

## **Features**

- 1600 Wall System®1 is an outside glazed captured curtain wall
- 1600 Wall System®1 has a 2-1/2" (63.5) sightline
- Standard 6" (152.4) or 7-1/2" (190.5) depth systems
- Standard infill options 1/4" (6.4) and 1" (25.4), other infills available
- Thermally Broken by means of a continuous 1/4" (6.4) low conductance spacer
- Concealed fastener joinery creates smooth, monolithic appearance
- Open-back horizontals and perimeters are available for cost savings
- Shear block fabrication method
- Corners and splayed mullions
- Offers integrated entrance framing systems
- Silicone compatible glazing materials for long-lasting seals
- 1600 Wall System®1 has been small and large missile impact and cycle tested
- Two color option
- Permanodic® anodized finishes option
- Painted finishes in standard and custom choices

## **Optional Features**

- Steel reinforcing
- Rain screen and backpans
- Optional deep profile and bull nose covers
- Deep and heavy-weight mullions
- Fiberglass pressure plates
- Veneer system
- Integrates with standard Kawneer windows and GLASSvent® windows for curtain wall
- Integrates with Versoleil® Sunshade Outrigger System and Horizontal or Vertical Single Blade System
- Integrates with 1600 PowerShade®
- Profit\$Maker® Plus die sets
- Hurricane impact resistant framing options: 7-1/16" (179.4), 7-13/16" (198.4), 10-1/16" (255.6) & 10-13/16" (274.6)
- Hurricane impact resistant glazed-in panel
- Seismic performance tested with AAMA 501.4 and AAMA 501.6 standards

## **Product Applications**

- Ideal for low to mid-rise applications where high performance is desired
- It also is the right choice for high span applications

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:

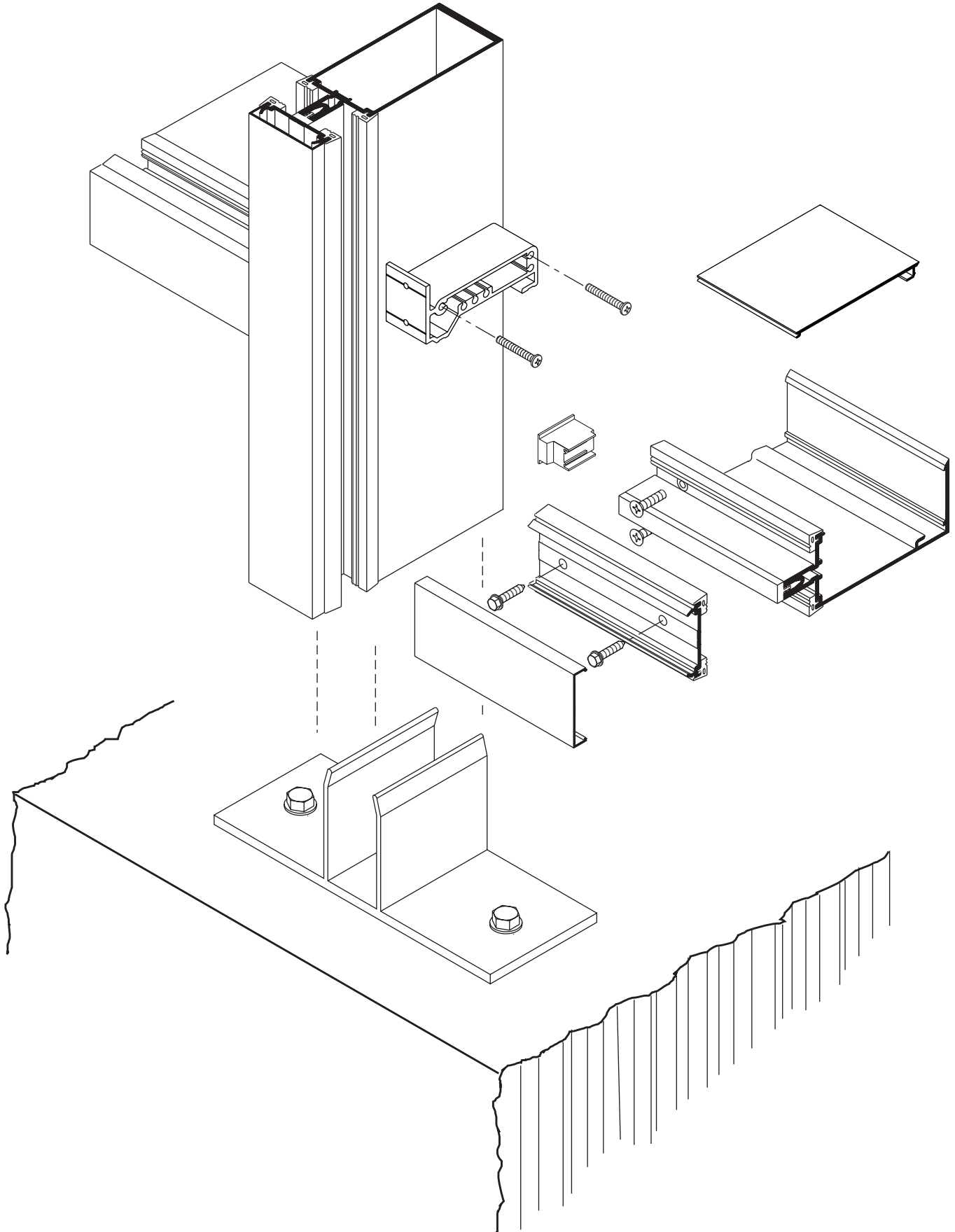
- m – meter
- cm – centimeter
- mm – millimeter
- s – second
- Pa – pascal
- MPa – megapascal

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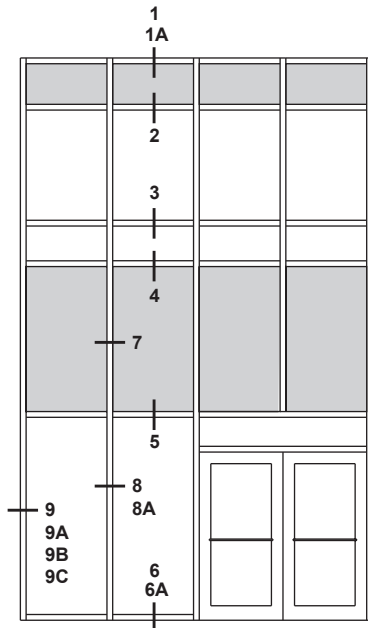
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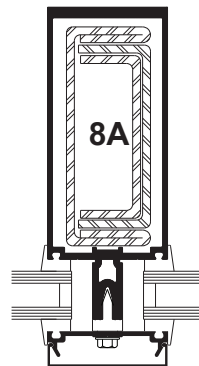
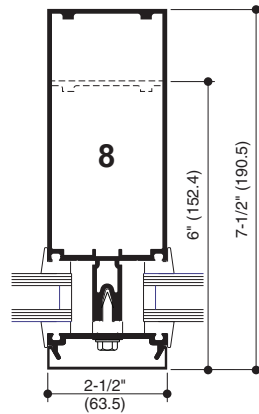
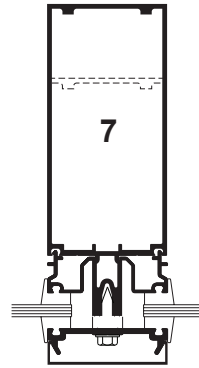
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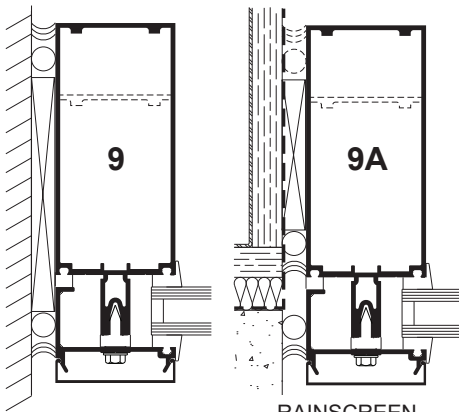
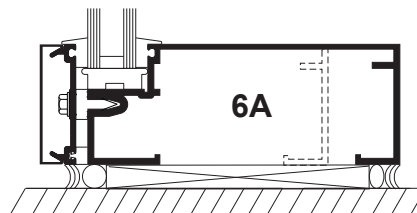
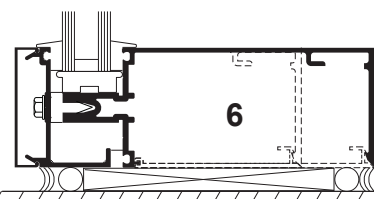
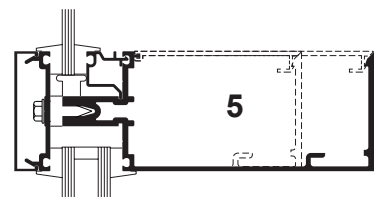
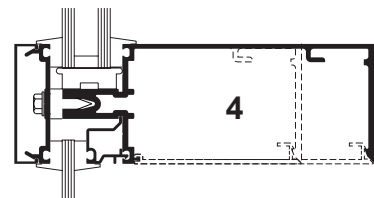
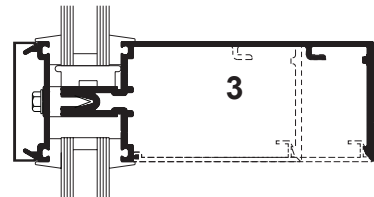
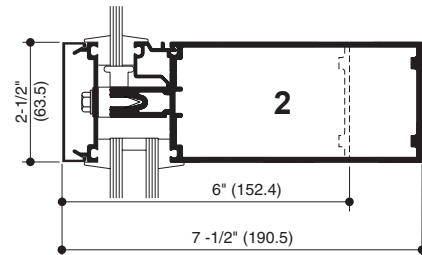
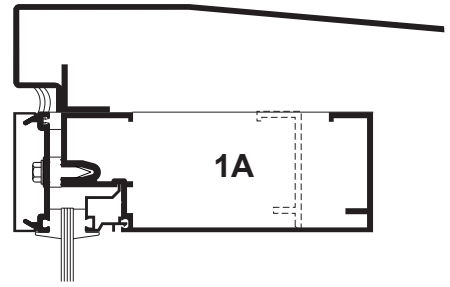
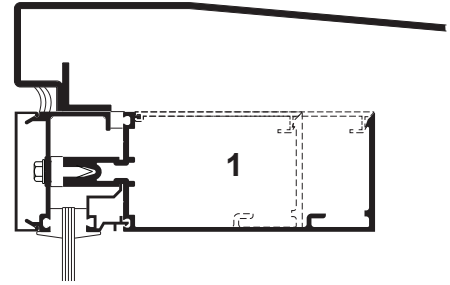
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ELEVATION IS NUMBER KEYED TO DETAILS

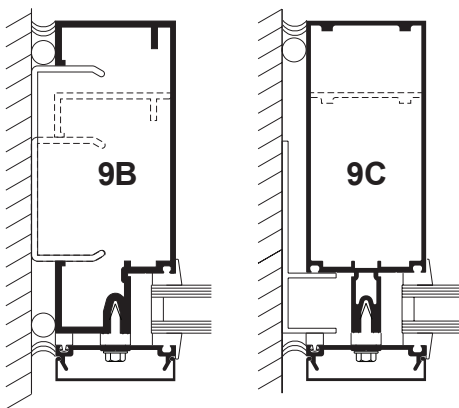


OPTIONAL STEEL REINFORCING AS REQUIRED



RAINSCREEN AIR/WATER SEAL

Note: Jamb detail shown only, other perimeter details similar.



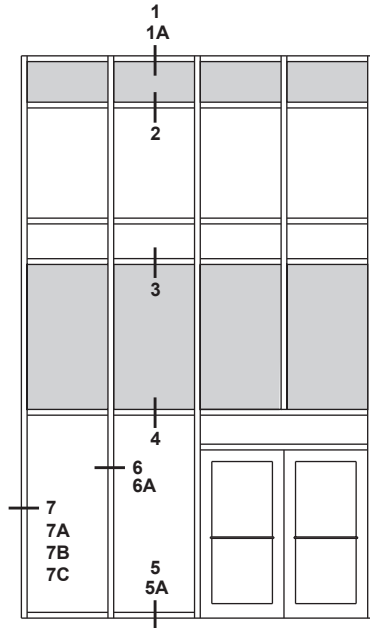
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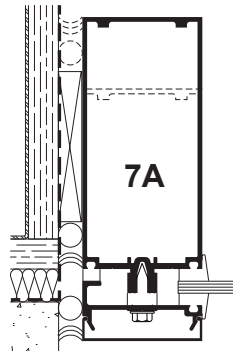
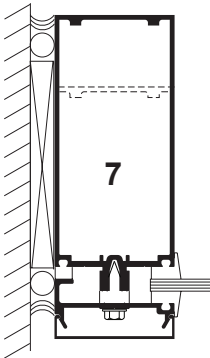
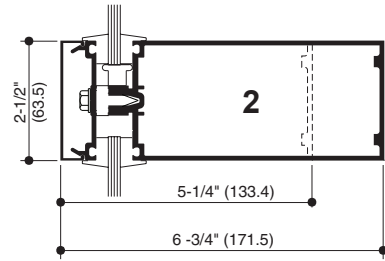
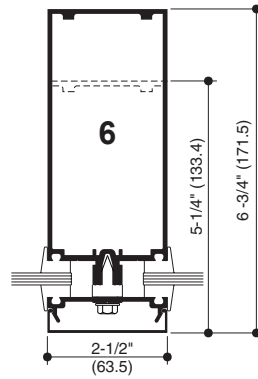
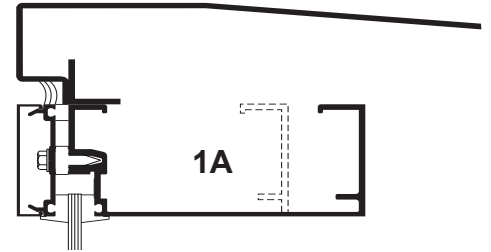
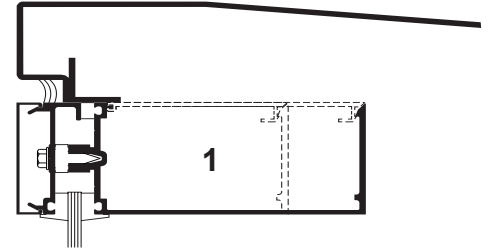
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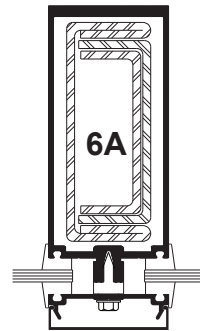
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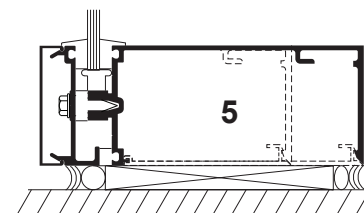
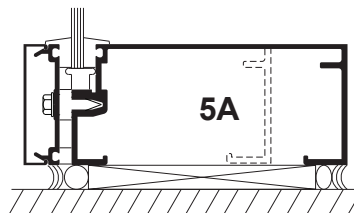
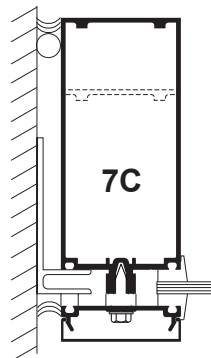
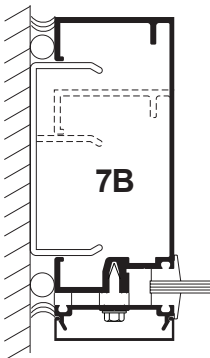
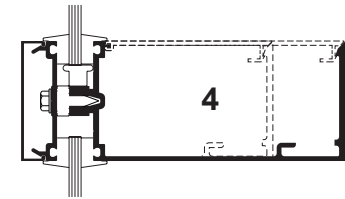
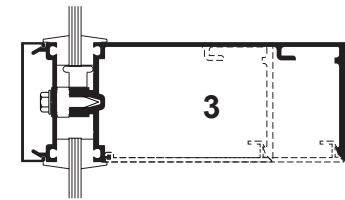
ELEVATION IS NUMBER KEYED TO DETAILS



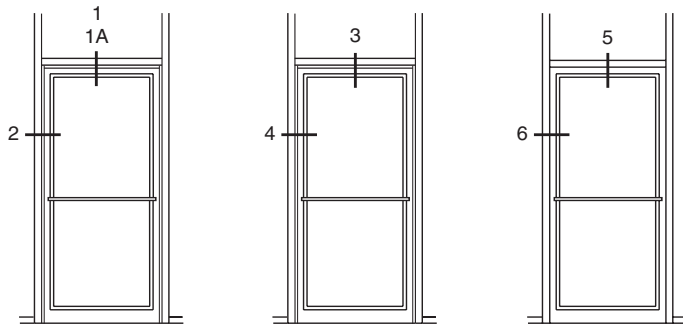
RAINSCREEN AIR/WATER SEAL  
Note: Jamb detail shown only, other perimeter details similar.



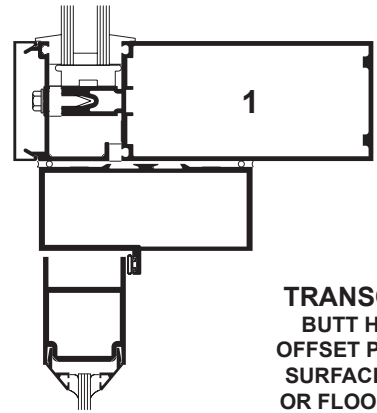
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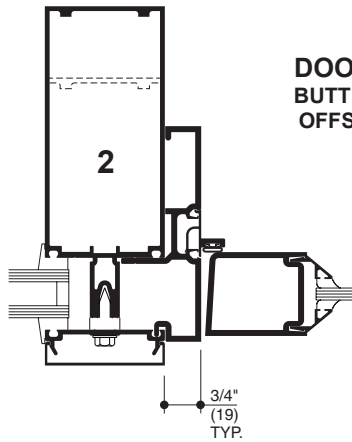
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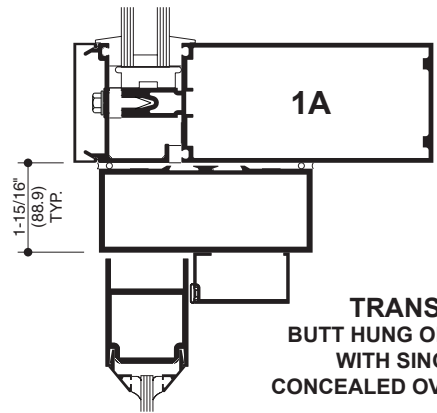
B/H OR O/P                      C/H                      B/H OR O/P  
 ELEVATION IS NUMBER KEYED TO DETAILS



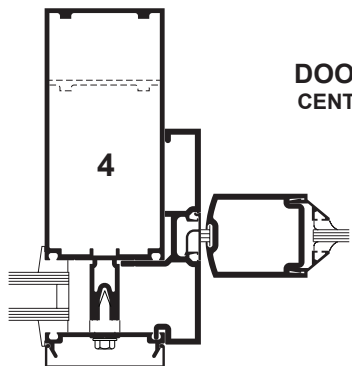
**TRANSOM BAR**  
 BUTT HUNG OR  
 OFFSET PIVOT WITH  
 SURFACE CLOSER  
 OR FLOOR CLOSER



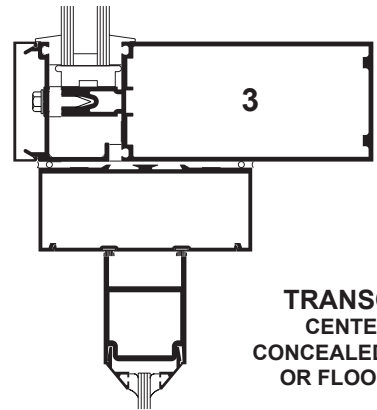
**DOOR JAMB**  
 BUTT HUNG OR  
 OFFSET PIVOT



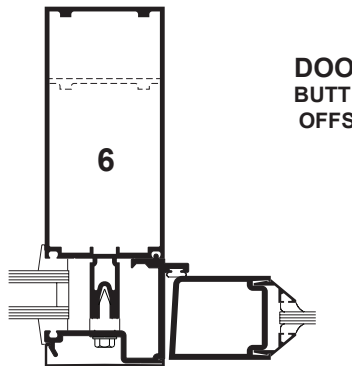
**TRANSOM BAR**  
 BUTT HUNG OR OFFSET PIVOT  
 WITH SINGLE ACTING  
 CONCEALED OVERHEAD CLOSER



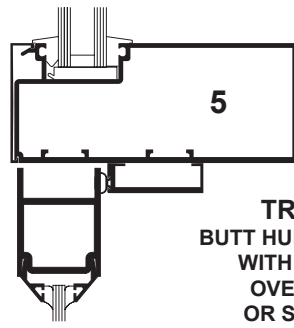
**DOOR JAMB**  
 CENTER HUNG



**TRANSOM BAR**  
 CENTER HUNG  
 CONCEALED OVERHEAD  
 OR FLOOR CLOSER



**DOOR JAMB**  
 BUTT HUNG OR  
 OFFSET PIVOT



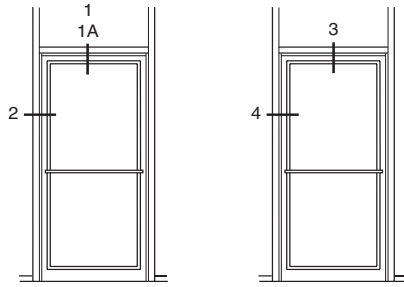
**TRANSOM BAR**  
 BUTT HUNG OR OFFSET PIVOT  
 WITH LCN CONCEALED  
 OVER HEAD CLOSER  
 OR SURFACE CLOSER

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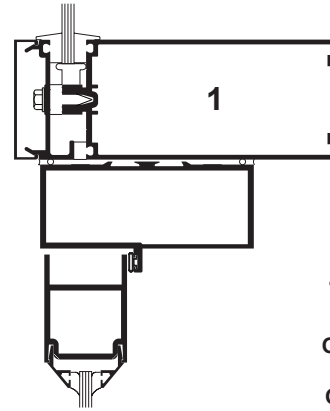
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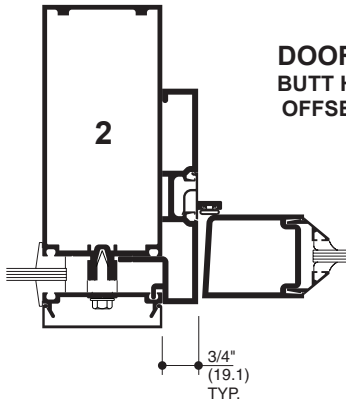
**B/H OR O/P**

**C/H**

ELEVATION IS NUMBER KEYED TO DETAILS

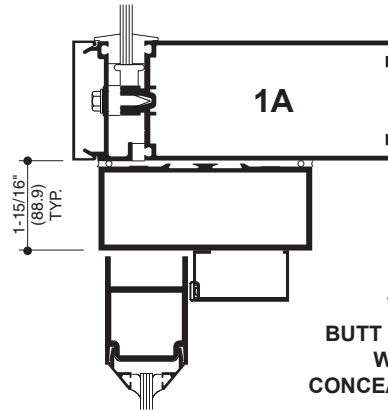


**TRANSOM BAR  
BUTT HUNG OR  
OFFSET PIVOT WITH  
SURFACE CLOSER  
OR FLOOR CLOSER**



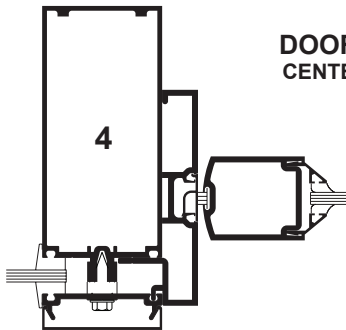
**DOOR JAMB  
BUTT HUNG OR  
OFFSET PIVOT**

3/4"  
(19.1)  
TYP.

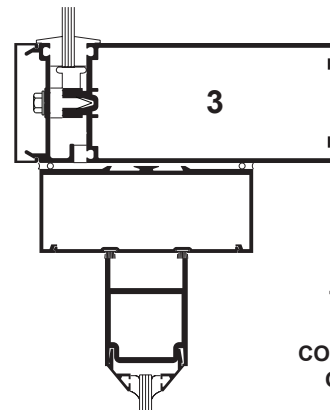


**TRANSOM BAR  
BUTT HUNG OR OFFSET PIVOT  
WITH SINGLE ACTING  
CONCEALED OVERHEAD CLOSER**

1-15/16"  
(88.9)  
TYP.



**DOOR JAMB  
CENTER HUNG**



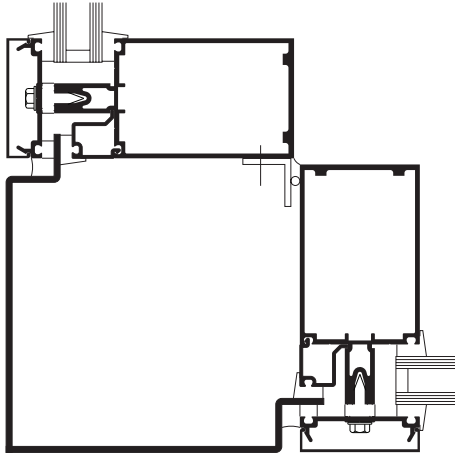
**TRANSOM BAR  
CENTER HUNG  
CONCEALED OVERHEAD  
OR FLOOR CLOSER**

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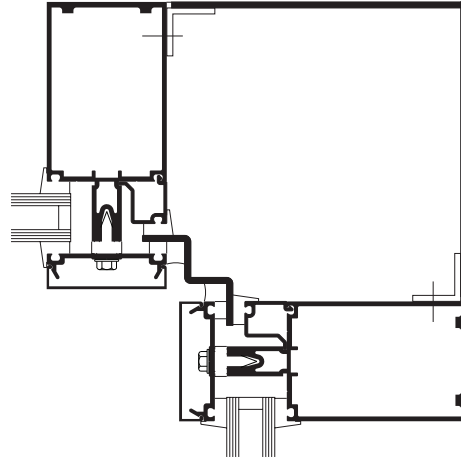
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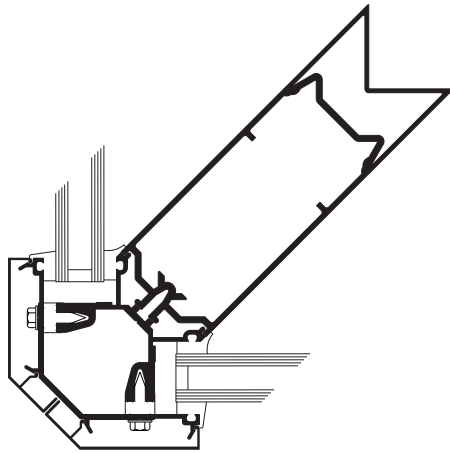
NOTE: 1" SYSTEM SHOWN, 1/4" SYSTEM SIMILAR.



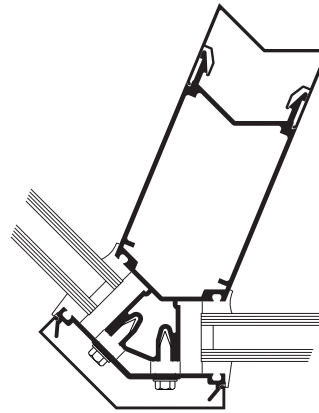
90° OUTSIDE CORNER



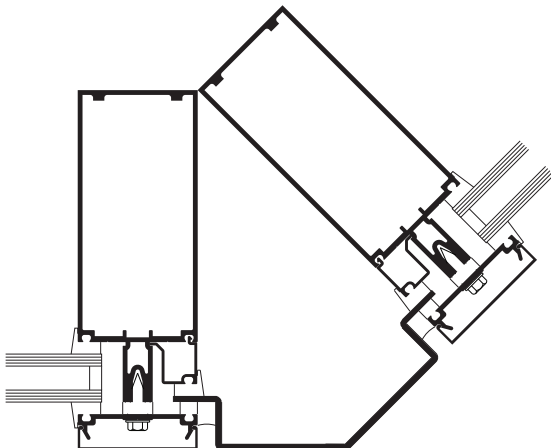
90° INSIDE CORNER



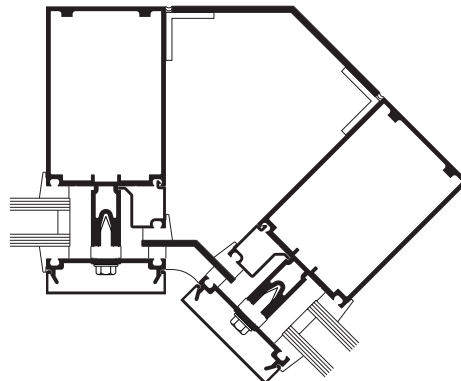
90° OUTSIDE CORNER



135° OUTSIDE CORNER



135° OUTSIDE CORNER

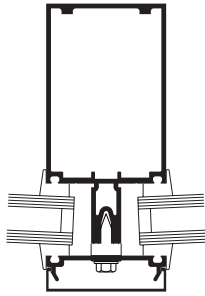


135° INSIDE CORNER

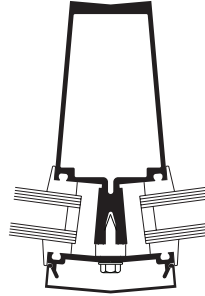
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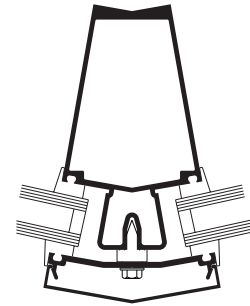
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0° TO 5°

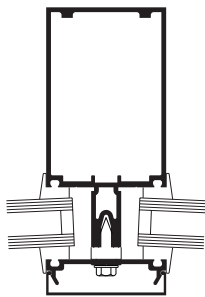


5° TO 15°

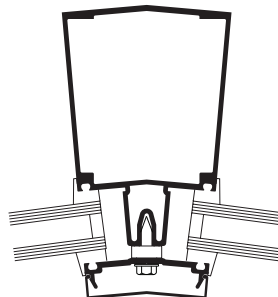


15° TO 25°

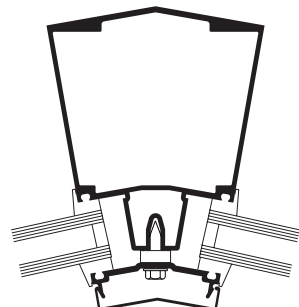
## OUTSIDE SPLAYED MULLIONS



0° TO 5°



5° TO 15°



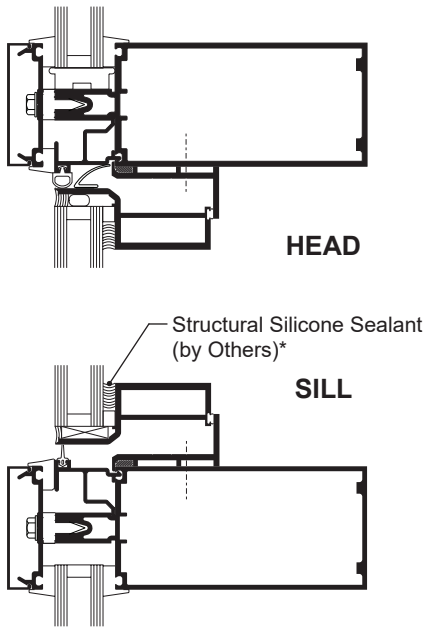
15° TO 25°

## INSIDE SPLAYED MULLIONS

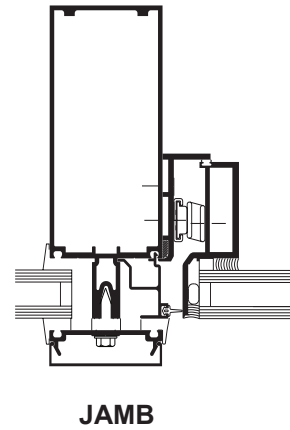
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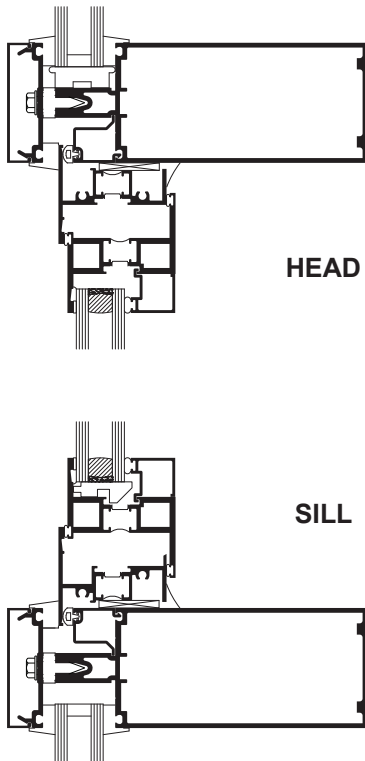
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GLASSvent® WINDOWS FOR CURTAIN WALL

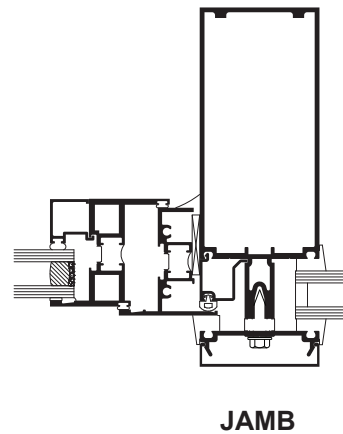


\* INSTALLER NOTE: Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.



8225TL THERMAL WINDOWS

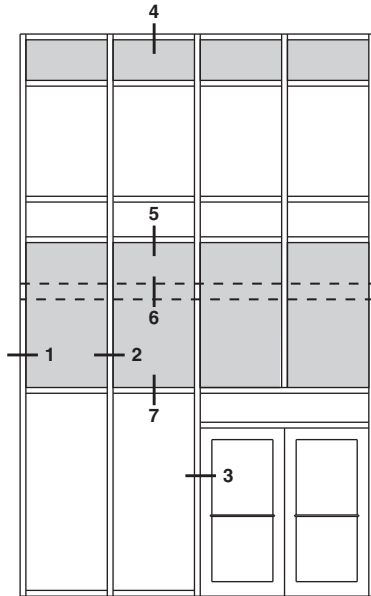
NOTE: Other vent types can be accommodated. Contact your Kawneer representative for other options.



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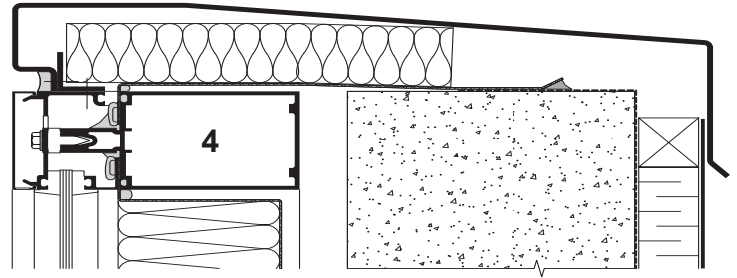
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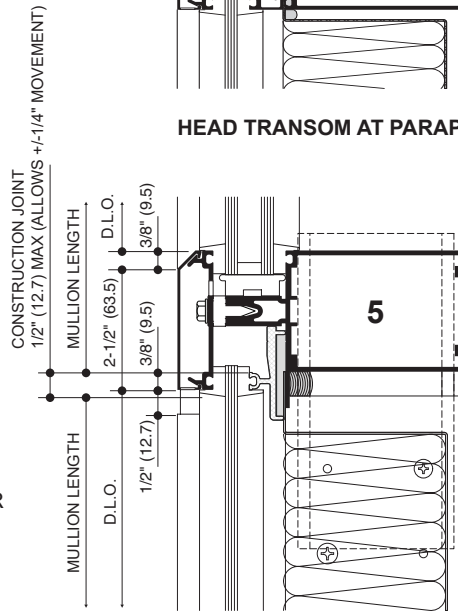


ELEVATION IS NUMBER KEYED TO DETAILS

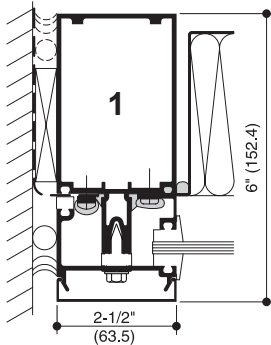
NOTE: 6" SYSTEM SHOWN, 7-1/2" SYSTEM SIMILAR



HEAD TRANSOM AT PARAPET FLASHING

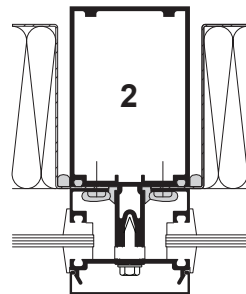


EXPANSION JOINT

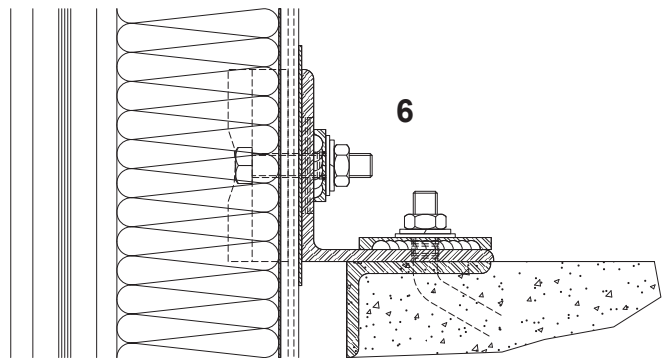


JAMB MULLION AT SPANDREL

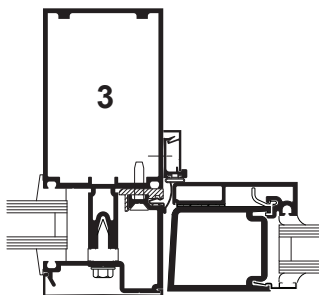
(With vapor barrier tie-in)



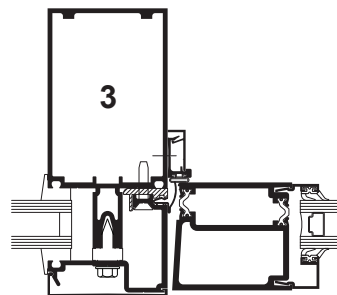
MULLION AT SPANDREL



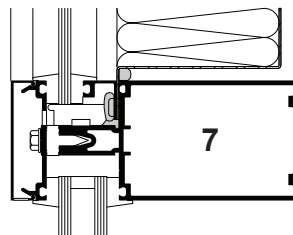
TYPICAL DEADLOAD ANCHOR



THERMALLY BROKEN DOOR ADAPTOR FOR INSULCLAD DOORS



AA<sup>®</sup> 250 THERMAL DOOR



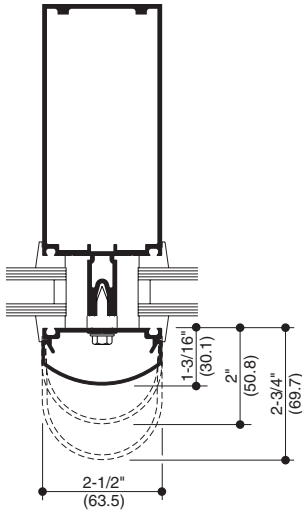
TRANSOM - SPANDREL OVER VISION

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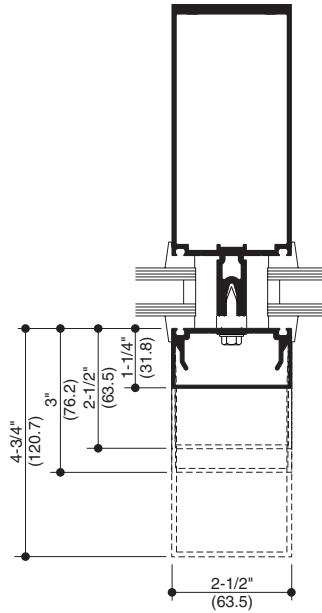
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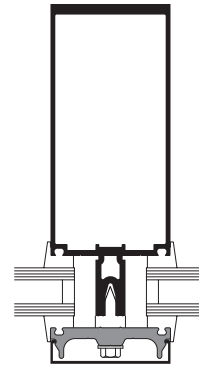
Architects – Most extrusion and window types illustrated in this catalog are standard products for Kawneer. These concepts have been expanded and modified to afford you design freedom. Some miscellaneous details are non-standard and are intended to demonstrate how the system can be modified to expand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



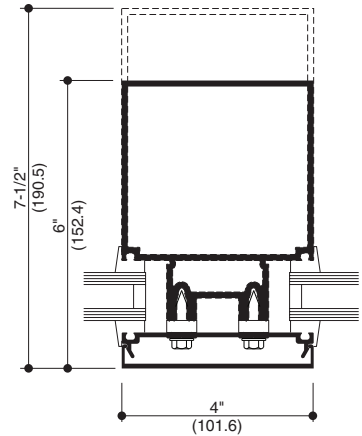
OPTIONAL COVERS



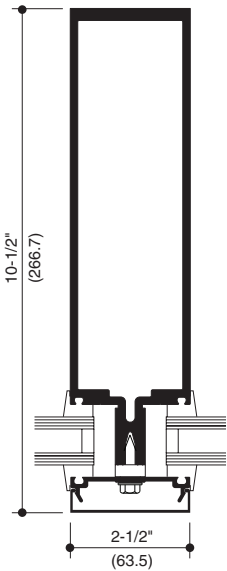
OPTIONAL COVERS



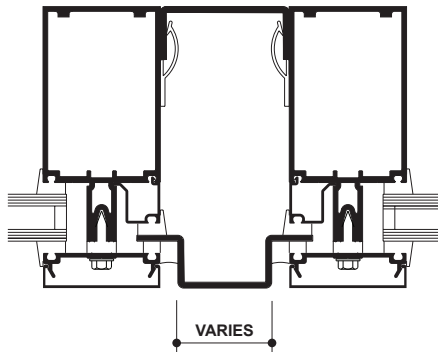
CAPTURED MULLION (1")  
OPTIONAL FIBERGLASS PRESSURE PLATE



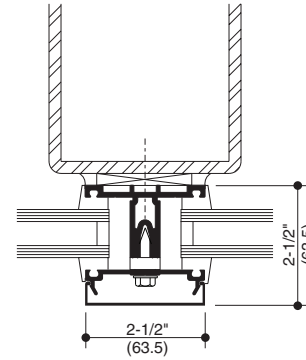
4" SIGHTLINE



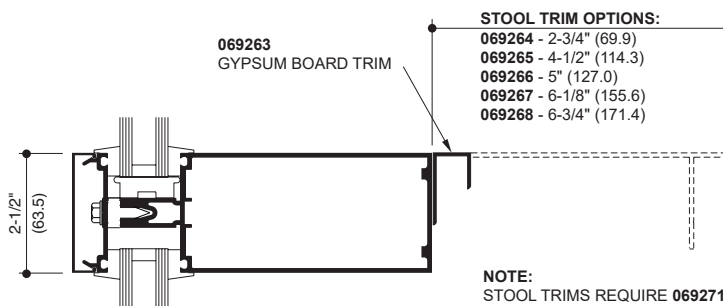
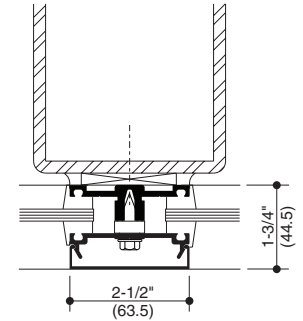
DEEP MULLION



DOUBLE MULLION



VENEER SYSTEM



069263  
GYPSUM BOARD TRIM

STOOL TRIM OPTIONS:

- 069264 - 2-3/4" (69.9)
- 069265 - 4-1/2" (114.3)
- 069266 - 5" (127.0)
- 069267 - 6-1/8" (155.6)
- 069268 - 6-3/4" (171.4)

NOTE:  
STOOL TRIMS REQUIRE 069271 TRIM CLIP PACKAGE

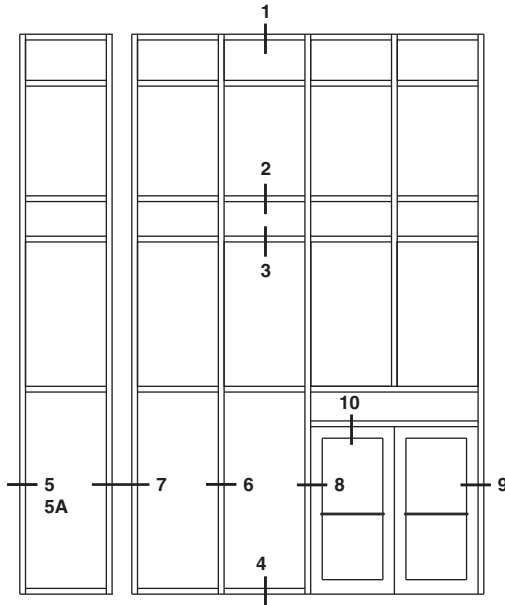
INTERIOR STOOL TRIM

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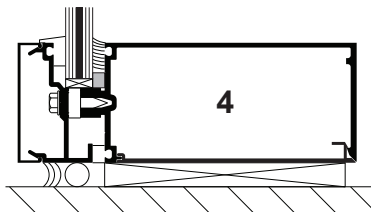
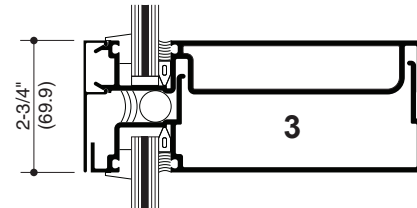
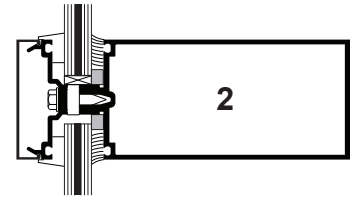
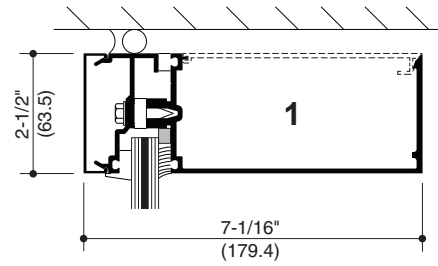
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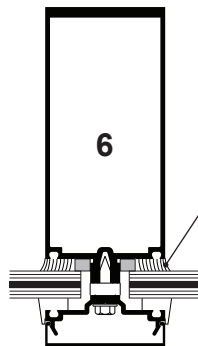
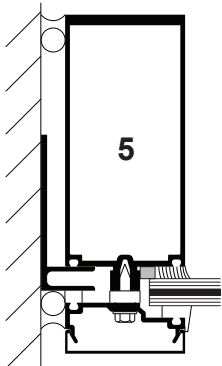
**NOTE:** DETAILS SHOWN WITH 9/16" INFILL AND ARE GLAZED FOR LARGE MISSILE IMPACT (LMI).  
SEE NEXT PAGE FOR OTHER GLAZING OPTIONS.



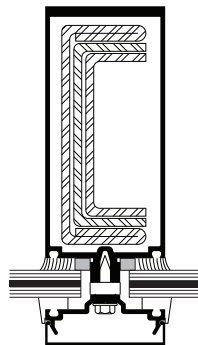
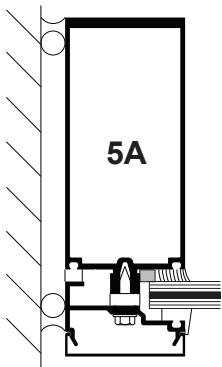
ELEVATION IS NUMBER KEYED TO DETAILS



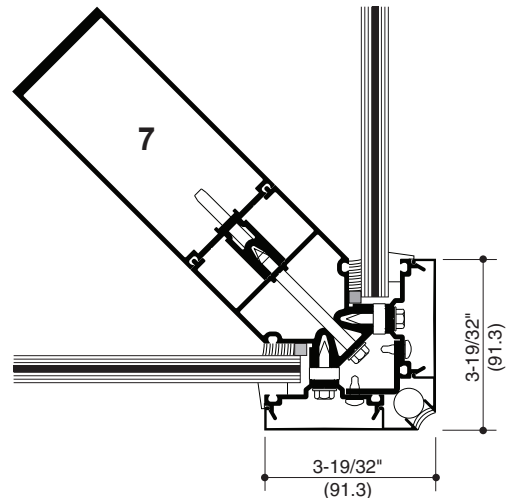
EXPANSION HORIZONTAL



Structural Silicone Sealant (by Others)\*



OPTIONAL STEEL REINFORCING AS REQUIRED



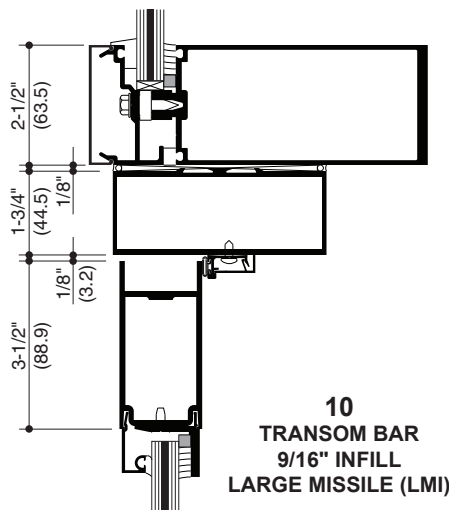
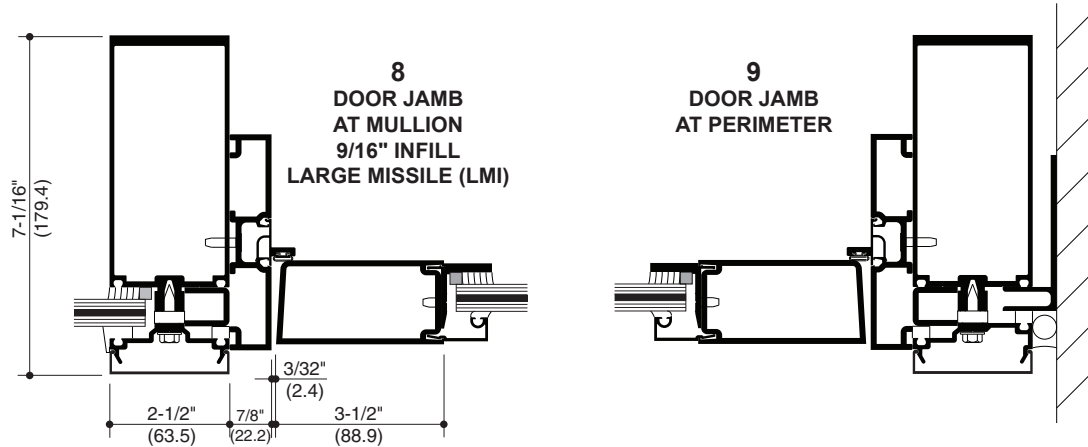
\* **INSTALLER NOTE:** Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.

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.

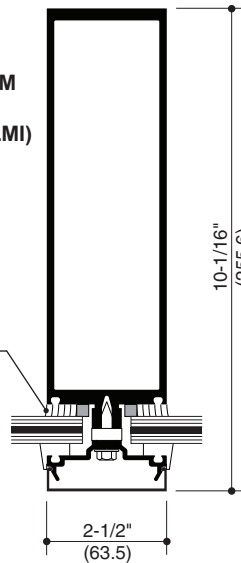
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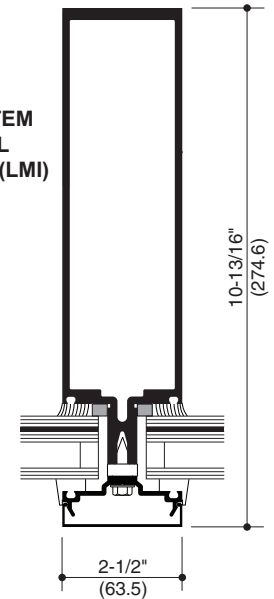
**NOTE:** 350 IR DOORS ARE USED WITH IMPACT FRAMING. DOORS ARE GLAZED WITH 9/16" INFILL.



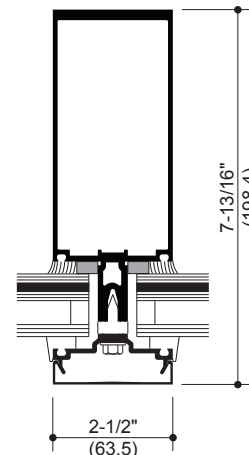
**OPTIONAL 10" DEEP SYSTEM 9/16" INFILL LARGE MISSILE (LMI)**



**OPTIONAL 10" DEEP SYSTEM 1-5/16" INFILL LARGE MISSILE (LMI)**



**1-5/16" INFILL LARGE MISSILE (LMI) LEVEL E**



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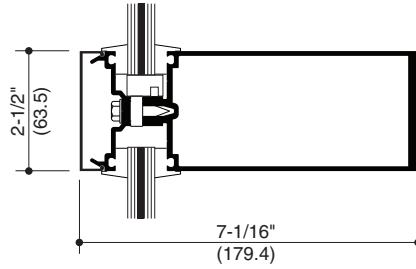
\* **INSTALLER NOTE:** Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.



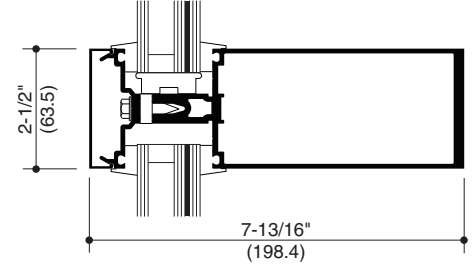
Additional information and CAD details are available at [www.kawneer.com](http://www.kawneer.com)

### GLAZING OPTIONS

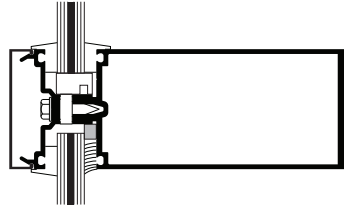
**9/16" INFILL (SMI)  
SMALL MISSILE  
IMPACT**



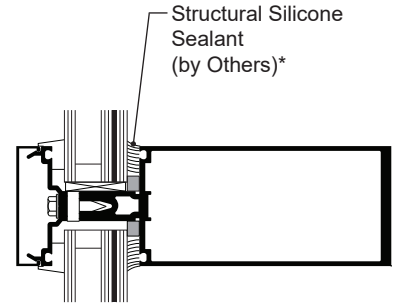
**1-5/16" INFILL  
SMALL MISSILE (SMI)**



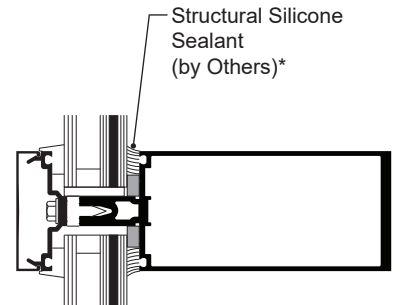
**9/16" INFILL  
SMALL MISSILE (SMI)  
OVER  
9/16" INFILL  
LARGE MISSILE (LMI)**



**1-5/16" INFILL  
LARGE MISSILE (LMI)**



**1-5/16" INFILL  
LARGE MISSILE (LMI)  
LEVEL E**



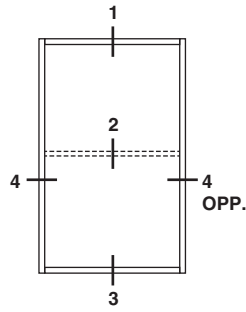
\* **INSTALLER NOTE:** Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulating Glass Unit Manufacturer.

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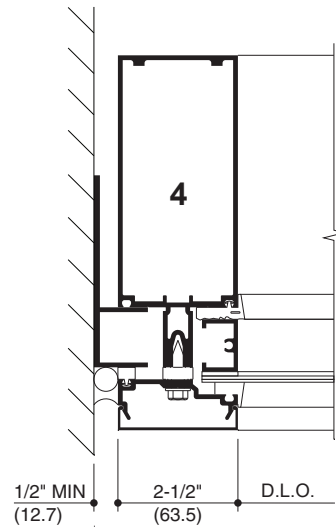
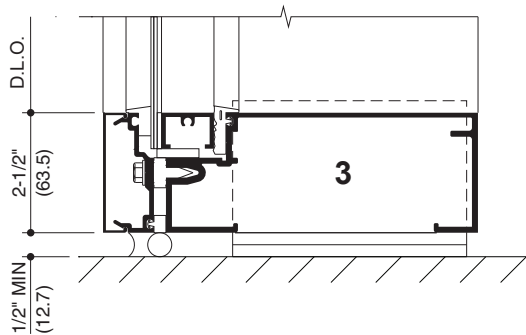
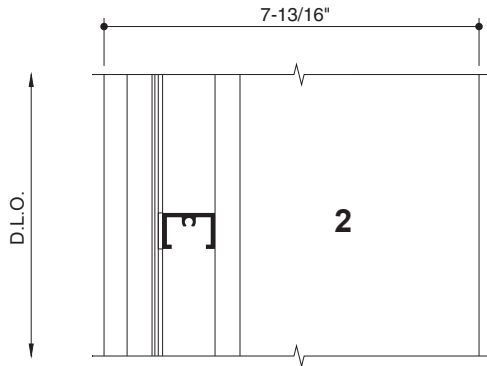
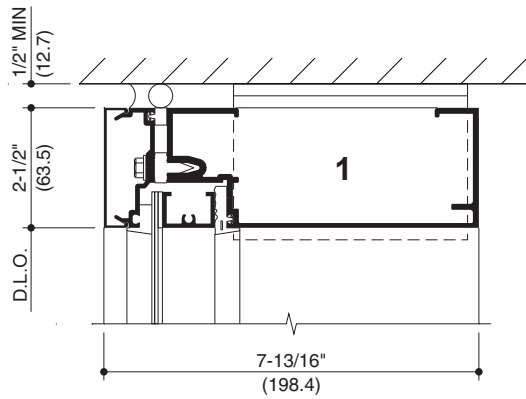
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NOTE: DETAILS SHOWN WITH 1/8" PANELS FOR LARGE MISSILE IMPACT (LMI).



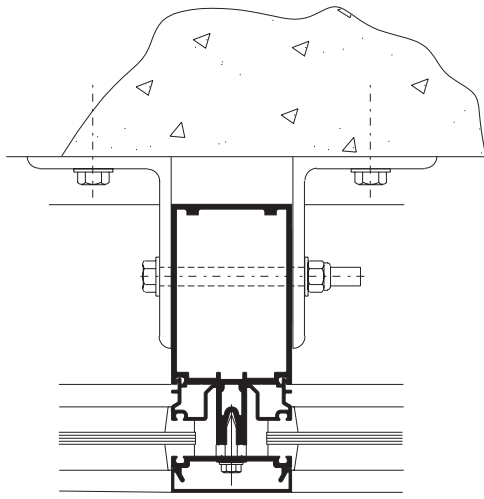
ELEVATION IS NUMBER KEYED TO DETAILS



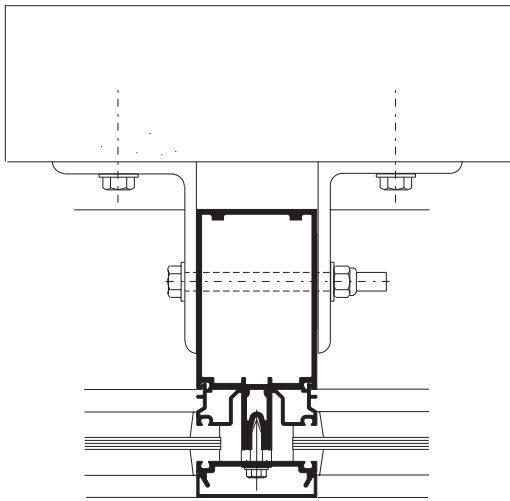
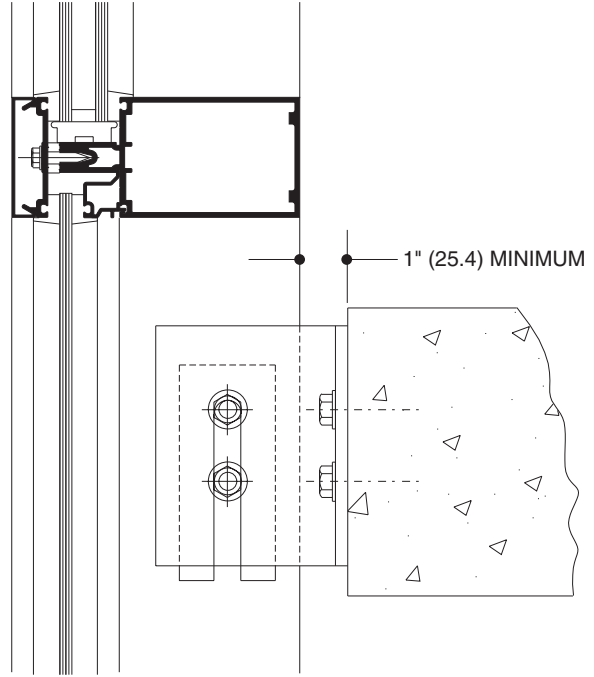
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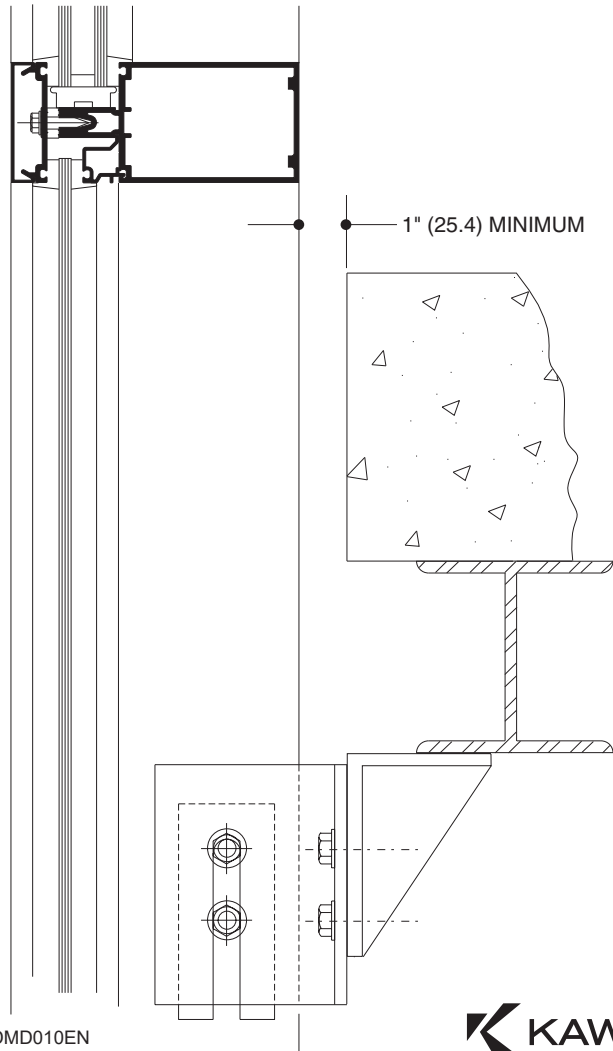
Actual project conditions will determine specific anchor design. Details on this page are for reference only.



**ANCHORING TO FLOOR SLAB**



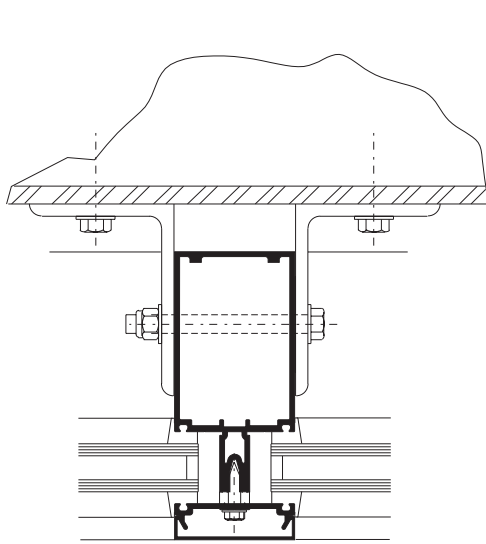
**ANCHORING TO SUPPORT STEEL**



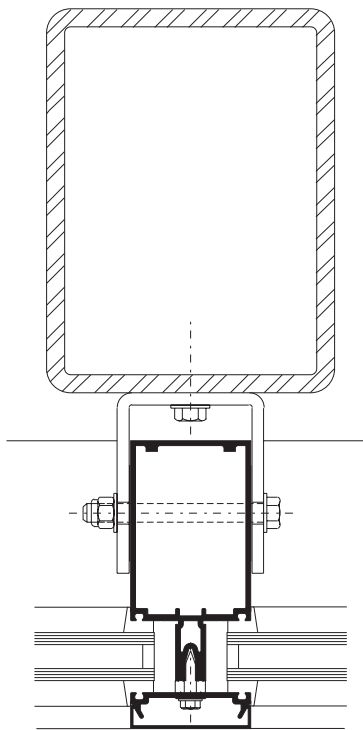
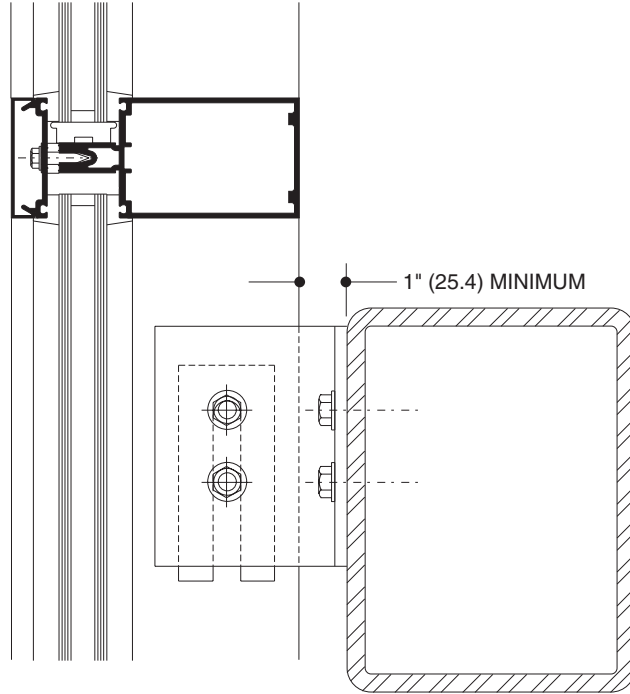
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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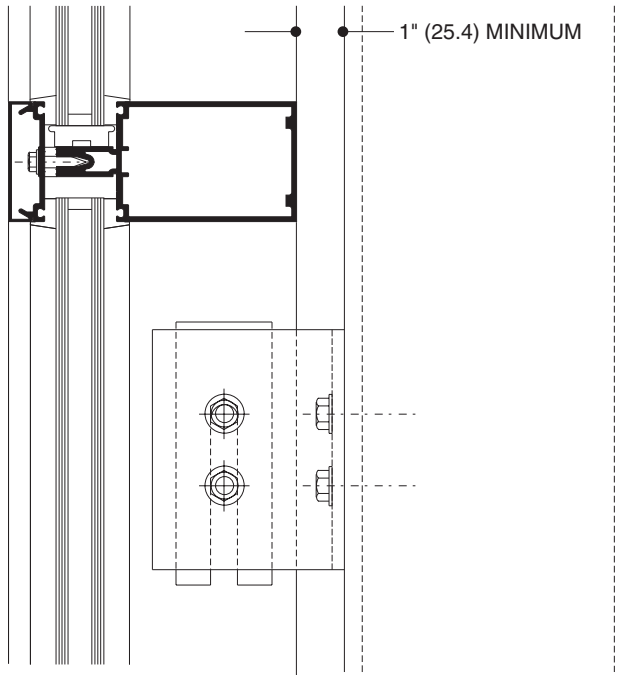
Actual project conditions will determine specific anchor design. Details on this page are for reference only.



**ANCHORING TO HORIZONTAL STRUCTURAL STEEL**



**ANCHORING TO VERTICAL STRUCTURAL STEEL**



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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 (104MPa), STEEL 30,000 psi (207MPa). 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.

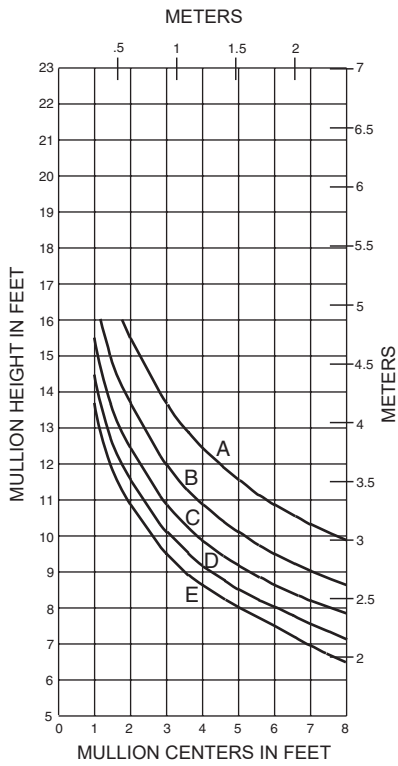
## DEADLOAD CHARTS

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

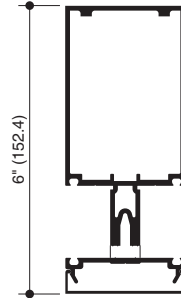
Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window, and curtain wall products, vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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## SINGLE SPAN

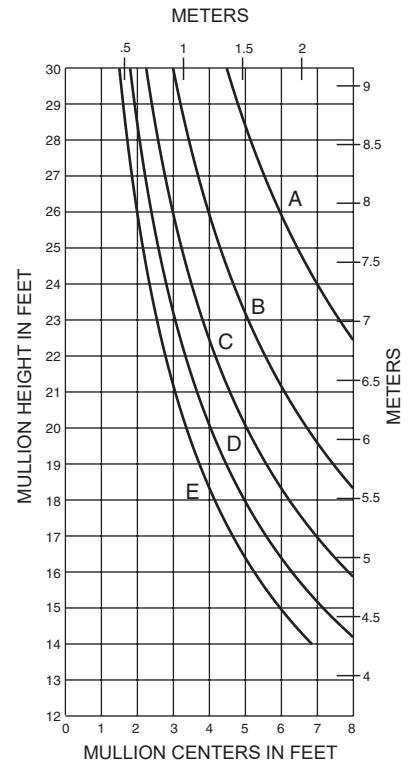


	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	30 PSF (1440)	50 PSF (2400)
C =	40 PSF (1920)	67 PSF (3200)
D =	50 PSF (2400)	83 PSF (4000)
E =	60 PSF (2880)	100 PSF (4790)

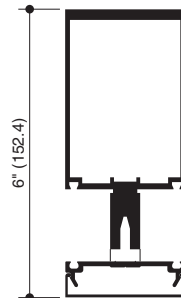
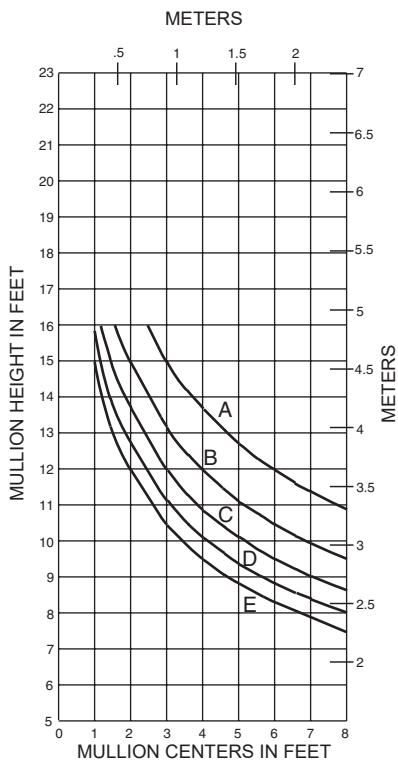


I = 5.035(209.57 x 10<sup>4</sup>)  
S = 1.993(32.66 x 10<sup>3</sup>)

## TWIN SPAN

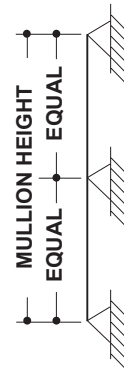
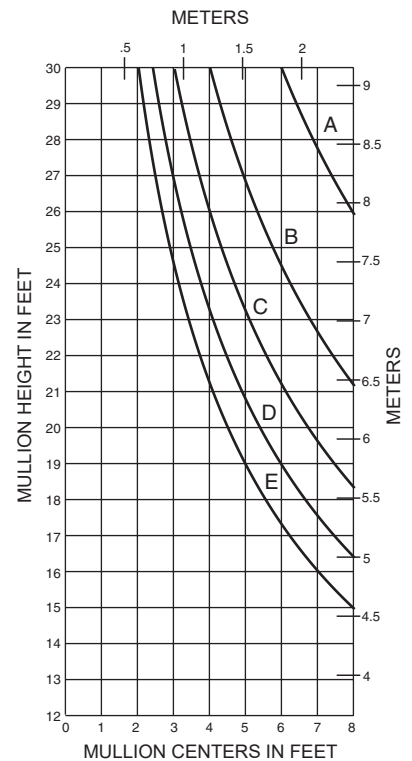


## SINGLE SPAN



I = 6.779(282.16 x 10<sup>4</sup>)  
S = 2.652(43.46 x 10<sup>3</sup>)

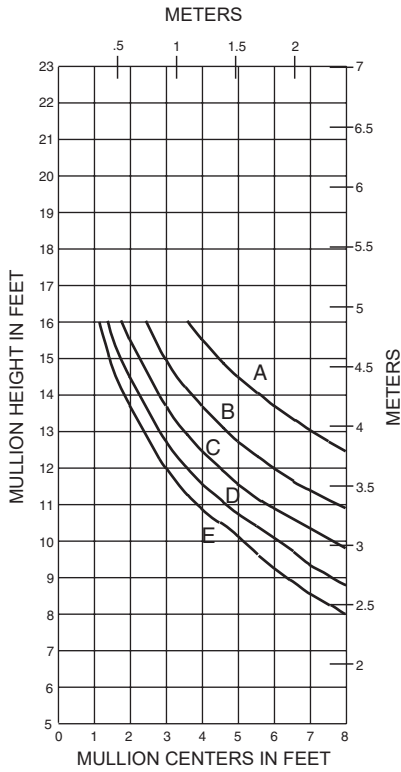
## TWIN SPAN



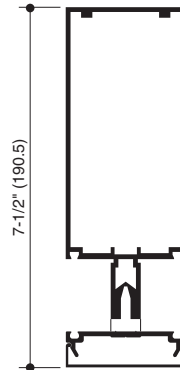
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## SINGLE SPAN



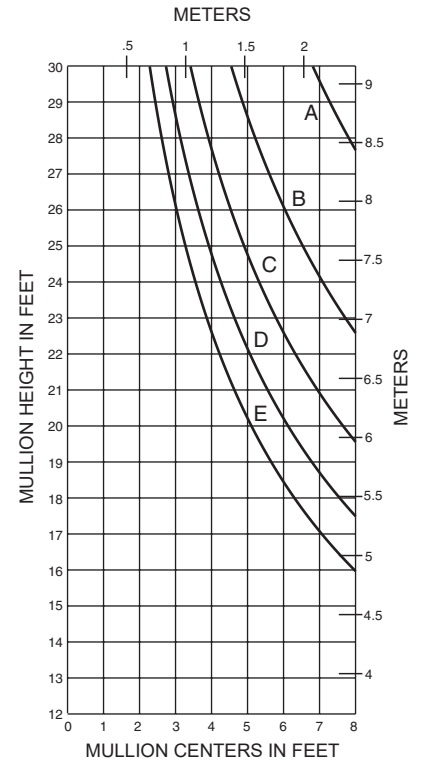
	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	30 PSF (1440)	50 PSF (2400)
C =	40 PSF (1920)	67 PSF (3200)
D =	50 PSF (2400)	83 PSF (4000)
E =	60 PSF (2880)	100 PSF (4790)



162003

I = 10.135(421.85 x 10<sup>4</sup>)  
S = 3.027(49.60 x 10<sup>3</sup>)

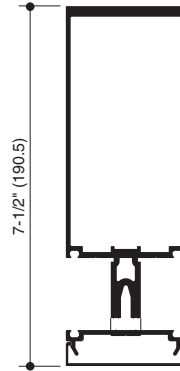
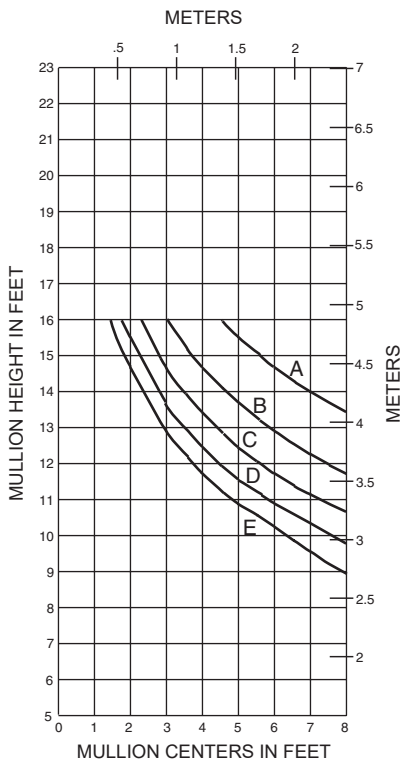
## TWIN SPAN



162003

I = 10.135(421.85 x 10<sup>4</sup>)  
S = 3.027(49.60 x 10<sup>3</sup>)

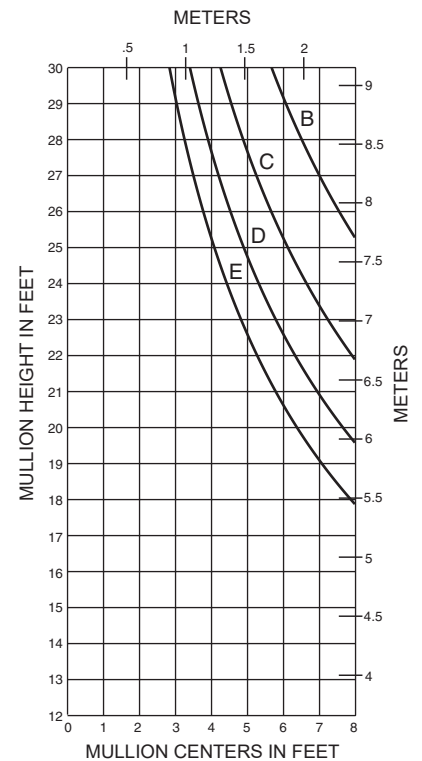
## SINGLE SPAN



162004

I = 12.736(530.11 x 10<sup>4</sup>)  
S = 3.791(62.12 x 10<sup>3</sup>)

## TWIN SPAN



162004

I = 12.736(530.11 x 10<sup>4</sup>)  
S = 3.791(62.12 x 10<sup>3</sup>)

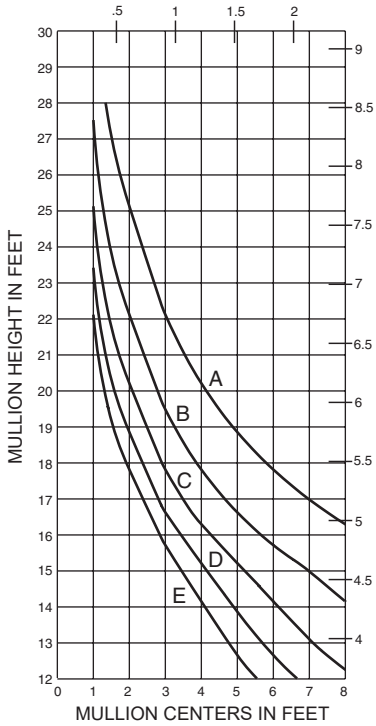
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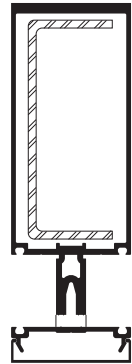
## SINGLE SPAN

162004 W/162300

METERS

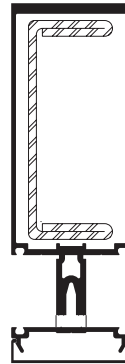


	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	30 PSF (1440)	50 PSF (2400)
C =	40 PSF (1920)	67 PSF (3200)
D =	50 PSF (2400)	83 PSF (4000)
E =	60 PSF (2880)	100 PSF (4790)



162004 W/162300

la = 12.736(530.11 x 10<sup>4</sup>)  
 Sa = 3.791(62.12 x 10<sup>3</sup>)  
 ls = 3.805(158.37 x 10<sup>4</sup>)  
 Ss = 1.669(27.35 x 10<sup>3</sup>)



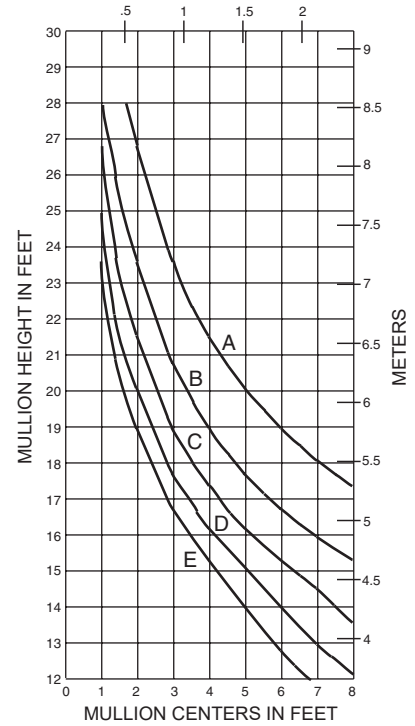
162004 W/162301

la = 12.736(530.11 x 10<sup>4</sup>)  
 Sa = 3.791(62.12 x 10<sup>3</sup>)  
 ls = 5.684(236.59 x 10<sup>4</sup>)  
 Ss = 2.493(40.85 x 10<sup>3</sup>)

## SINGLE SPAN

162004 W/162301

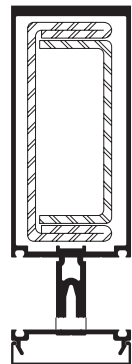
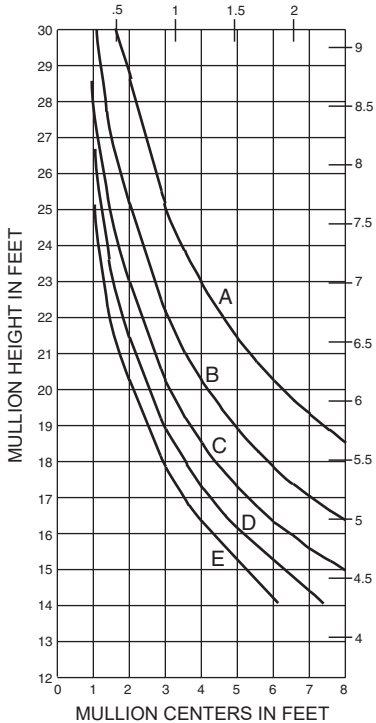
METERS



## SINGLE SPAN

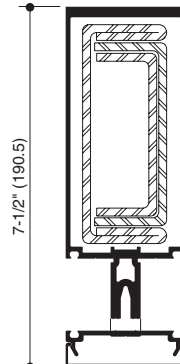
162004 W/162301/302

METERS



162004 W/162301/302

la = 12.736(530.11 x 10<sup>4</sup>)  
 Sa = 3.791(62.12 x 10<sup>3</sup>)  
 ls = 7.893(328.53 x 10<sup>4</sup>)  
 Ss = 3.462(56.73 x 10<sup>3</sup>)



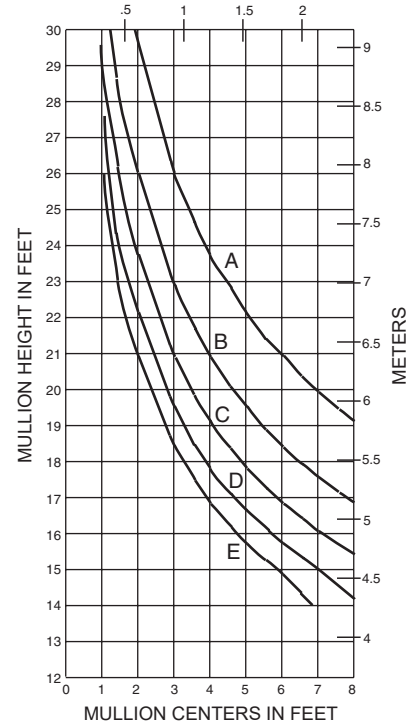
162004 W/162301/302/303

la = 12.736(530.11 x 10<sup>4</sup>)  
 Sa = 3.791(62.12 x 10<sup>3</sup>)  
 ls = 9.347(389.05 x 10<sup>4</sup>)  
 Ss = 4.100(67.19 x 10<sup>3</sup>)

## SINGLE SPAN

162004 W/162301/302/303

METERS

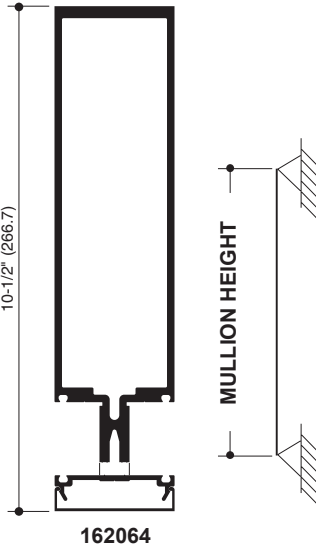
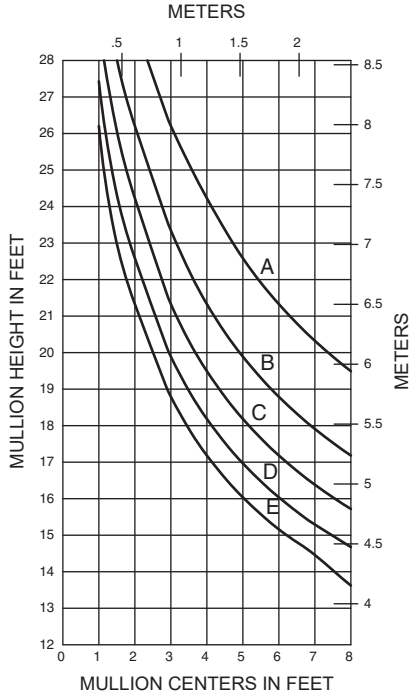


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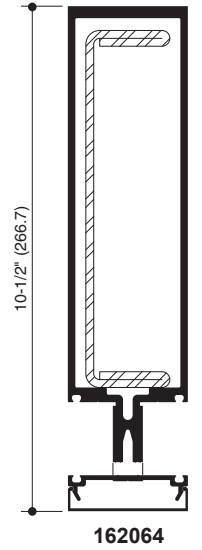
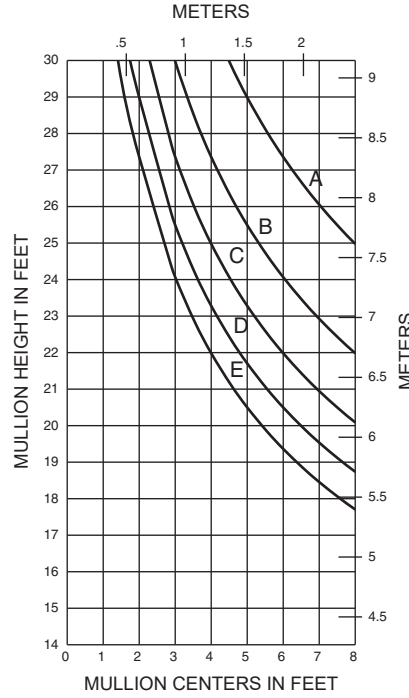


**SINGLE SPAN**



**162064**  
 $I_a = 42.441(1,766.52 \times 10^4)$   
 $S_a = 8.816(144.74 \times 10^3)$

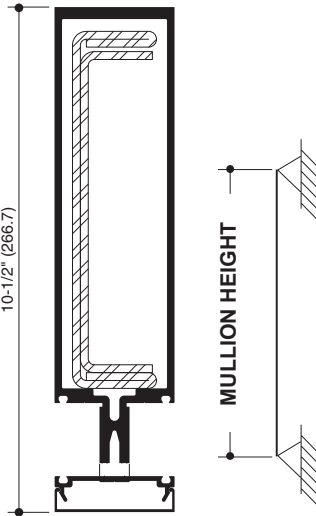
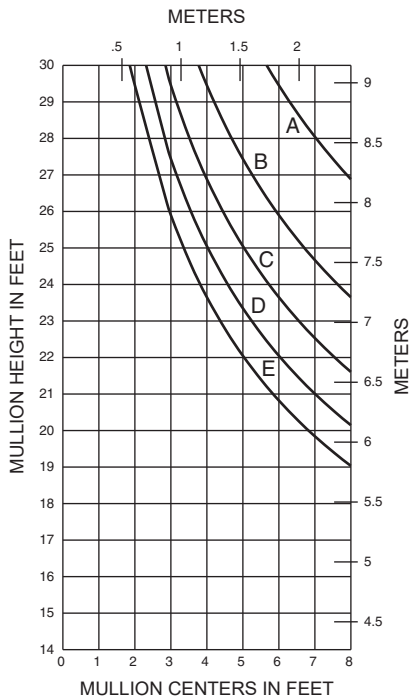
**SINGLE SPAN**



**162064  
W/162363**  
 $I_a = 42.441(1,766.52 \times 10^4)$   
 $S_a = 8.816(144.47 \times 10^3)$   
 $I_s = 17.600(732.56 \times 10^4)$   
 $S_s = 4.732(77.54 \times 10^3)$

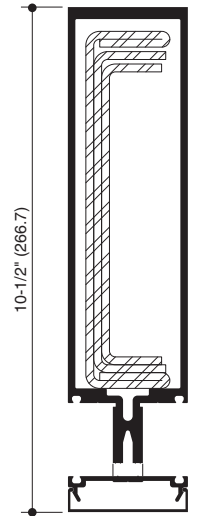
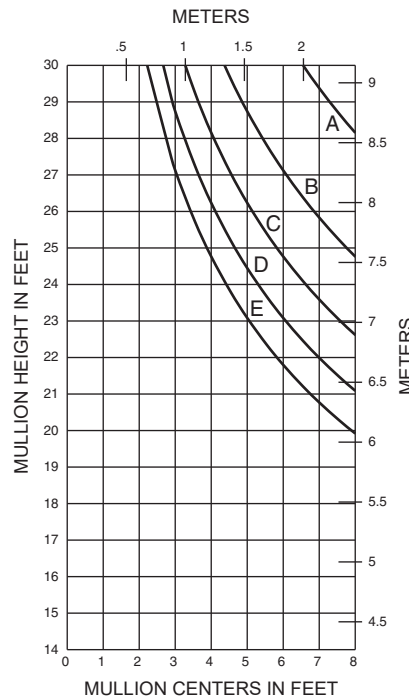
	Allowable Stress Design Load	LRFD Ultimate Design Load
<b>A =</b>	<b>20 PSF (960)</b>	<b>33 PSF (1580)</b>
<b>B =</b>	<b>30 PSF (1440)</b>	<b>50 PSF (2400)</b>
<b>C =</b>	<b>40 PSF (1920)</b>	<b>67 PSF (3200)</b>
<b>D =</b>	<b>50 PSF (2400)</b>	<b>83 PSF (4000)</b>
<b>E =</b>	<b>60 PSF (2880)</b>	<b>100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

**SINGLE SPAN**



**162064  
W/162363/364**  
 $I_a = 42.441(1,766.52 \times 10^4)$   
 $S_a = 8.816(144.47 \times 10^3)$   
 $I_s = 26.033(1,083.57 \times 10^4)$   
 $S_s = 7.000(114.71 \times 10^3)$

**SINGLE SPAN**

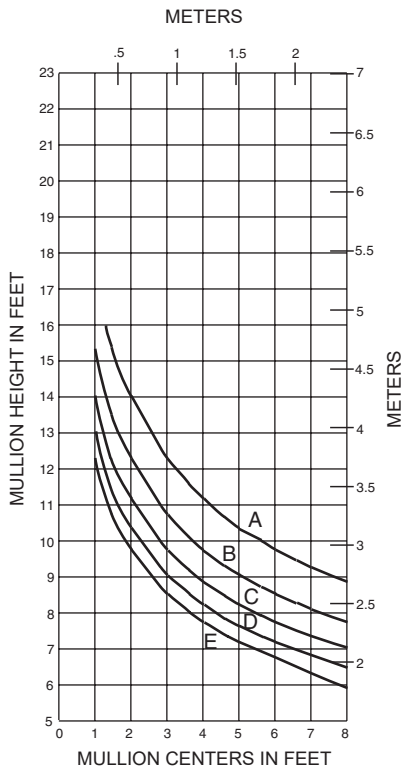


**162064  
W/162363/364/365**  
 $I_a = 42.441(1,766.52 \times 10^4)$   
 $S_a = 8.816(144.47 \times 10^3)$   
 $I_s = 32.432(1,349.92 \times 10^4)$   
 $S_s = 8.721(142.91 \times 10^3)$

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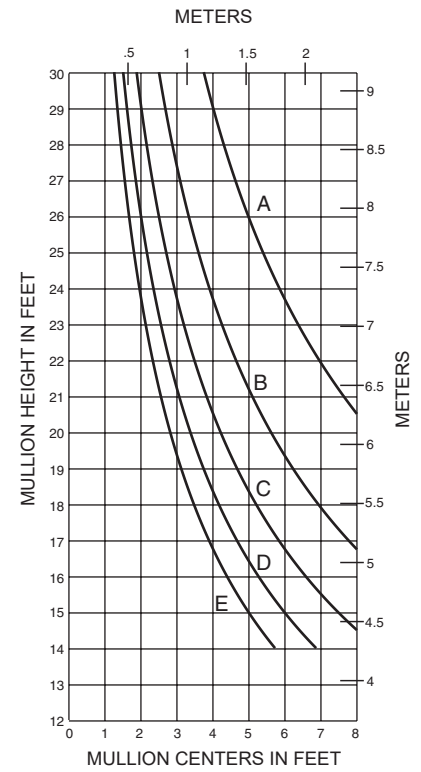
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## SINGLE SPAN

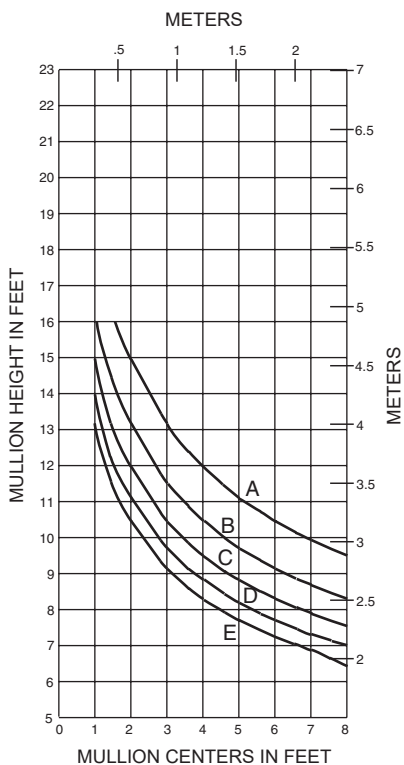


	Allowable Stress Design Load	LRFD Ultimate Design Load
<b>A =</b>	<b>20 PSF (960)</b>	<b>33 PSF (1580)</b>
<b>B =</b>	<b>30 PSF (1440)</b>	<b>50 PSF (2400)</b>
<b>C =</b>	<b>40 PSF (1920)</b>	<b>67 PSF (3200)</b>
<b>D =</b>	<b>50 PSF (2400)</b>	<b>83 PSF (4000)</b>
<b>E =</b>	<b>60 PSF (2880)</b>	<b>100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

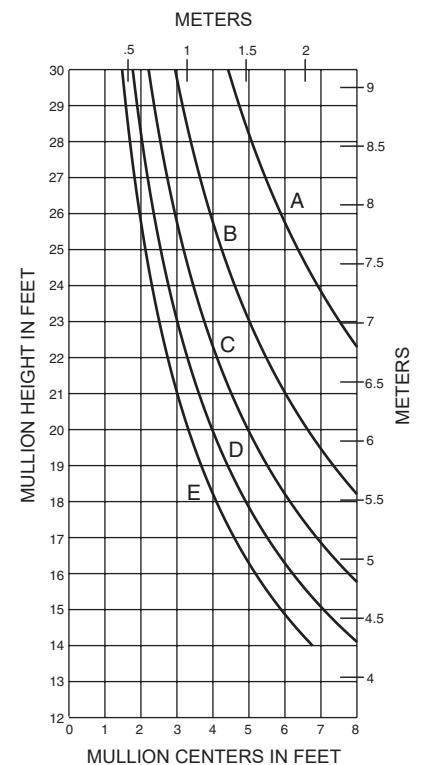
## TWIN SPAN



## SINGLE SPAN



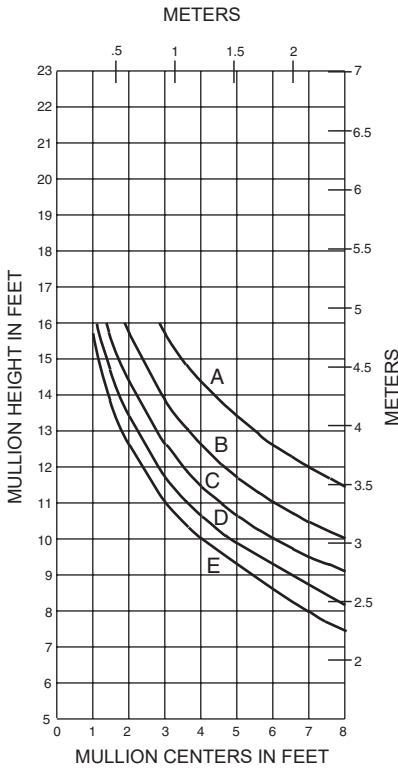
## TWIN SPAN



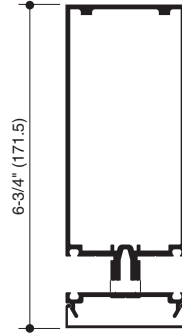
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**SINGLE SPAN**

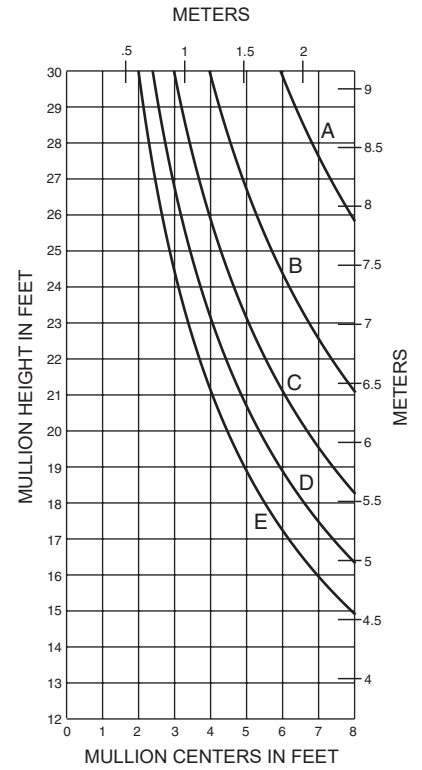


	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	30 PSF (1440)	50 PSF (2400)
C =	40 PSF (1920)	67 PSF (3200)
D =	50 PSF (2400)	83 PSF (4000)
E =	60 PSF (2880)	100 PSF (4790)

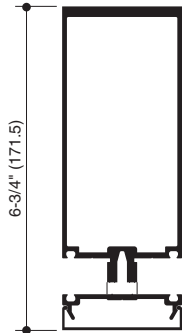
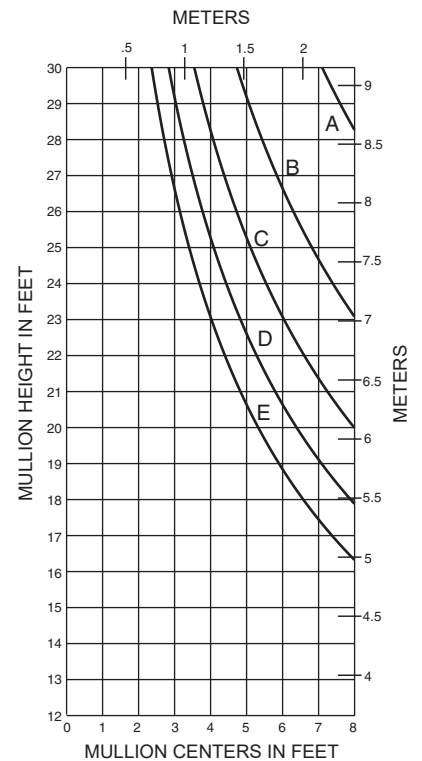


**162015**  
 $I = 7.915(329.45 \times 10^4)$   
 $S = 2.635(43.18 \times 10^3)$

**TWIN SPAN**

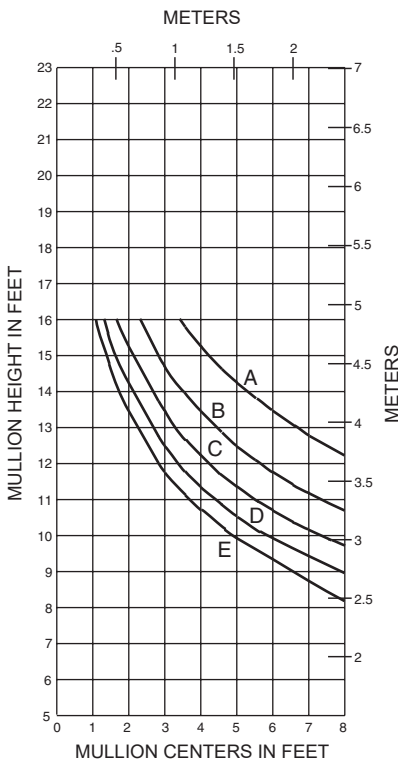


**TWIN SPAN**



**162016**  
 $I = 9.594(399.33 \times 10^4)$   
 $S = 3.163(51.83 \times 10^3)$

**SINGLE SPAN**

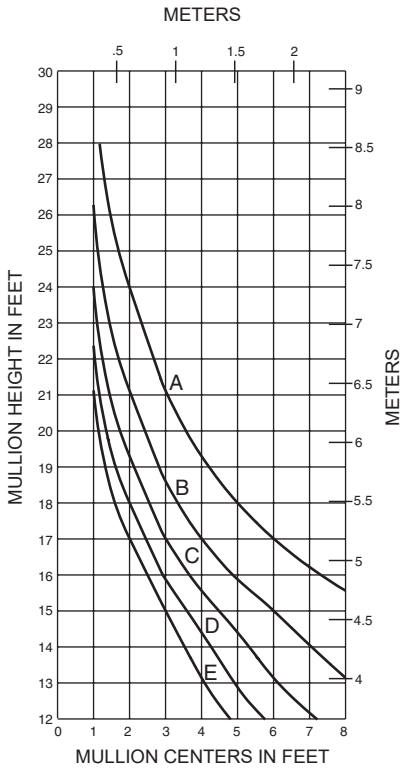


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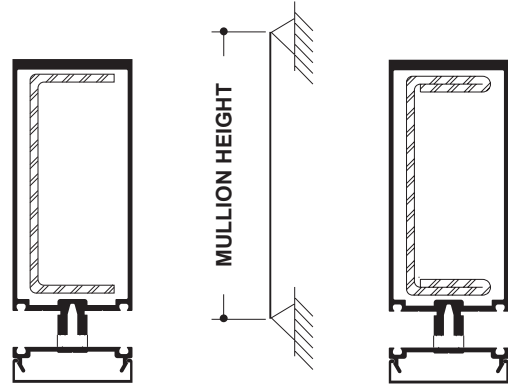
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## SINGLE SPAN

162016 W/162300



	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)

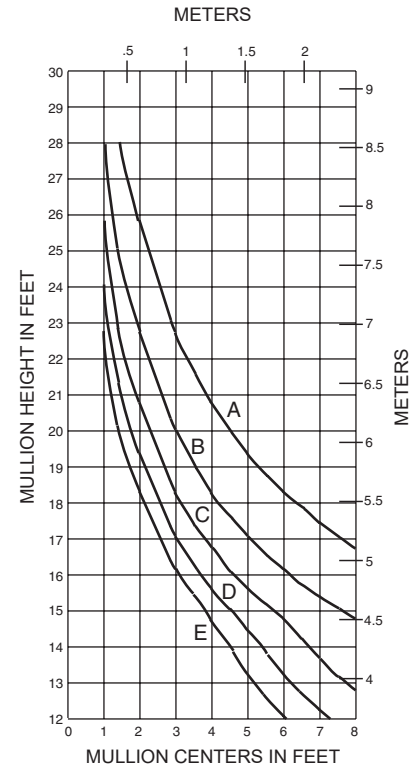


**162016 W/162300**  
 $I_a = 9.594(399.33 \times 10^4)$   
 $S_a = 3.163(51.83 \times 10^3)$   
 $I_s = 3.805(158.37 \times 10^4)$   
 $S_s = 1.669(27.35 \times 10^3)$

**162016 W/162301**  
 $I_a = 9.594(399.33 \times 10^4)$   
 $S_a = 3.163(51.83 \times 10^3)$   
 $I_s = 5.684(236.59 \times 10^4)$   
 $S_s = 2.493(40.85 \times 10^3)$

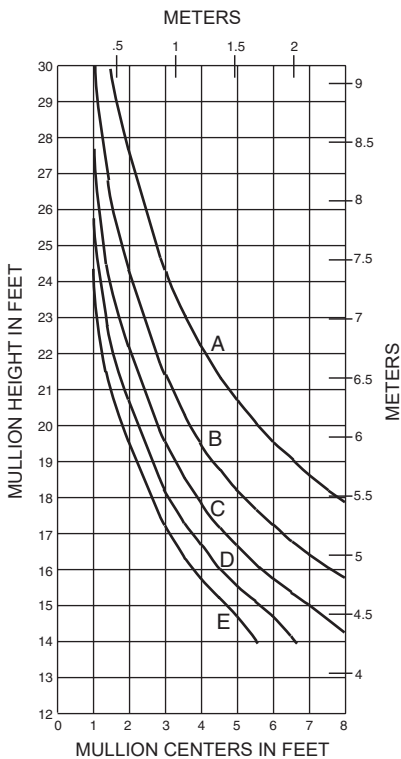
## SINGLE SPAN

162016 W/162301



## SINGLE SPAN

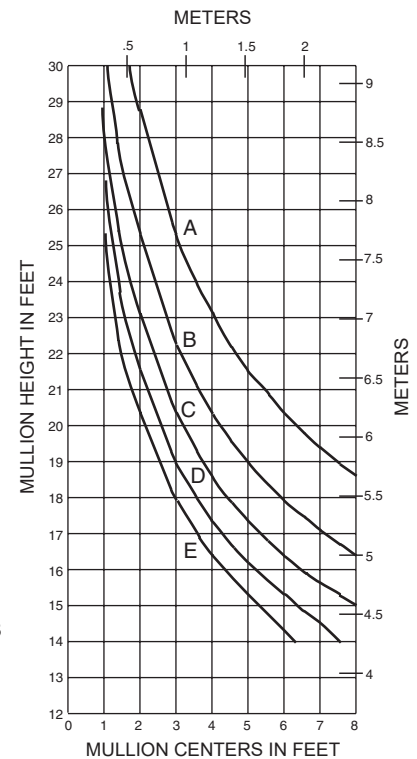
162016 W/162301/302



**162016 W/162301/302**  
 $I_a = 9.594(399.33 \times 10^4)$   
 $S_a = 3.163(51.83 \times 10^3)$   
 $I_s = 7.893(328.53 \times 10^4)$   
 $S_s = 3.462(56.73 \times 10^3)$

## SINGLE SPAN

162016 W/162301/302/303

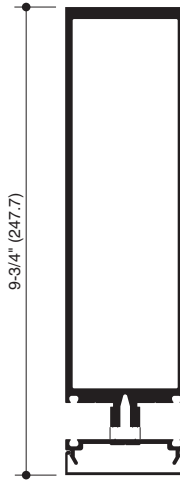
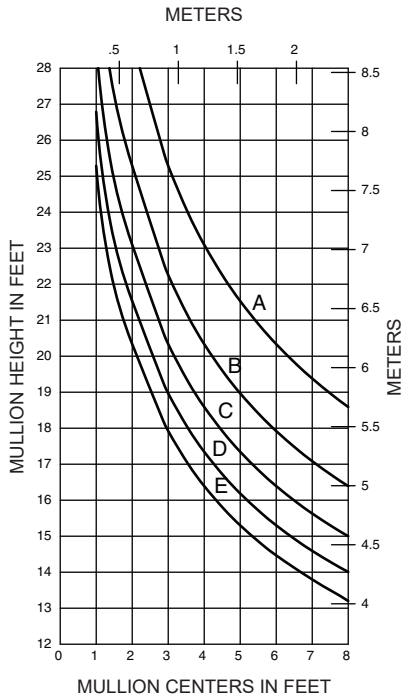


**162016 W/162301/302/303**  
 $I_a = 9.594(399.33 \times 10^4)$   
 $S_a = 3.163(51.83 \times 10^3)$   
 $I_s = 9.347(389.05 \times 10^4)$   
 $S_s = 4.100(67.19 \times 10^3)$

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**SINGLE SPAN**



	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)

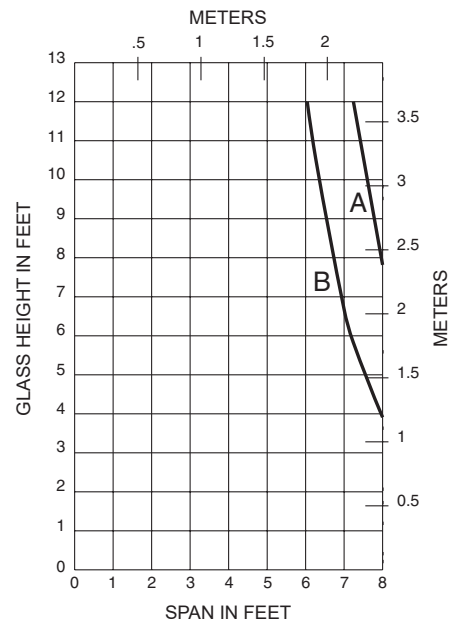
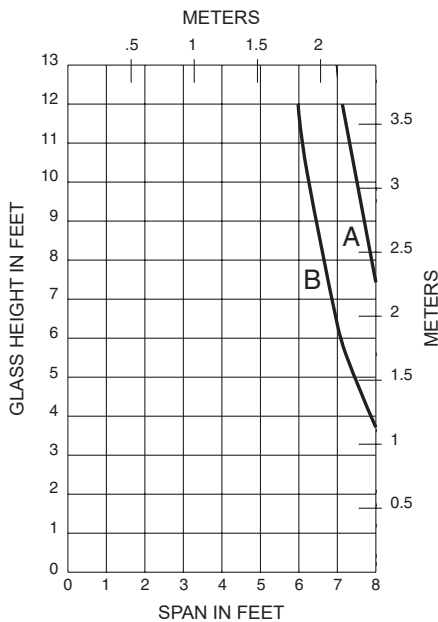
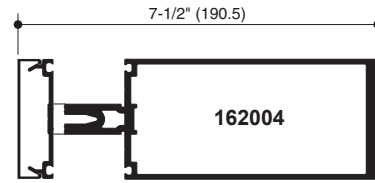
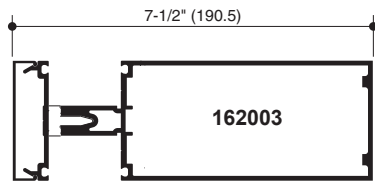
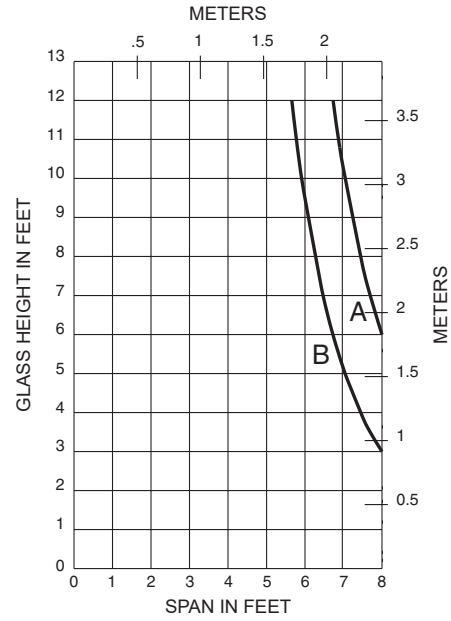
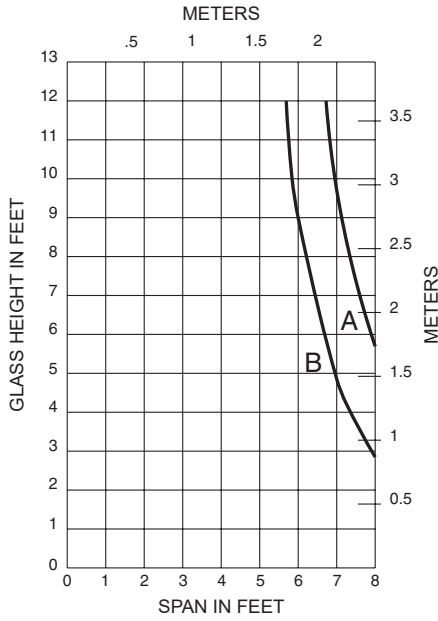
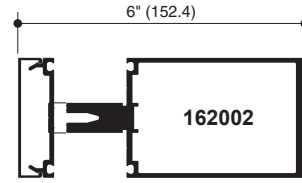
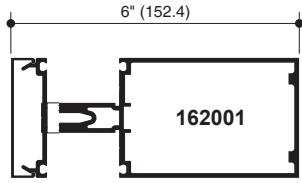
162213

I = 36.451(1 517.20 x 10<sup>4</sup>)  
S = 8.279(135.67 x 10<sup>3</sup>)

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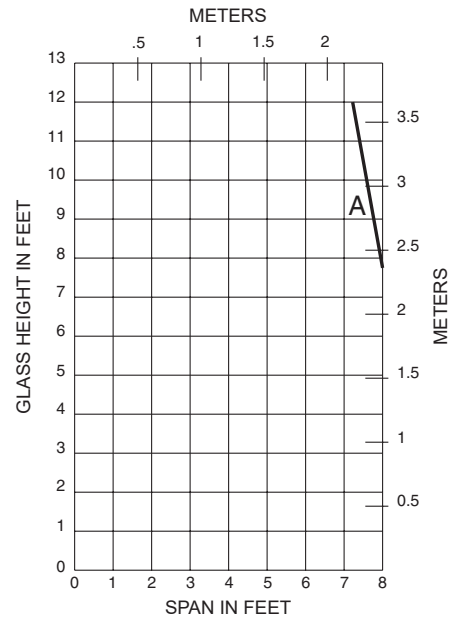
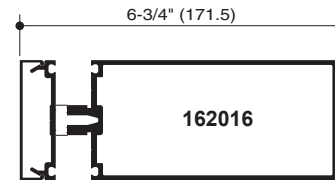
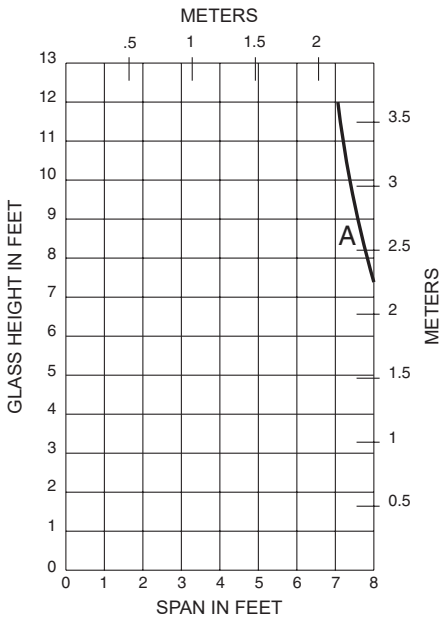
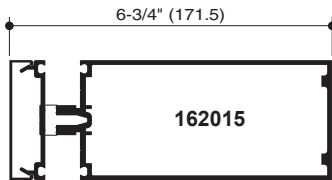
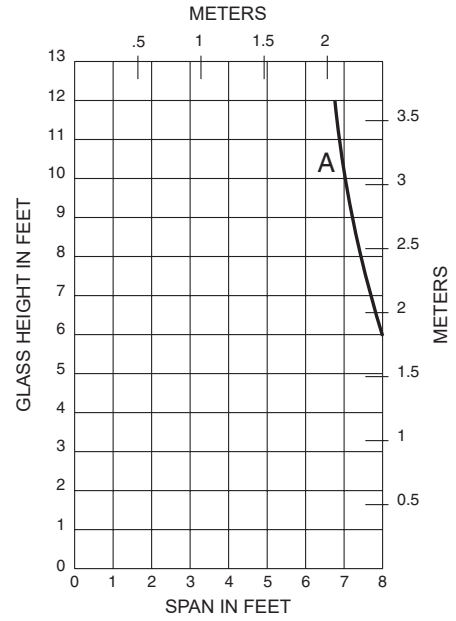
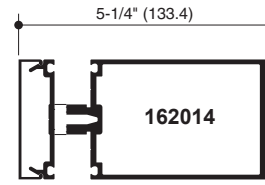
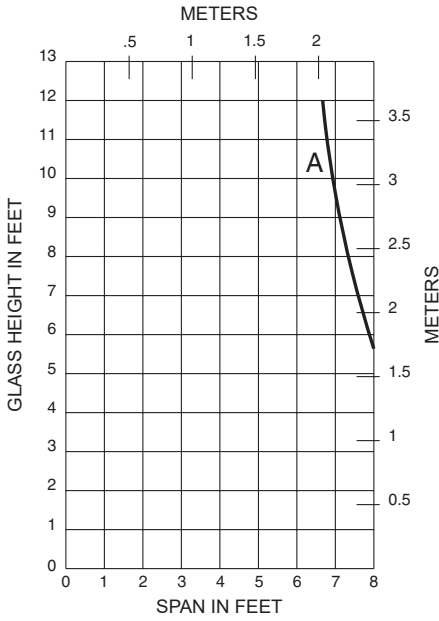
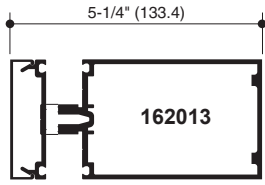
**A - 1/4" GLASS (1/4 POINT LOADING)**  
**B - 1" GLASS (1/4 POINT LOADING)**



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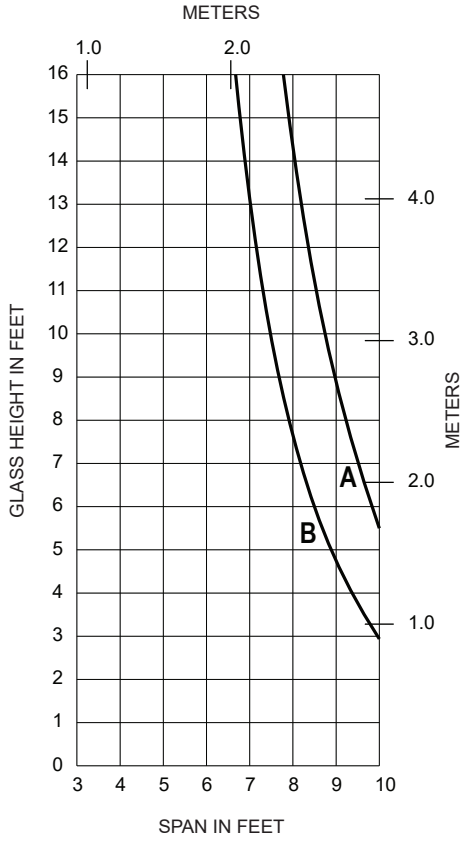
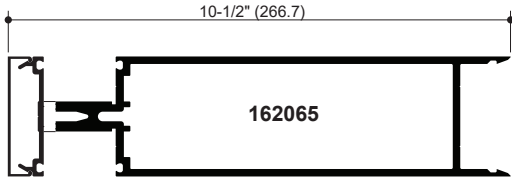
### A - 1/4" GLASS (1/4 POINT LOADING)



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**A** - 1" GLASS (1/8 POINT LOADING)  
**B** - 1" GLASS (1/4 POINT LOADING)

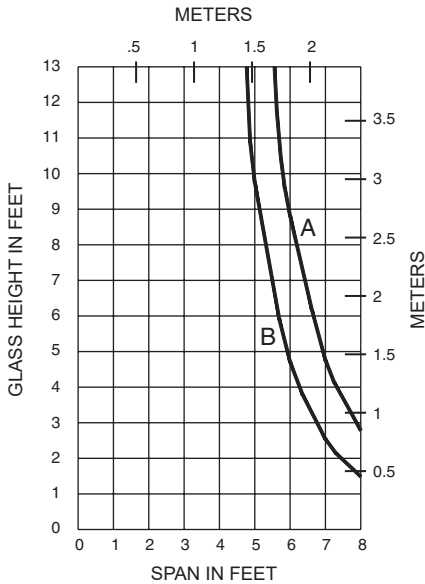
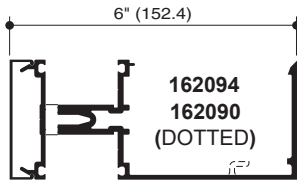


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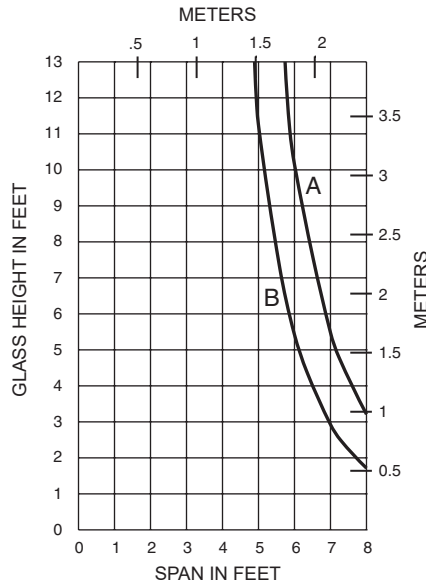
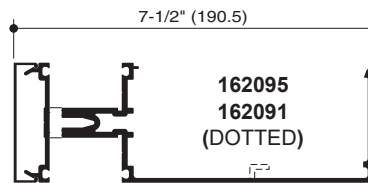
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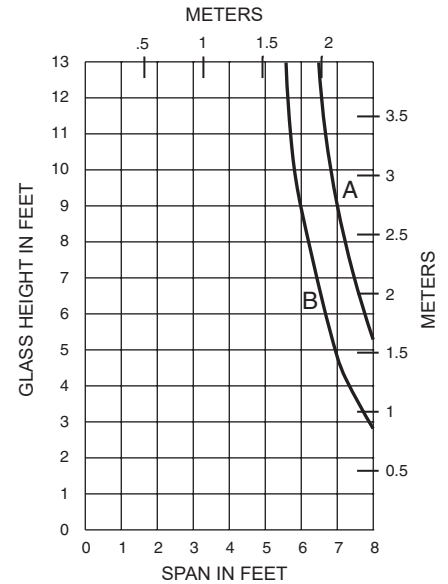
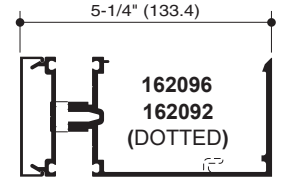
**A - 1" GLASS (1/8 POINT LOADING)**  
**B - 1" GLASS (1/4 POINT LOADING)**



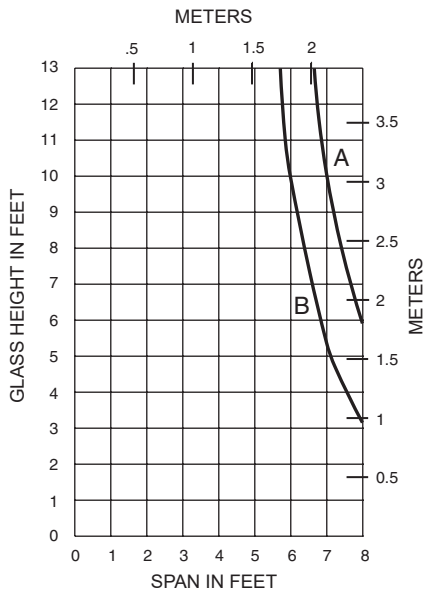
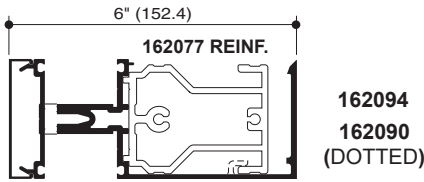
**A - 1" GLASS (1/8 POINT LOADING)**  
**B - 1" GLASS (1/4 POINT LOADING)**



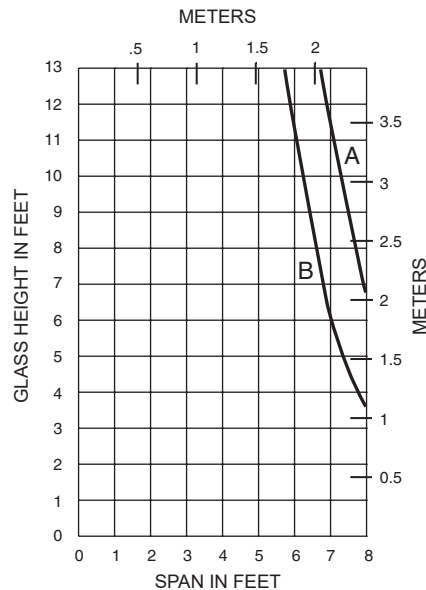
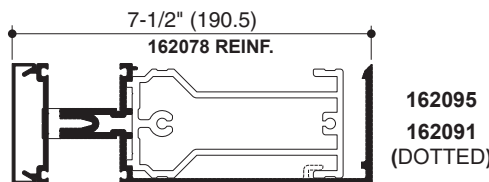
**A - 1/4" GLASS (1/8 POINT LOADING)**  
**B - 1/4" GLASS (1/4 POINT LOADING)**



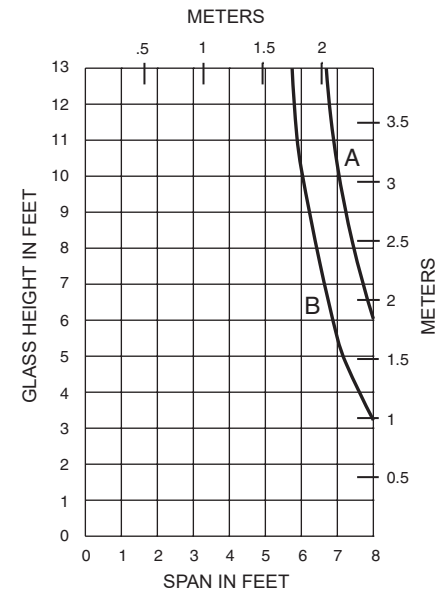
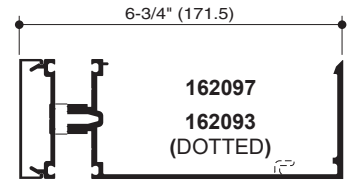
**A - 1" GLASS (1/8 POINT LOADING)**  
**B - 1" GLASS (1/4 POINT LOADING)**



**A - 1" GLASS (1/8 POINT LOADING)**  
**B - 1" GLASS (1/4 POINT LOADING)**



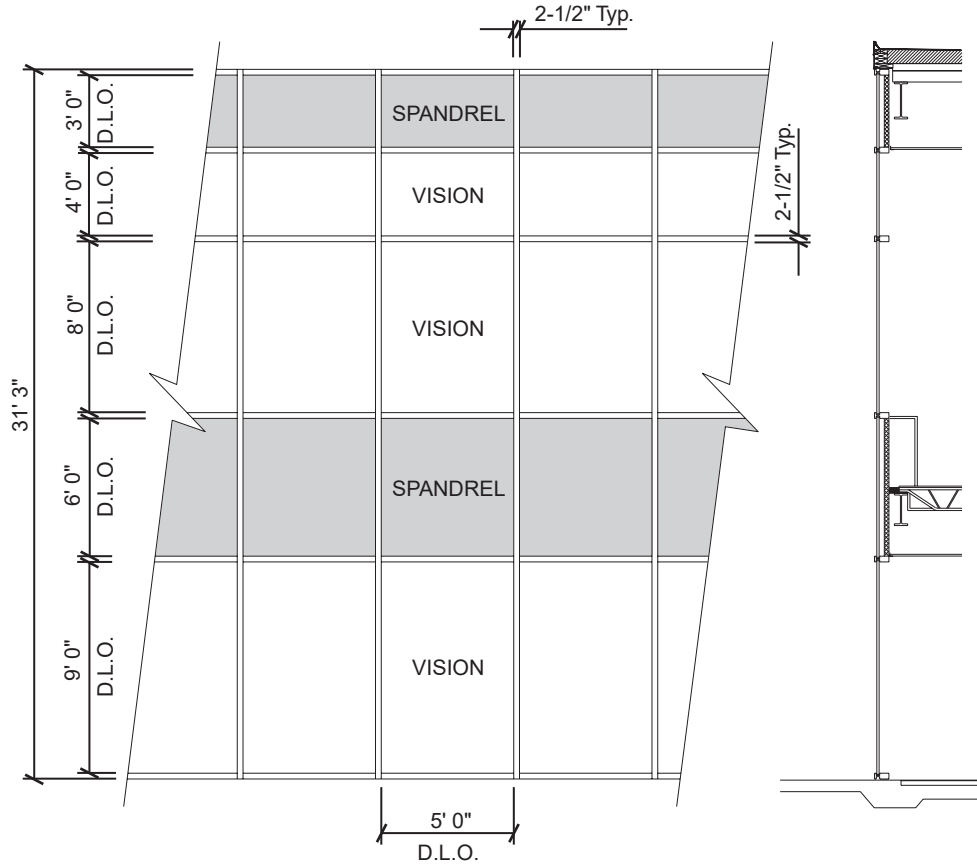
**A - 1/4" GLASS (1/8 POINT LOADING)**  
**B - 1/4" GLASS (1/4 POINT LOADING)**



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

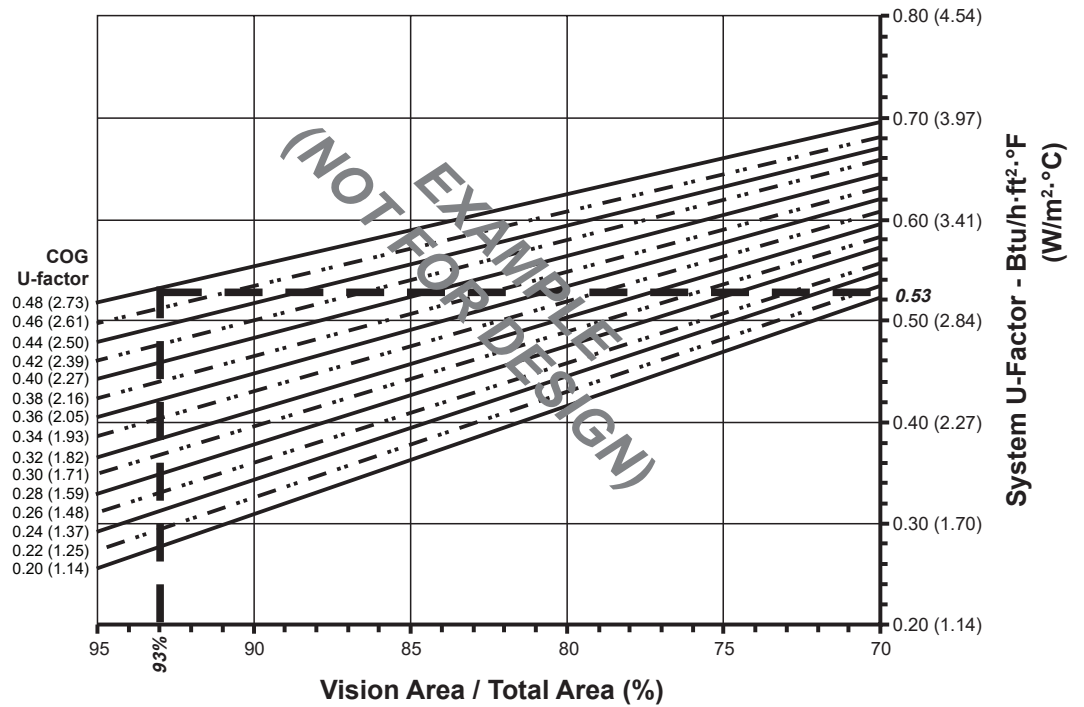
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Vision Area Chart

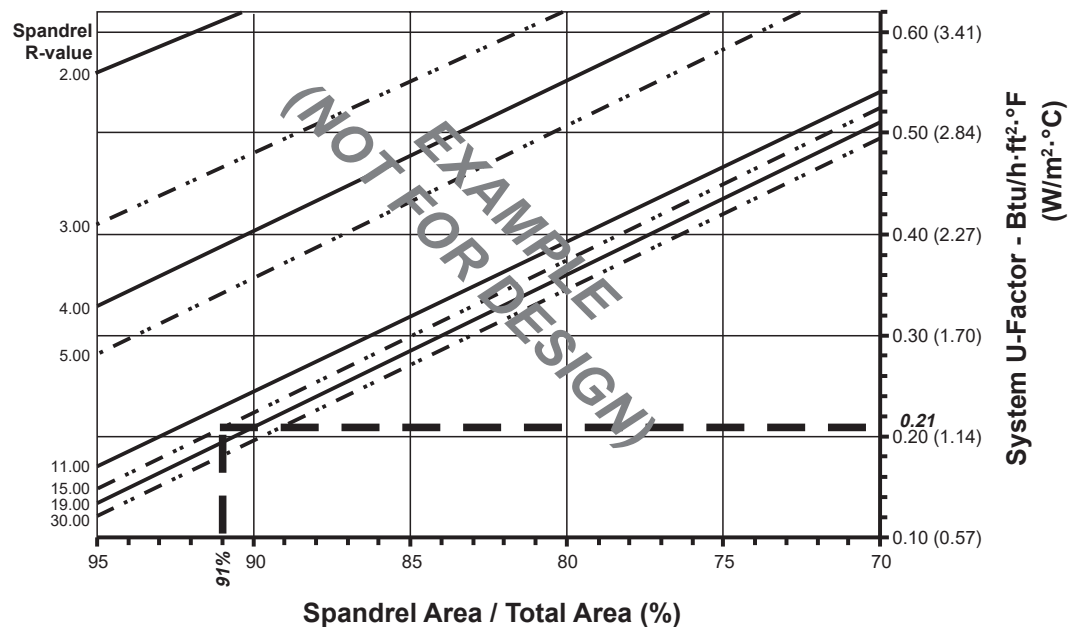
System U-factor vs Percent of Vision Area



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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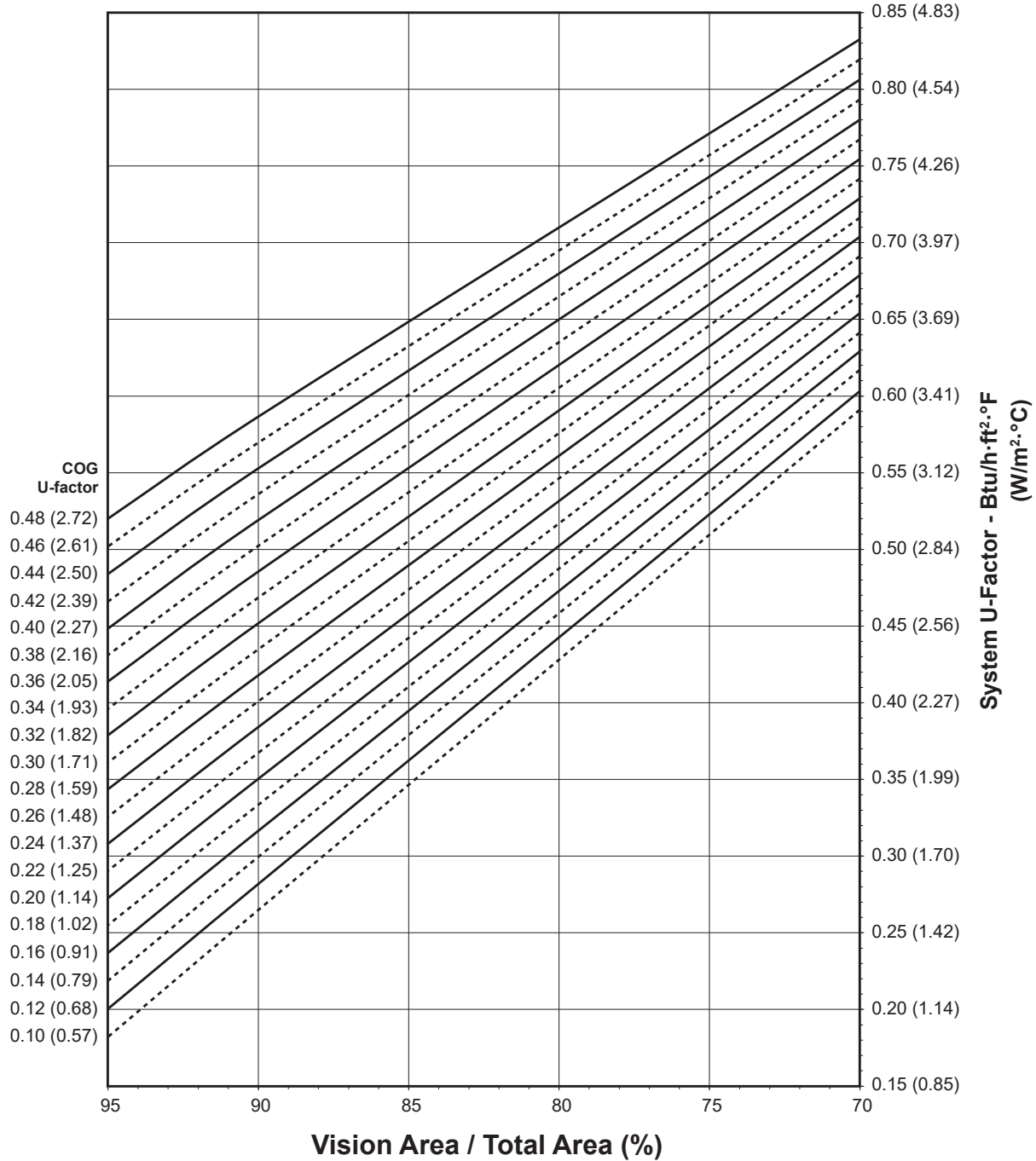
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**Aluminum Pressure Plate  
1" Double Glazed - Warm-Edge Glazing Spacer**

**Note:**

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

**System U-Factor for Vision Glass**



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

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

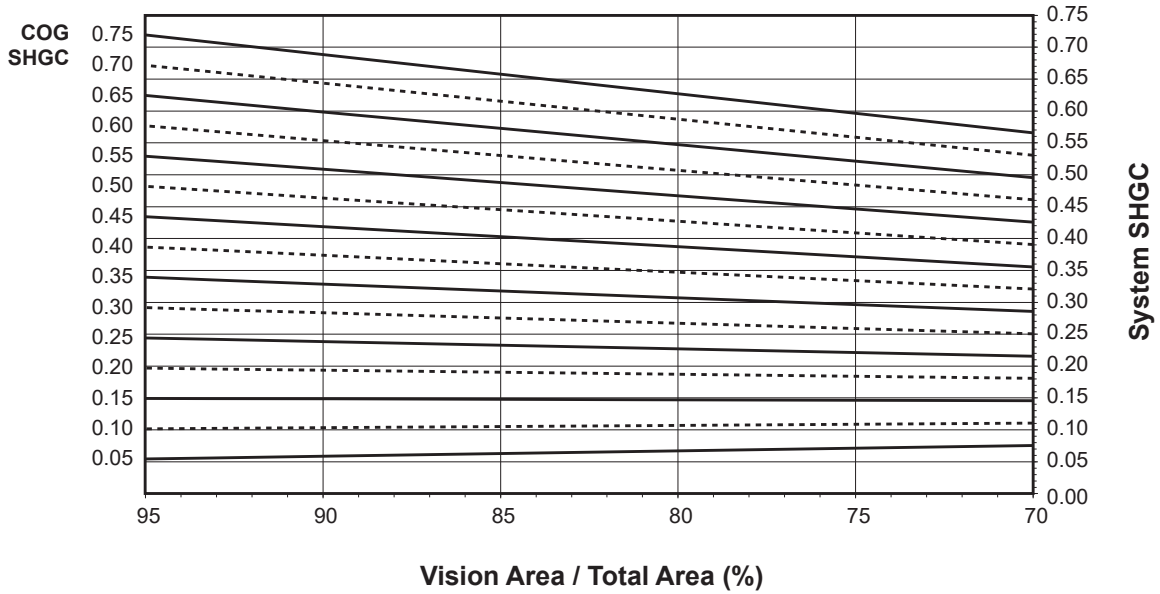
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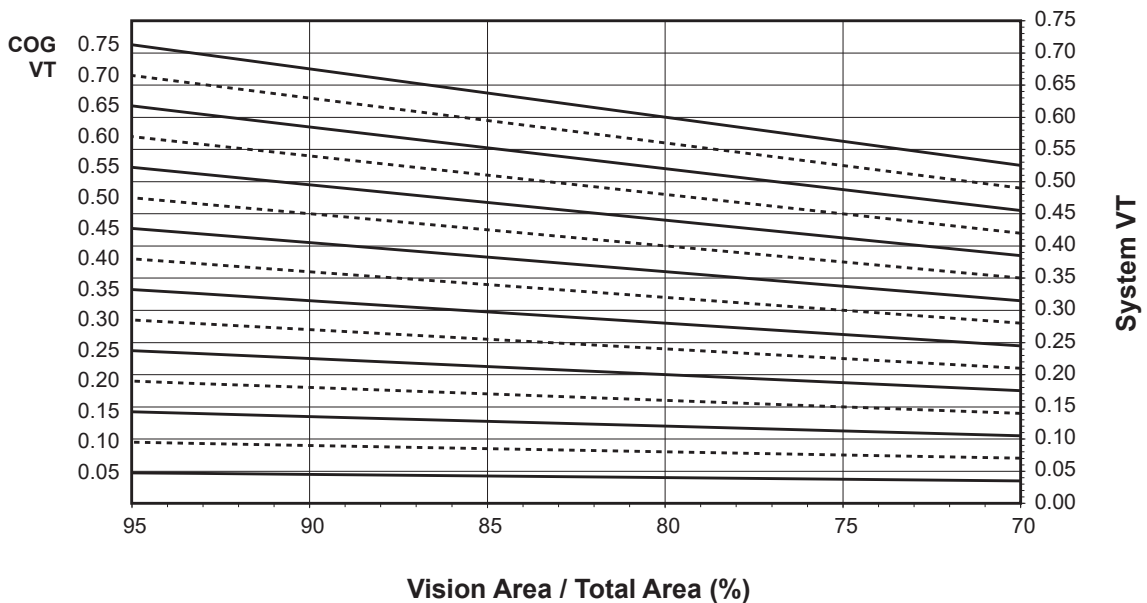
## Aluminum Pressure Plate 1" Double Glazed - Warm-Edge Glazing Spacer

### 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	0.59
0.46	0.57
0.44	0.56
0.42	0.54
0.40	0.52
0.38	0.51
0.36	0.49
0.34	0.47
0.32	0.46
0.30	0.44
0.28	0.42
0.26	0.41
0.24	0.39
0.22	0.37
0.20	0.35
0.18	0.34
0.16	0.32
0.14	0.30
0.12	0.29
0.10	0.27

**Aluminum Pressure Plate  
1" Double Glazed  
Warm-Edge Glazing Spacer**

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

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 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	0.67
0.70	0.63
0.65	0.58
0.60	0.54
0.55	0.49
0.50	0.45
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

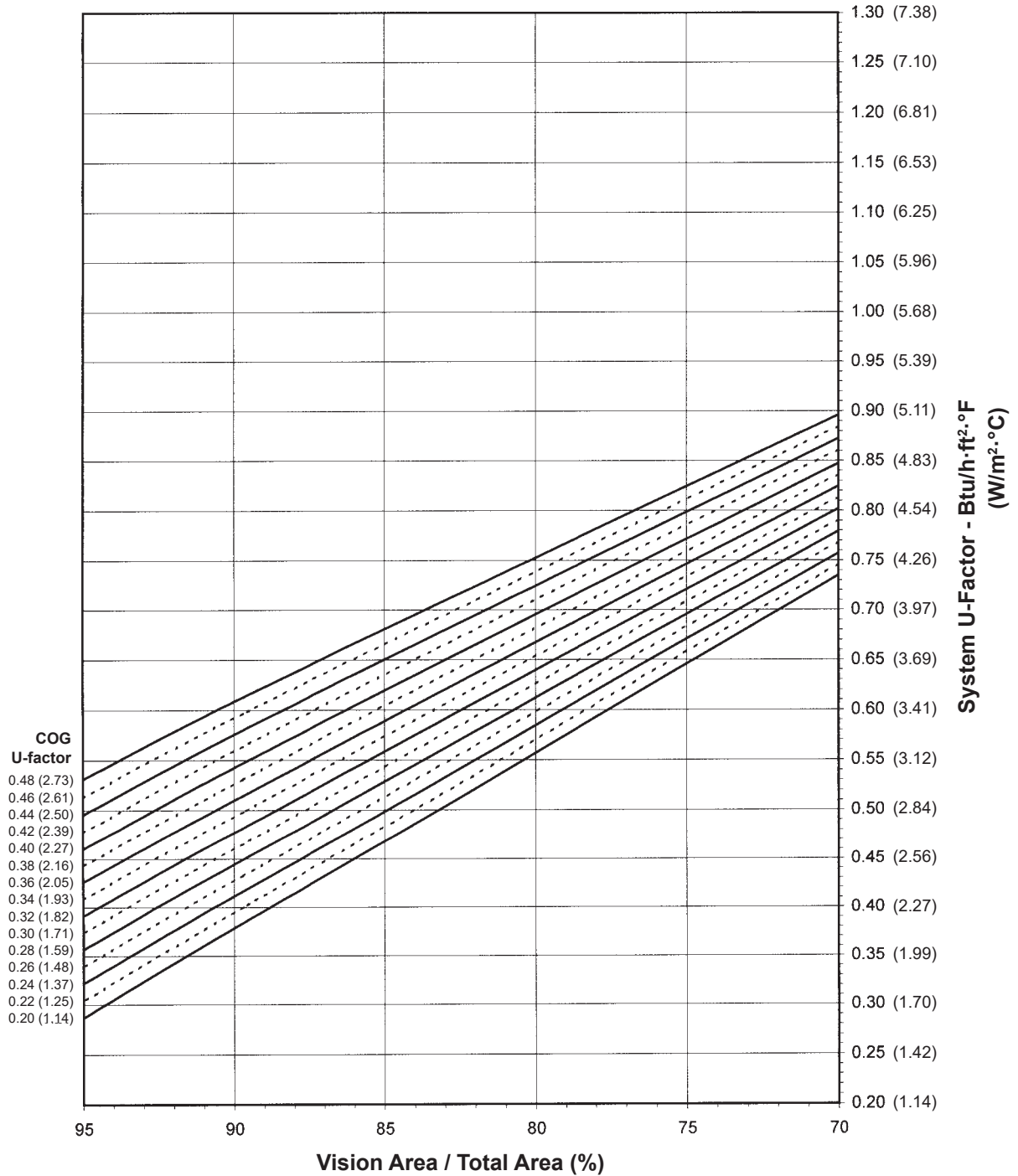
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**Aluminum Pressure Plate  
1" Double Glazed - Aluminum Glazing Spacer**

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

**System U-Factor for Vision Glass**



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

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

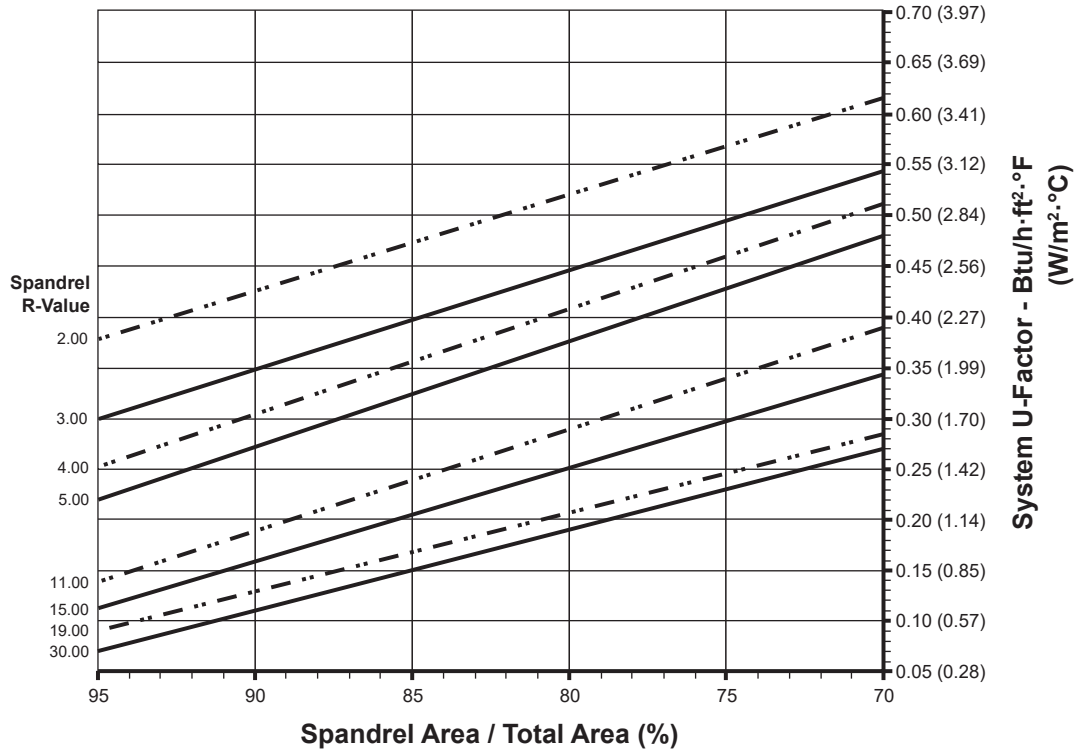
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Aluminum Pressure Plate  
1/4" Single Glazed

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

System U-Factors for Spandrel Glass



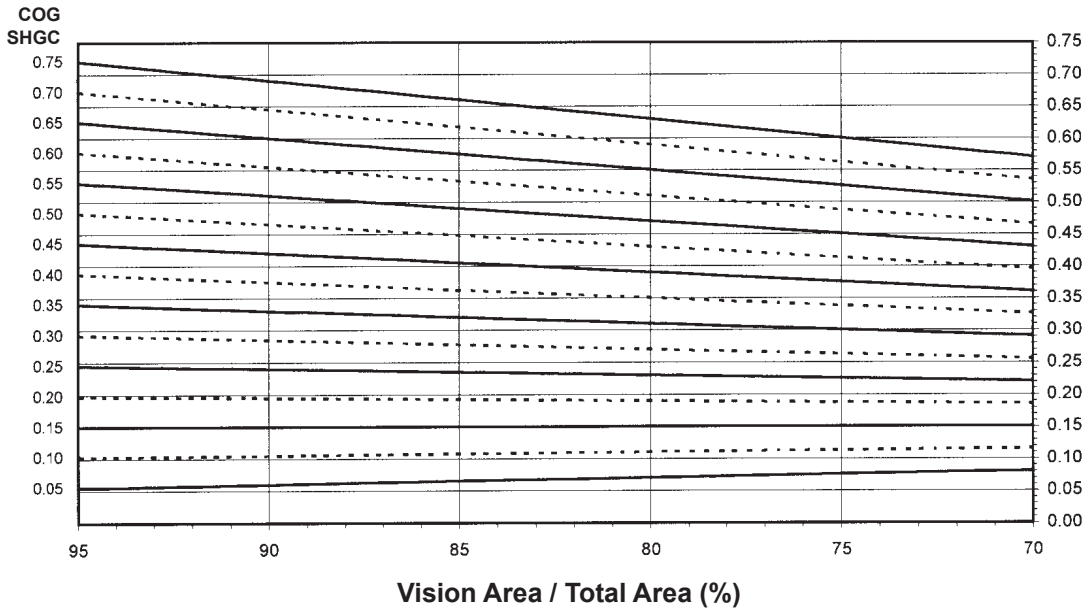
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Aluminum Pressure Plate  
1" Double Glazed - Aluminum Glazing Spacer

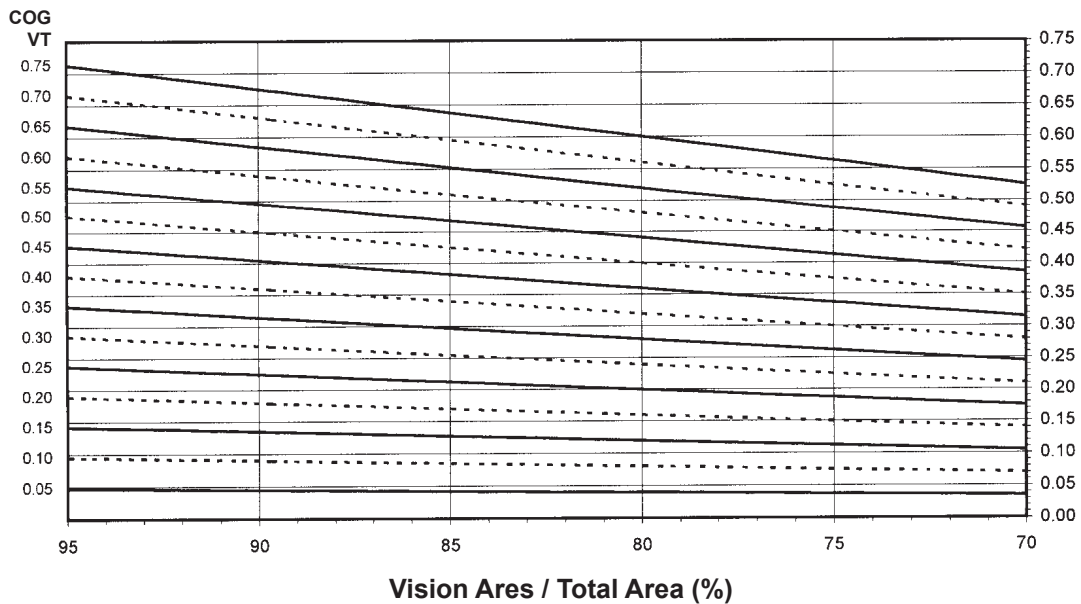
System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area



System SHGC

Charts are generated per AAMA 507.

System Visible Transmittance (VT) vs Percent of Vision Area



System VT

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	0.61
0.46	0.60
0.44	0.58
0.42	0.56
0.40	0.55
0.38	0.53
0.36	0.51
0.34	0.50
0.32	0.48
0.30	0.47
0.28	0.45
0.26	0.43
0.24	0.42
0.22	0.40
0.20	0.38

**Aluminum Pressure Plate  
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 Matricies 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	0.20
0.15	0.15
0.10	0.11
0.05	0.06

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

Glass VT <sup>3</sup>	Overall VT <sup>4</sup>
0.75	0.67
0.70	0.63
0.65	0.58
0.60	0.54
0.55	0.49
0.50	0.45
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

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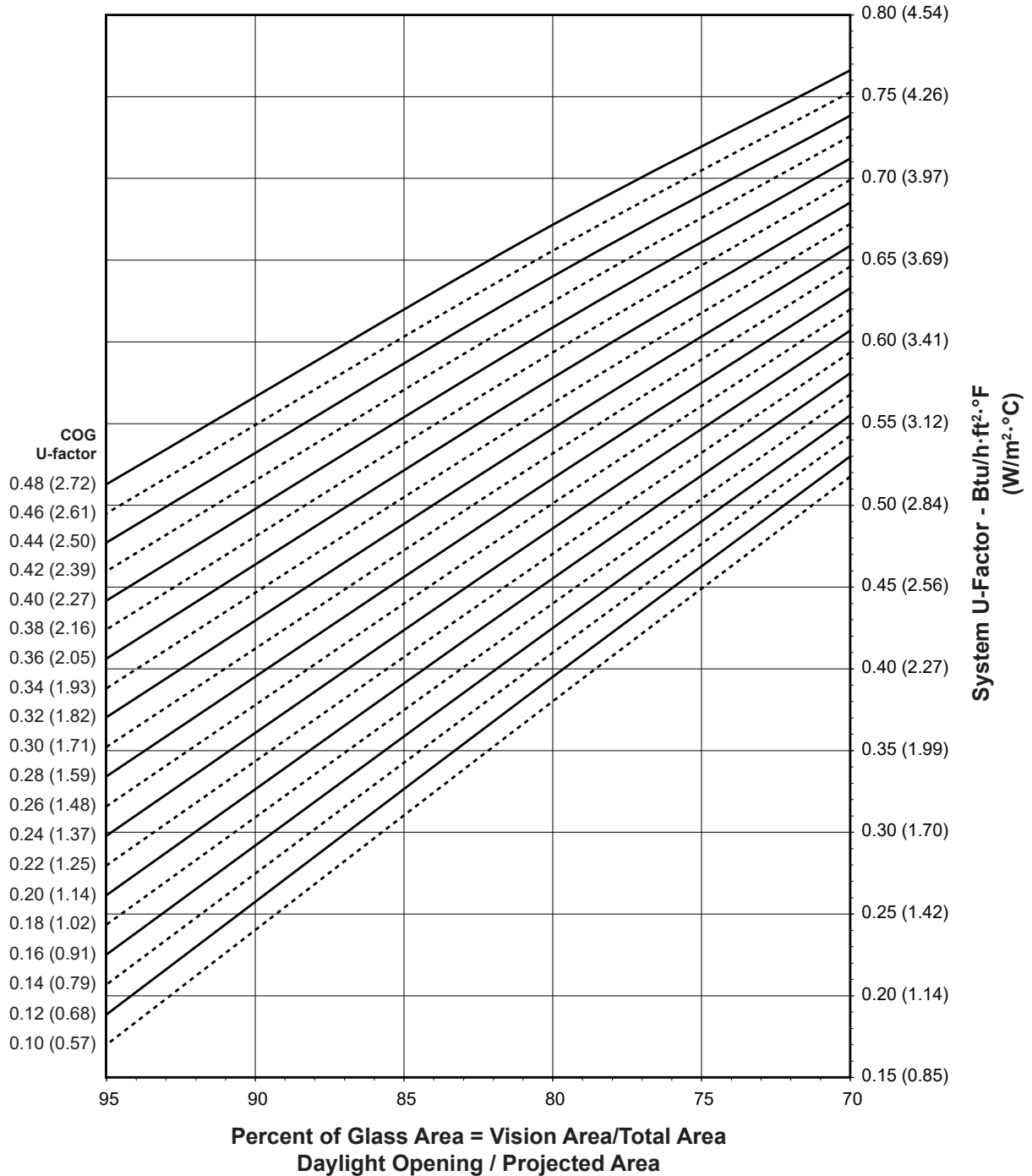
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**1600 System<sup>®</sup>1 with GLASSvent<sup>®</sup> - Projecting (Awning - Single)  
1" Double Glazed - Warm-Edge Glazing Spacer**

**Note:**

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

**System U-Factor for Vision Glass**



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

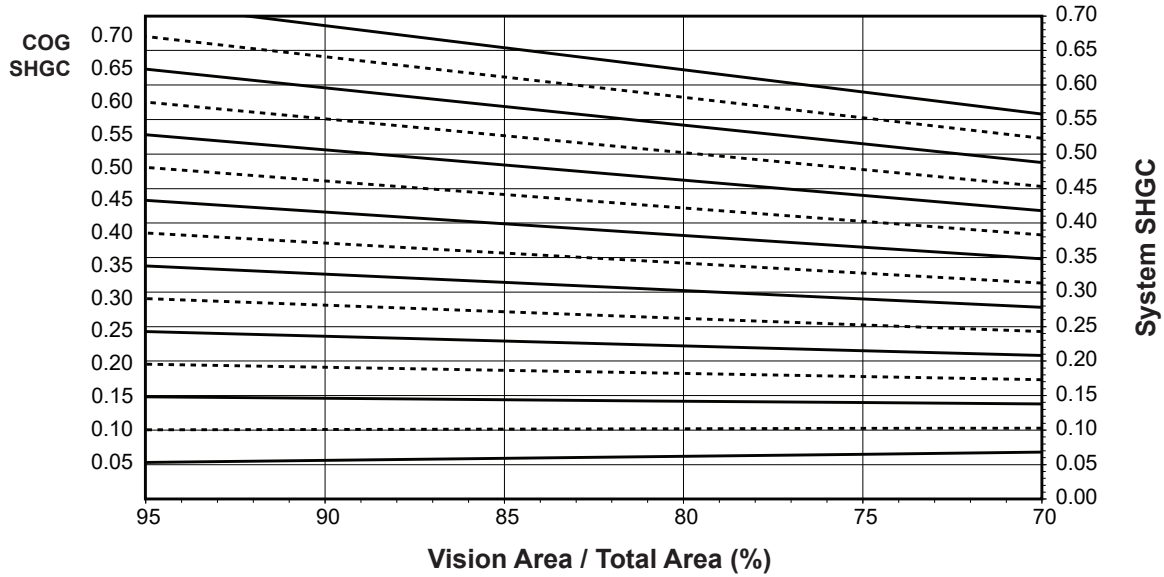
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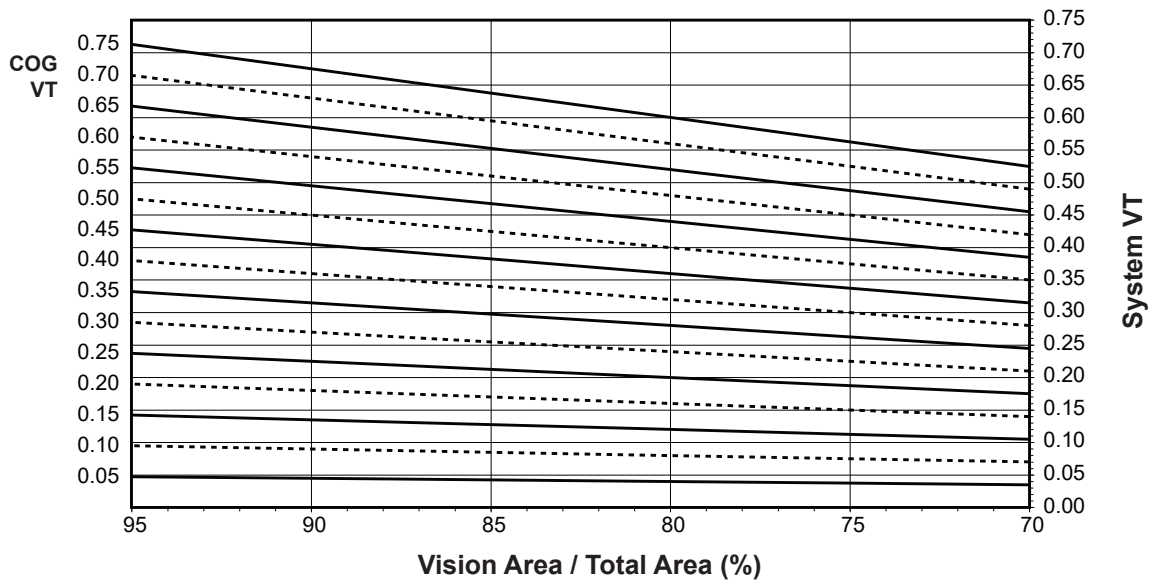
**1600 System<sup>®1</sup> with GLASSvent<sup>®</sup> - Projecting (Awning - Single)  
1" Double Glazed - Warm-Edge Glazing Spacer**

**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.

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

**1600 System<sup>®</sup>1 with GLASSvent<sup>®</sup>  
Projecting (Awning - Single)  
1" Double Glazed  
Warm-Edge Glazing Spacer**

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

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

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

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

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

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

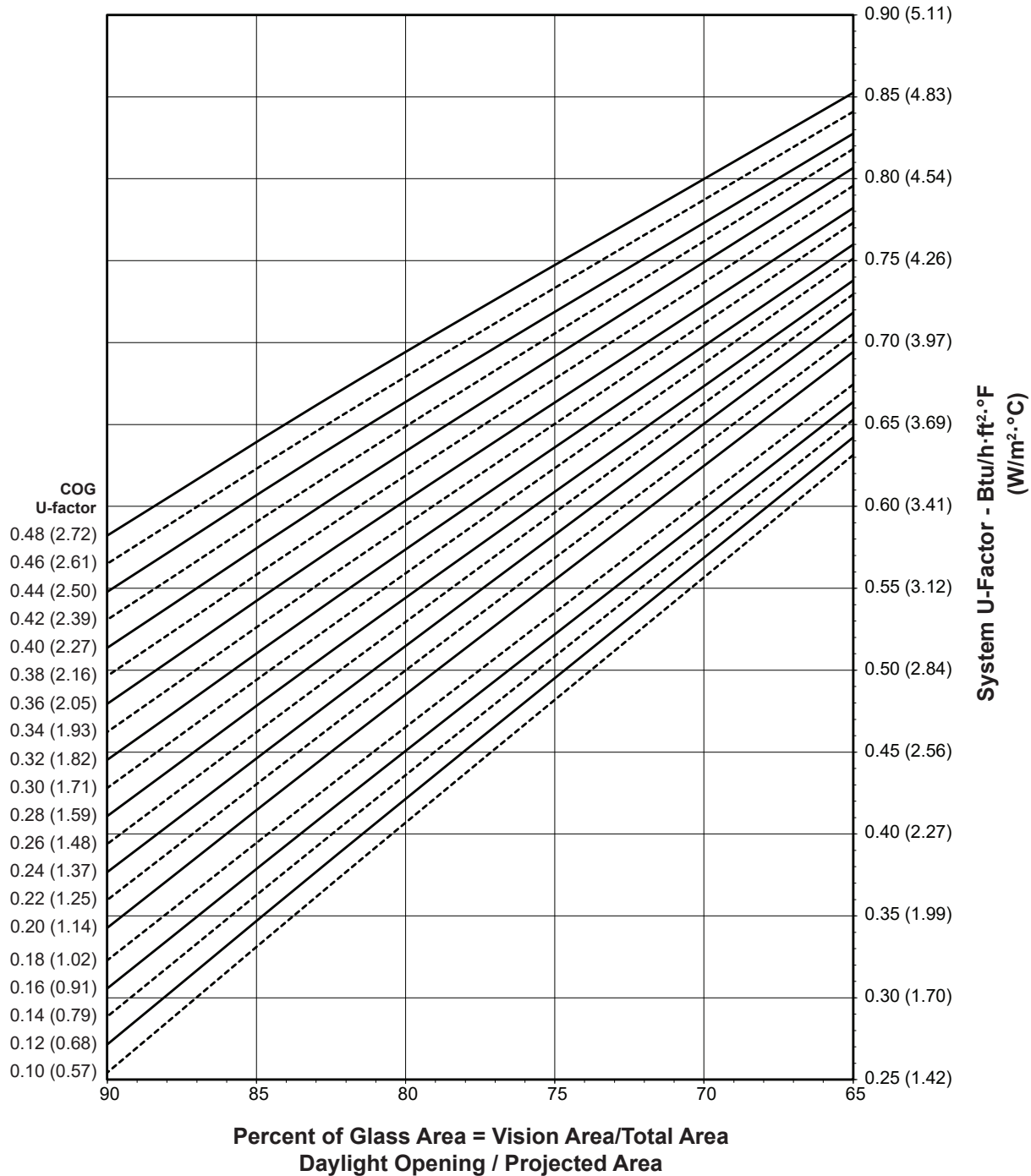
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1600 System<sup>®</sup>1 with GLASSvent<sup>®</sup> - Projecting (Awning - Single)  
1" Double Glazed - Aluminum Glazing Spacer

Note:  
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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:

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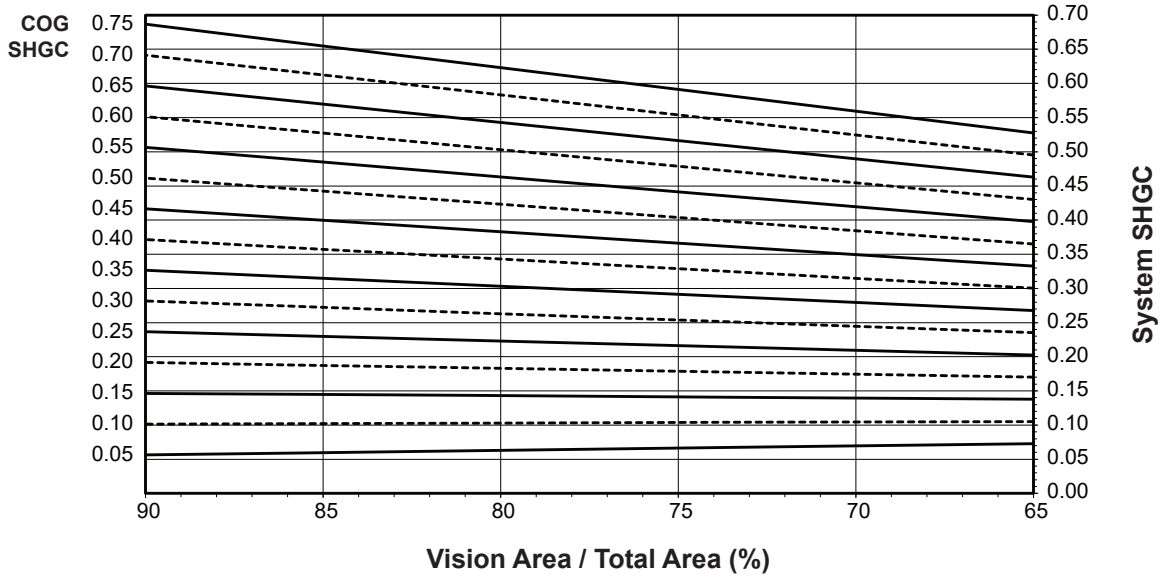
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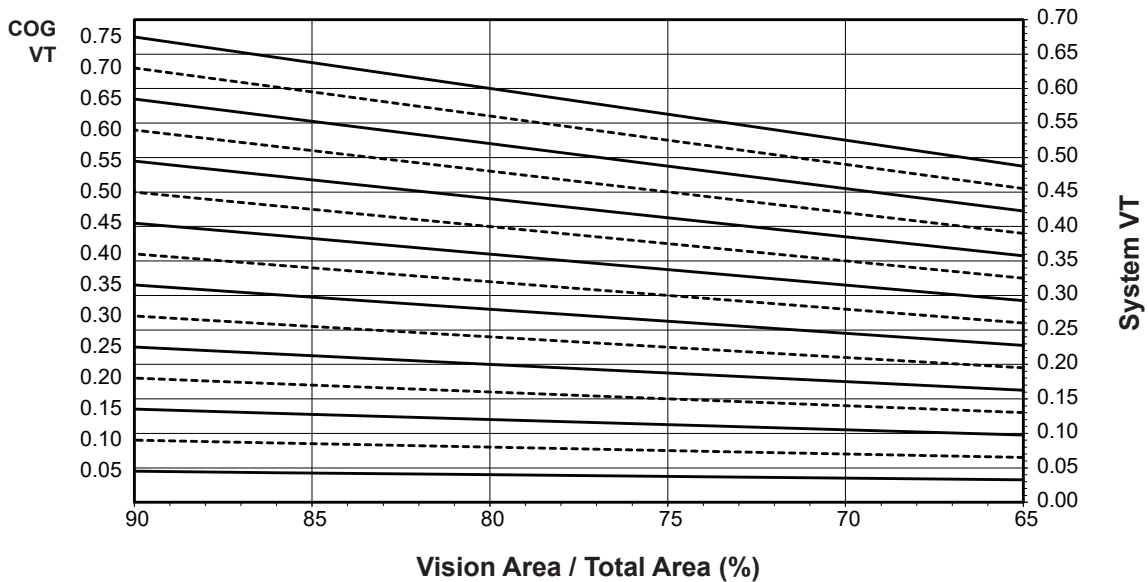
## 1600 System<sup>®</sup>1 with GLASSvent<sup>®</sup> - Projecting (Awning - Single) 1" Double Glazed - Aluminum Glazing Spacer

### 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	0.69
0.46	0.67
0.44	0.65
0.42	0.64
0.40	0.62
0.38	0.61
0.36	0.59
0.34	0.58
0.32	0.56
0.30	0.55
0.28	0.53
0.26	0.52
0.24	0.50
0.22	0.49
0.20	0.47
0.18	0.45
0.16	0.44
0.14	0.42
0.12	0.41
0.10	0.39

**1600 System®1 with GLASSvent®  
Projecting (Awning - Single)  
1" Double Glazed  
Aluminum Glazing Spacer**

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

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 1,500 mm wide by 600 mm high (59-11/16" by 23-5/8").

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

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

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

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

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.

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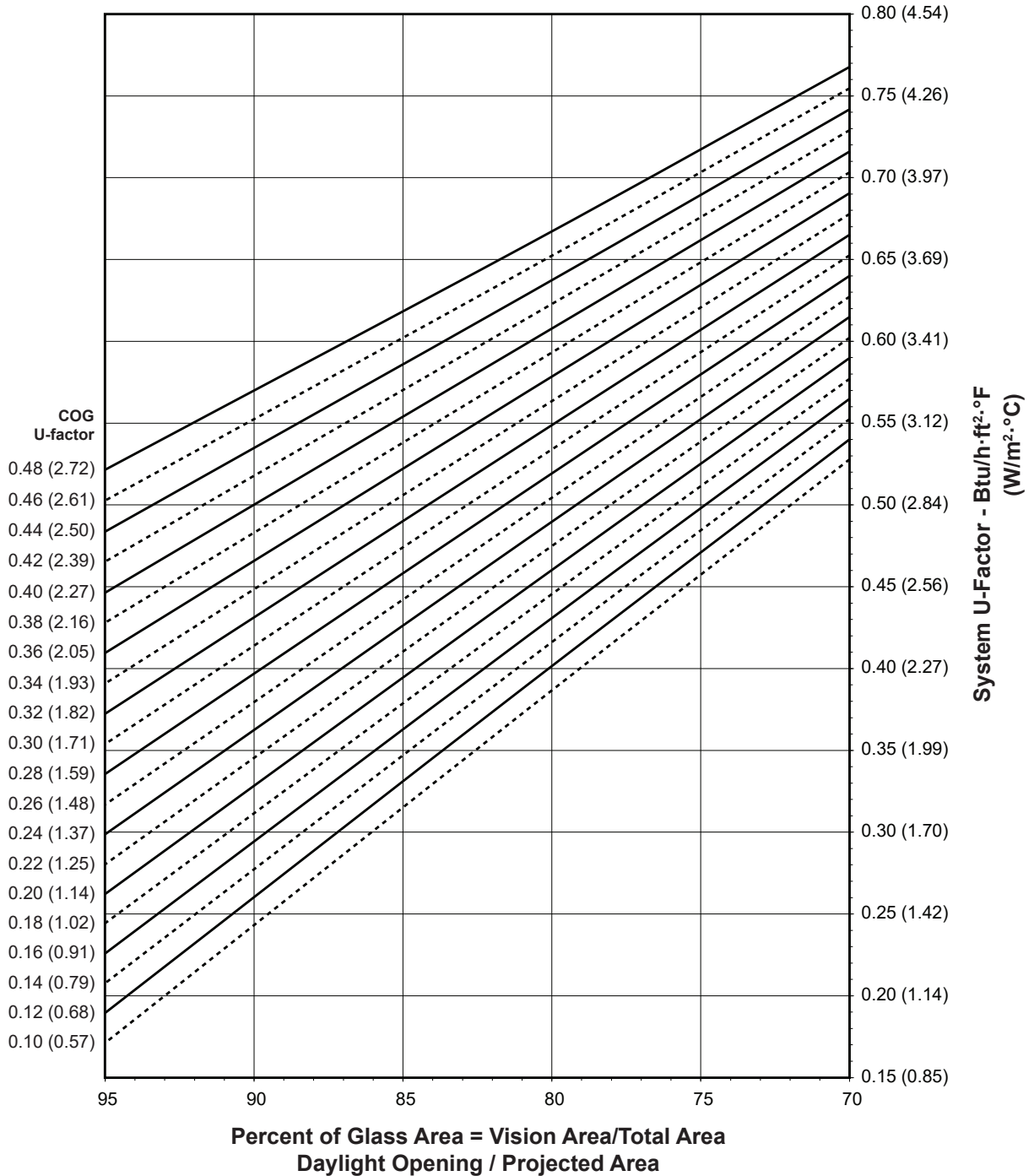


**1600 System<sup>®</sup>1 with GLASSvent<sup>®</sup> - Casement (Single Vent)  
1" Double Glazed - Warm-Edge Glazing Spacer**

**Note:**

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

**System U-Factor for Vision Glass**



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

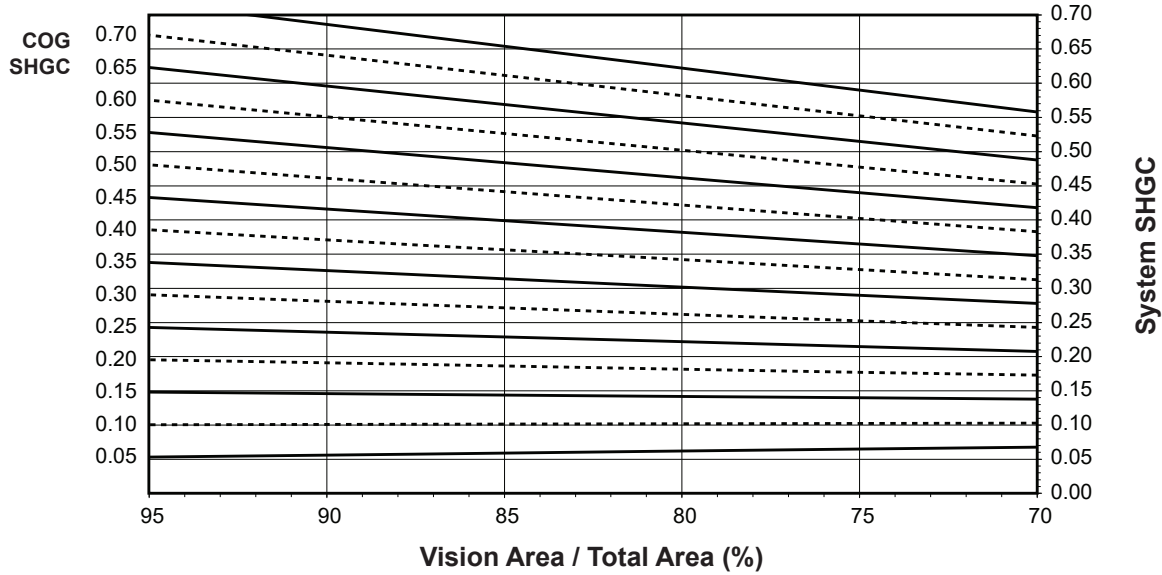
For glass values that are not listed, linear interpolation is permitted.  
Glass properties are based on center of glass values and are obtained from your glass supplier.

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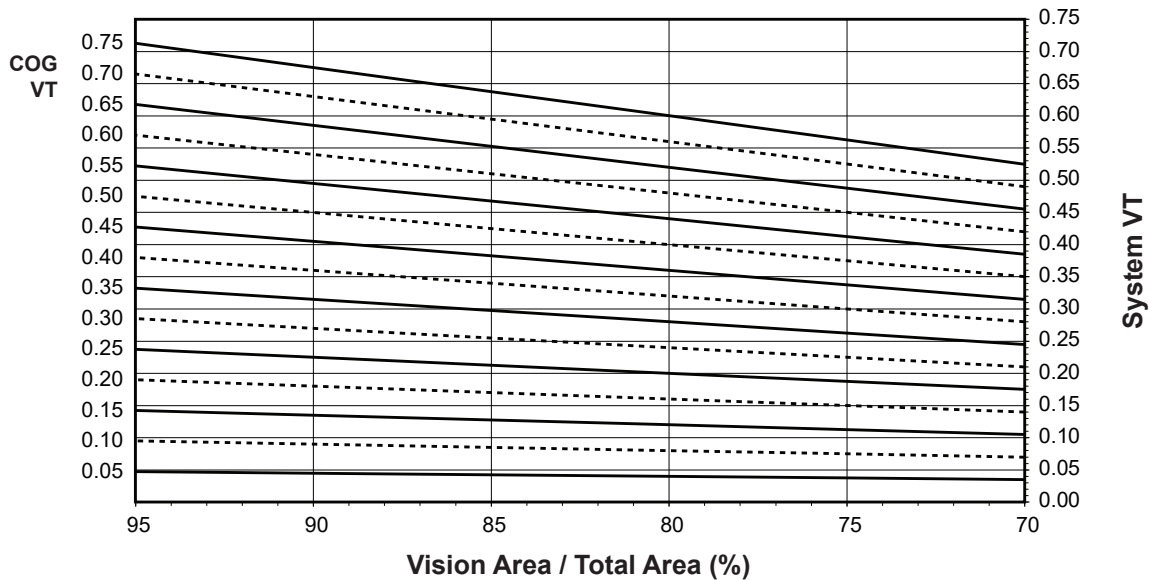
**1600 System<sup>®</sup>1 with GLASSvent<sup>®</sup> - Casement (Single Vent)  
1" Double Glazed - Warm-Edge Glazing Spacer**

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

**1600 System<sup>®</sup>1 with GLASSvent<sup>®</sup>  
Casement (Single Vent)  
1" Double Glazed  
Warm-Edge Glazing Spacer**

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

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

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

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

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

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

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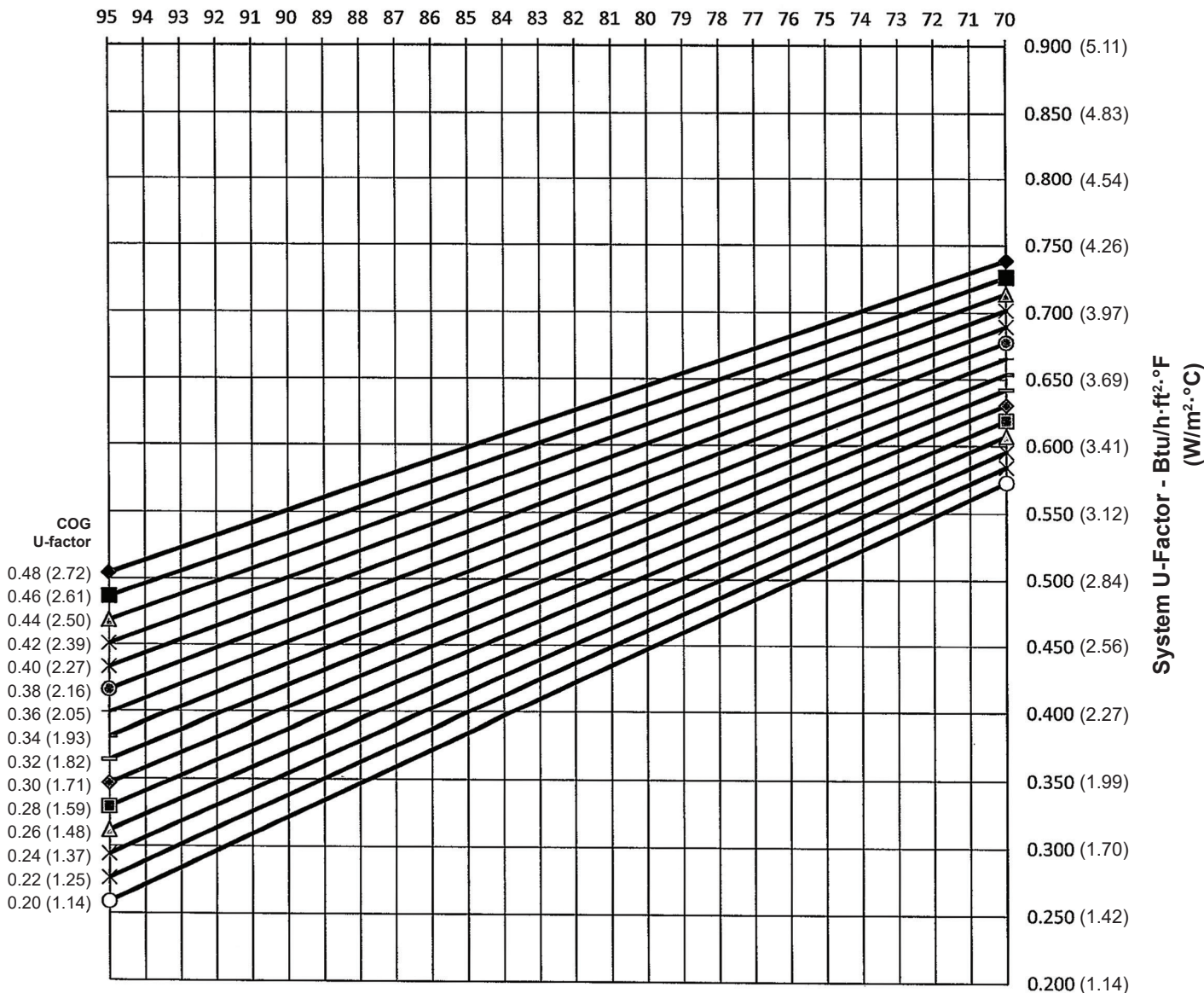
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Fiberglass Pressure Plate  
1" Double Glazed - Aluminum Glazing Spacer

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

System U-Factor for Vision Glass

Vision Area / Total Area (%)



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

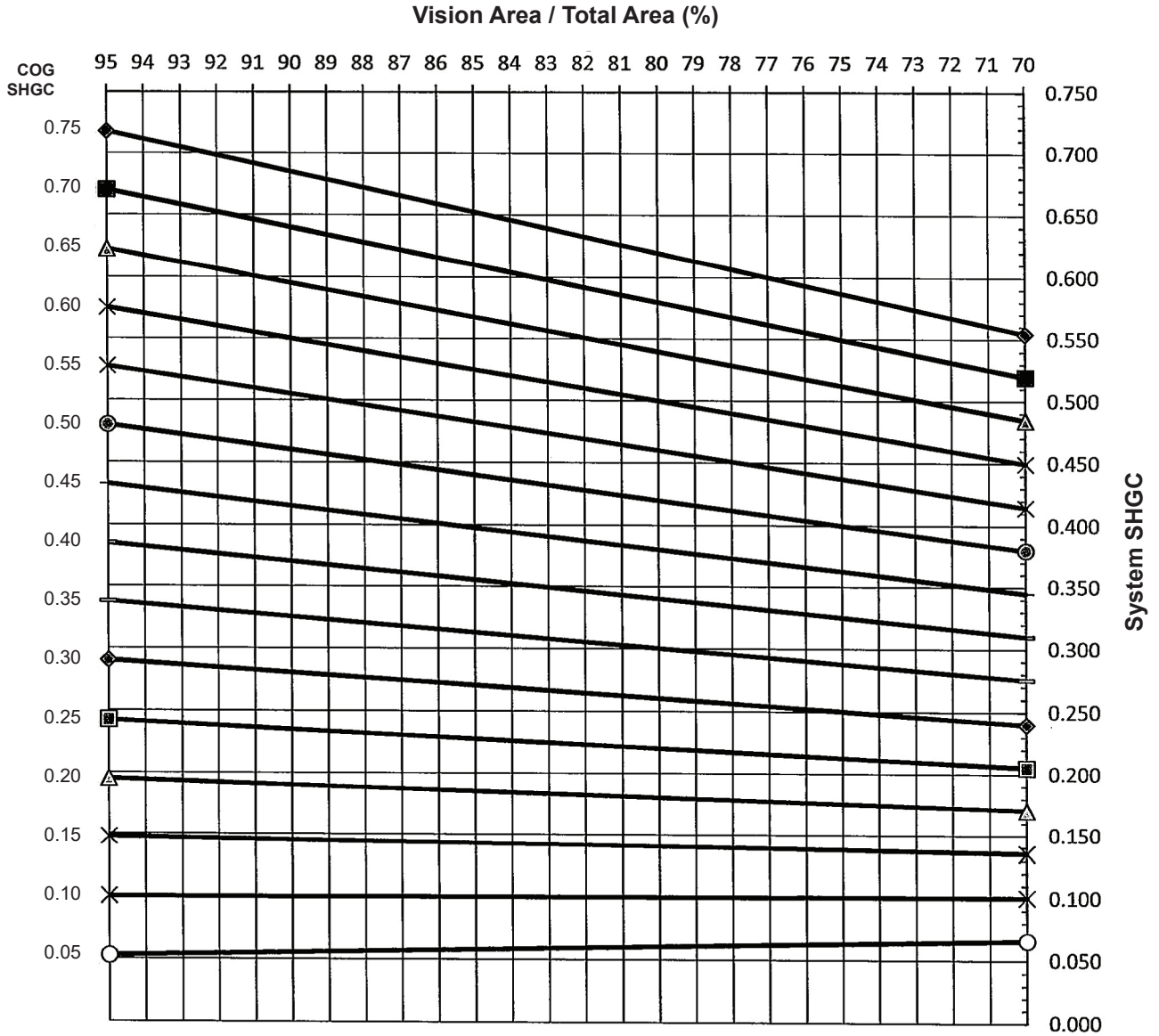
For glass values that are not listed, linear interpolation is permitted.  
Glass properties are based on center of glass values and are obtained from your glass supplier.

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Fiberglass Pressure Plate  
1" Double Glazed - Aluminum Glazing Spacer

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



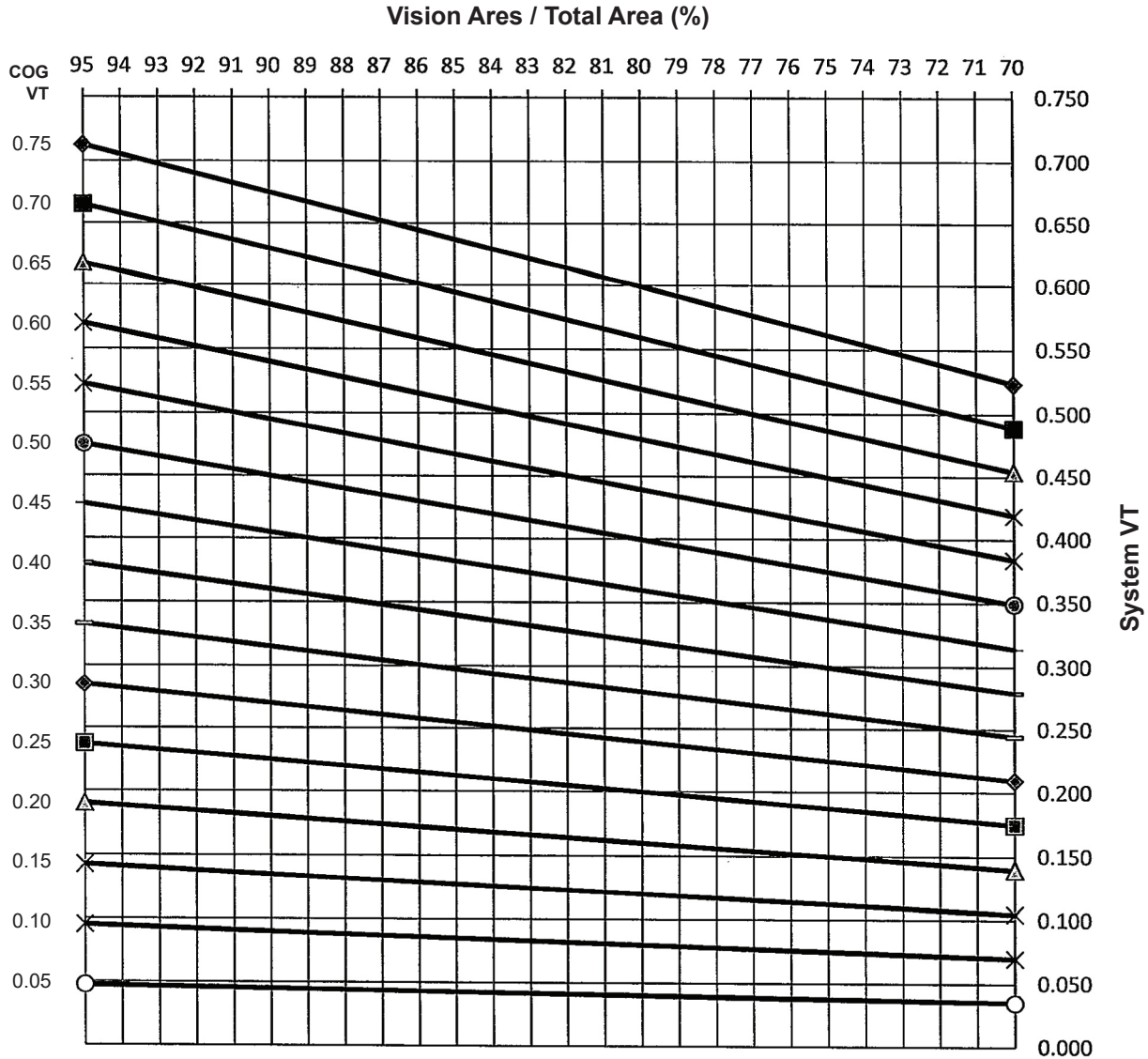
Charts are generated per AAMA 507.

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Fiberglass Pressure Plate  
1" Double Glazed - Aluminum Glazing Spacer

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	0.56
0.46	0.54
0.44	0.52
0.42	0.51
0.40	0.49
0.38	0.48
0.36	0.46
0.34	0.44
0.32	0.43
0.30	0.41
0.28	0.39
0.26	0.38
0.24	0.36
0.22	0.34
0.20	0.33

**Fiberglass Pressure Plate  
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 Matricies 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	0.15
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	0.67
0.70	0.63
0.65	0.58
0.60	0.54
0.55	0.49
0.50	0.45
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

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## CONDENSATION RESISTANCE

Glazing Infill	Pressure Plate Type	Condensation Resistance Factor (CRF) AAMA 1503		Temperature Index (TI) CSA A440-0	
		Frame	Glass	Frame	Glass
1" Double	Aluminum	71	71	---	---
1" Double (No Low-e)	Aluminum	66	60	68	54
	Fiberglass	76	60	---	---

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