

Features

- 1600 Wall System®³ is an inside / outside glazed captured curtain wall
- 1600 Wall System®³ has a 2-1/2" (63.5) sight line
- Standard 6" (152.4) or 7-1/2" (190.5) depth systems are compatible with System®¹ and System®²
- Inside glazed verticals utilize the Isostrut™ thermal barrier to provide superior structural and thermal performance
- Integral vertical exterior cover and thermal barrier reduce installed cost
- Horizontals utilize a thermal separator and pressure plate to allow for glazing or 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
- 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 in seven choices
- Painted finishes in standard and custom choices

Optional Features

- Steel reinforcing available
- Integrates with standard Kawneer windows and concealed GLASSvent™
- 1600 PowerWall® solar photovoltaic (PV) infill in lieu of glass

Product Applications

- Ideal for low-rise to high-rise curtain wall applications where inside glazing and high performance is desired

For specific product applications,
Consult your Kawneer representative.

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

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

© Kawneer Company, Inc., 2012

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.

PICTORIAL VIEW 5

TYPICAL 1/4 SIZE DETAILS 6-7

ENTRANCE ADAPTERS 8

CORNERS..... 8

1600 PowerWall® 9

FEATURES 9

TYPICAL SYSTEM SCHEMATIC..... 10

FREQUENTLY ASKED QUESTIONS (FAQ) 11

ANCHORING 12

WIND LOAD CHARTS 13-16

DEADLOAD CHARTS 17-19

THERMAL CHARTS 20-24

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

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

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

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

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

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

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2012

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

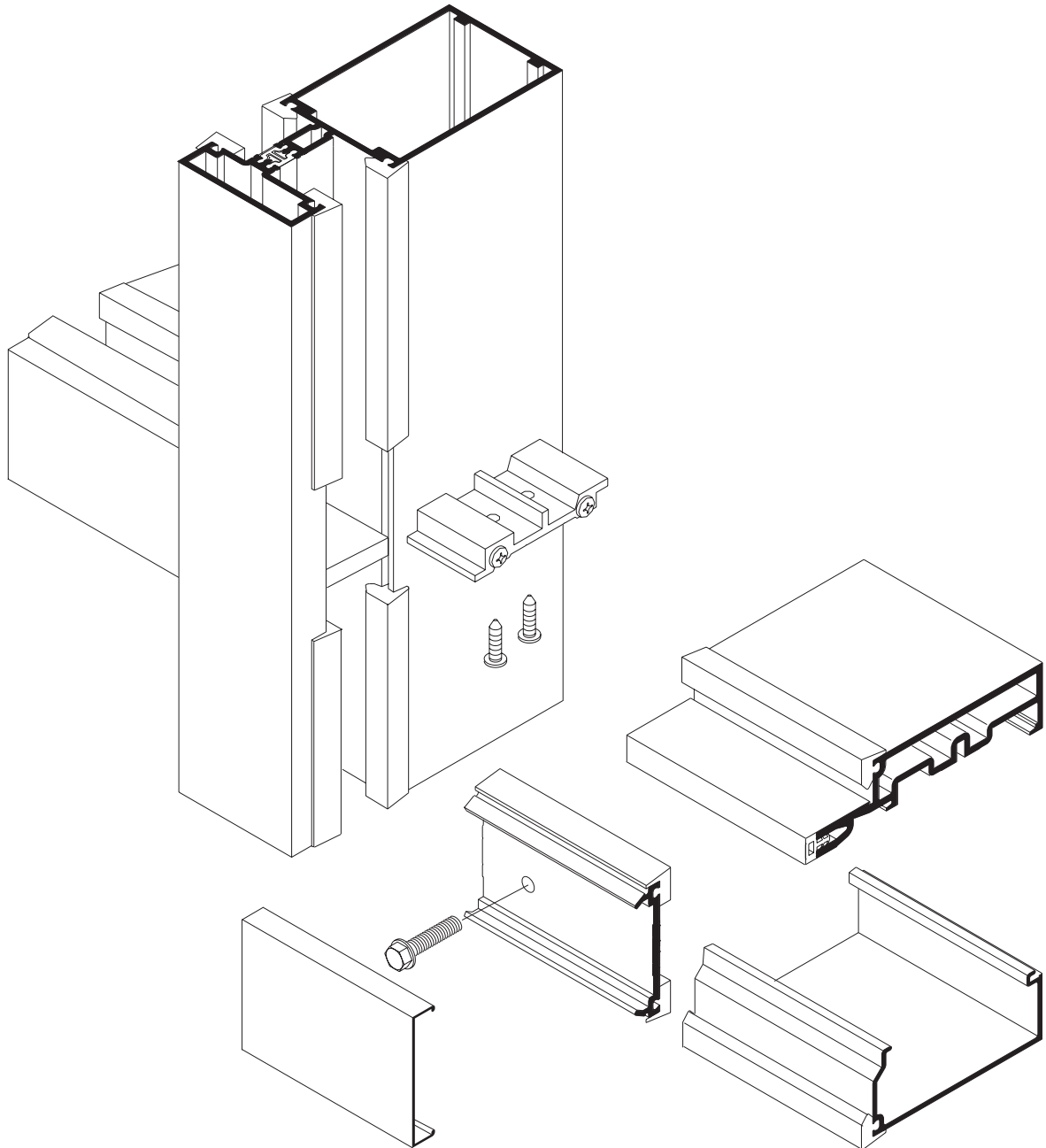
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

© Kawneer Company, Inc., 2012

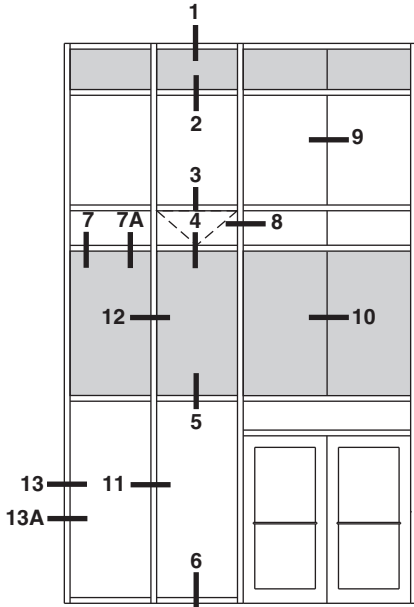
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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

© Kawneer Company, Inc., 2012

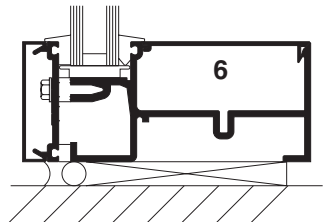
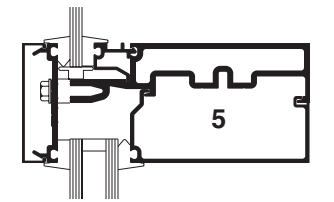
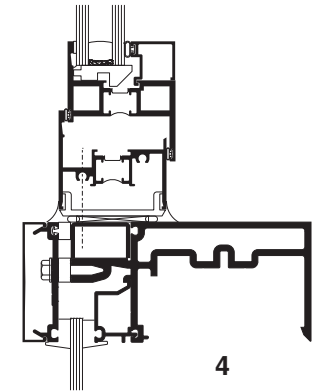
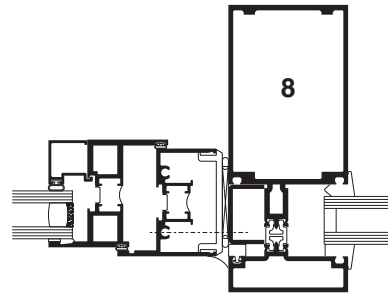
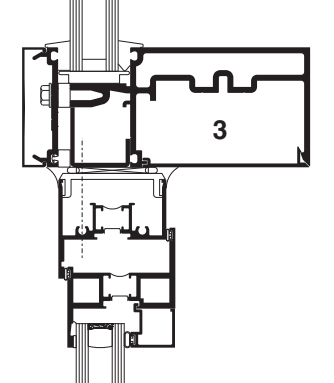
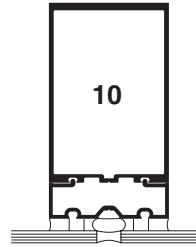
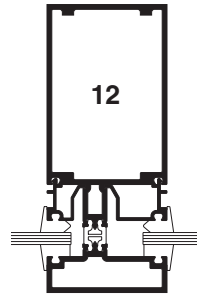
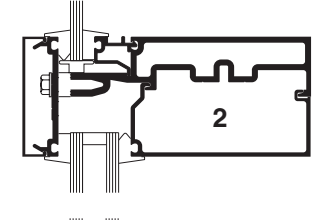
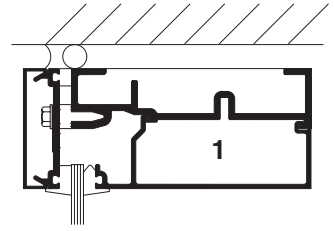
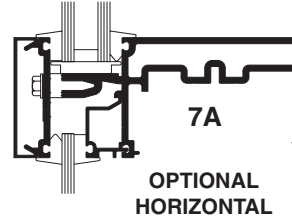
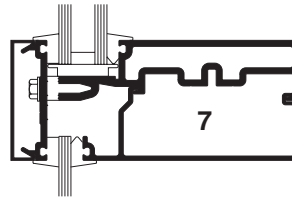


SCALE 3" = 1'-0"

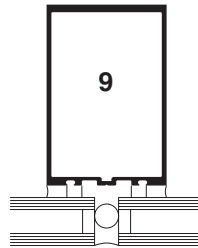
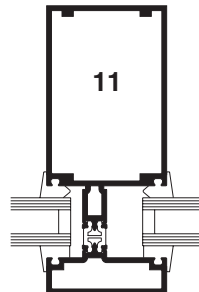
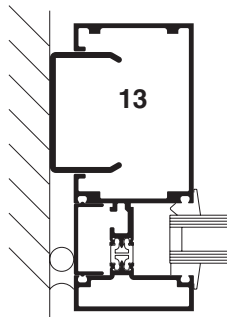
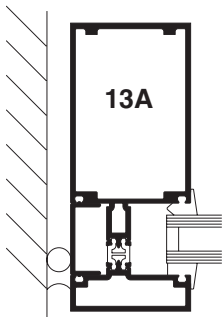


ELEVATION IS NUMBER KEYED TO DETAILS

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



ALTERNATE
JAMB

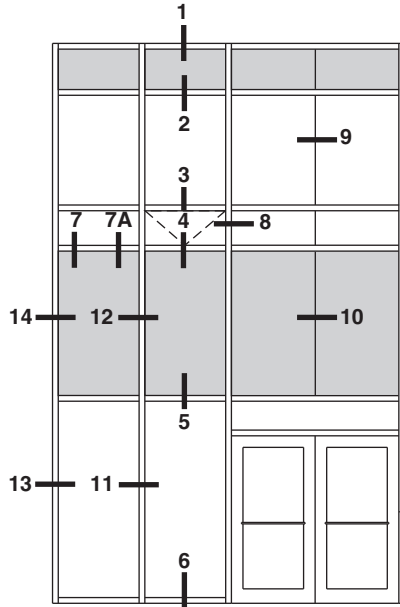


Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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

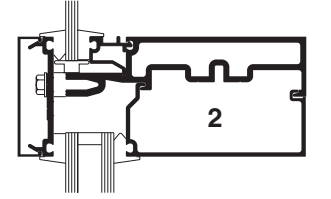
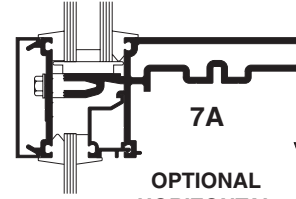
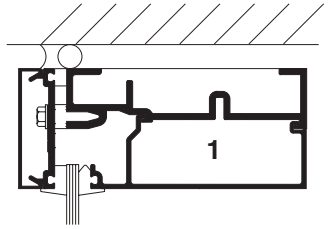
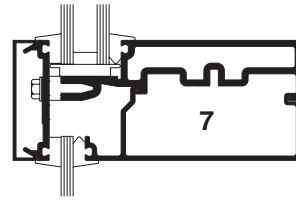
© Kawneer Company, Inc., 2012

SCALE 3" = 1'-0"

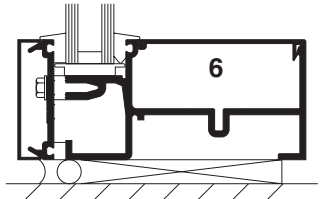
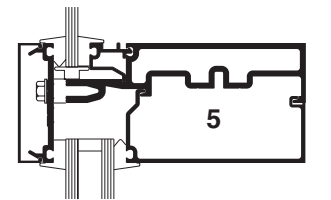
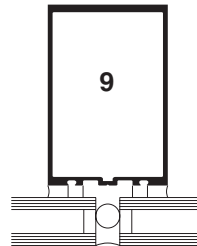
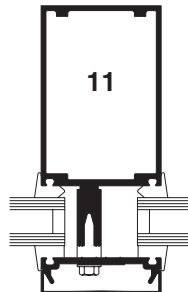
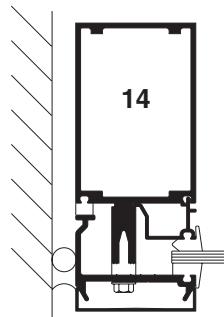
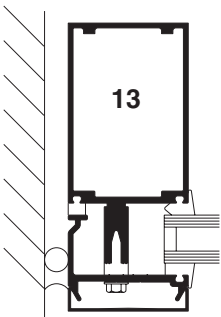
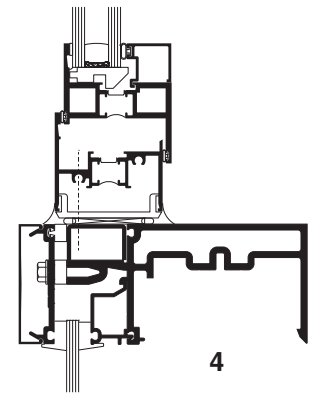
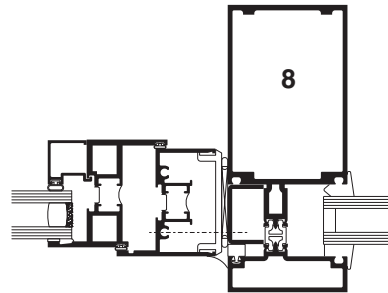
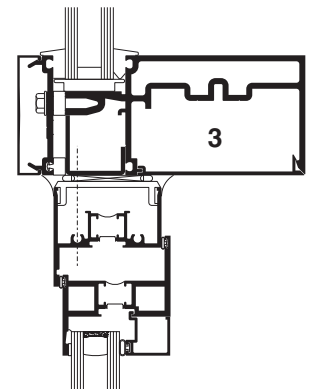
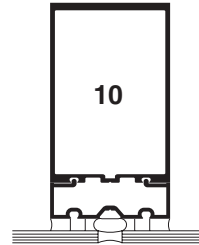
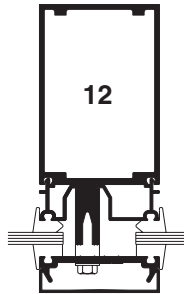


ELEVATION IS NUMBER KEYED TO DETAILS

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



OPTIONAL HORIZONTAL

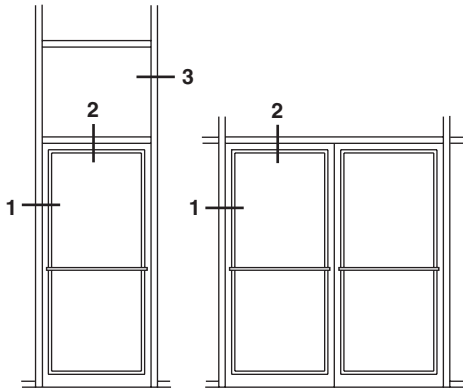


Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
 © Kawneer Company, Inc., 2012

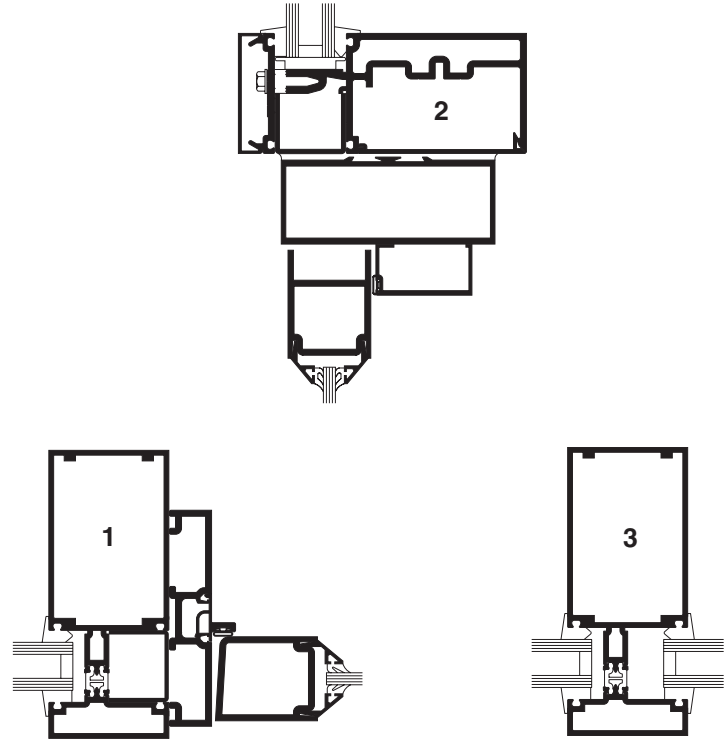
SCALE 3" = 1'-0"

ENTRANCE ADAPTERS

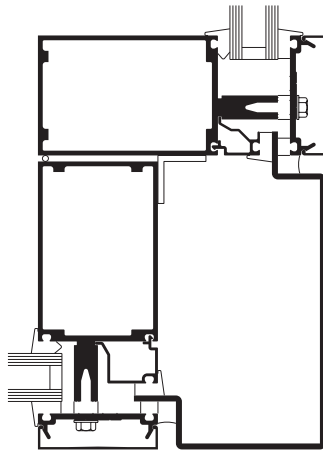


ELEVATION IS NUMBER KEYED TO DETAILS

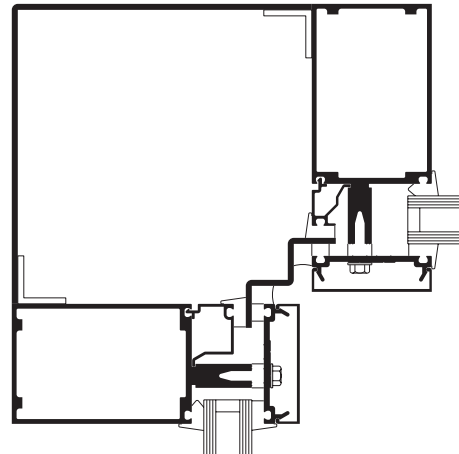
NOTE:
 OFFSET PIVOT/BUTT HUNG ENTRANCE SHOWN.
 ALSO AVAILABLE FOR CENTER HUNG



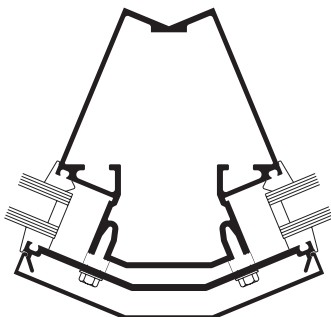
CORNERS



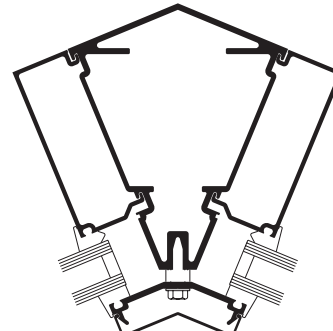
OUTSIDE 90° CORNER



INSIDE 90° CORNER



OUTSIDE 135° CORNER



INSIDE 135° CORNER

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

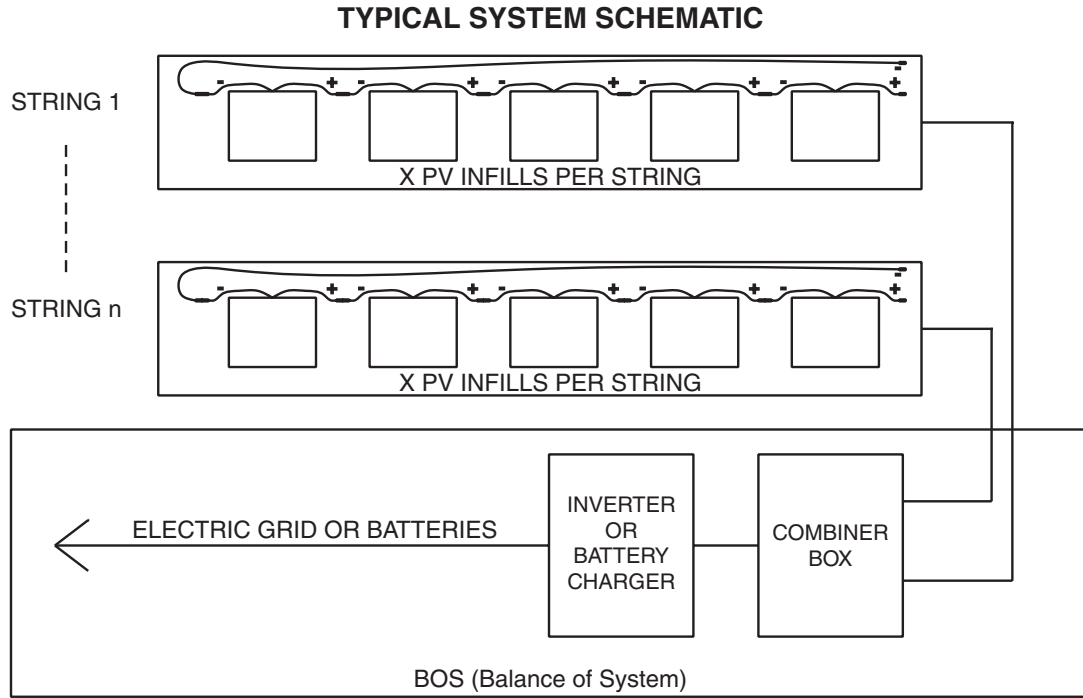
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
 © Kawneer Company, Inc., 2012

Features

- Curtain wall system that incorporates solar photovoltaic (PV) infill in lieu of standard glass infills.
- Outside glazed system based on the 1600 System®³ platform.
- Available in a 6" (152.4) or 7-1/2" (190.5) system depth.
- PV infill can be comprised of thin film or crystalline photovoltaic laminates, with a choice of transparencies (thin film) and cell spacing configurations (crystalline).
- Infill can be monolithic laminates, or IG units for better thermal performance.
- Wiring from PV infill can be concealed within curtain wall.
- Pressure plate capture allows for easy installation and replacement of PV infill.

Product Notes

1. 1600 PowerWall® has been designed to be used with the 1600 System®³ platform. Product notes applicable to 1600 System®³ are also applicable to 1600 PowerWall®.
2. For applications requiring a different Kawneer glazing system, contact your Kawneer representative.
3. Orders must be for system sizes totaling 1,000 square feet or larger.
4. PV infills for PowerWall® are supplied by Kawneer. Contact your Kawneer representative for more information on the types of infills available, or to request a specific type of infill.
5. PV laminate output will vary based on the type of PV technology used, nominal capacity (Watts) installed, shading, orientation, and other design factors.
6. As with all PV systems, electrical engineering expertise is required to define the string configuration and select the appropriate balance of system hardware.
7. An electrical contractor or PV systems integrator will be required to wire the PowerWall® system in the field, and set up the balance of system.
8. In order to help design a PowerWall® solution, Kawneer must be provided with:
 - A wiring diagram showing the proposed string configuration
 - A wiring plan showing wire management from the PV façade to the inverters
 - Detailed elevation drawings for elevations containing PV infill
9. 1600 PowerWall® bonding (grounding) must be verified with Authorities Having Jurisdiction on a per project basis.
10. Kawneer is not responsible for wire management beyond the PowerWall® framing system.
11. 1600 PowerWall® is not UL certified.
12. PowerWall® designs for each project must be stamped by a Professional Engineer and must be approved by Authorities Having Jurisdiction prior to installation.



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

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2012

FAQ

1. What kind of power does PowerWall® generate?

The PV infill used in 1600 PowerWall® generates DC power, which is typically converted to AC power using an inverter. The inverter is a part of the balance of system (BOS). A DC only system (i.e. no conversion to AC) will require different BOS components which may vary by application.

2. What is a PV system integrator and why do I need one?

A PV system integrator has the expertise to set up a PV system. The PV system integrator will be responsible for wiring the PowerWall® system in the field and setting up the BOS.

3. Is electrical engineering experience required?

Electrical engineering experience is required to provide the overall electrical design including determining the optimum PV string layout and specifying appropriate balance of system hardware like inverters.

4. Who will glaze in the PV infill?

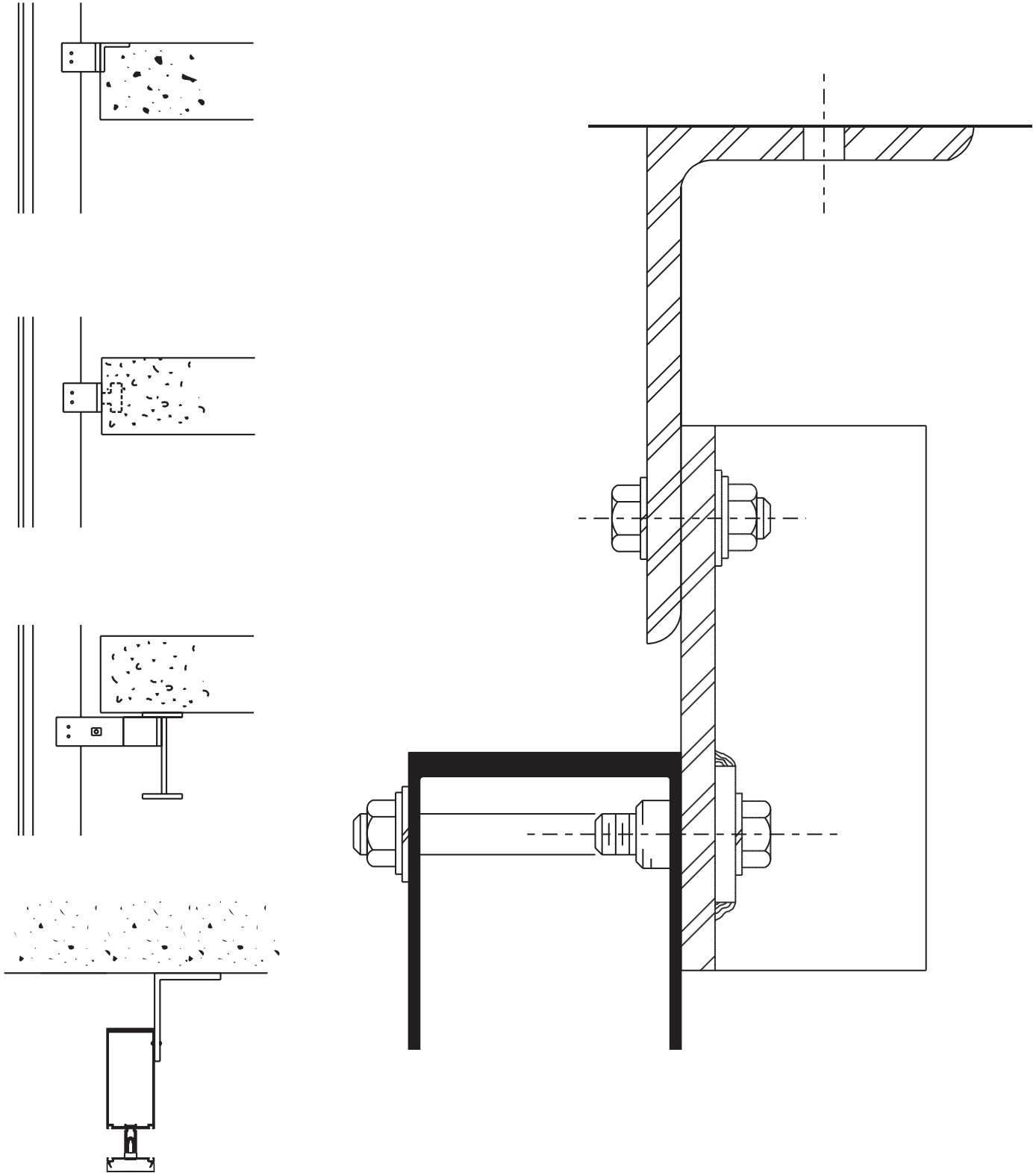
The PV infill will be glazed in by a glazing contractor (Kawneer customer).

5. What type of solar photovoltaic technology can be used with PowerWall®?

PowerWall® can incorporate PV infills with thin film PV cells or crystalline PV cells. The infill can be simply a glass-glass laminate, or an IG unit with the PV laminate as the exterior layer.

6. What colors are the PV infills available in?

Thin film PV is typically brown, grey, or black with a choice of transparencies created by etching some of the PV material away. PV infills with crystalline cells typically incorporate either black or dark blue cells, with spaces of clear glass in between. Additional options may be available, so contact your Kawneer representative for more information.



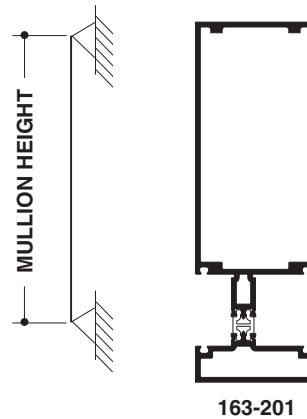
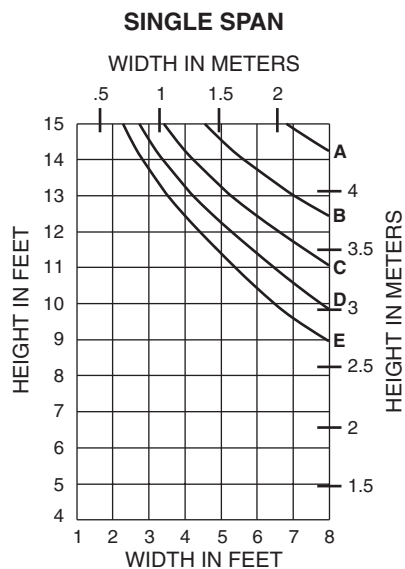
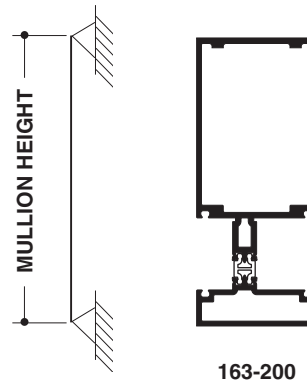
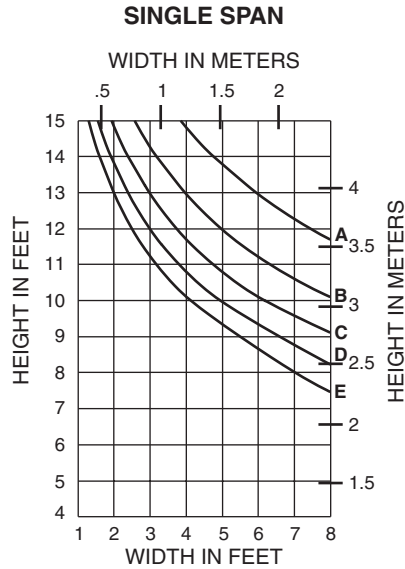
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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

© Kawneer Company, Inc., 2012

Mullions are designed for deflection limitations in accordance with AAMA TIR-A11 of L\175 up to 13'-6" and L\240 + 1/4" above 13'-6". These curves are for mullions WITH HORIZONTALS and are based on engineering calculations for stress and deflection. Allowable wind load stress for ALUMINUM 15,152 P.S.I. (104 MPa). STEEL 30,000 P.S.I. (206 MPa). Charted curves, in all cases, are for the limiting value. For special situations not covered by these curves, contact your Kawneer representative for additional information.

- A = 20 PSF (720 Pa)
- B = 30 PSF (1440 Pa)
- C = 40 PSF (1920 Pa)
- D = 50 PSF (2400 Pa)
- E = 60 PSF (2880 Pa)

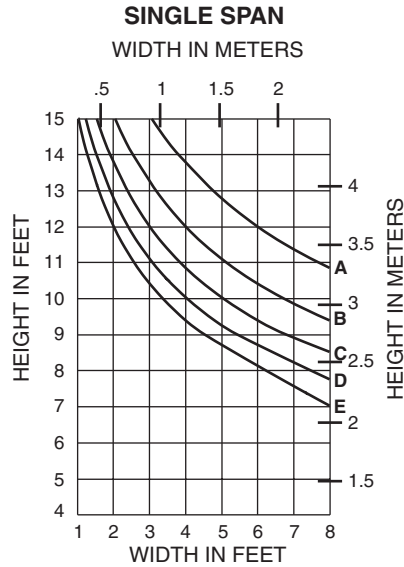


Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

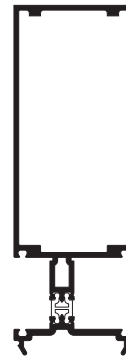
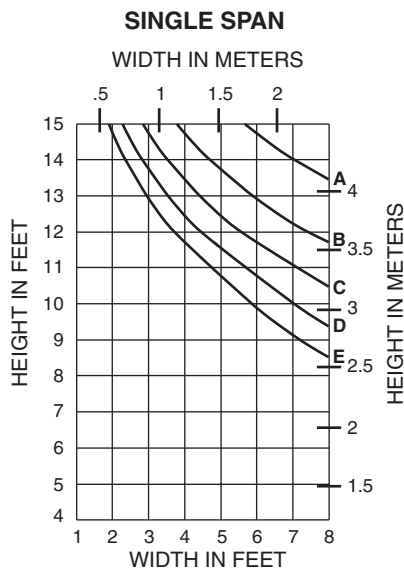
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2012

Mullions are designed for deflection limitations in accordance with AAMA TIR-A11 of $L/175$ up to 13'-6" and $L/240 + 1/4"$ above 13'-6". These curves are for mullions WITH HORIZONTALS and are based on engineering calculations for stress and deflection. Allowable wind load stress for ALUMINUM 15,152 P.S.I. (104 MPa). STEEL 30,000 P.S.I. (206 MPa). Charted curves, in all cases, are for the limiting value. For special situations not covered by these curves, contact your Kawneer representative for additional information.

- A = 20 PSF (720 Pa)
- B = 30 PSF (1440 Pa)
- C = 40 PSF (1920 Pa)
- D = 50 PSF (2400 Pa)
- E = 60 PSF (2880 Pa)



163-204



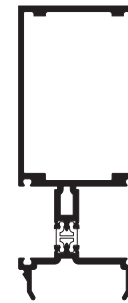
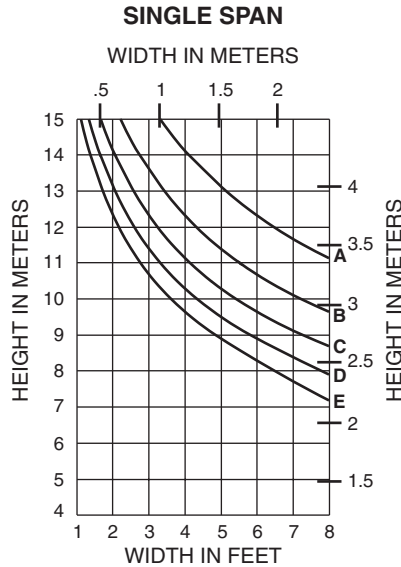
163-205

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

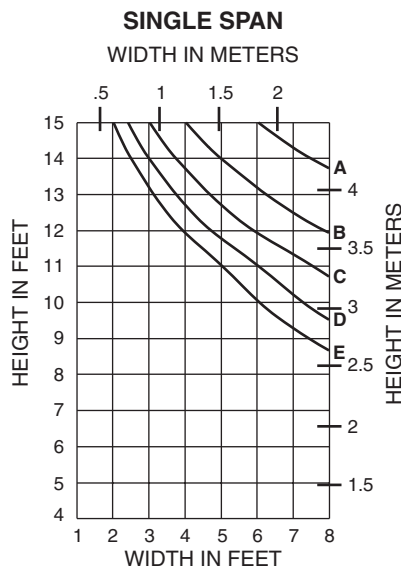
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2012

Mullions are designed for deflection limitations in accordance with AAMA TIR-A11 of $L\sqrt{175}$ up to 13'-6" and $L\sqrt{240} + 1/4"$ above 13'-6". These curves are for mullions WITH HORIZONTALS and are based on engineering calculations for stress and deflection. Allowable wind load stress for ALUMINUM 15,152 P.S.I. (104 MPa). STEEL 30,000 P.S.I. (206 MPa). Charted curves, in all cases, are for the limiting value. For special situations not covered by these curves, contact your Kawneer representative for additional information.

- A = 20 PSF (720 Pa)
- B = 30 PSF (1440 Pa)
- C = 40 PSF (1920 Pa)
- D = 50 PSF (2400 Pa)
- E = 60 PSF (2880 Pa)



163-208

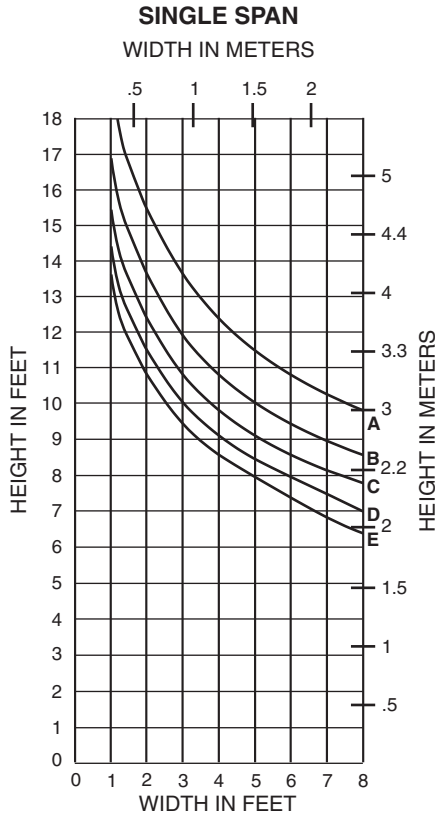


163-209

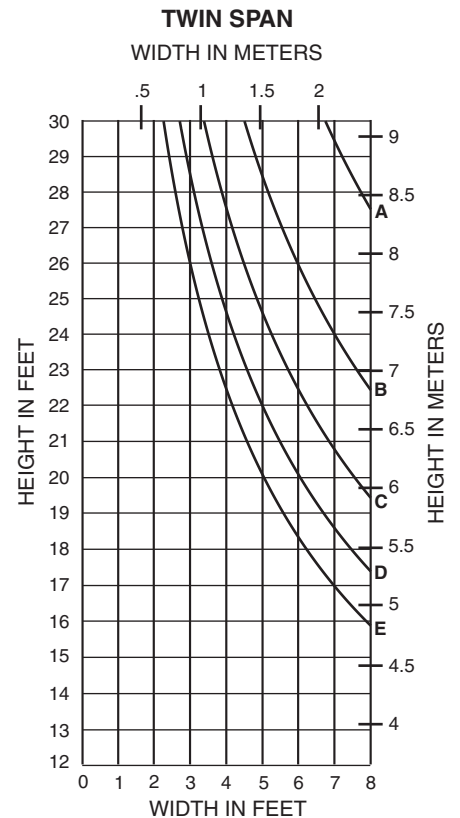
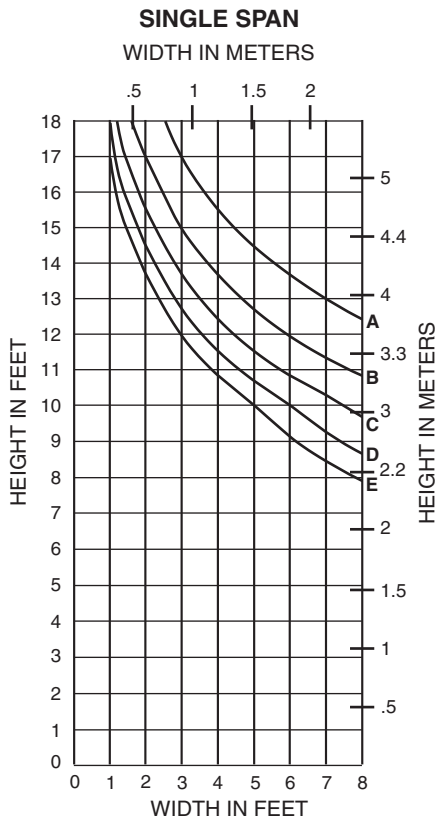
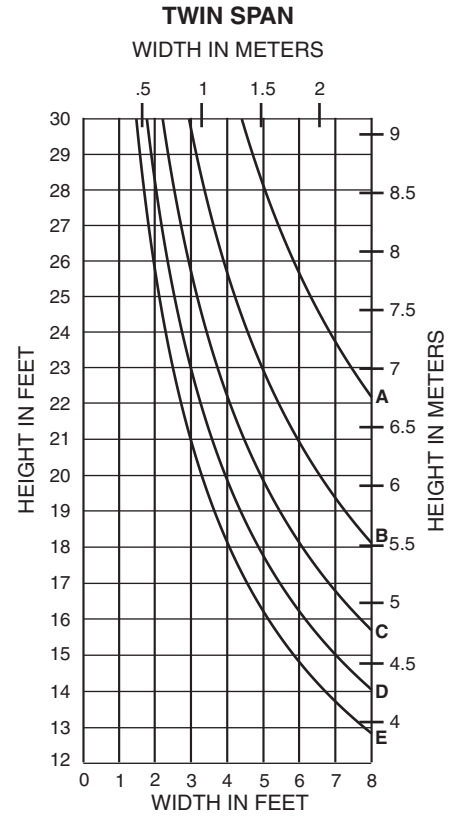
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2012

Mullions are designed for deflection limitations in accordance with AAMA TIR-A11 of L\175 up to 13'-6" and L\240 + 1/4" above 13'-6". These curves are for mullions WITH HORIZONTALS and are based on engineering calculations for stress and deflection. Allowable wind load stress for ALUMINUM 15,152 P.S.I. (104 MPa). STEEL 30,000 P.S.I. (206 MPa). Charted curves, in all cases, are for the limiting value. For special situations not covered by these curves, contact your Kawneer representative for additional information.



- A = 20 PSF (720 Pa)
- B = 30 PSF (1440 Pa)
- C = 40 PSF (1920 Pa)
- D = 50 PSF (2400 Pa)
- E = 60 PSF (2880 Pa)

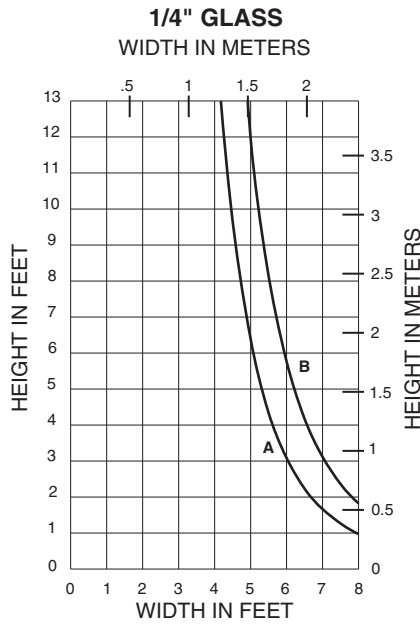


Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

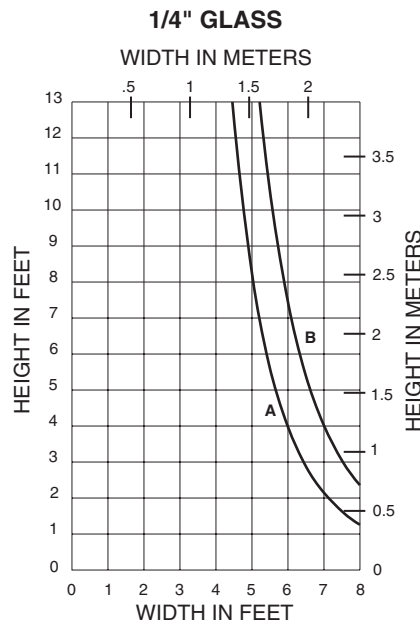
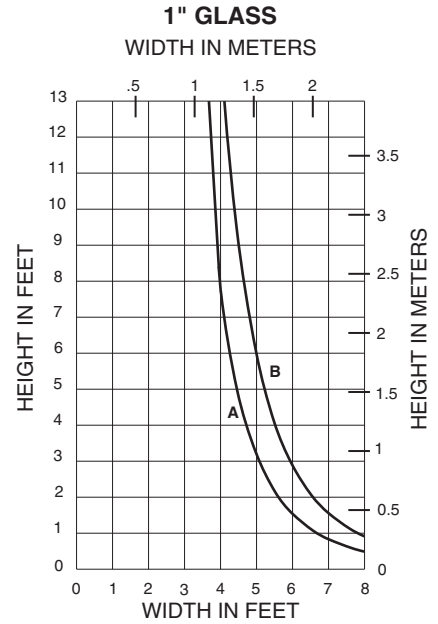
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2012

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

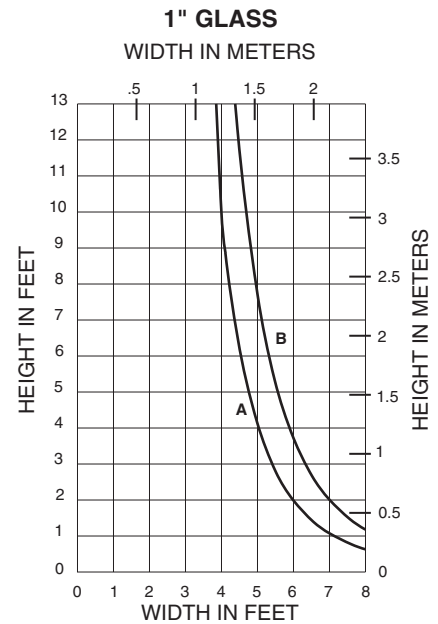
A = 1/4 POINT LOADING
B = 1/8 POINT LOADING



163-004



163-005



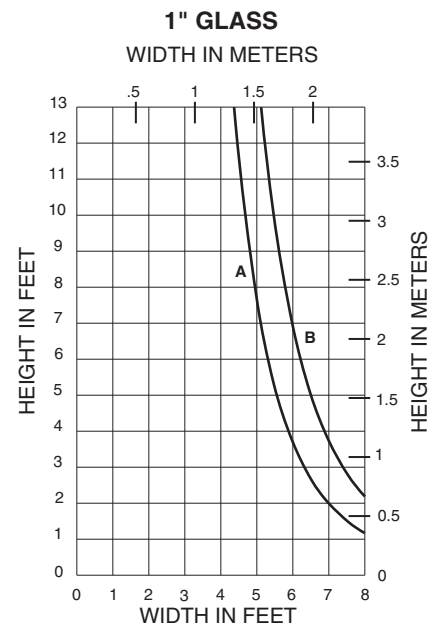
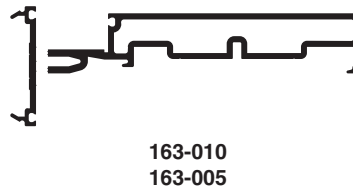
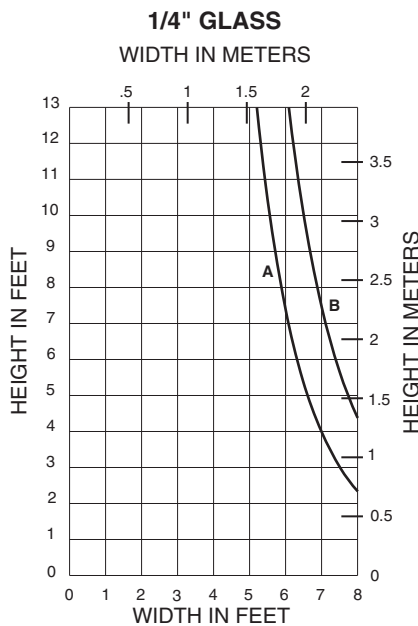
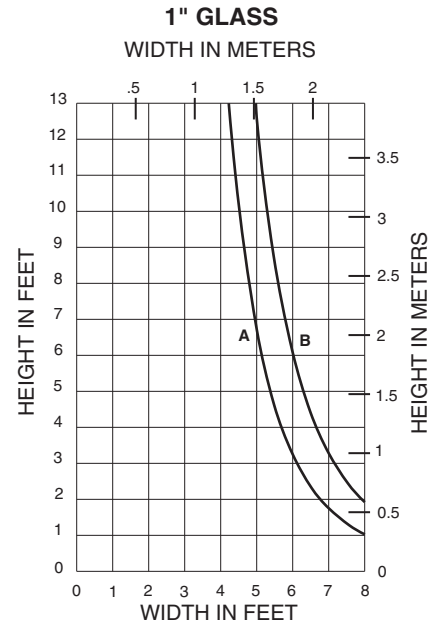
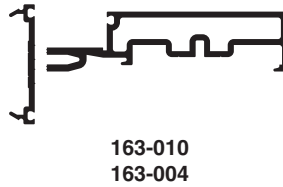
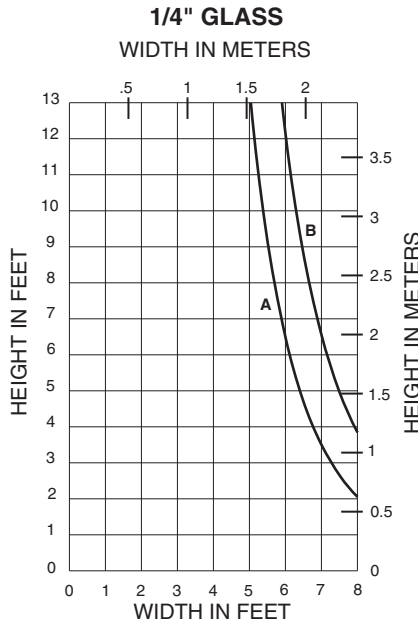
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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

© Kawneer Company, Inc., 2012

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

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

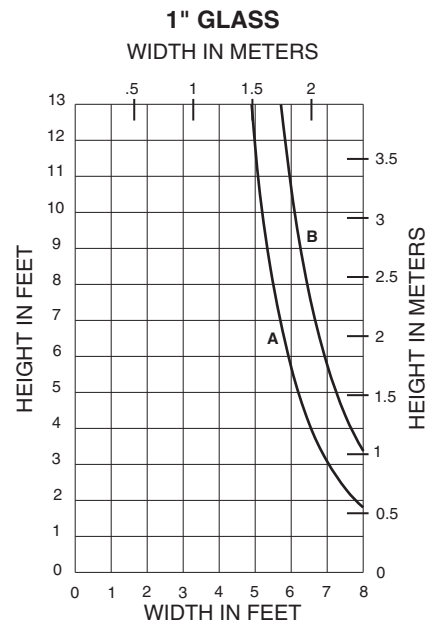
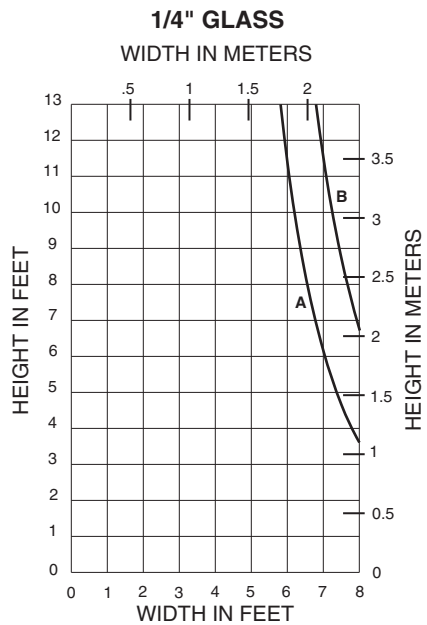
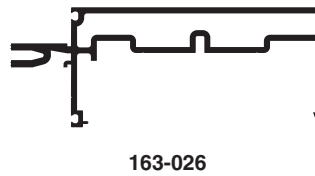
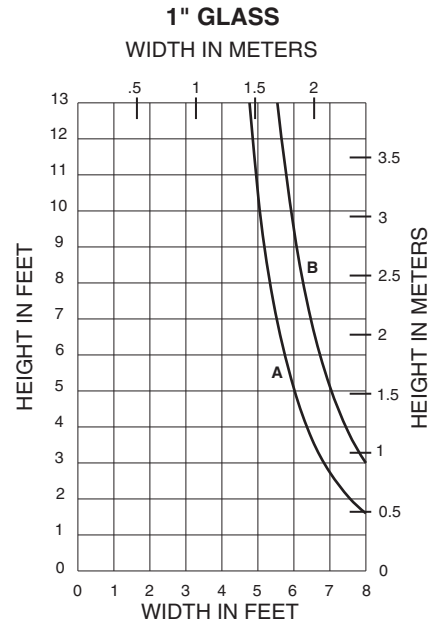
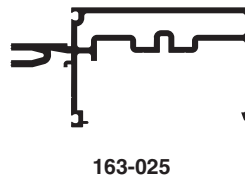
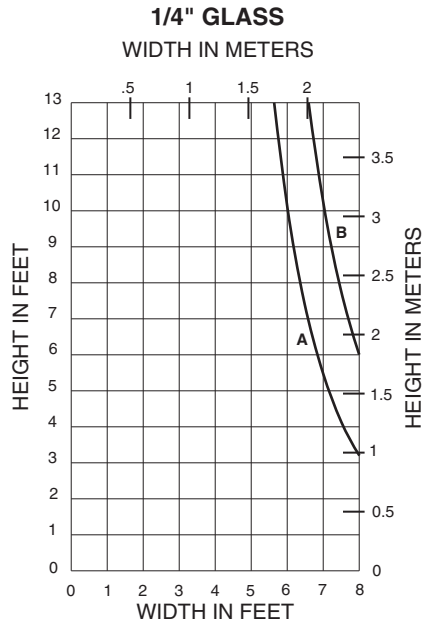


Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
 © Kawneer Company, Inc., 2012

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

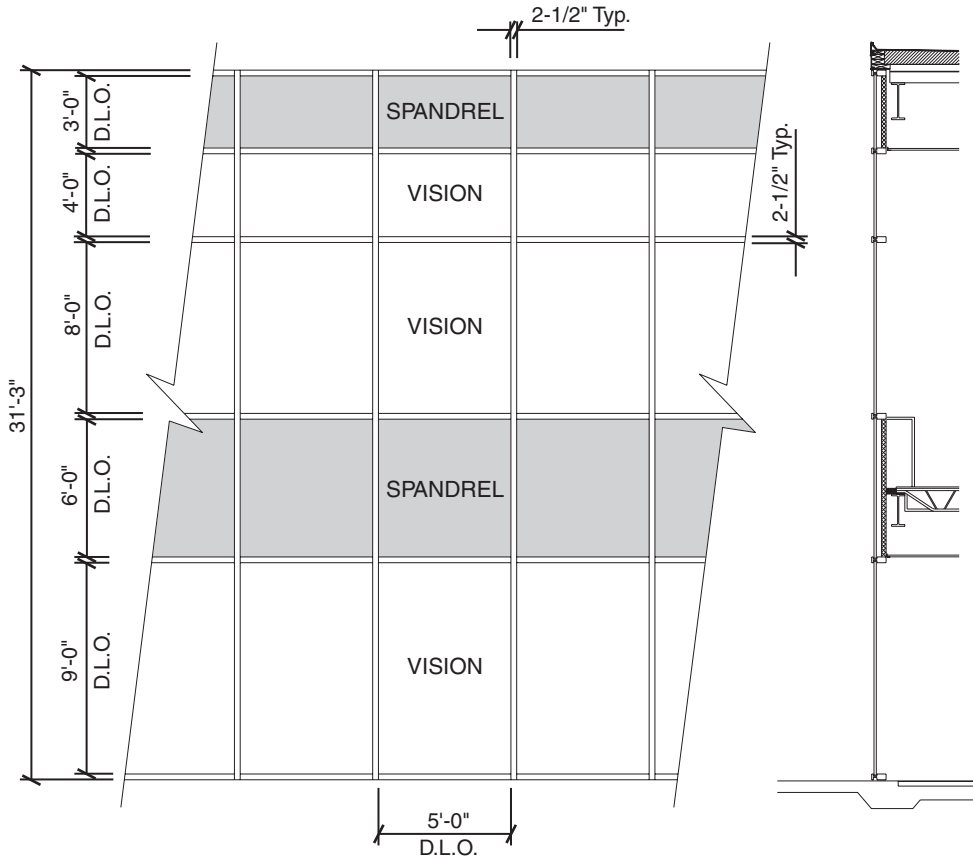
A = 1/4 POINT LOADING
B = 1/8 POINT LOADING



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

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2012

**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 ² · h · °F)
Vision Area	= 5(9 + 8 + 4) = 105.0 ft ²
Total Area (Vision)	= 5' 2-1/2" (9' 3-3/4" + 8' 2-1/2" + 4' 2-1/2") = 113.2 ft
Percent of Vision Glass	= (Vision Area ÷ Total Area)100 = (105.0 ÷ 113.2)100 = 93%

Spandrel Area

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

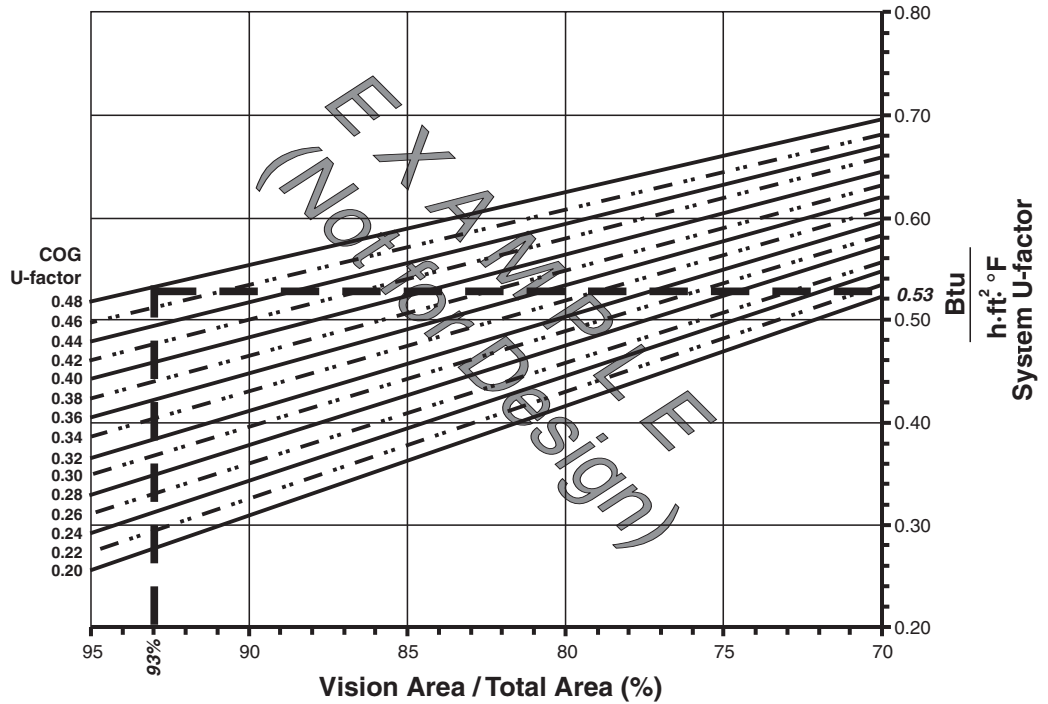
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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

© Kawneer Company, Inc., 2012

Vision Area Chart

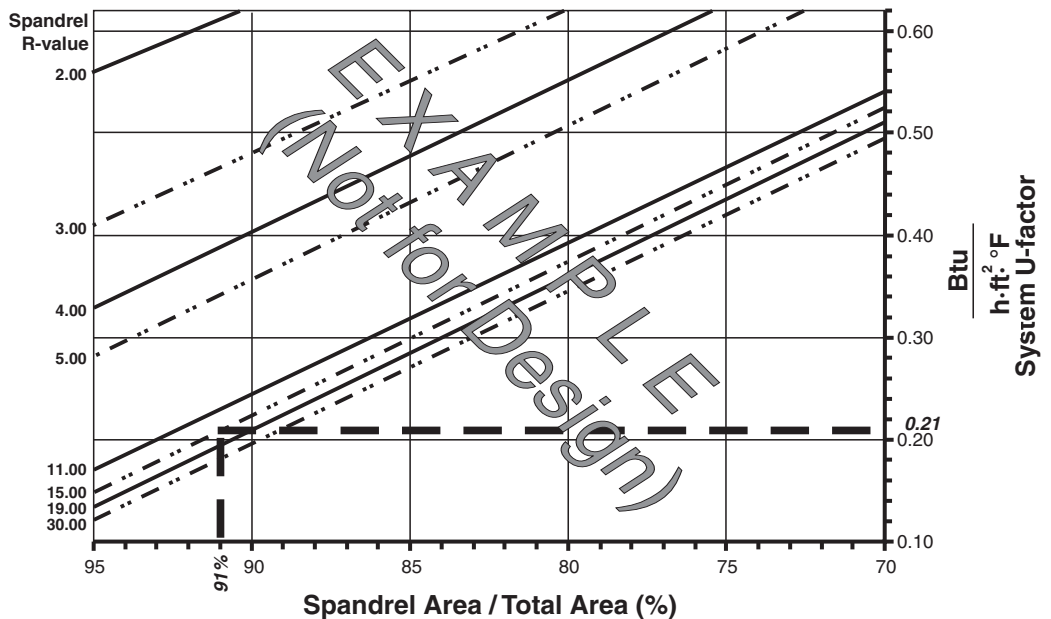
System U-factor vs Percent of Vision Area



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·ft²·°F)

Spandrel Area Chart

System U-factor vs Percent of Spandrel Area



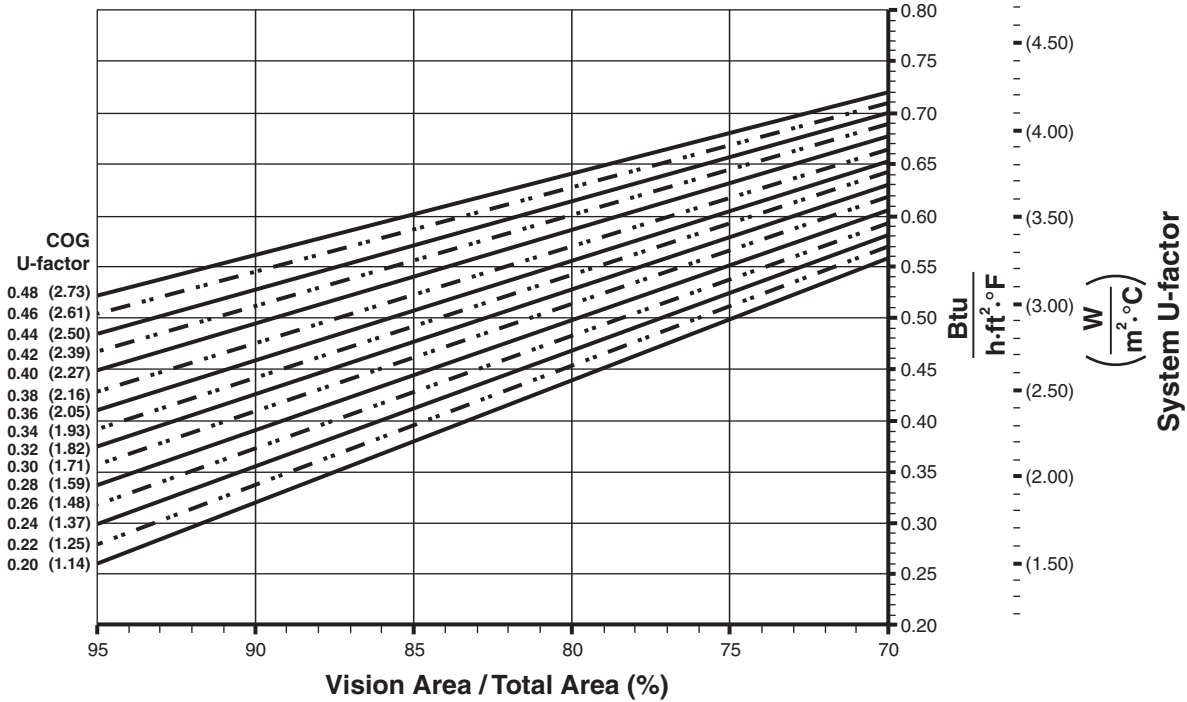
Based on a single curtain wall bay of 91% spandrel and center of spandrel R-value of 15, system U-factor is equal to 0.21 Btu/(h·ft²·°F)

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

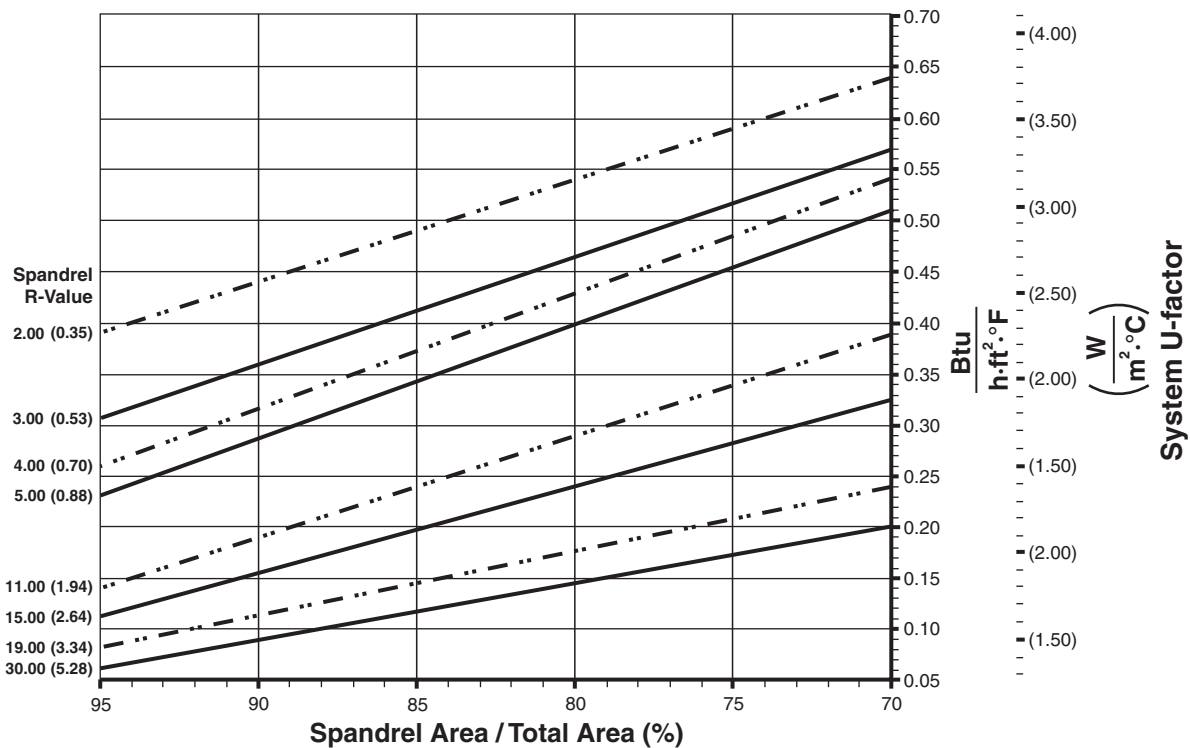
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2012

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

System U-Factors for Vision Glass



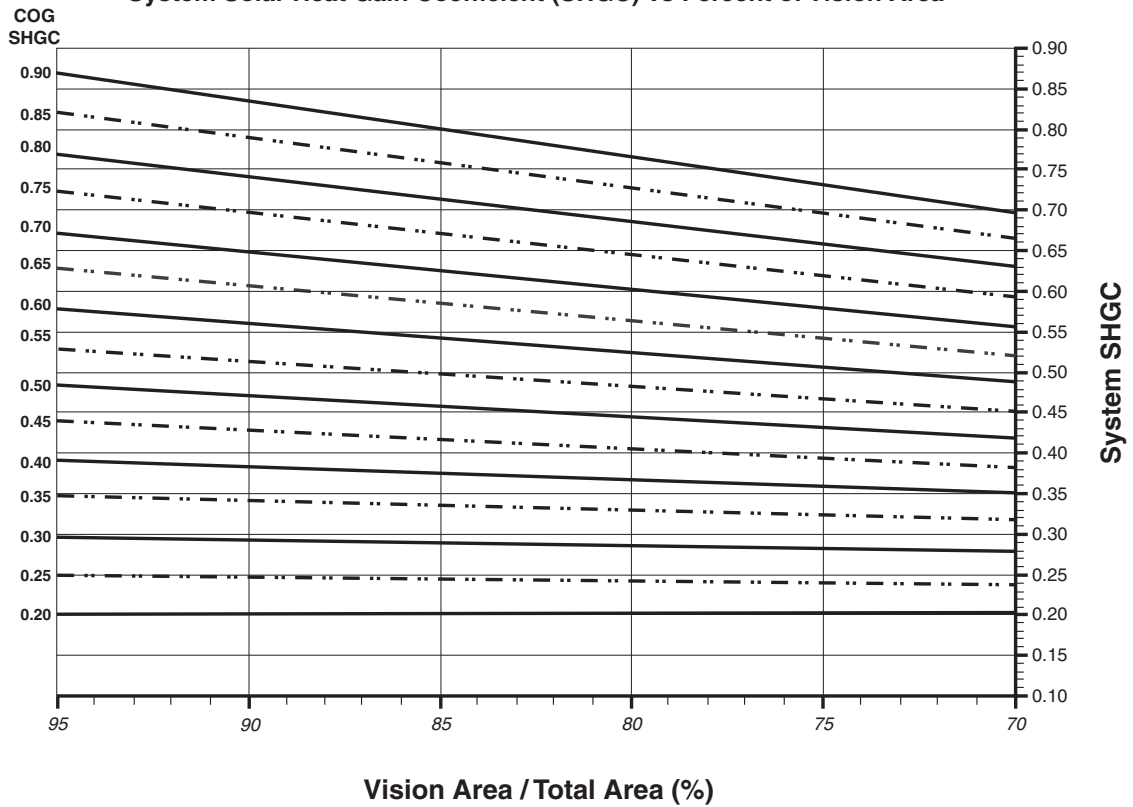
System U-Factors for Spandrel Glass



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

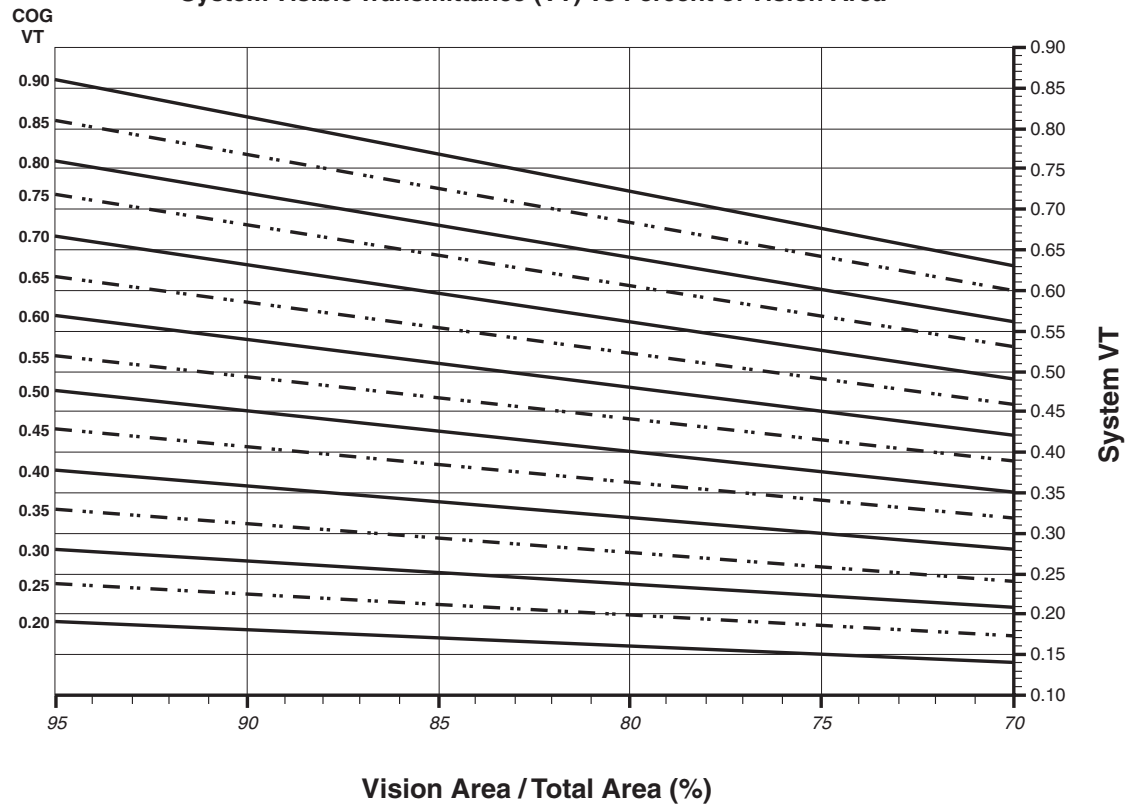
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
 © Kawneer Company, Inc., 2012

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 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.
© Kawneer Company, Inc., 2012

Thermal Transmittance¹ (BTU/h • ft² • °F)

Glass U-Factor ³	Overall U-Factor ⁴
0.48	0.56
0.46	0.55
0.44	0.53
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	0.37
0.24	0.36
0.22	0.34
0.20	0.32

SHGC Matrix²

Glass SHGC ³	Overall SHGC ⁴
0.75	0.69
0.70	0.65
0.65	0.60
0.60	0.56
0.55	0.51
0.50	0.47
0.45	0.43
0.40	0.38
0.35	0.34
0.30	0.29
0.25	0.25
0.20	0.20
0.15	0.16
0.10	0.11
0.05	0.07

Visible Transmittance²

Glass VT ³	Overall VT ⁴
0.90	0.81
0.85	0.76
0.80	0.72
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

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 2000mm wide by 2000mm high (78-3/4" by 78-3/4").

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

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
© Kawneer Company, Inc., 2012