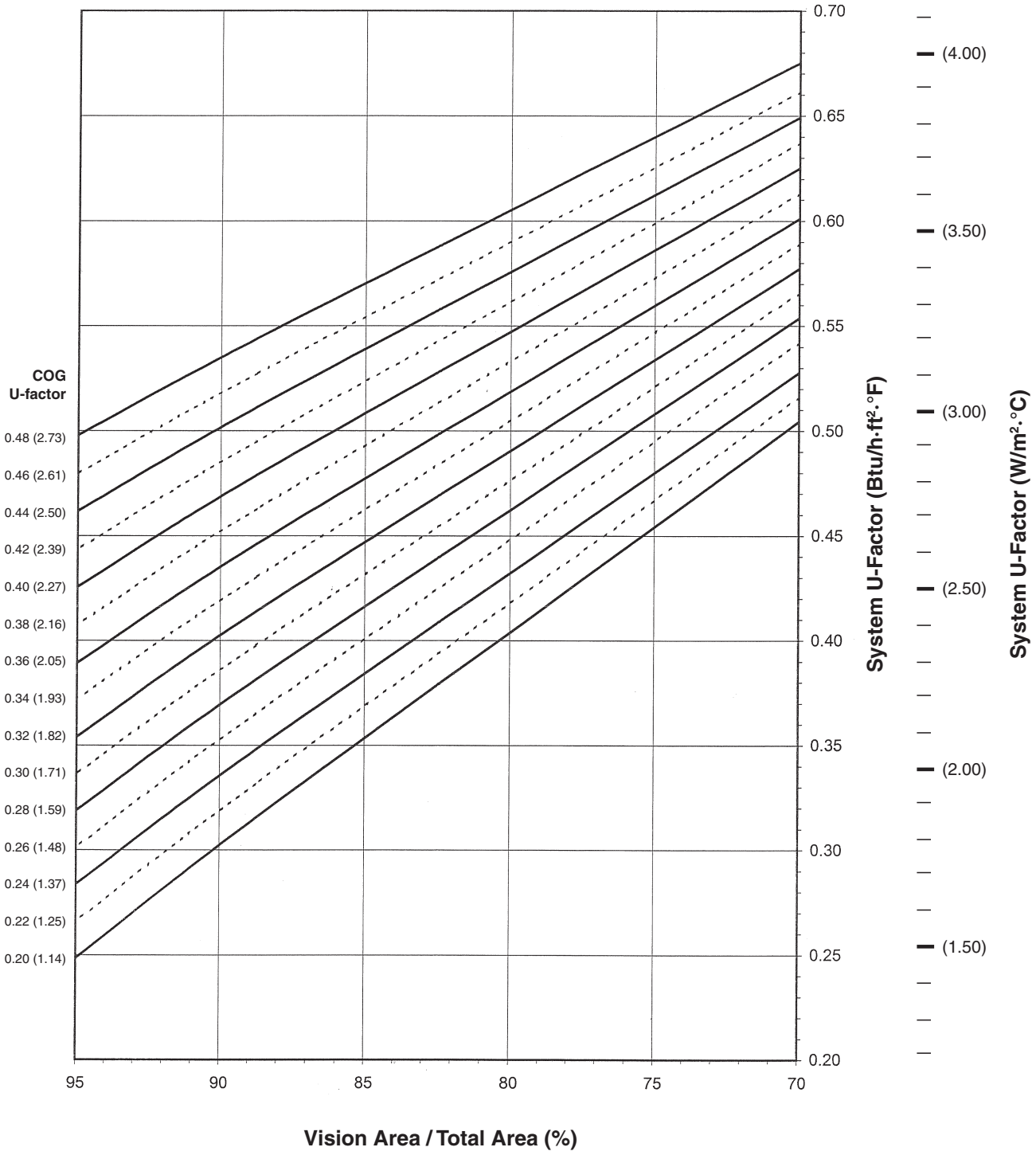
Spandrel Area Chart



Based on a single curtain wall bay of 91% spandrel and center of spandrel R-value of 15, system U-factor is equal to 0.21 Btu/(h·ft²·°F)

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

System U-Factor for Vision Glass

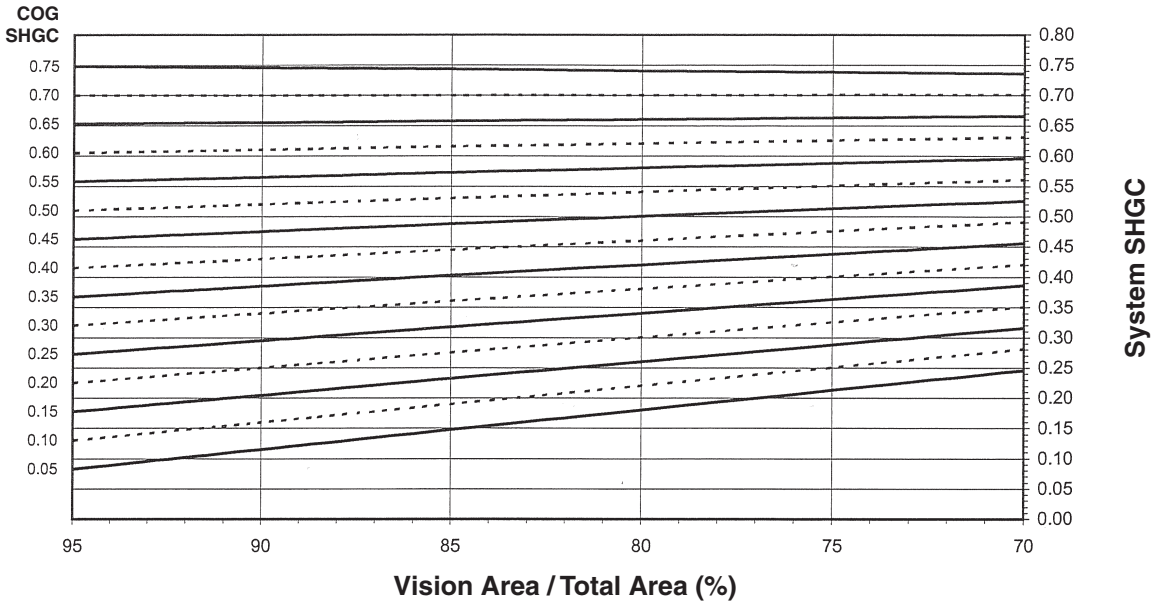


Notes for System U-Factor, SHGC and VT charts:

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

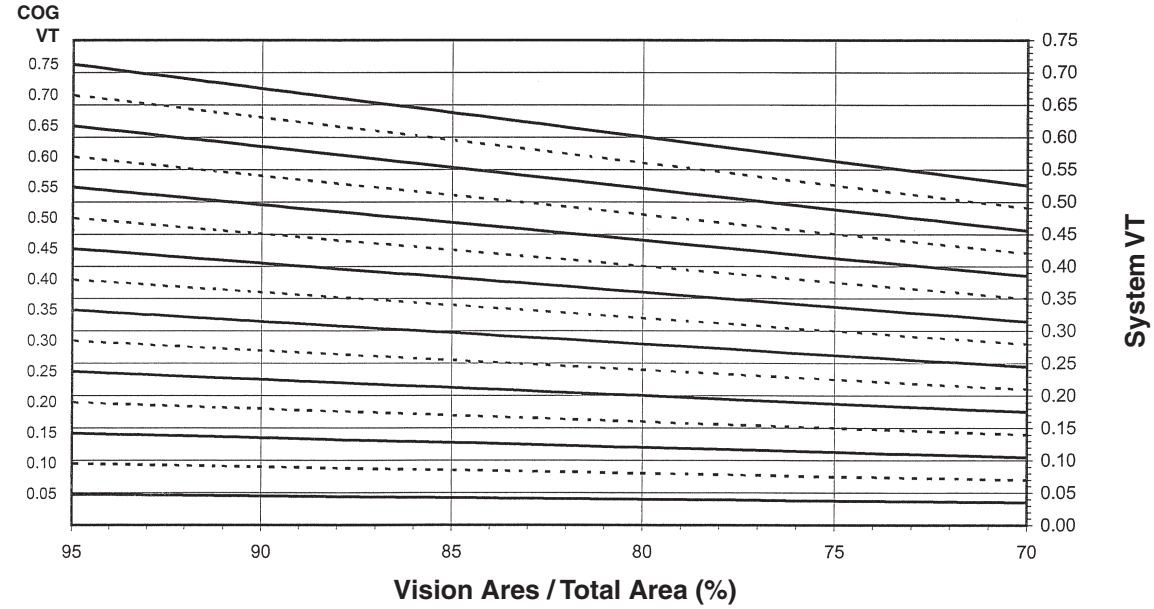
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

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



Charts are generated per AAMA 507.

System Visible Transmittance (VT) vs Percent of Vision Area



Charts are generated per AAMA 507.

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

Glass U-Factor [3]	Overall U-Factor [4]
0.48	0.54
0.46	0.53
0.44	0.51
0.42	0.50
0.40	0.48
0.38	0.46
0.36	0.45
0.34	0.43
0.32	0.41
0.30	0.40
0.28	0.38
0.26	0.37
0.24	0.35
0.22	0.33
0.20	0.32

SHGC Matrix [2]

Glass SHGC [3]	Overall SHGC [4]
0.75	0.74
0.70	0.70
0.65	0.66
0.60	0.61
0.55	0.57
0.50	0.52
0.45	0.48
0.40	0.43
0.35	0.39
0.30	0.35
0.25	0.30
0.20	0.26
0.15	0.21
0.10	0.17
0.05	0.12

Visible Transmittance [2]

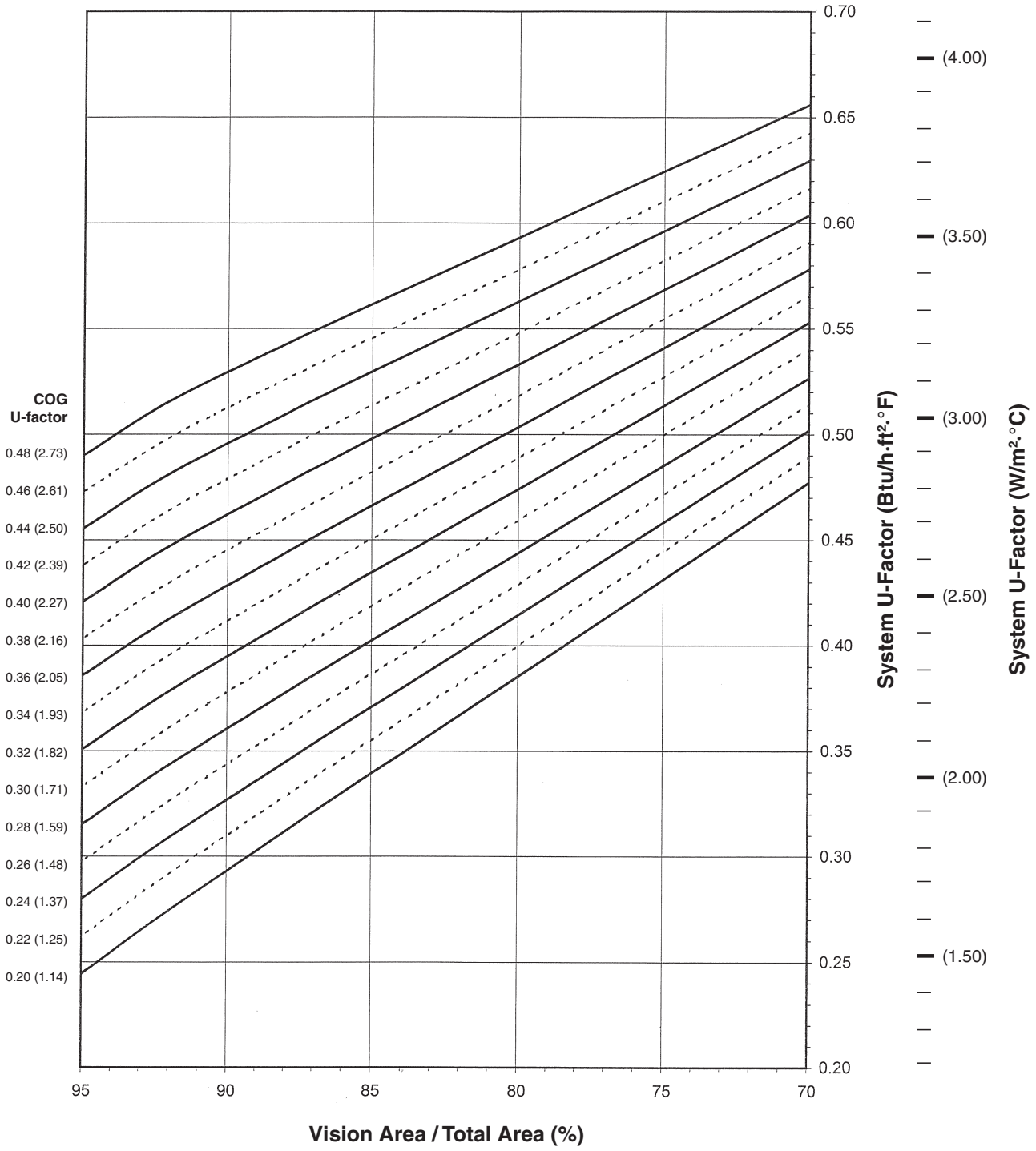
Glass VT [3]	Overall VT [4]
0.75	0.67
0.70	0.62
0.65	0.58
0.60	0.53
0.55	0.49
0.50	0.44
0.45	0.40
0.40	0.35
0.35	0.31
0.30	0.27
0.25	0.22
0.20	0.18
0.15	0.13
0.10	0.09
0.05	0.04

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

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 2000mm wide by 2000mm high (78-3/4" by 78-3/4").

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

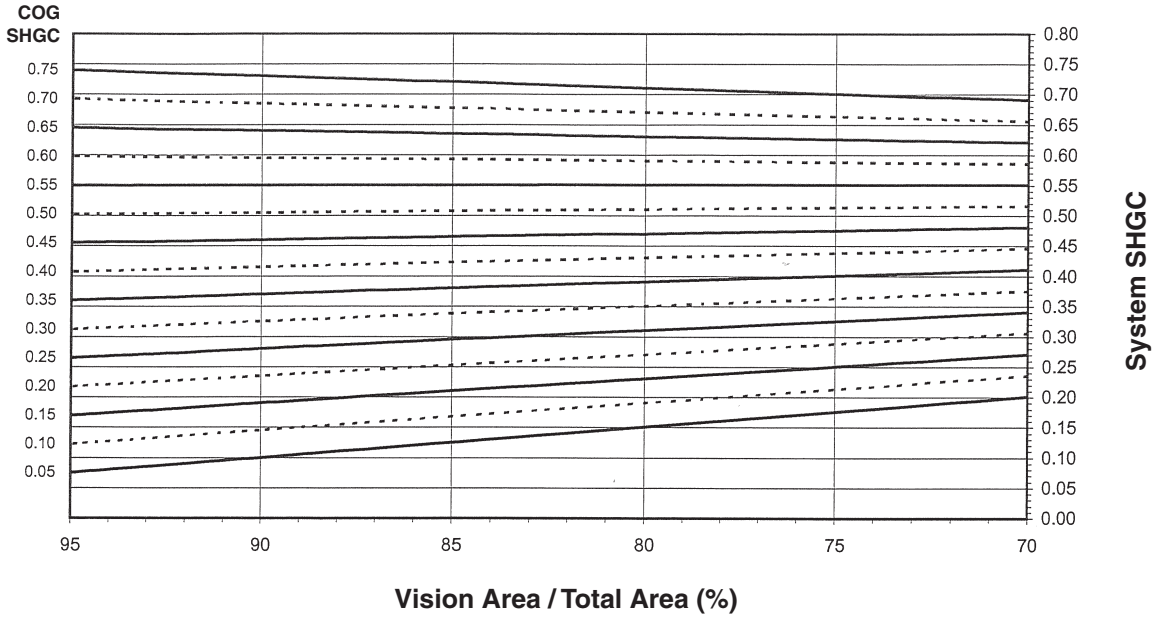
System U-Factor for Vision Glass



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

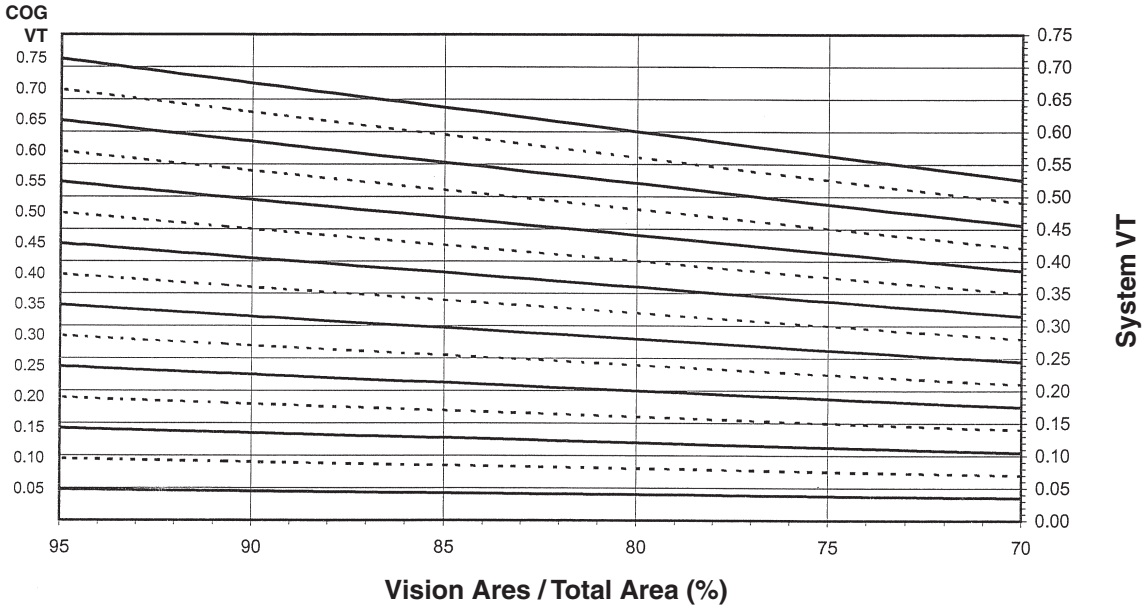
For glass values that are not listed, linear interpolation is permitted.
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

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



Charts are generated per AAMA 507.

System Visible Transmittance (VT) vs Percent of Vision Area



Charts are generated per AAMA 507.

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

Glass U-Factor [3]	Overall U-Factor [4]
0.48	0.53
0.46	0.51
0.44	0.49
0.42	0.47
0.40	0.46
0.38	0.44
0.36	0.42
0.34	0.41
0.32	0.39
0.30	0.37
0.28	0.35
0.26	0.34
0.24	0.32
0.22	0.30
0.20	0.29

SHGC Matrix [2]

Glass SHGC [3]	Overall SHGC [4]
0.75	0.73
0.70	0.69
0.65	0.64
0.60	0.60
0.55	0.55
0.50	0.50
0.45	0.46
0.40	0.41
0.35	0.37
0.30	0.32
0.25	0.28
0.20	0.23
0.15	0.19
0.10	0.14
0.05	0.10

Visible Transmittance [2]

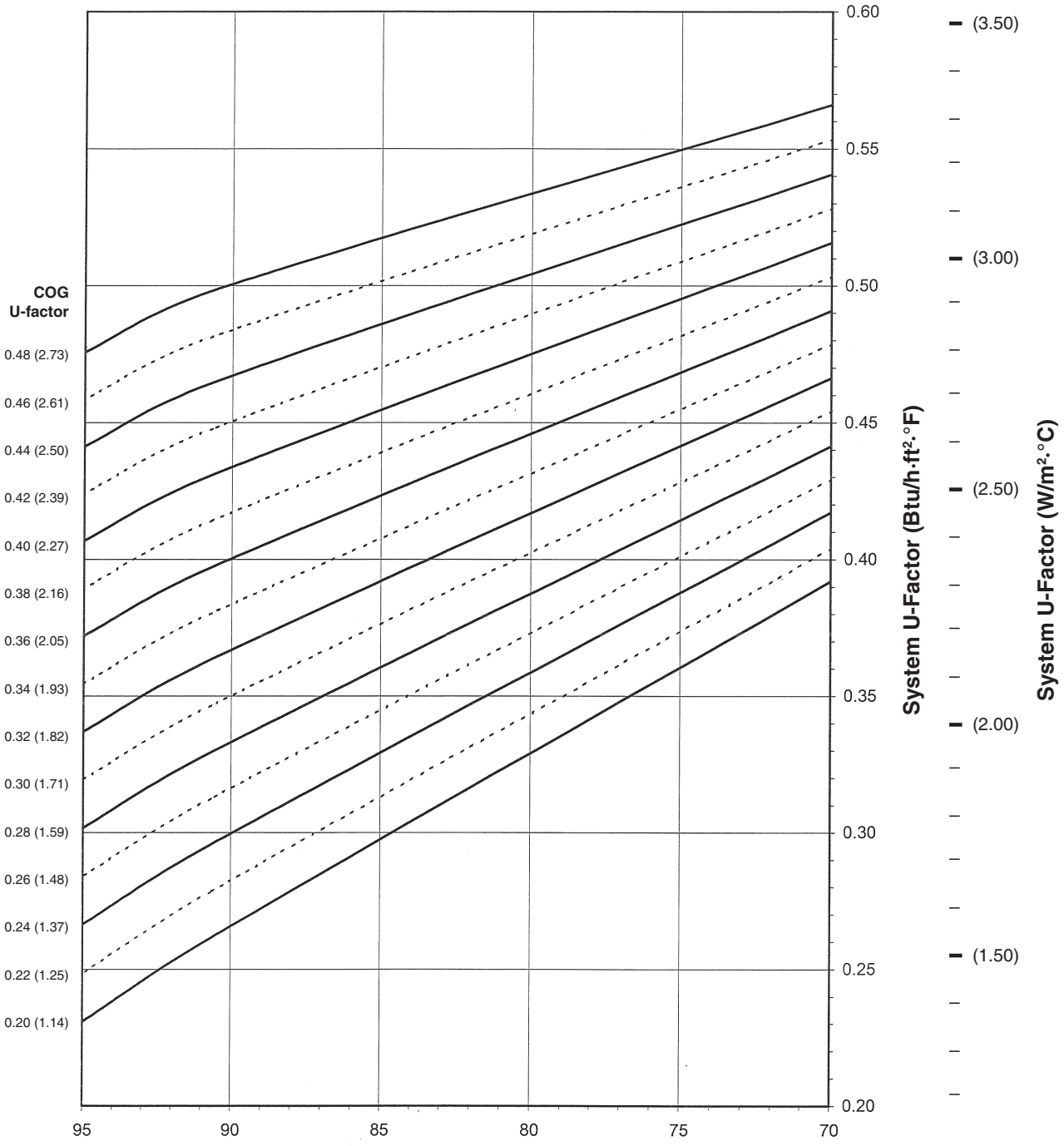
Glass VT [3]	Overall VT [4]
0.75	0.68
0.70	0.63
0.65	0.59
0.60	0.54
0.55	0.50
0.50	0.45
0.45	0.41
0.40	0.36
0.35	0.32
0.30	0.27
0.25	0.23
0.20	0.18
0.15	0.14
0.10	0.09
0.05	0.05

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

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 2000mm wide by 2000mm high (78-3/4" by 78-3/4").

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

System U-Factor for Vision Glass

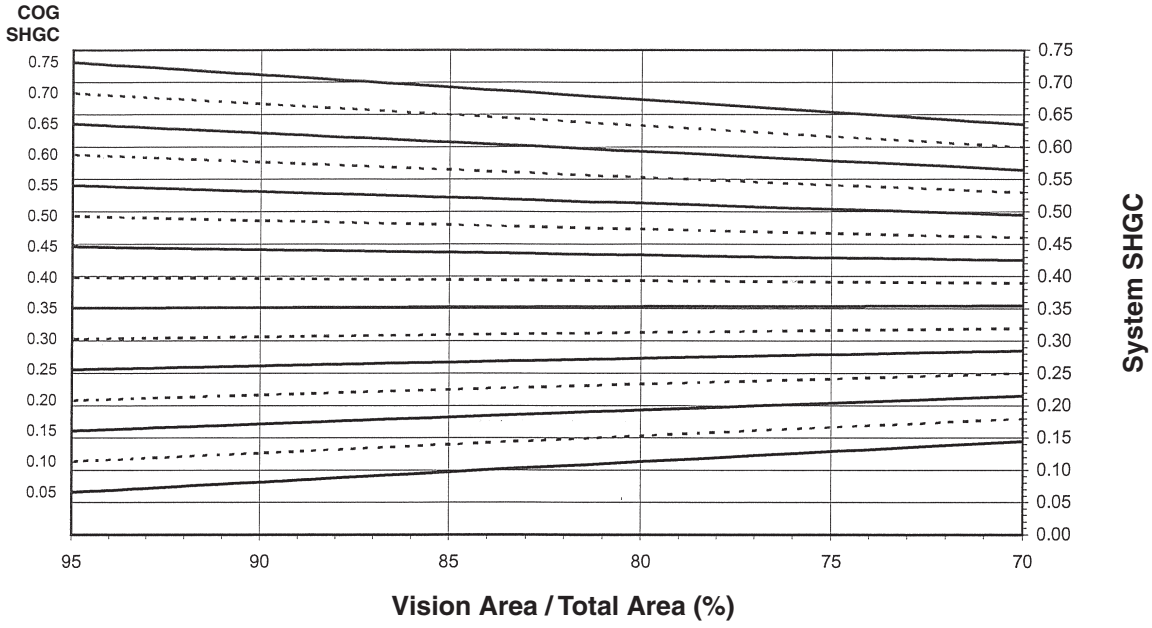


Notes for System U-Factor, SHGC and VT charts:

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

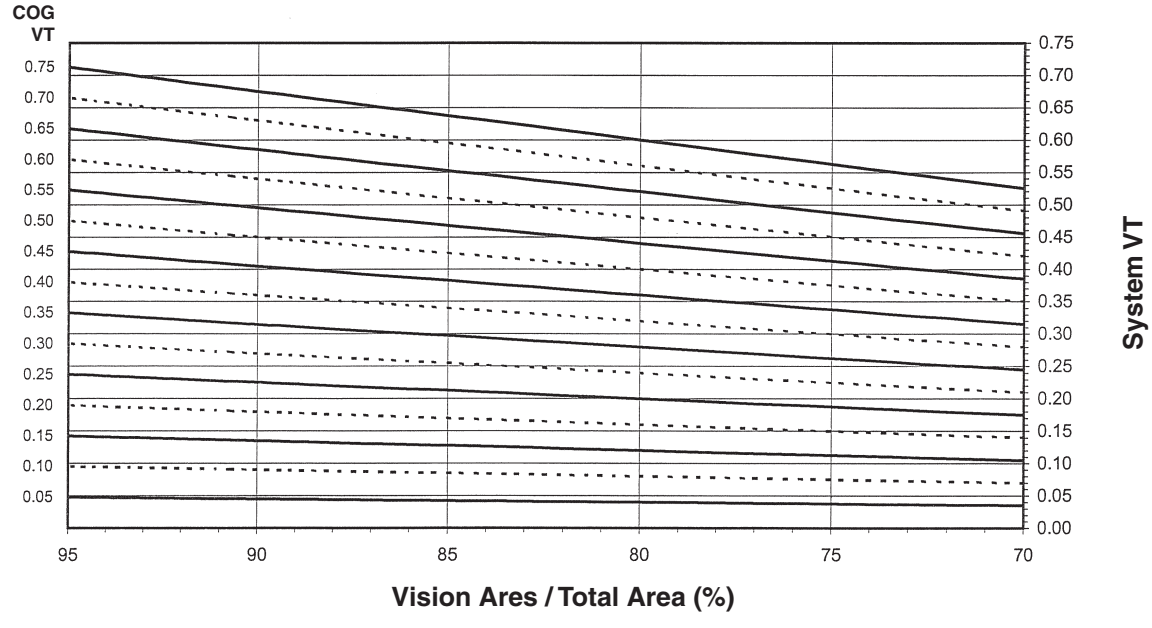
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

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



Charts are generated per AAMA 507.

System Visible Transmittance (VT) vs Percent of Vision Area



Charts are generated per AAMA 507.

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

Glass U-Factor [3]	Overall U-Factor [4]
0.48	0.50
0.46	0.48
0.44	0.46
0.42	0.45
0.40	0.43
0.38	0.41
0.36	0.40
0.34	0.38
0.32	0.36
0.30	0.35
0.28	0.33
0.26	0.31
0.24	0.30
0.22	0.28
0.20	0.26

SHGC Matrix [2]

Glass SHGC [3]	Overall SHGC [4]
0.75	0.71
0.70	0.67
0.65	0.62
0.60	0.58
0.55	0.53
0.50	0.49
0.45	0.44
0.40	0.40
0.35	0.35
0.30	0.31
0.25	0.26
0.20	0.22
0.15	0.17
0.10	0.12
0.05	0.08

Visible Transmittance [2]

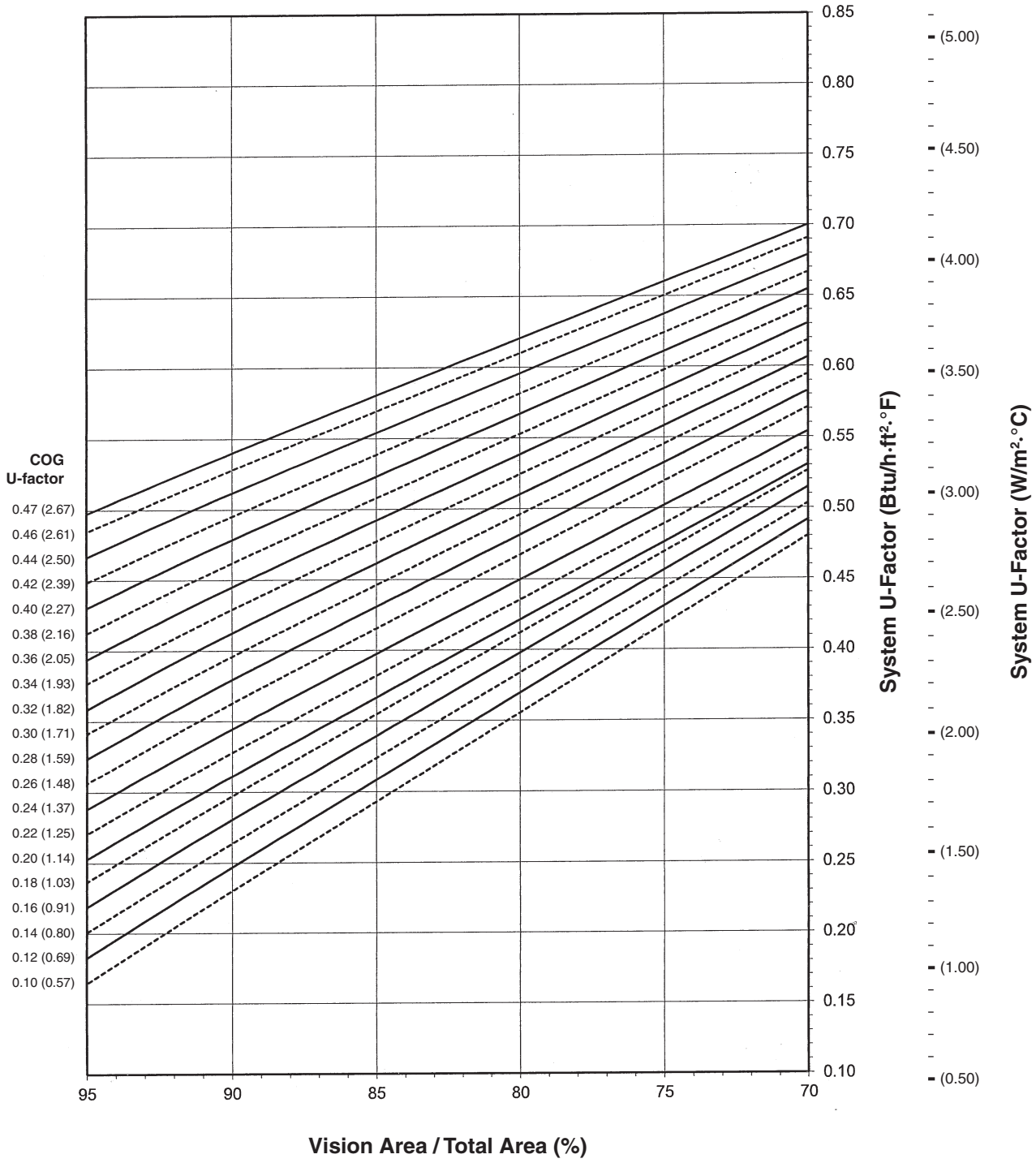
Glass VT [3]	Overall VT [4]
0.75	0.68
0.70	0.63
0.65	0.59
0.60	0.54
0.55	0.50
0.50	0.45
0.45	0.41
0.40	0.36
0.35	0.32
0.30	0.27
0.25	0.23
0.20	0.18
0.15	0.14
0.10	0.09
0.05	0.05

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

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 2000mm wide by 2000mm high (78-3/4" by 78-3/4").

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

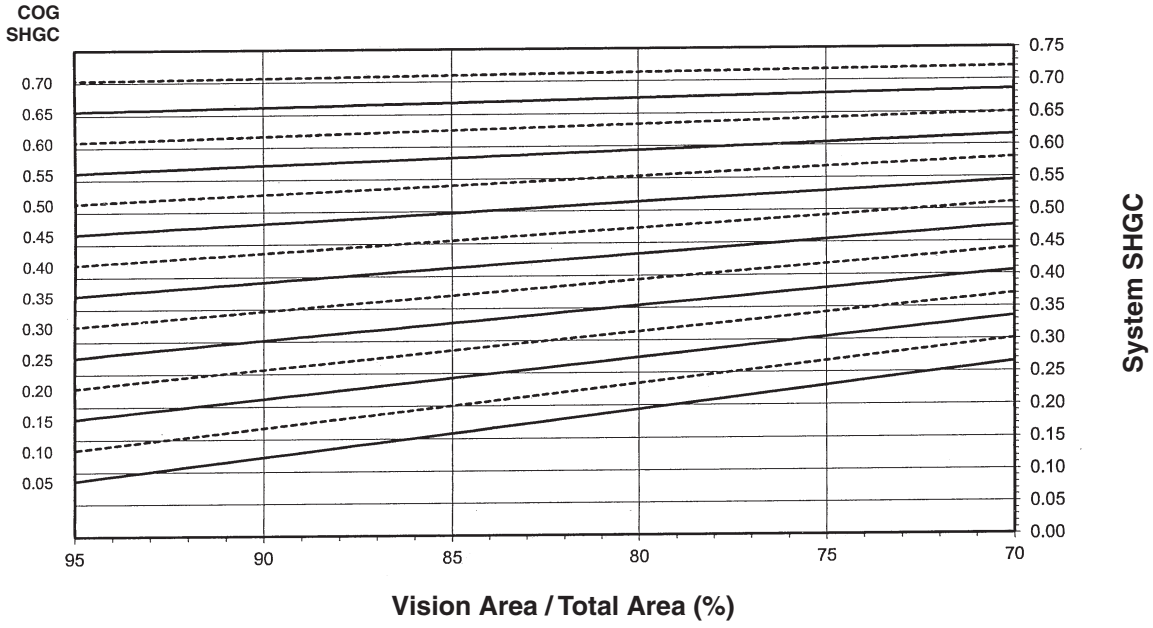
System U-Factor for Vision Glass



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

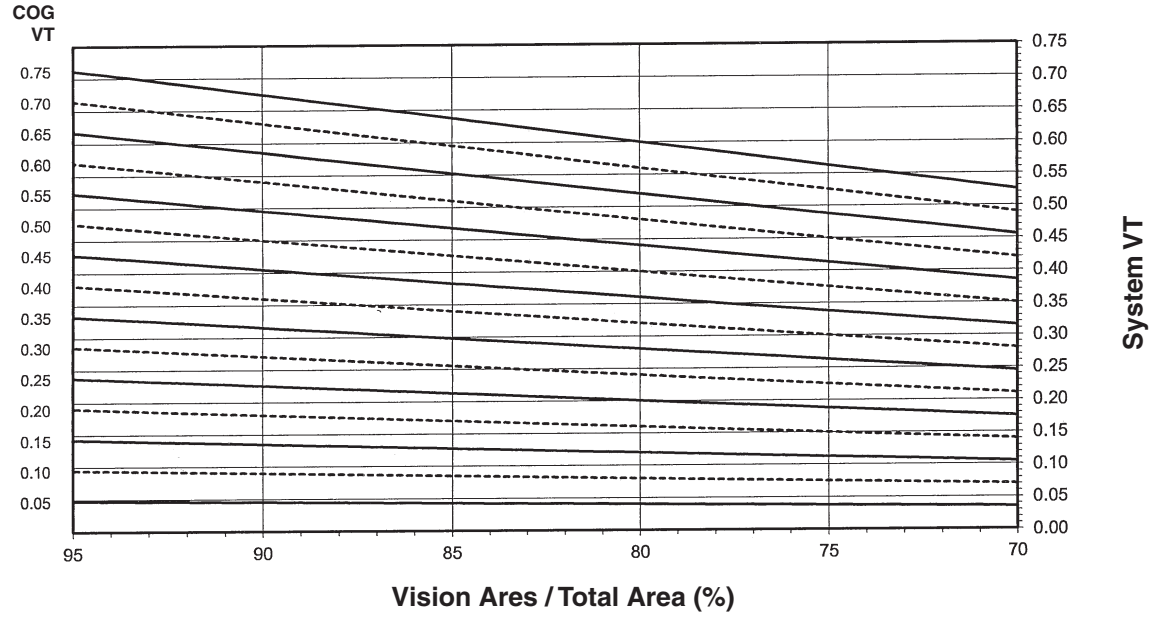
For glass values that are not listed, linear interpolation is permitted.
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

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



Charts are generated per AAMA 507.

System Visible Transmittance (VT) vs Percent of Vision Area



Charts are generated per AAMA 507.

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

Glass U-Factor [3]	Overall U-Factor [4]
0.47	0.55
0.46	0.54
0.44	0.52
0.42	0.51
0.40	0.49
0.38	0.47
0.36	0.46
0.34	0.44
0.32	0.42
0.30	0.41
0.28	0.39
0.26	0.38
0.24	0.36
0.22	0.34
0.20	0.32
0.18	0.31
0.16	0.29
0.14	0.28
0.12	0.26
0.10	0.25

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

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 2000mm wide by 2000mm high (78-3/4" by 78-3/4").

SHGC Matrix [2]

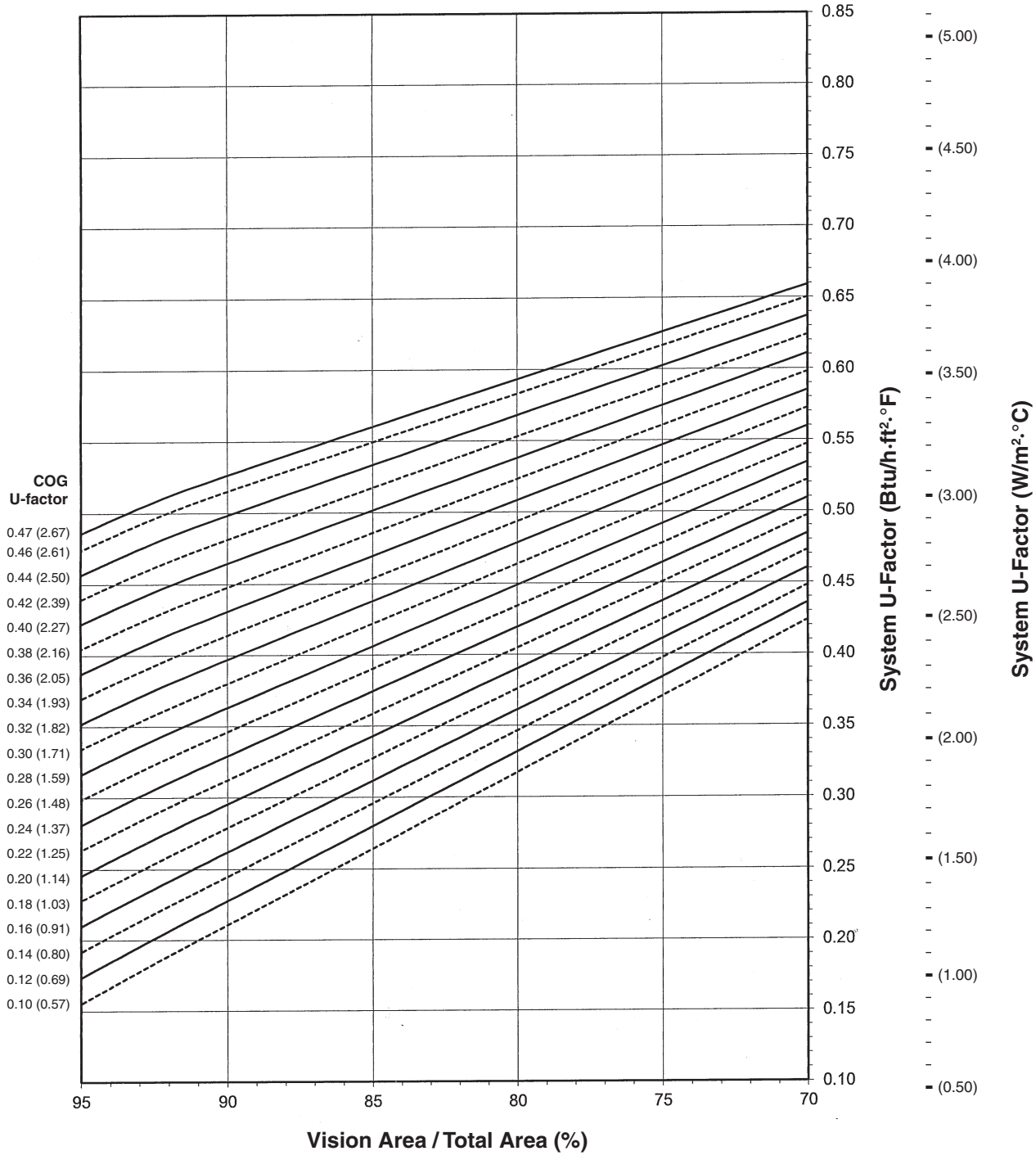
Glass SHGC [3]	Overall SHGC [4]
0.75	0.75
0.70	0.71
0.65	0.66
0.60	0.62
0.55	0.57
0.50	0.53
0.45	0.49
0.40	0.44
0.35	0.40
0.30	0.35
0.25	0.31
0.20	0.26
0.15	0.22
0.10	0.17
0.05	0.13

Visible Transmittance [2]

Glass VT [3]	Overall VT [4]
0.75	0.67
0.70	0.62
0.65	0.58
0.60	0.53
0.55	0.49
0.50	0.44
0.45	0.40
0.40	0.36
0.35	0.31
0.30	0.27
0.25	0.22
0.20	0.18
0.15	0.13
0.10	0.09
0.05	0.04

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

System U-Factor for Vision Glass

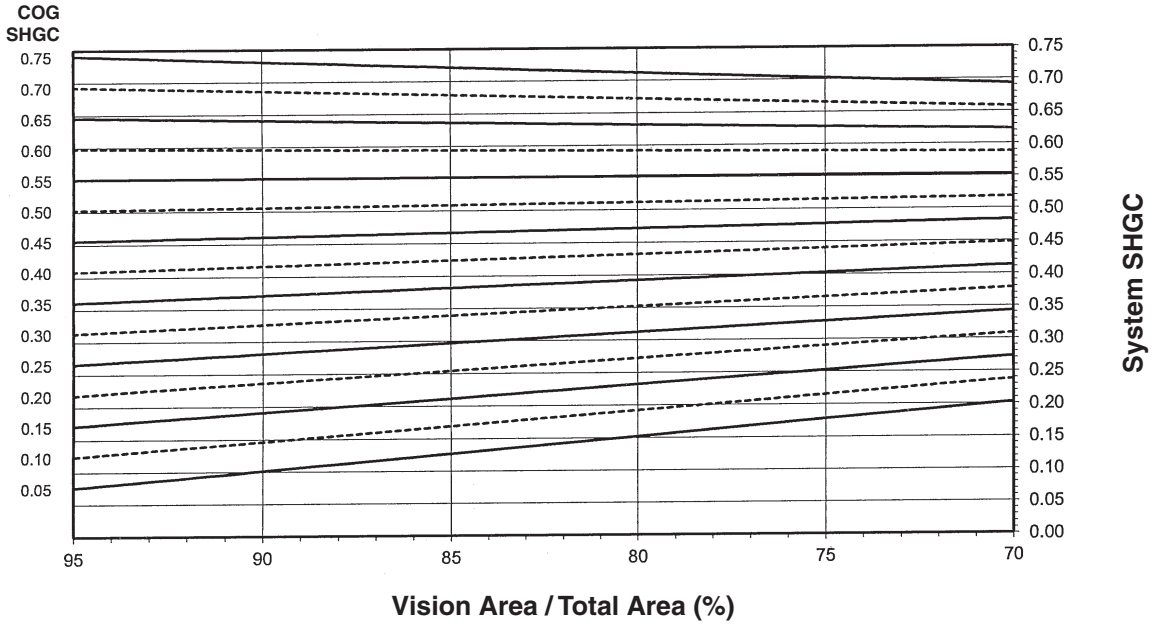


Notes for System U-Factor, SHGC and VT charts:

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

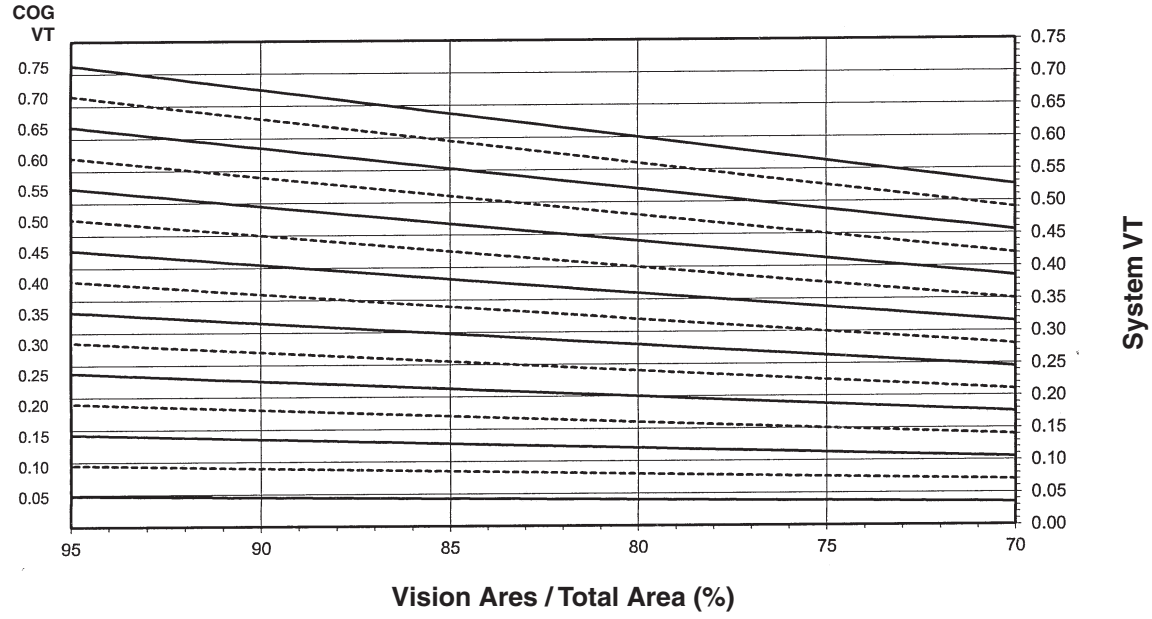
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

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



Charts are generated per AAMA 507.

System Visible Transmittance (VT) vs Percent of Vision Area



Charts are generated per AAMA 507.

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

Glass U-Factor [3]	Overall U-Factor [4]
0.47	0.52
0.46	0.51
0.44	0.49
0.42	0.48
0.40	0.46
0.38	0.44
0.36	0.43
0.34	0.41
0.32	0.39
0.30	0.37
0.28	0.36
0.26	0.34
0.24	0.32
0.22	0.31
0.20	0.29
0.18	0.27
0.16	0.26
0.14	0.24
0.12	0.22
0.10	0.20

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

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 2000mm wide by 2000mm high (78-3/4" by 78-3/4").

SHGC Matrix [2]

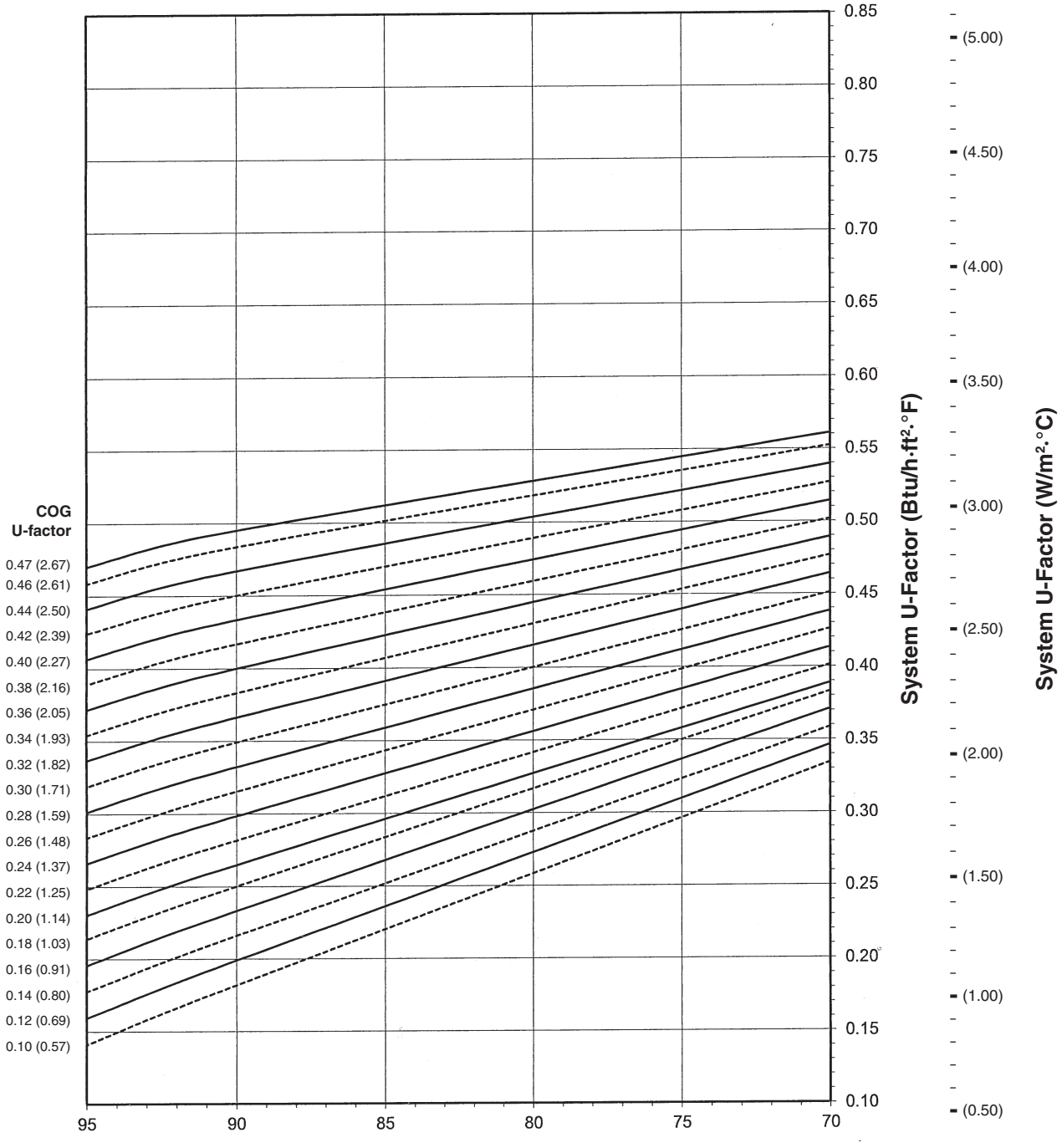
Glass SHGC [3]	Overall SHGC [4]
0.75	0.73
0.70	0.69
0.65	0.64
0.60	0.60
0.55	0.55
0.50	0.51
0.45	0.46
0.40	0.41
0.35	0.37
0.30	0.32
0.25	0.28
0.20	0.23
0.15	0.19
0.10	0.14
0.05	0.10

Visible Transmittance [2]

Glass VT [3]	Overall VT [4]
0.75	0.68
0.70	0.63
0.65	0.59
0.60	0.54
0.55	0.50
0.50	0.45
0.45	0.41
0.40	0.36
0.35	0.32
0.30	0.27
0.25	0.23
0.20	0.18
0.15	0.14
0.10	0.09
0.05	0.05

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

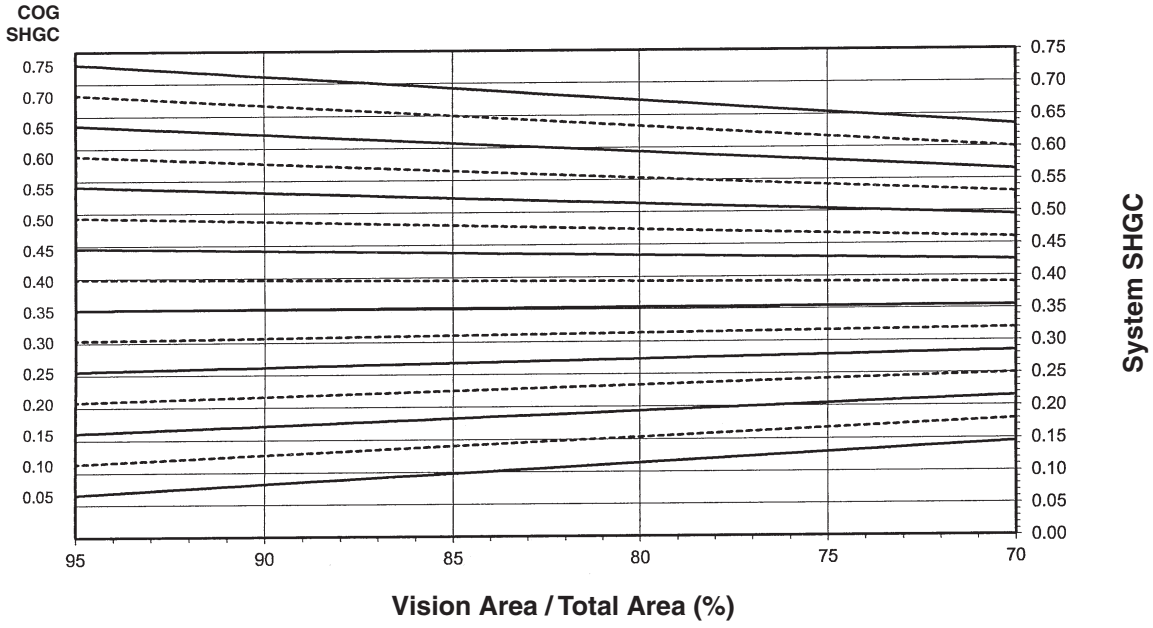
System U-Factor for Vision Glass



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

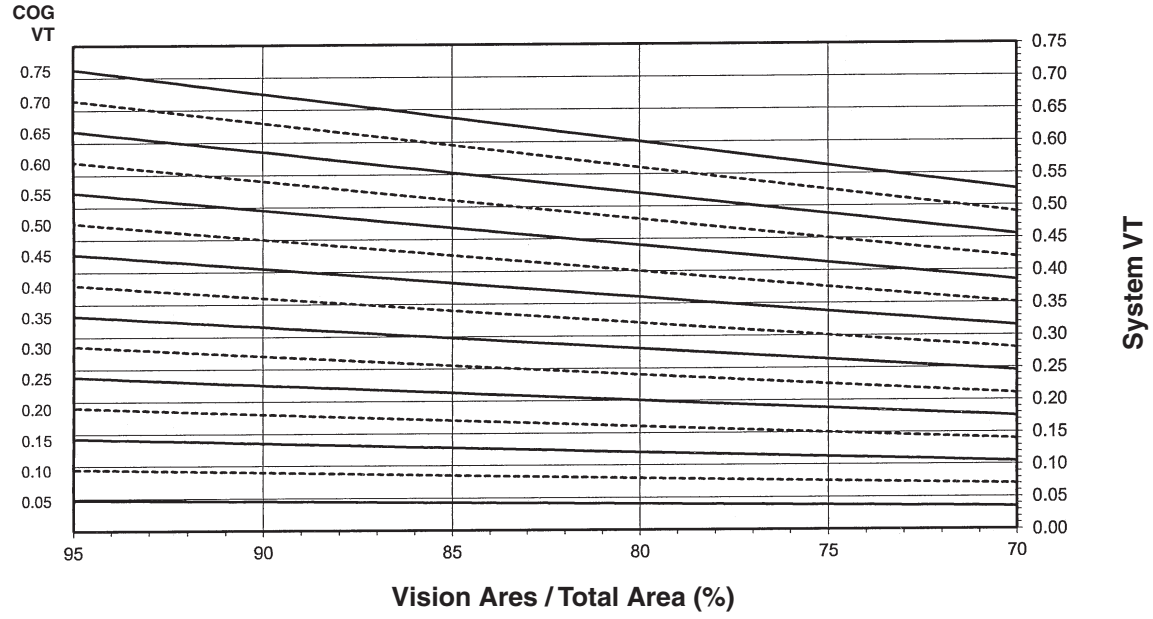
For glass values that are not listed, linear interpolation is permitted.
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

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



Charts are generated per AAMA 507.

System Visible Transmittance (VT) vs Percent of Vision Area



Charts are generated per AAMA 507.

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

Glass U-Factor [3]	Overall U-Factor [4]
0.47	0.49
0.46	0.48
0.44	0.46
0.42	0.45
0.40	0.43
0.38	0.41
0.36	0.40
0.34	0.38
0.32	0.36
0.30	0.35
0.28	0.33
0.26	0.31
0.24	0.29
0.22	0.28
0.20	0.26
0.18	0.25
0.16	0.23
0.14	0.21
0.12	0.19
0.10	0.18

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

1. U-Factors are determined in accordance with NFRC 100.
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SHGC Matrix [2]

Glass SHGC [3]	Overall SHGC [4]
0.75	0.71
0.70	0.67
0.65	0.62
0.60	0.58
0.55	0.53
0.50	0.49
0.45	0.44
0.40	0.40
0.35	0.35
0.30	0.31
0.25	0.26
0.20	0.22
0.15	0.17
0.10	0.12
0.05	0.08

Visible Transmittance [2]

Glass VT [3]	Overall VT [4]
0.75	0.68
0.70	0.63
0.65	0.59
0.60	0.54
0.55	0.50
0.50	0.45
0.45	0.41
0.40	0.36
0.35	0.32
0.30	0.27
0.25	0.23
0.20	0.18
0.15	0.14
0.10	0.09
0.05	0.05