

## **Features**

- 1600 Wall System®4 is an inside glazed captured curtain wall and ribbon wall
- 1600 Wall System®4 has a narrow 2-1/4" (57.2) sightline
- Standard 6" (152.4) or 7-1/2" (190.5) depth systems for curtain wall and 6" depth (152.4) depth for ribbon wall
- IsoStrut® thermal barrier provides superior structural and thermal performance
- Integral vertical exterior cover and thermal barrier reduce installed cost
- Horizontals have removable snap on stops to allow for easy re-glazing from the exterior
- Standard infill options are 1/8" (3.2), 1/4" (6.4), and 1" (25.4)
- Concealed fastener joinery creates smooth, monolithic appearance
- Shear block fabrication method or screw spline option for ribbon windows
- Standard 90 and 135 degree inside and outside corners available
- Offers integrated entrance framing systems
- Peroxide-cure high performance EPDM silicone compatible glazing materials for long lasting seals
- Two color option
- Permanodic® anodized finishes option
- Painted finishes in standard and custom choices

## **Optional Features**

- Optional pressure plate system
- Optional IsoLock® pour and debridge thermal break horizontals
- Integrates with standard Kawneer windows and GLASSvent® windows for curtain wall
- Steel reinforcing available
- Profit\$Maker® Plus die sets available

## **Product Applications**

- Ideal for low-rise to high-rise curtain wall applications where inside glazing and high performance is desired or multi-lite punched openings and ribbon windows in both new and remodel construction projects

For specific product applications,  
consult your Kawneer representative.

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**Architects** – Most extrusion and window types 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.

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

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

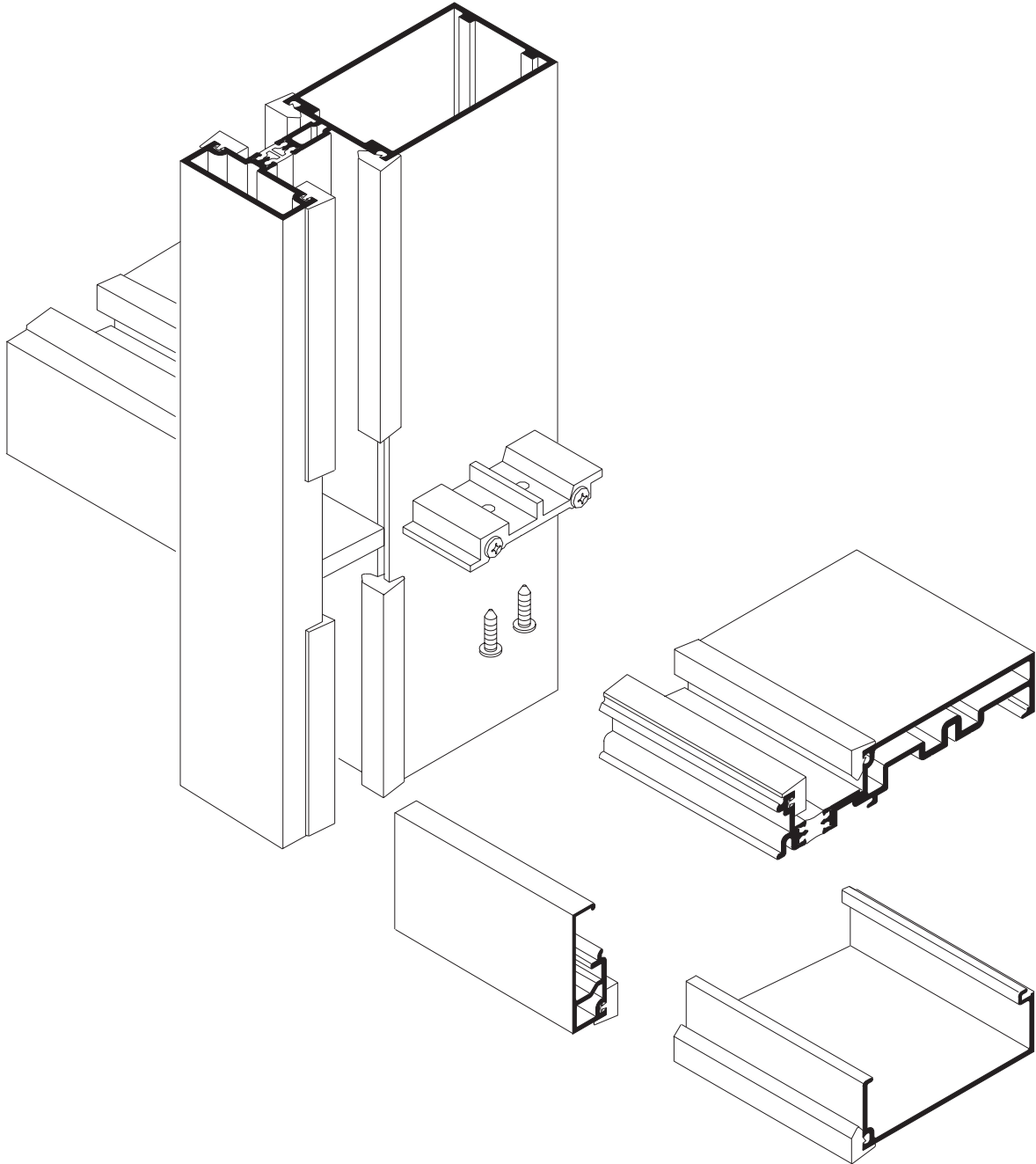
- m – meter
- cm – centimeter
- mm – millimeter
- s – second
- Pa – pascal
- MPa – megapascal

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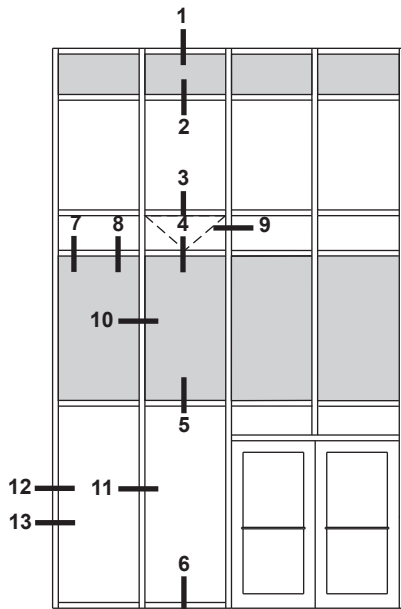
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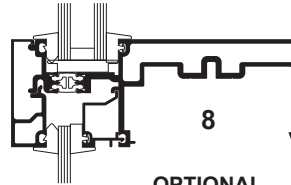
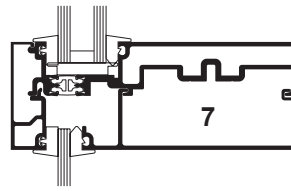
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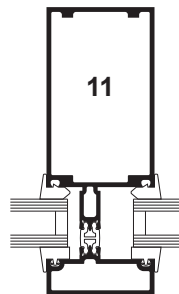
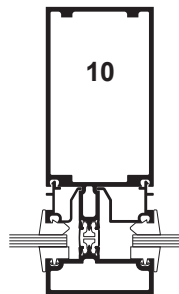
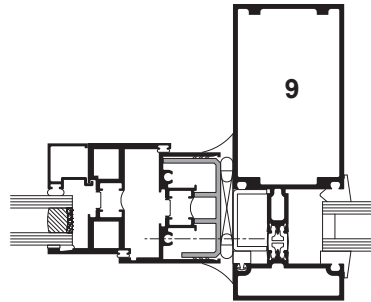
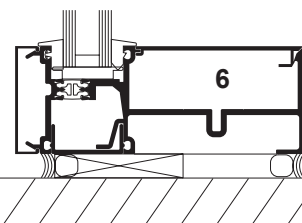
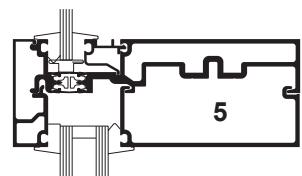
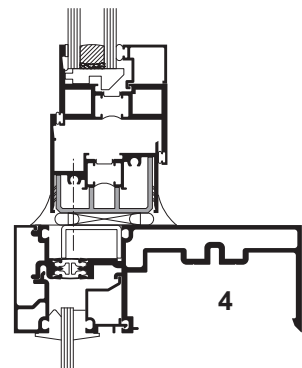
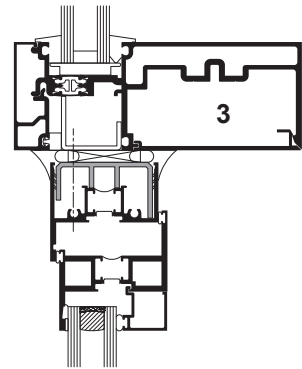
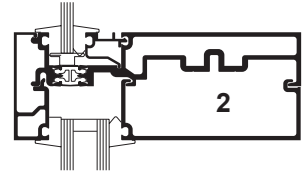
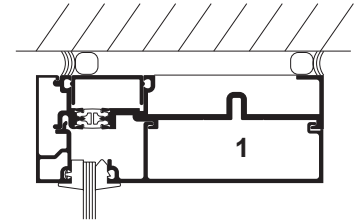


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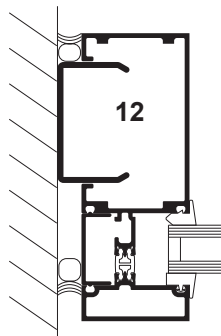
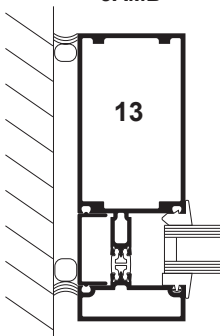
**NOTE:**  
6" SYSTEM SHOWN, 7-1/2" SIMILAR.



OPTIONAL HORIZONTAL



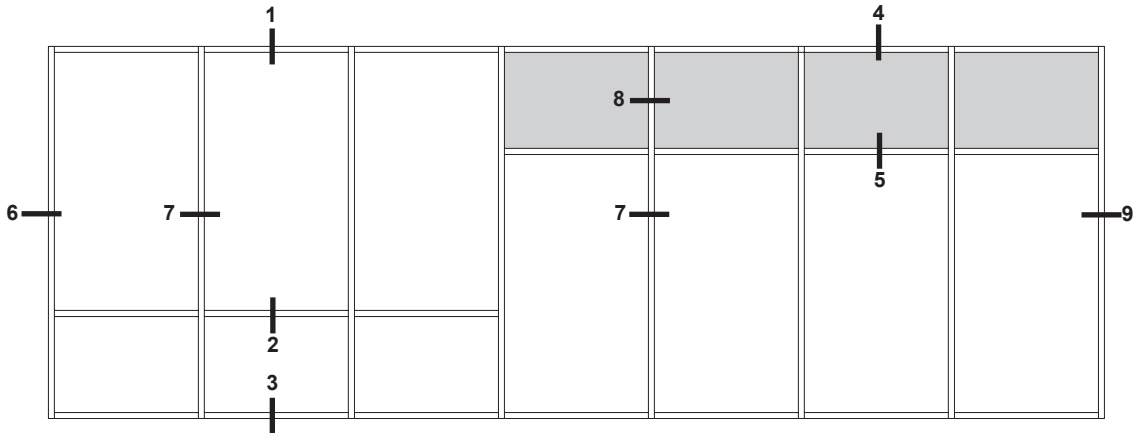
ALTERNATE JAMB



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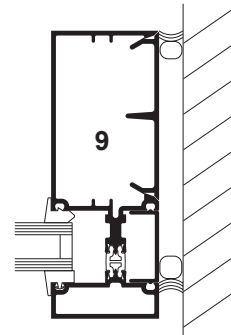
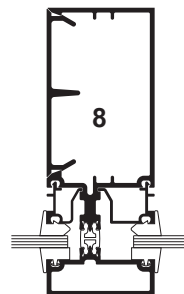
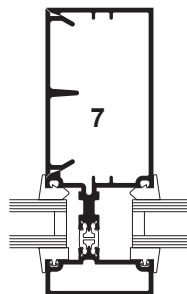
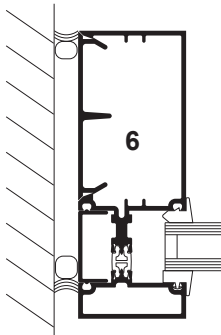
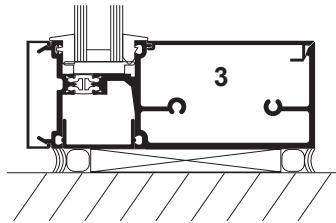
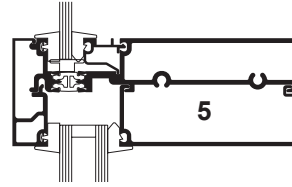
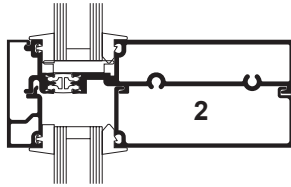
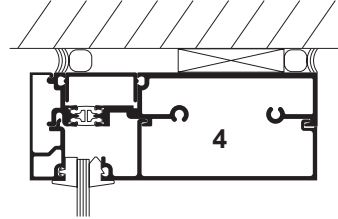
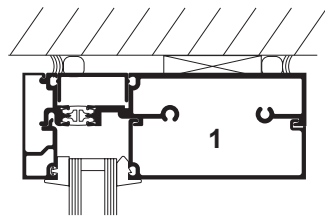
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## RIBBON ELEVATION

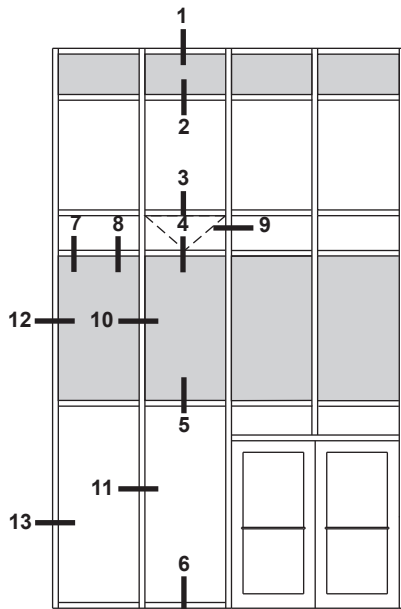
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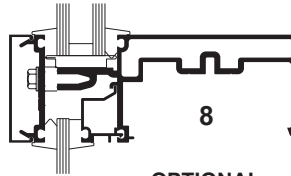
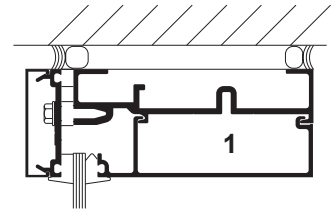
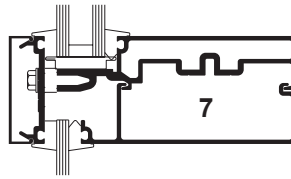
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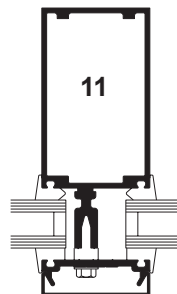
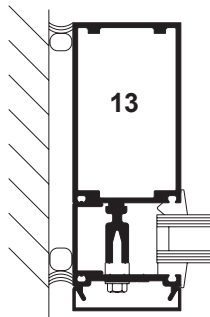
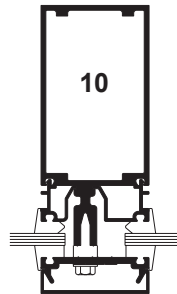
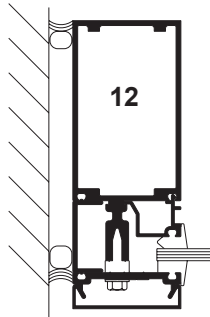
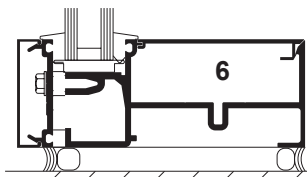
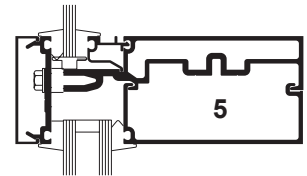
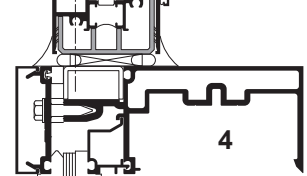
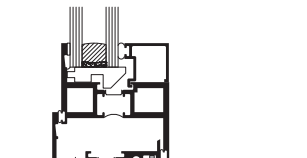
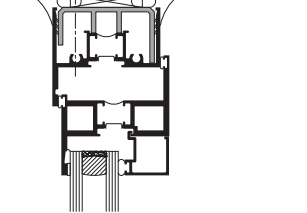
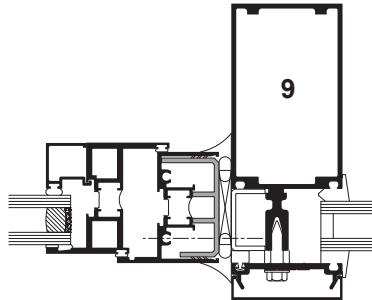
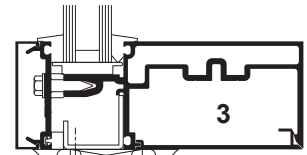
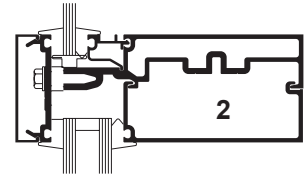


ELEVATION IS NUMBER KEYED TO DETAILS

**NOTES:**  
 6" SYSTEM SHOWN, 7-1/2" SIMILAR.  
 APPLIED PRESSURE PLATE OPTION SHOWN.



OPTIONAL HORIZONTAL

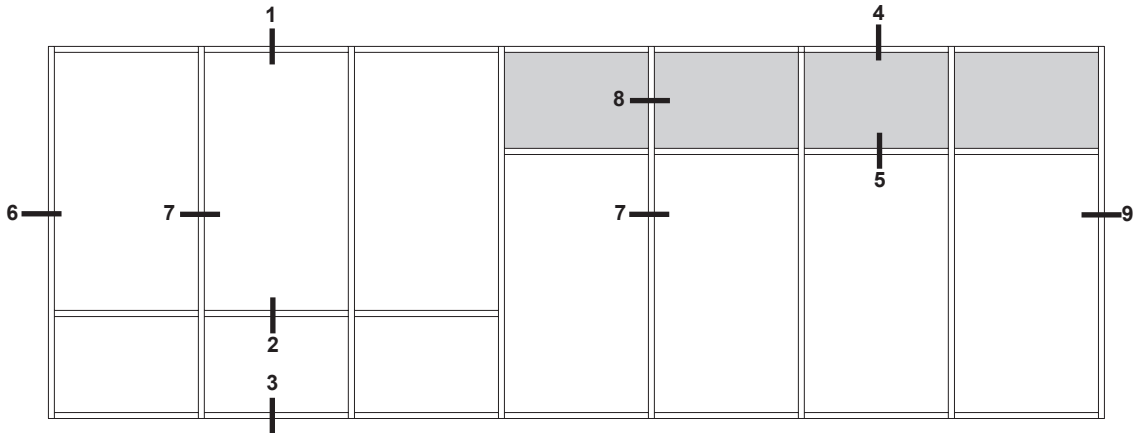


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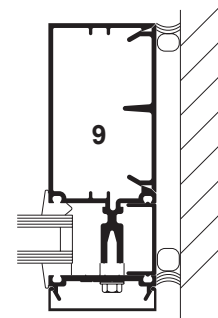
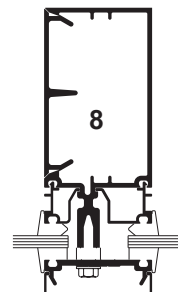
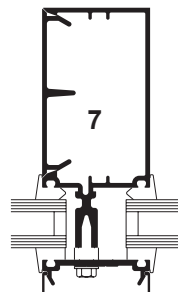
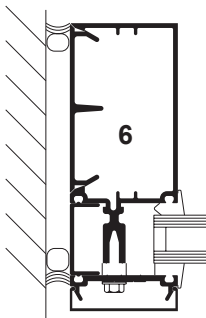
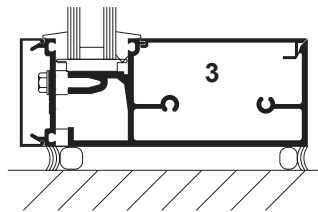
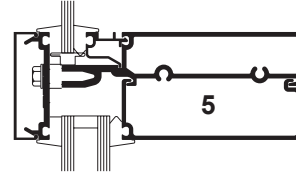
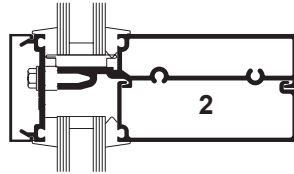
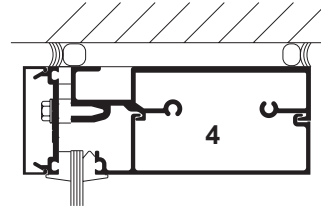
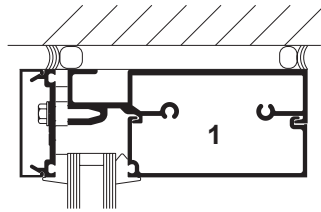


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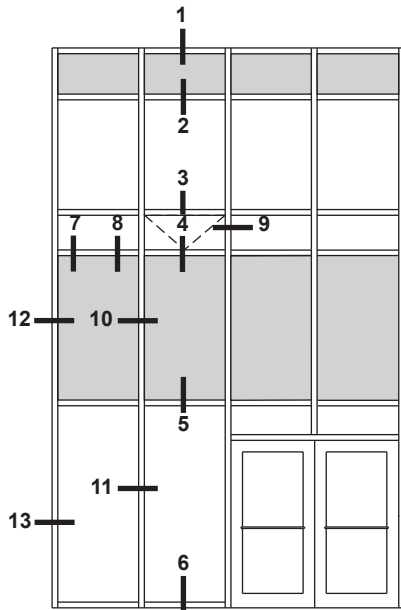
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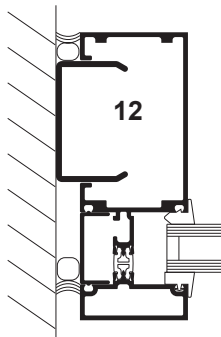
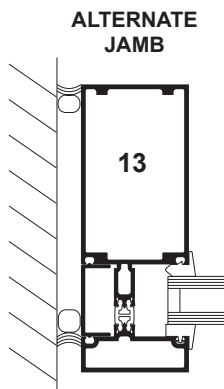
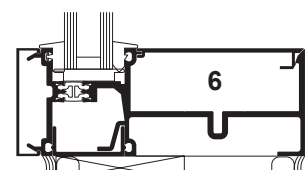
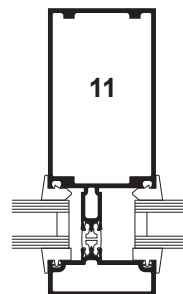
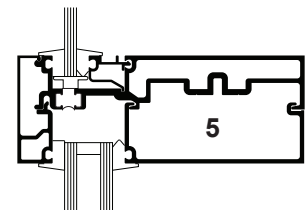
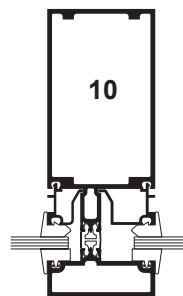
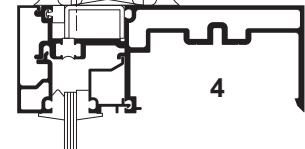
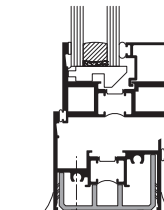
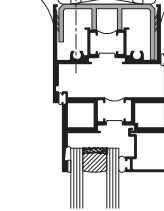
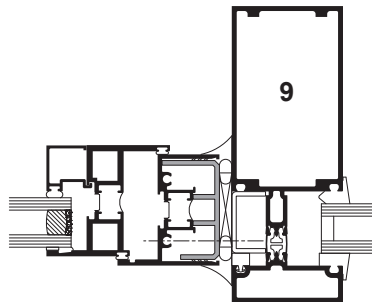
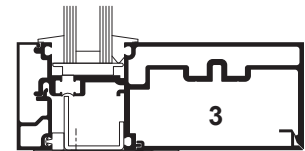
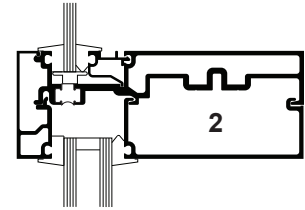
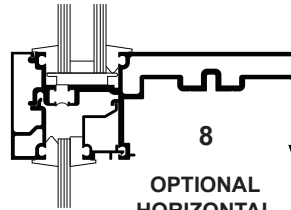
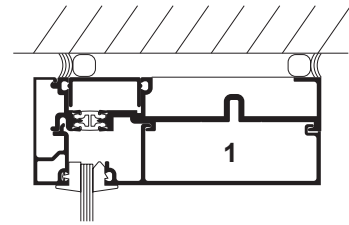
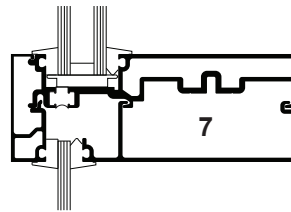
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ELEVATION IS NUMBER KEYED TO DETAILS

**NOTE:**

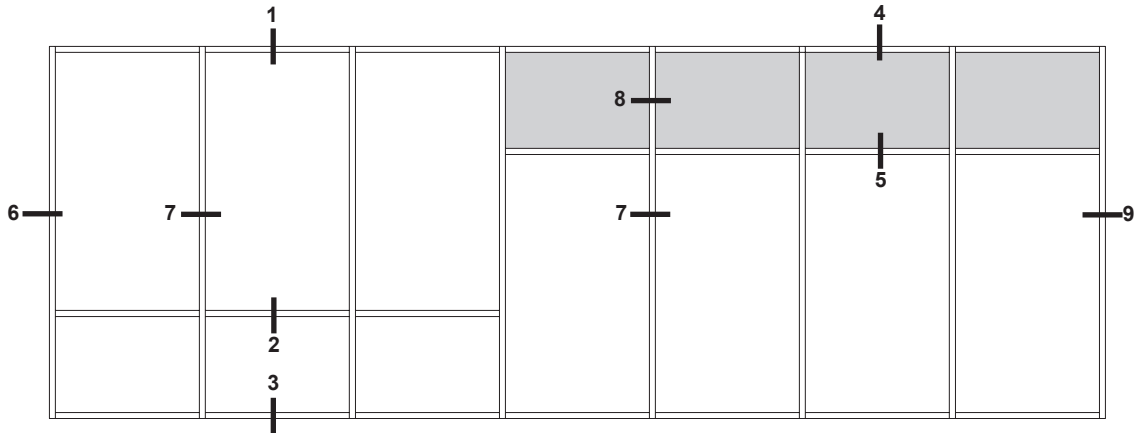
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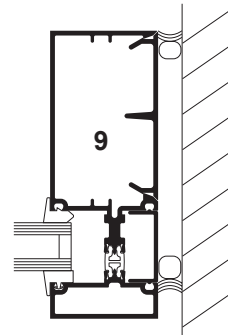
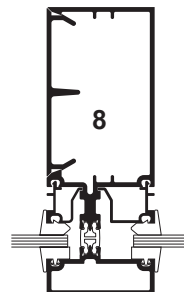
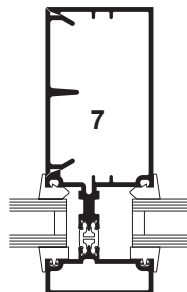
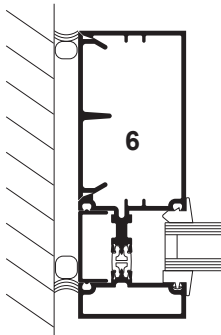
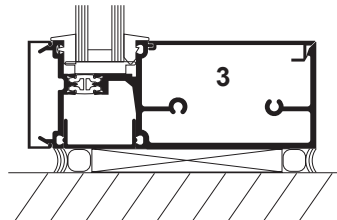
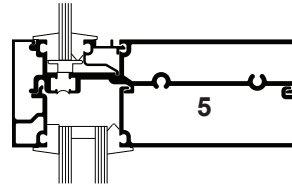
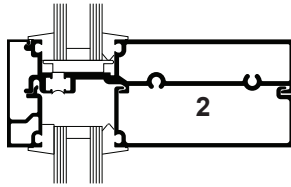
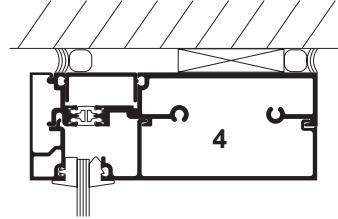
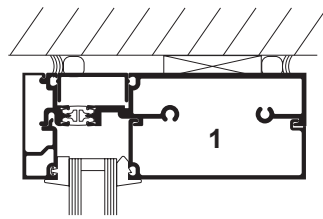
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### RIBBON ELEVATION

ELEVATION IS NUMBER KEYED TO DETAILS

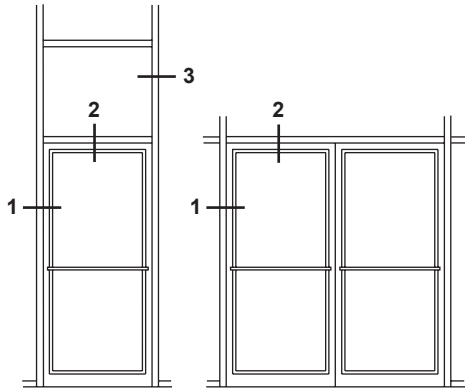


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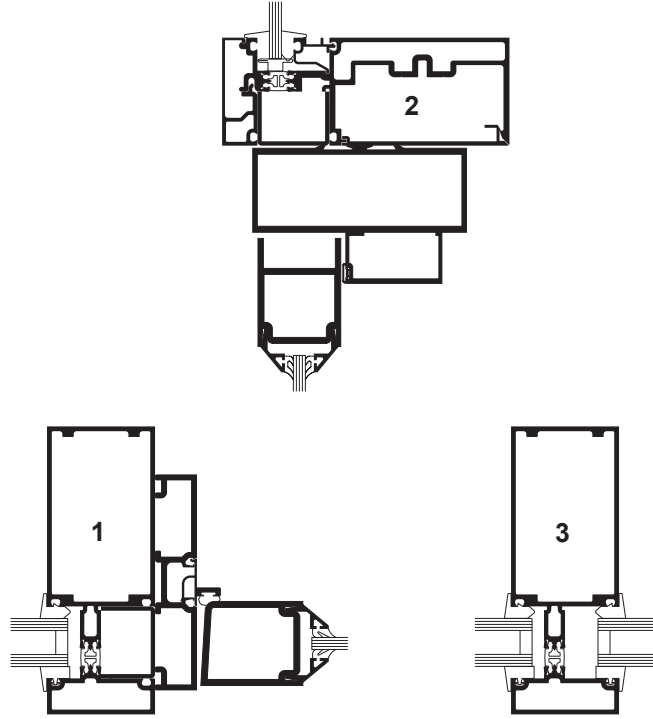
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**ENTRANCE ADAPTERS**

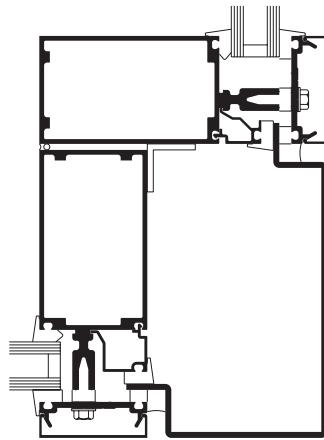


ELEVATION IS NUMBER KEYED TO DETAILS

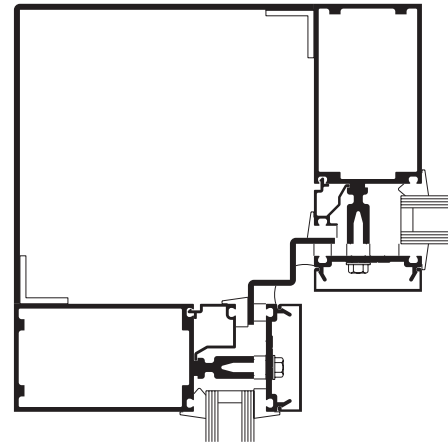
**NOTE:**  
 OFFSET PIVOT/BUTT HUNG ENTRANCE SHOWN.  
 ALSO AVAILABLE FOR CENTER HUNG



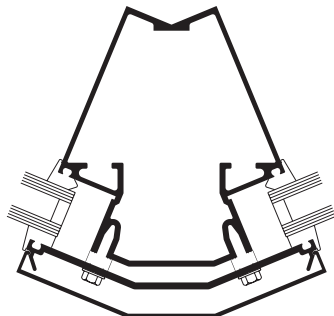
**CORNERS**



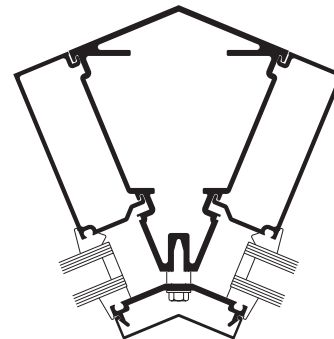
OUTSIDE 90° CORNER



INSIDE 90° CORNER



OUTSIDE 135° CORNER



INSIDE 135° CORNER

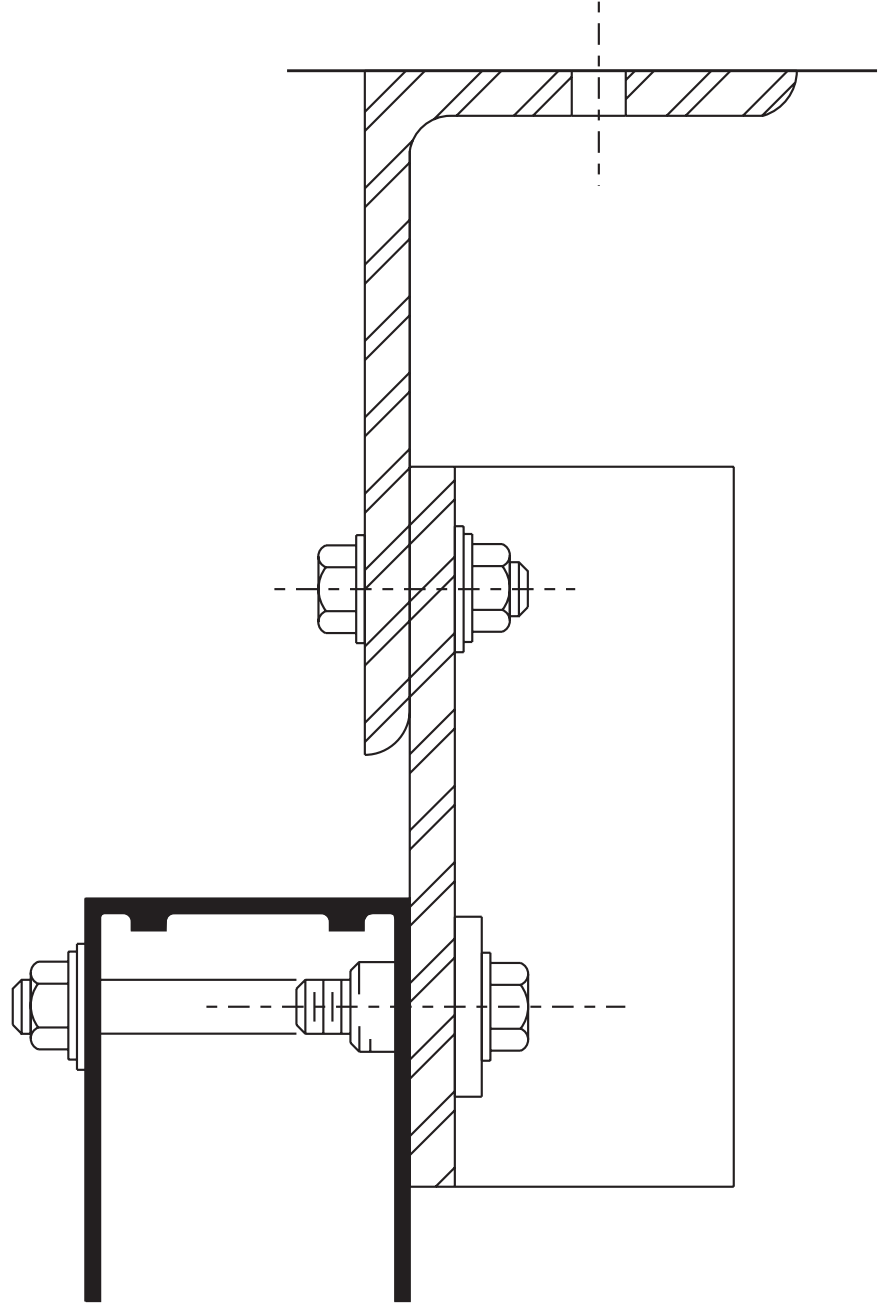
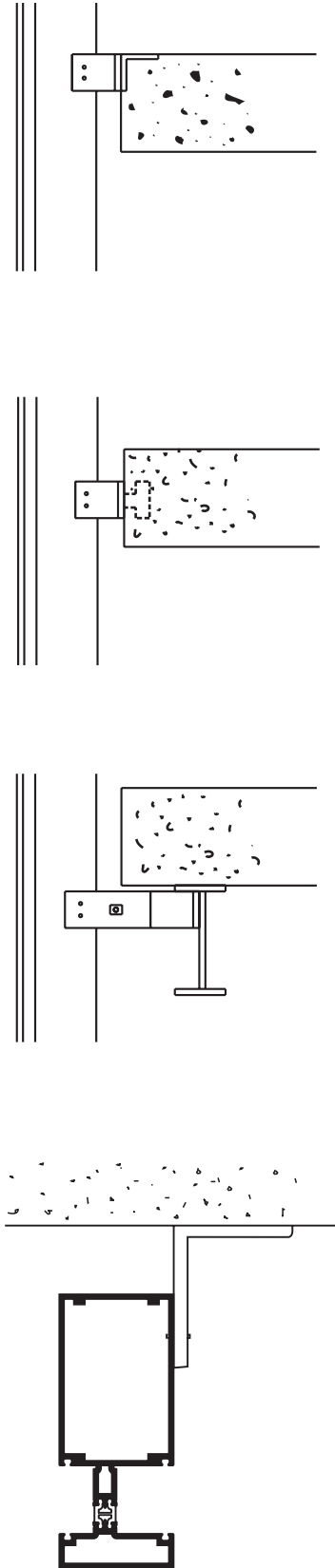
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## WIND LOAD CHARTS

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 psi (104 MPa), STEEL 30,000 psi (207 MPa). Charted curves, in all cases are for the limiting value. Wind load charts contained herein are based upon nominal wind load utilized in allowable stress design. A conversion from Load Resistance Factor Design (LRFD) is provided. To convert ultimate wind loads to nominal loads, multiply ultimate wind loads by a factor of 0.6 per ASCE/SEI 7. 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.

## DEADLOAD CHARTS

Horizontal or deadload limitations are based upon  $1/8"$  (3.2) maximum deflection at the center of an intermediate horizontal member. The accompanying charts are calculated for  $1/4"$  (6.4) and  $1"$  (25.4) thick glass supported on two setting blocks placed at the loading points shown.

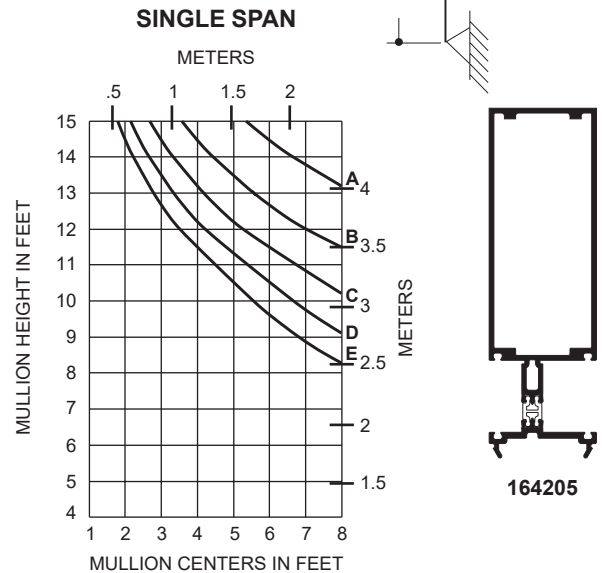
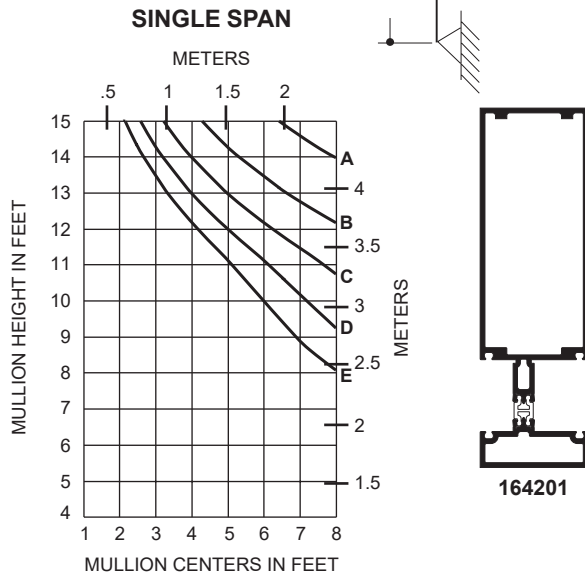
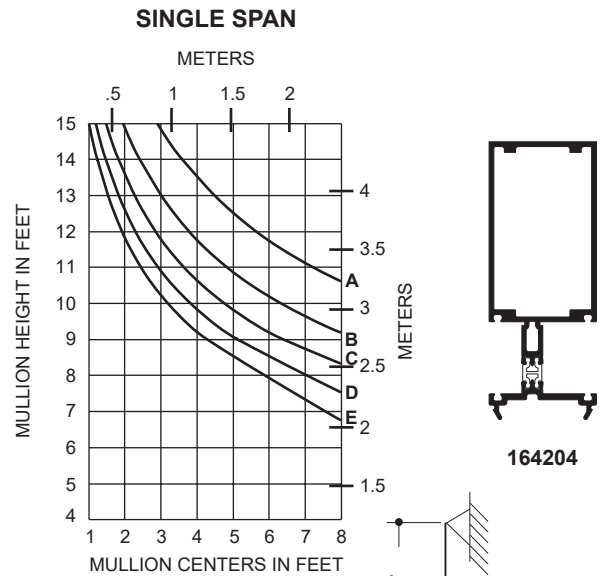
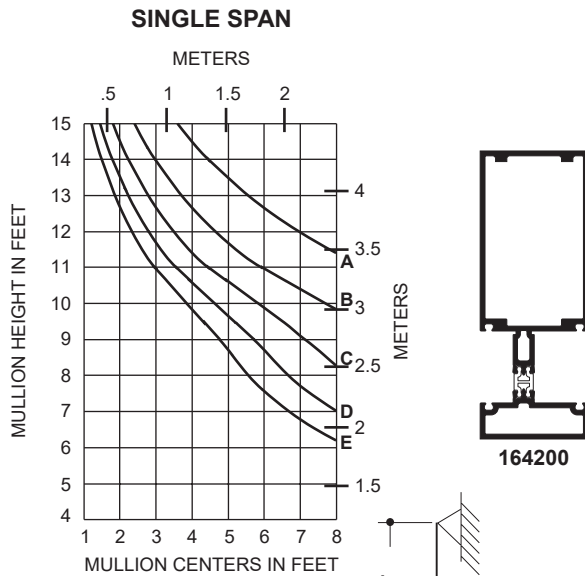
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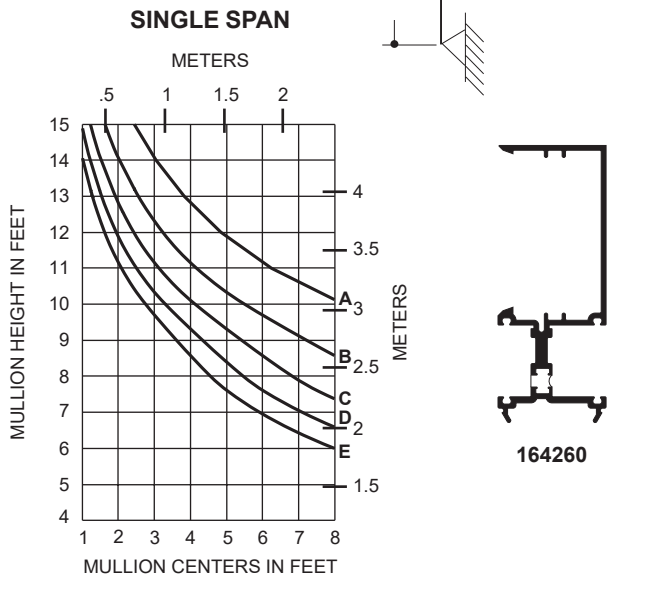
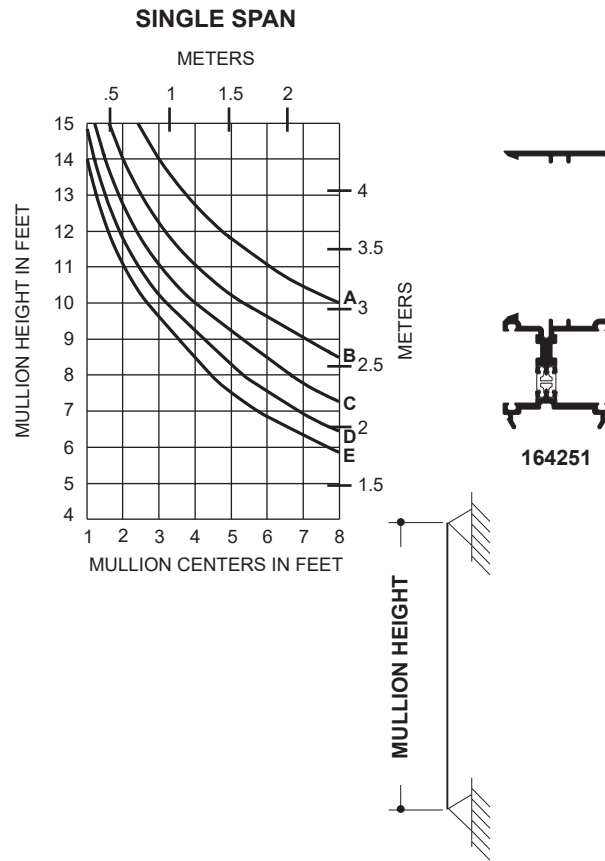
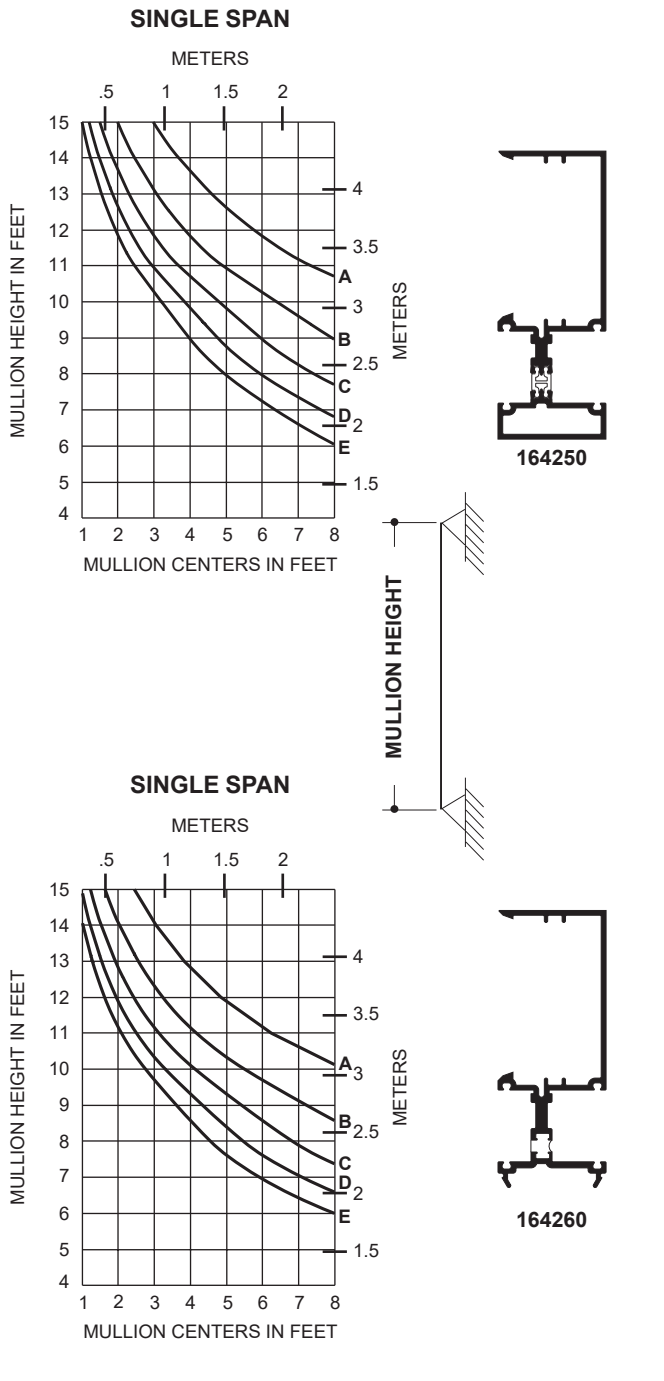
	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	30 PSF (1440)	50 PSF (2400)
C =	40 PSF (1920)	67 PSF (3200)
D =	50 PSF (2400)	83 PSF (4000)
E =	60 PSF (2880)	100 PSF (4790)

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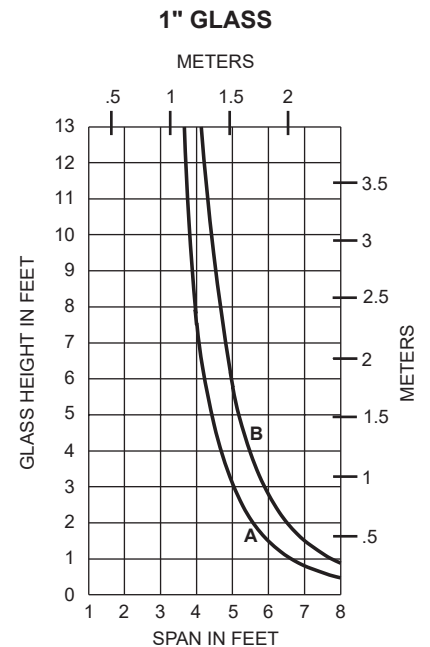
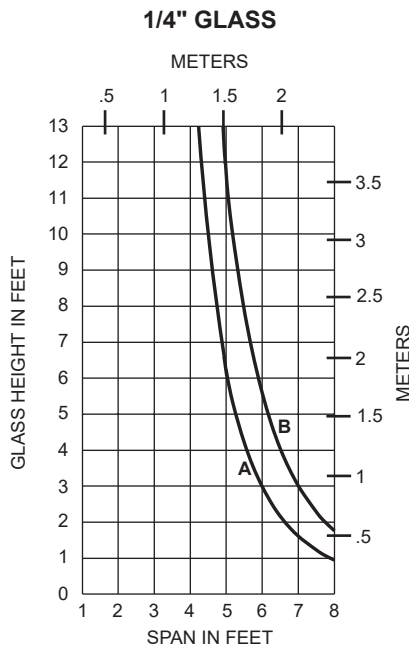
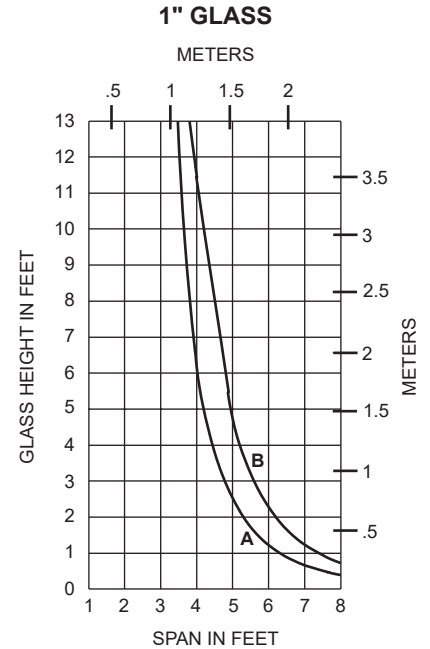
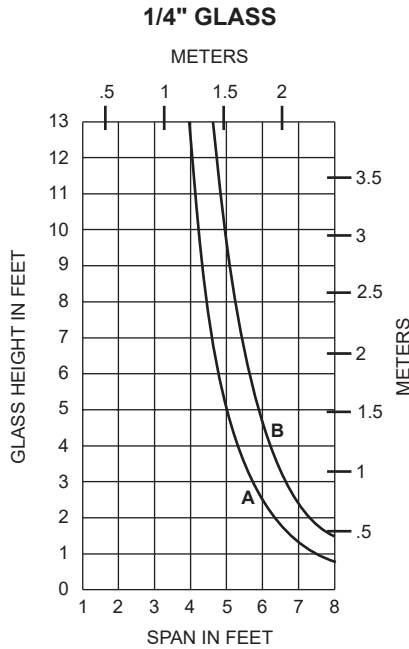
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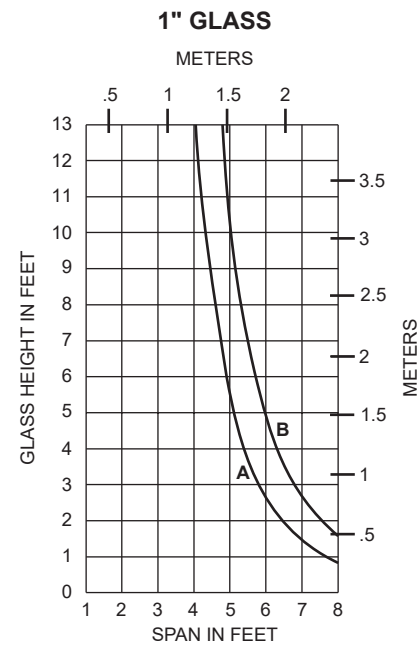
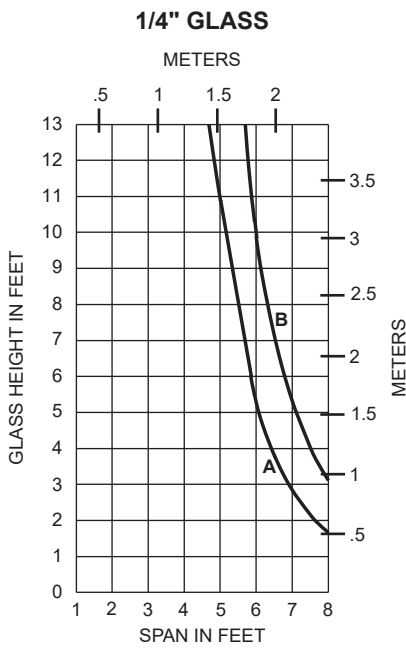
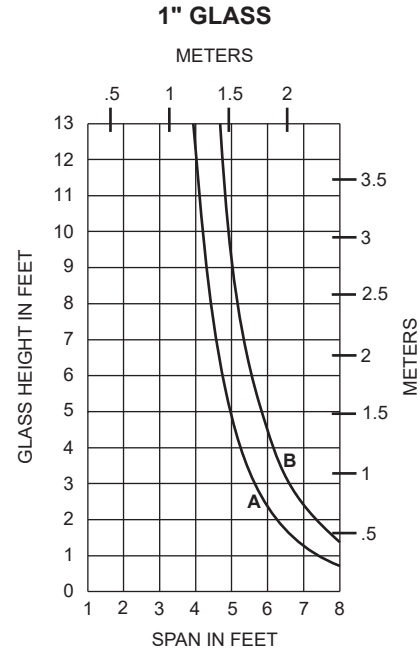
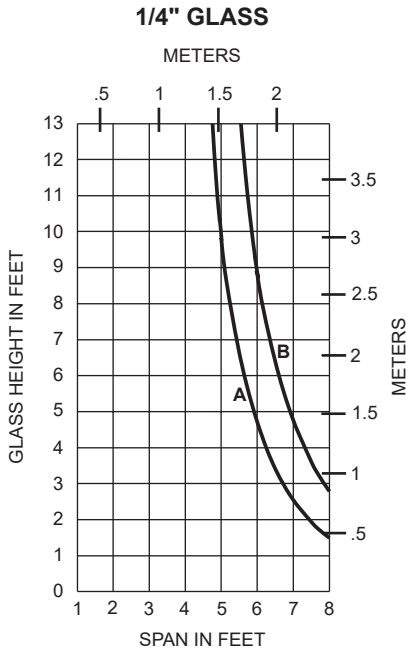
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A = 1/4 POINT LOADING  
B = 1/8 POINT LOADING



A = 1/4 POINT LOADING  
 B = 1/8 POINT LOADING



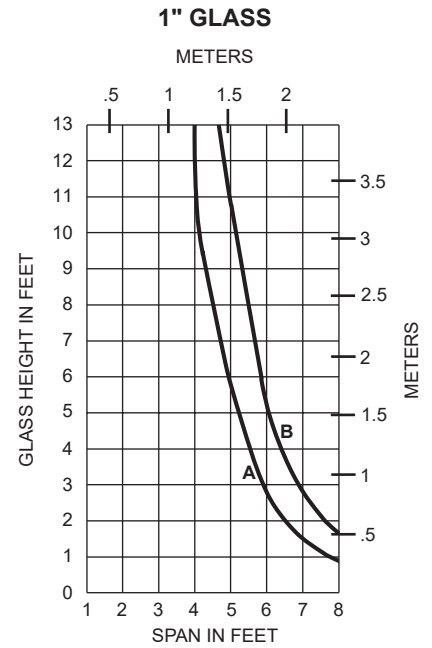
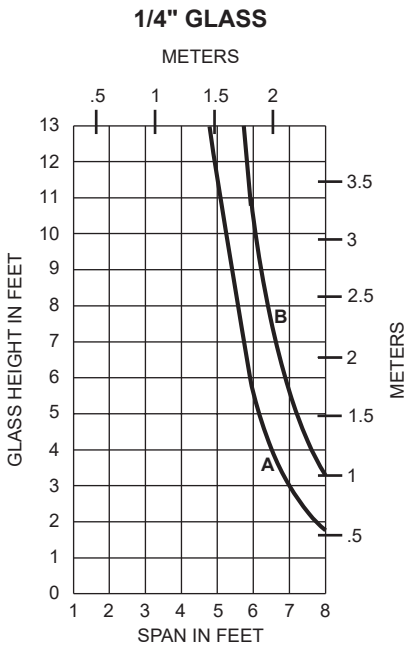
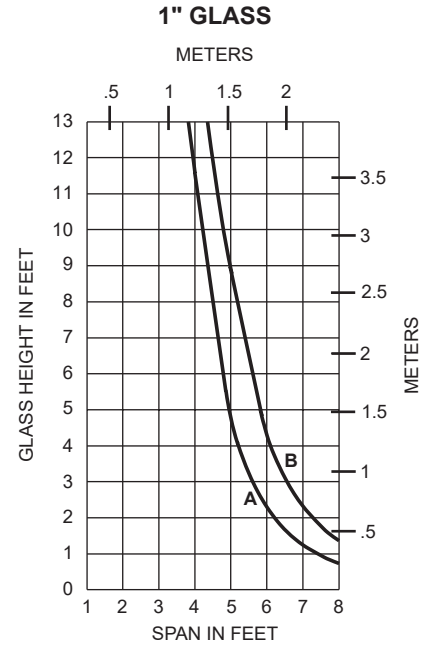
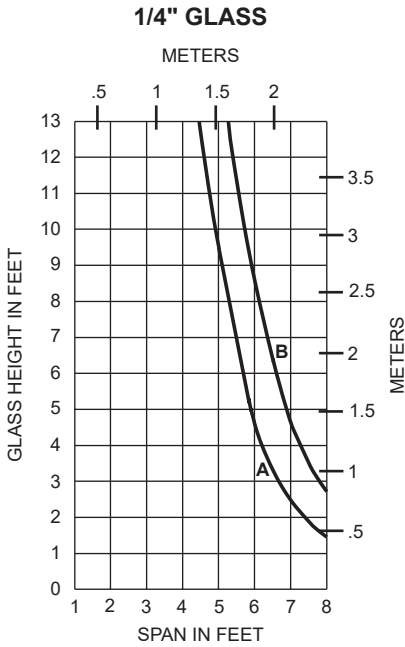
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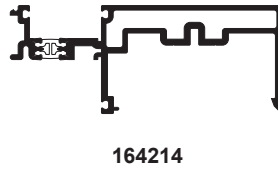
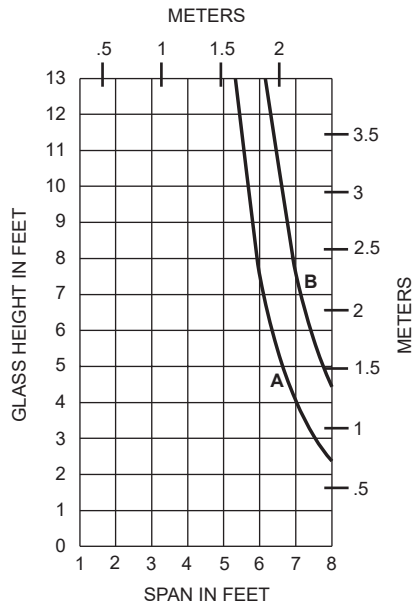
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B = 1/8 POINT LOADING

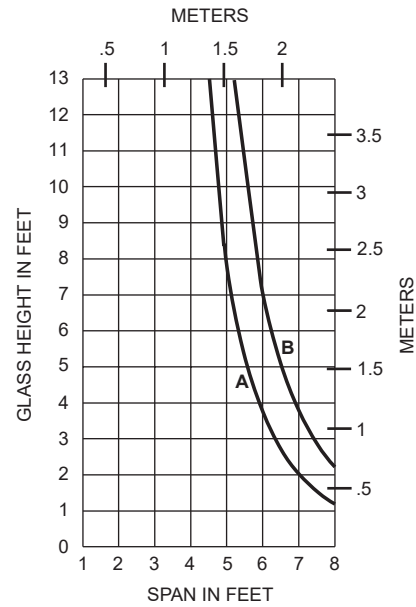


A = 1/4 POINT LOADING  
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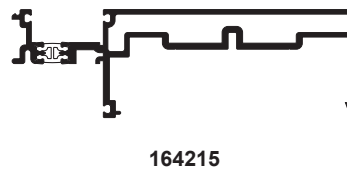
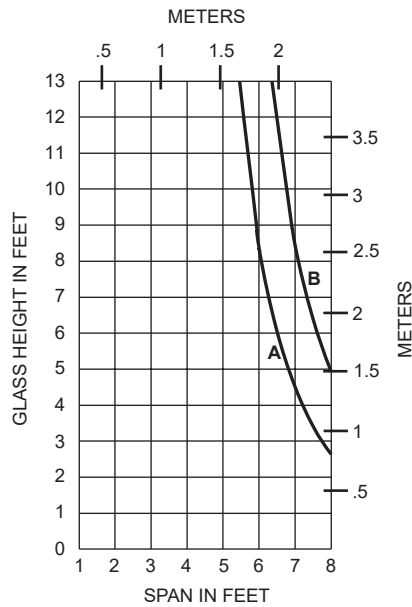
1/4" GLASS



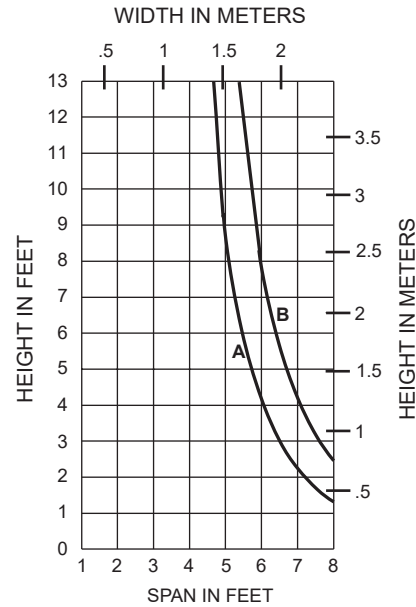
1" GLASS



1/4" GLASS



1" GLASS



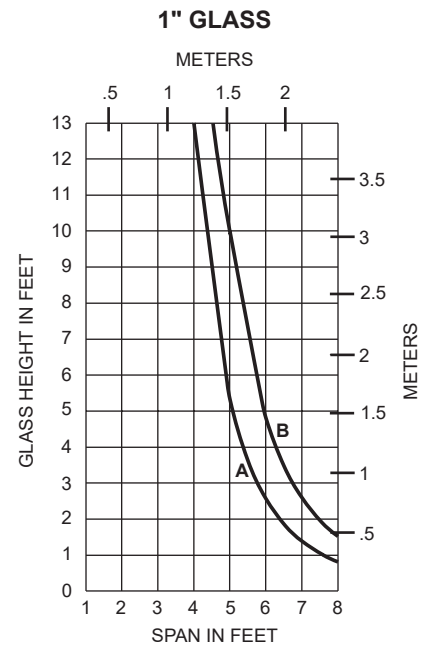
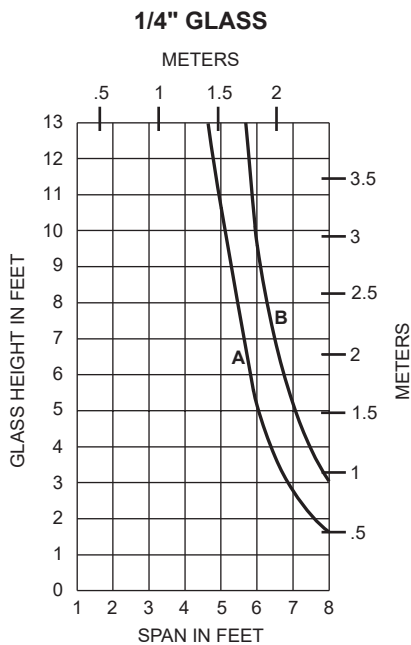
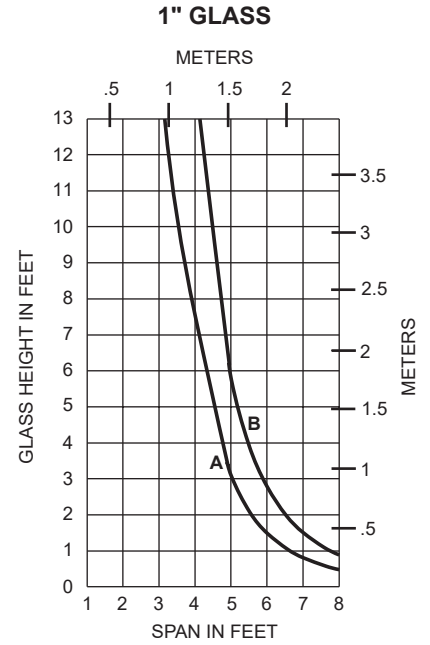
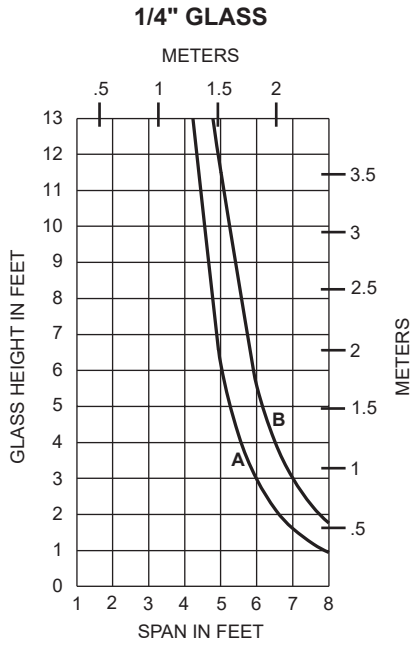
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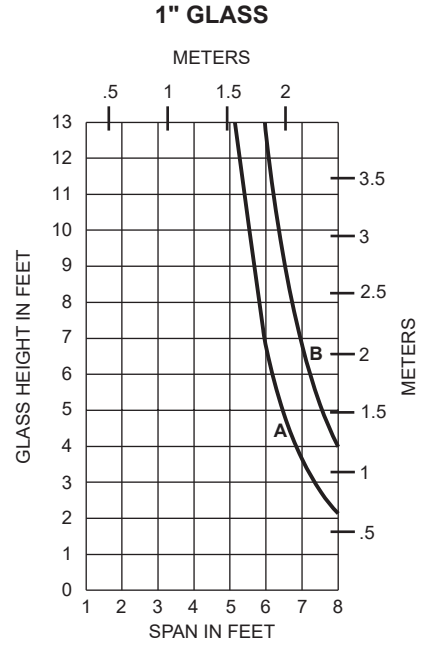
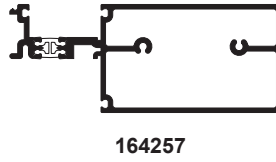
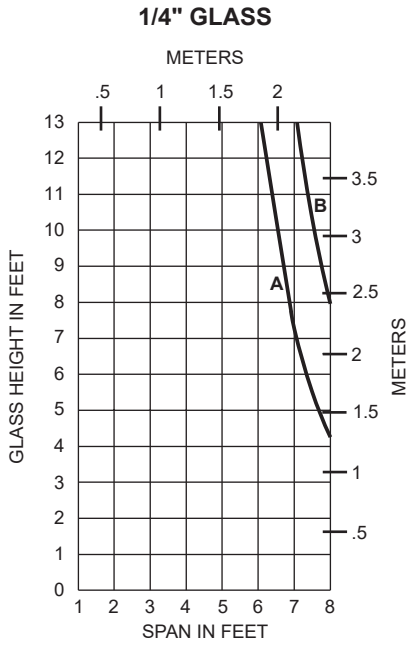
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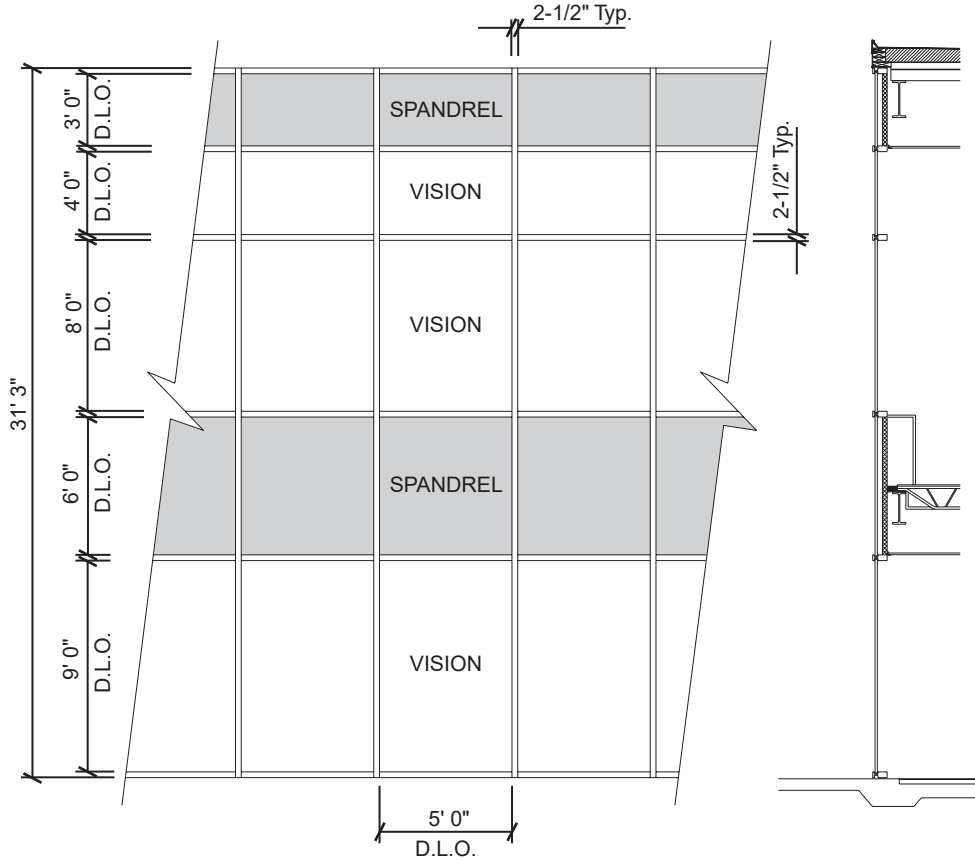
A = 1/4 POINT LOADING  
 B = 1/8 POINT LOADING



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



**Vision Area**

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

**Spandrel Area**

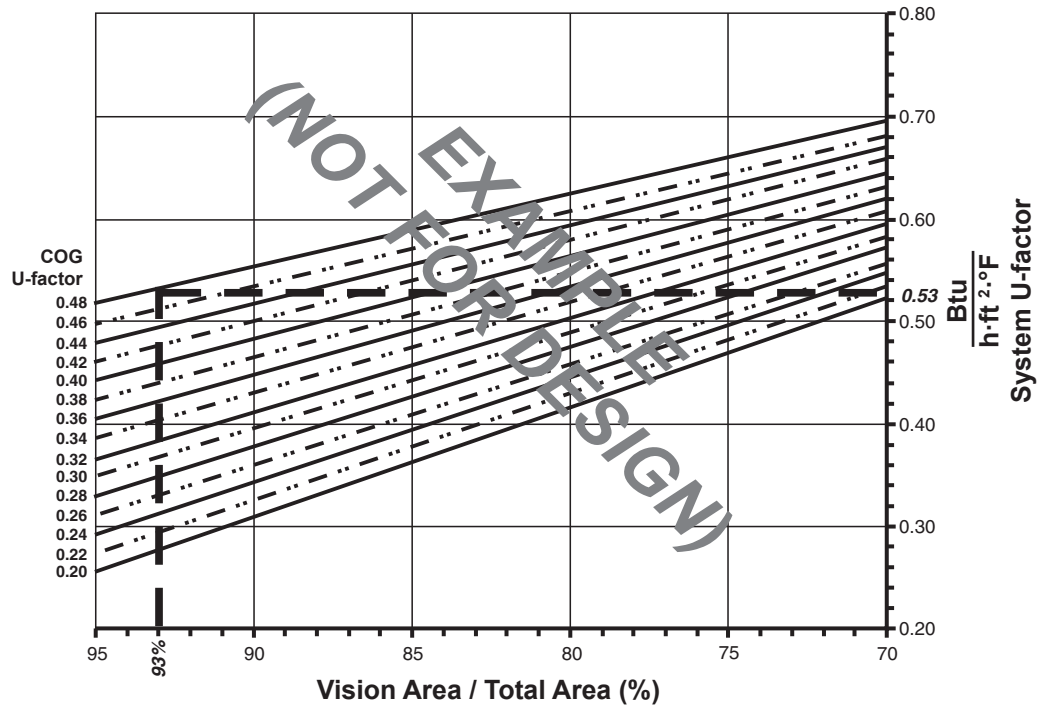
Example Spandrel R-value	= 15 (ft <sup>2</sup> · h · °F)/Btu
Spandrel Area	= 5(6 + 3) = 45.0 ft <sup>2</sup>
Total Area (Spandrel)	= 5' 2-1/2" (6' 2-1/2" + 3' 3-3/4") = 49.6 ft <sup>2</sup>
Percent of Spandrel	= (Spandrel Area ÷ Total Area)100 = (45.0 ÷ 49.6)100 = 91%

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Vision Area Chart

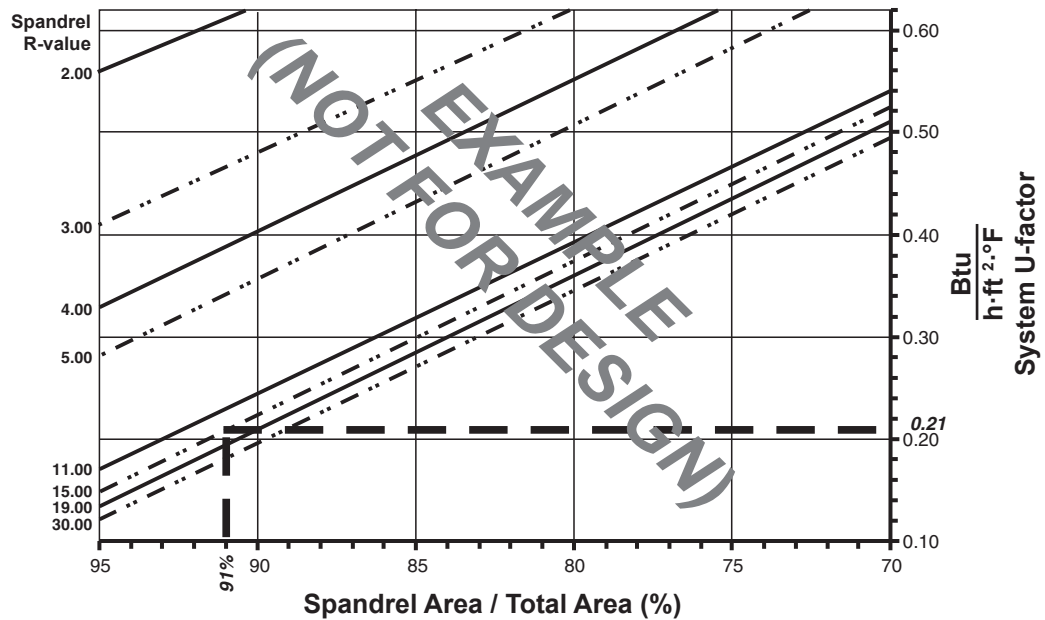
System U-factor vs Percent of Vision Area



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·ft<sup>2</sup>·°F)

Spandrel Area Chart

System U-factor vs Percent of Spandrel Area



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·ft<sup>2</sup>·°F)

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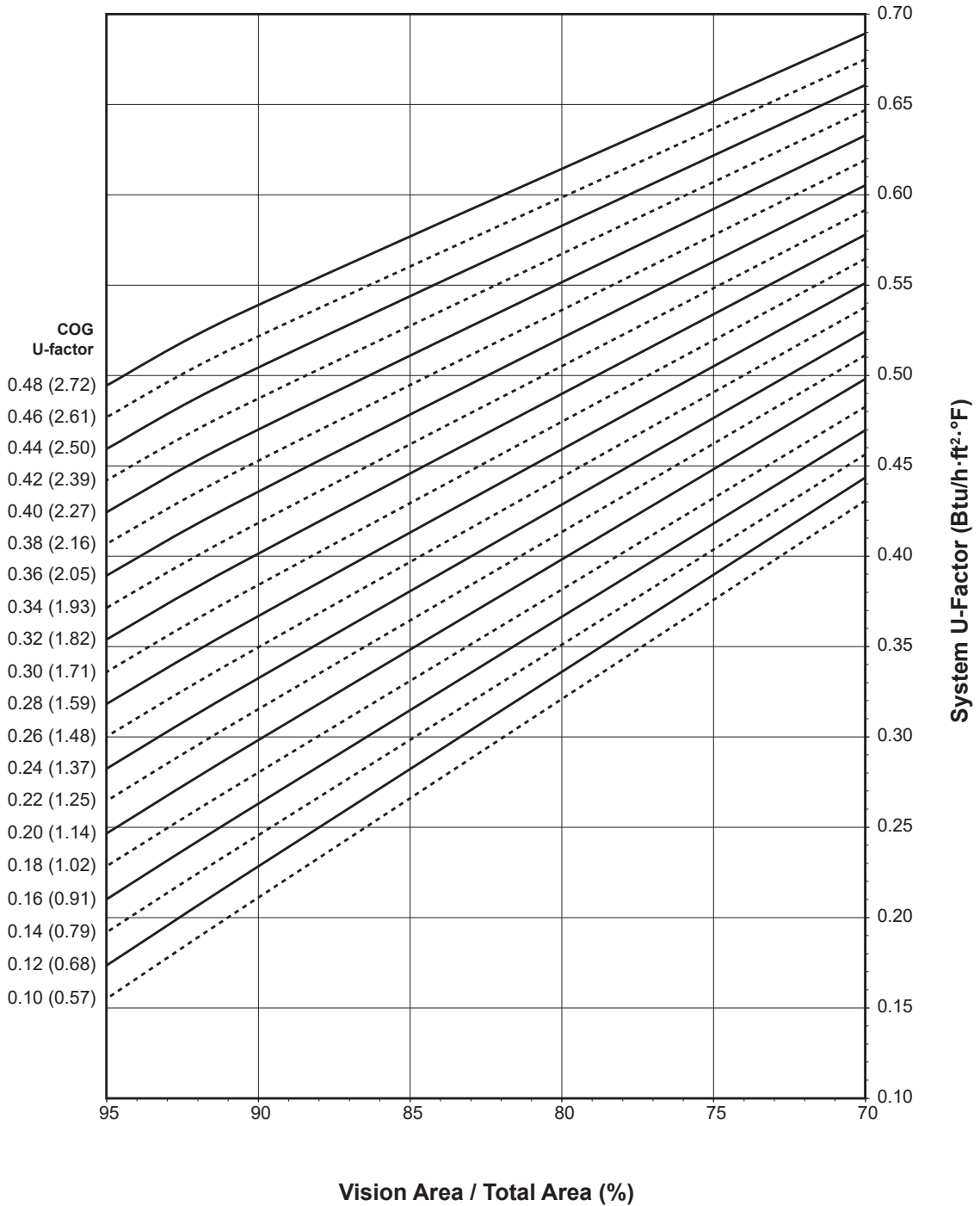
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1" Double Glazed - Warm-Edge Glazing Spacer

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

System U-Factor for Vision Glass

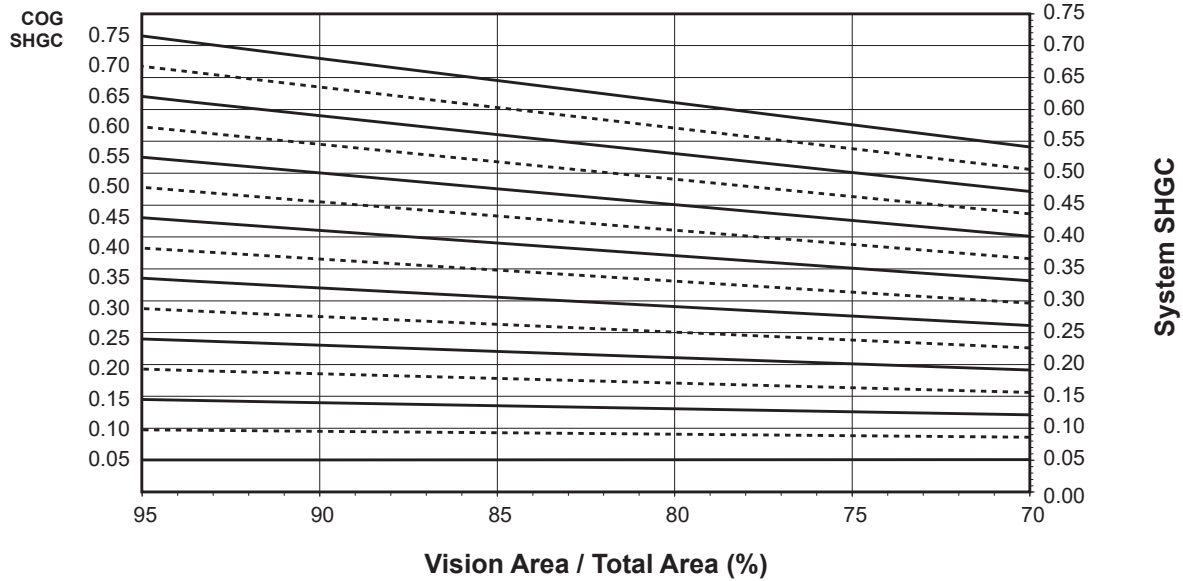


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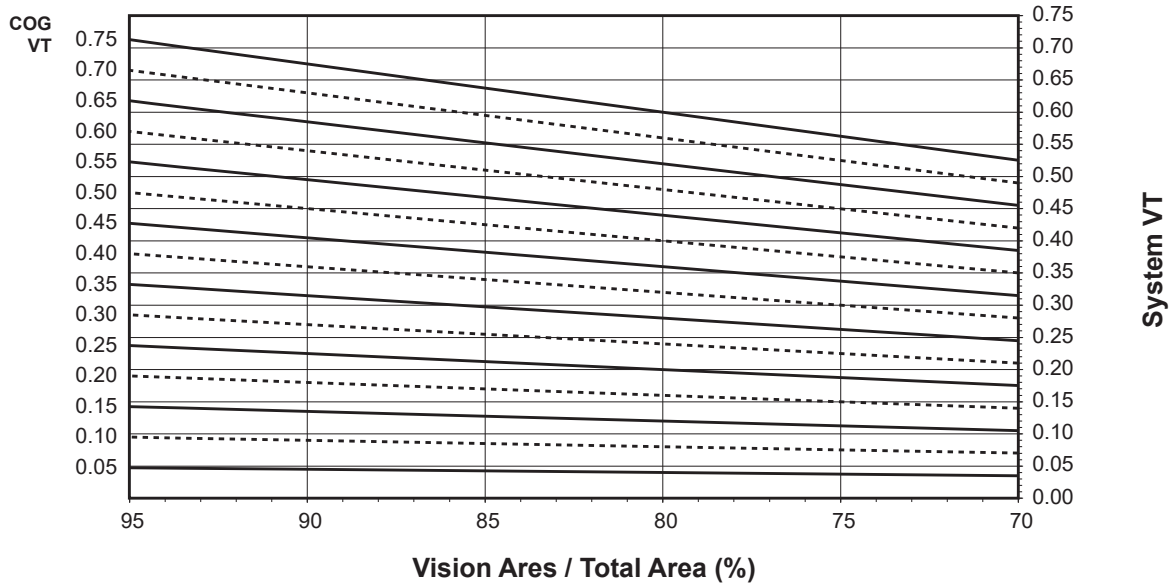
## 1" Double Glazed - Warm-Edge Glazing Spacer

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.

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

Glass U-Factor <sup>3</sup>	Overall U-Factor <sup>4</sup>
0.48	0.53
0.46	0.52
0.44	0.50
0.42	0.48
0.40	0.47
0.38	0.45
0.36	0.43
0.34	0.41
0.32	0.40
0.30	0.38
0.28	0.36
0.26	0.34
0.24	0.33
0.22	0.31
0.20	0.29

**1" Double Glazed  
Warm-Edge Glazing Spacer**

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

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matrices are based on the standard NFRC specimen size of 2,000 mm wide by 2,000 mm high (78-3/4" by 78-3/4").

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

Glass SHGC <sup>3</sup>	Overall SHGC <sup>4</sup>
0.75	0.68
0.70	0.64
0.65	0.59
0.60	0.55
0.55	0.50
0.50	0.46
0.45	0.41
0.40	0.37
0.35	0.32
0.30	0.28
0.25	0.23
0.20	0.19
0.15	0.14
0.10	0.10
0.05	0.05

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

Glass VT <sup>3</sup>	Overall VT <sup>4</sup>
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

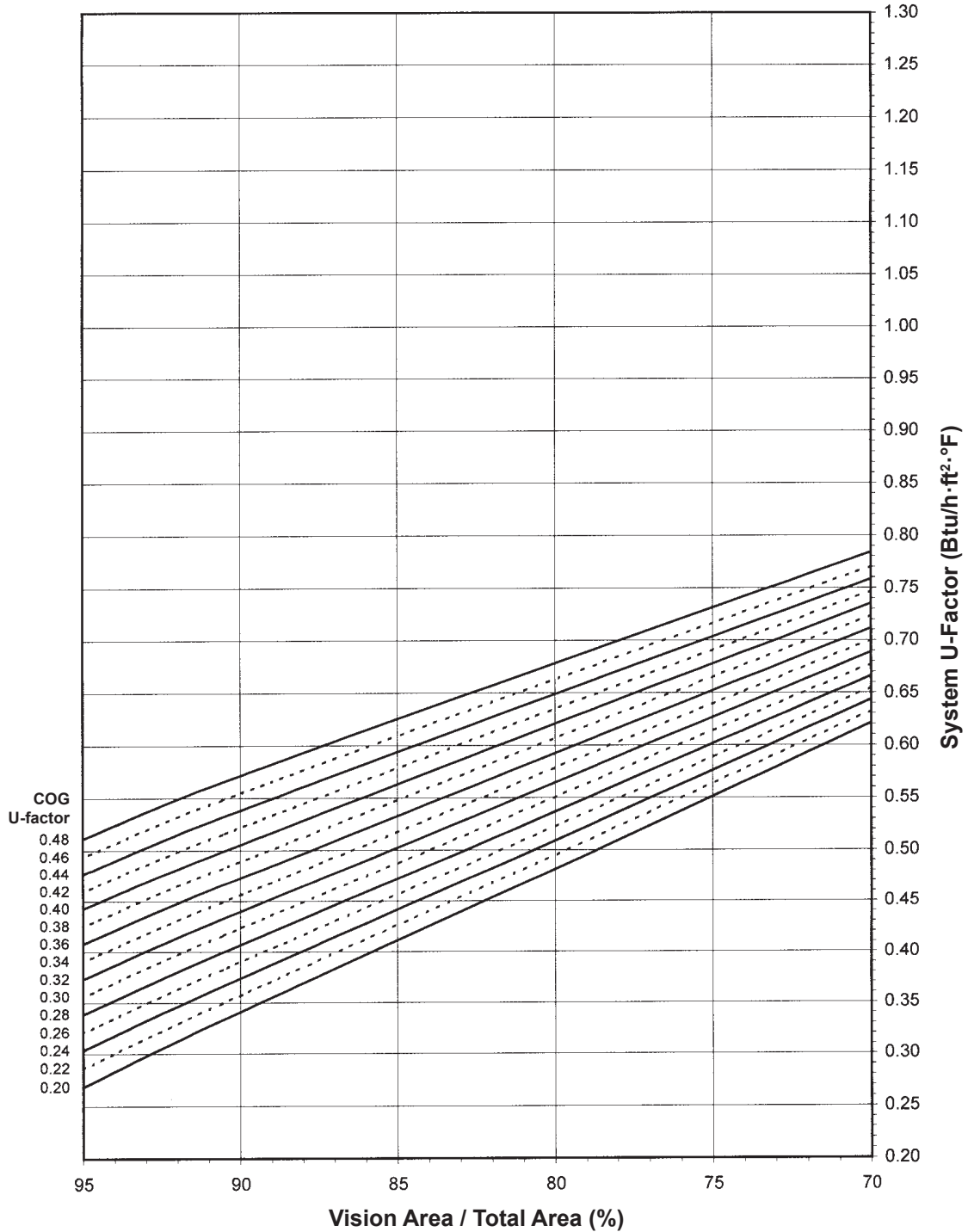
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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1" Double Glazed - Aluminum Glazing Spacer

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

System U-Factor for Vision Glass



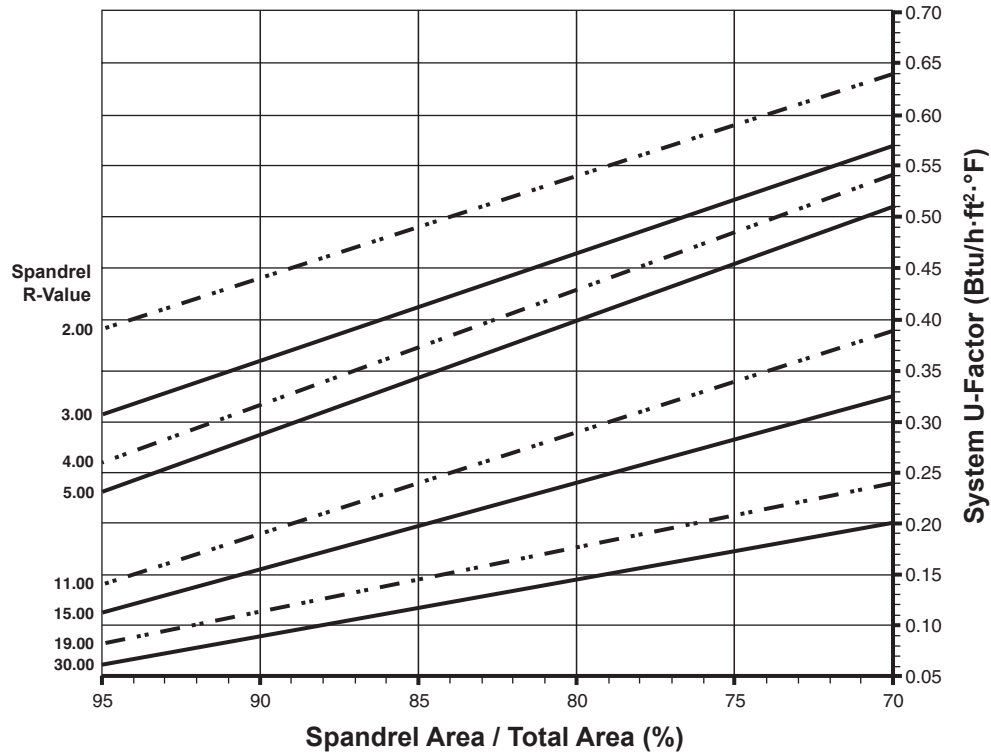
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1/4" Single Glazed

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

System U-Factors for Spandrel Glass

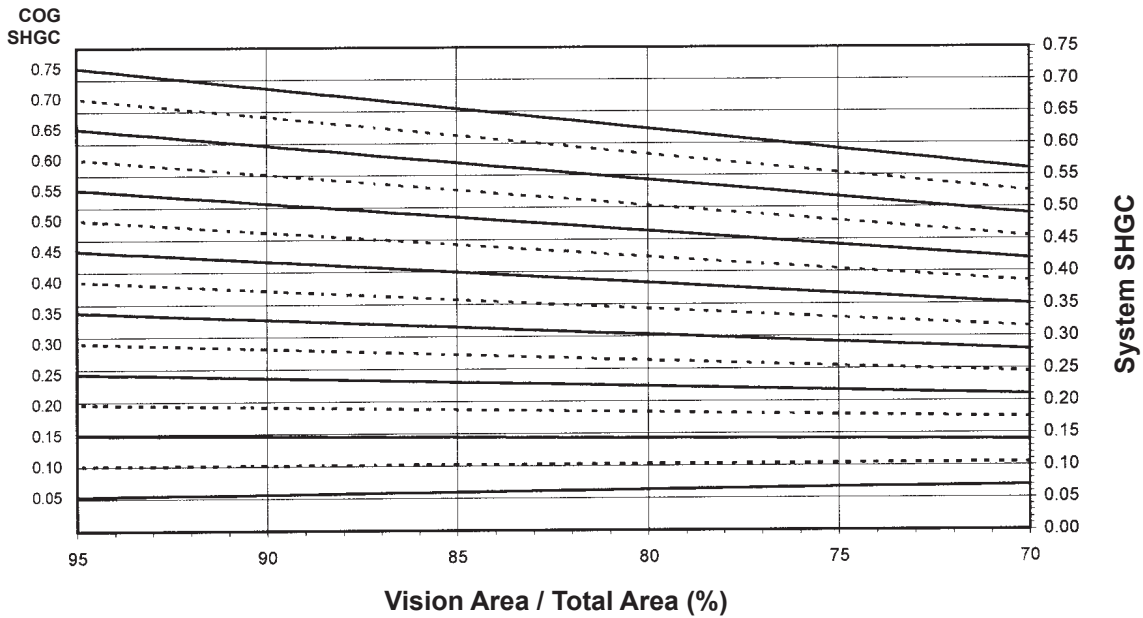


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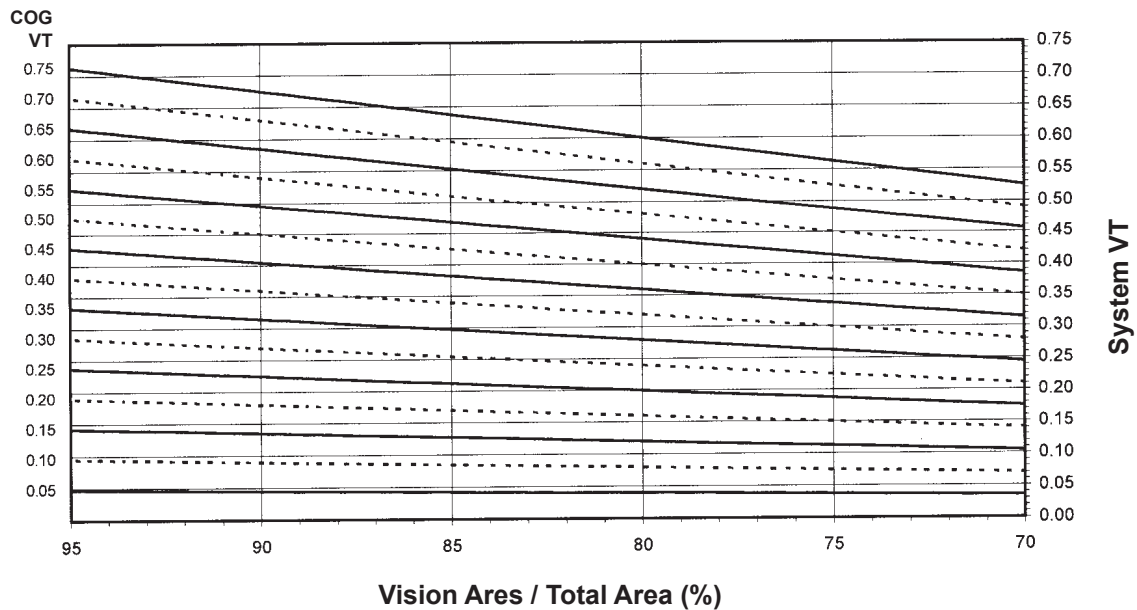
1" Double Glazed - Aluminum Glazing Spacer

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.

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

Glass U-Factor <sup>3</sup>	Overall U-Factor <sup>4</sup>
0.48	0.57
0.46	0.55
0.44	0.53
0.42	0.52
0.40	0.50
0.38	0.48
0.36	0.47
0.34	0.45
0.32	0.43
0.30	0.42
0.28	0.40
0.26	0.38
0.24	0.37
0.22	0.35
0.20	0.33

**1" Double Glazed Aluminum Glazing Spacer**

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

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matrices are based on the standard NFRC specimen size of 2,000 mm wide by 2,000 mm high (78-3/4" by 78-3/4").

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

Glass SHGC <sup>3</sup>	Overall SHGC <sup>4</sup>
0.75	0.69
0.70	0.64
0.65	0.60
0.60	0.55
0.55	0.51
0.50	0.46
0.45	0.42
0.40	0.37
0.35	0.33
0.30	0.28
0.25	0.24
0.20	0.19
0.15	0.15
0.10	0.10
0.05	0.06

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

Glass VT <sup>3</sup>	Overall VT <sup>4</sup>
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

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## CONDENSATION RESISTANCE

Glazing Infill	Condensation Resistance Factor (CRF) AAMA 1503		Temperature Index (TI) CSA A440-0	
	Frame	Glass	Frame	Glass
1" Double	74	60	66	53
1" Double (Low-e)	79	73	---	---

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