Features

• 1600UT System™1 is a high thermal performance, outside glazed, captured curtain wall system

• Innovative design delivers high thermal performance while leveraging 1600 Wall System architecture

• Multiple thermal performance levels resulting from a combination of:
  - 1" (25.4), 1-1/4" (31.8), 1-5/16" (33.34) double or 1-3/4" (44.5), triple glazed insulating glass units
  - Aluminum or fiberglass pressure plates

• Thermal barrier design ensures high thermal performance without being susceptible to thermal fatigue

• Offers integrated entrance framing systems

• Corners and splays

• Comprehensively tested to latest high performance air, water, structural and thermal standards

• Glass chairs support insulating glass units enabling larger expanses of glass

• Pressure equalized system tested with vapor barrier

• Two color option

• Permanodic™ anodized finishes in seven choices

• Painted finishes in standard and custom choices

Optional Features

• Steel reinforcing

• Rain screen and backpans

• Deep profile covers and bull nose covers

• Deep and heavy-weight mullions

• Integrates with standard Kawneer windows and GLASSvent™ Windows for curtain wall

• Profit$Maker™ Plus die sets

• Storm Shelter ICC 500-2014

• Blast Mitigation

• Human Impact

Product Applications

• Ideal for low to mid-rise applications where high thermal performance is desired

• High span applications

For specific product applications, consult your Kawneer representative.
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
Additional information and CAD details are available at www.kawneer.com
Additional information and CAD details are available at www.kawneer.com
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**1600UT System™1 Curtain Wall**

**THERMAL ENTRANCE DETAILS (1" INFILL)**

EC 97911-205

MAY, 2019

ELEVATION IS NUMBER KEYED TO DETAILS

DOOR JAMB
BUTT HUNG OR
OFFSET PIVOT

2-1/2" (63.5)

2 1/4" (57.2)

1 1/4" (31.8)

2A

TRANSMOM BAR
SURFACE CLOSER
OR FLOOR CLOSER

2A

DOOR JAMB
BUTT HUNG OR
OFFSET PIVOT

1A

MAY, 2019

ADMD080EN

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SPLAYED MULLION OPTIONS

OUTSIDE SPLAYED MULLIONS

0° TO 5°
5° TO 15°
15° TO 25°

INSIDE SPLAYED MULLIONS

0° TO 5°
5° TO 15°
15° TO 25°

Additional information and CAD details are available at www.kawneer.com
GLASSvent™ UT Windows

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

NOTE: AA™ 6400 vent can be accommodated. Contact your Kawneer representative for other options.
1600UT System™1 Curtain Wall

1-3/4" INFILL DETAILS

ELEVATION IS NUMBER KEYED TO DETAILS

Additional information and CAD details are available at www.kawneer.com
1600UT System™1 Curtain Wall

Additional information and CAD details are available at www.kawneer.com
Additional information and CAD details are available at www.kawneer.com

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

DOOR JAMB
BUTT HUNG OR
OFFSET PIVOT

TRANSOM BAR
SURFACE CLOSER
OR FLOOR CLOSER

TRANSOM BAR
CONCEALED CLOSER
Additional information and CAD details are available at www.kawneer.com
1600UT System™1 Curtain Wall
MAY, 2019
EC 97911-205

CORNERS (1-3/4" INFILL)

Additional information and CAD details are available at www.kawneer.com

90° OUTSIDE CORNER

90° INSIDE CORNER

90° OUTSIDE CORNER

135° OUTSIDE CORNER

0° TO 5°

0° TO 5°

OUTSIDE SPLAYED MULLIONS

INSIDE SPLAYED MULLIONS

OTHER SPLAY OPTIONS AVAILABLE
GLASSvent™ UT Windows

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

NOTE: AA™6400 vent can be accommodated. Contact your Kawneer representative for other options.
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1600UT System™1 Curtain Wall
BACKPAN DETAILS (1" INFILL)

MAY, 2019
EC 97911-205

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

TRANSOM – SPANDREL OVER VISION
Additional information and CAD details are available at www.kawneer.com

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

TRANSOM – SPANDREL OVER VISION

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Additional information and CAD details are available at www.kawneer.com
1600UT System™1 Curtain Wall
MISCELLANEOUS FRAMING
MAY, 2019
EC 97911-205

Additional information and CAD details are available at www.kawneer.com

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.

NOTE: 1-3/4" triple glazing similar.
Additional information and CAD details are available at www.kawneer.com

1-1/4" INFILL DETAILS

1-5/16" INFILL DETAILS
**MINIMUM AND MAXIMUM SIZES**

- 36" X 36" (914.4 X 914.4 MM)
- UP TO
- 60" X 96" (1524 X 2438.4 MM)
- 9 SQ. FT. TO 40 SQ. FT. (0.84 TO 3.72 SQ. M)
- PUNCHED OPENING, NO VERTICALS OR HORIZONTALS.

**GLASS TYPE**

- 1-7/8" (47.6 MM) INFILL USING SentryGlas® INTERLAYERS WITHIN THE GLASS CONFIGURATION.

---

**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

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

**ANCHORING TO FLOOR SLAB**

**ANCHORING TO SUPPORT STEEL**

NOTE: 1-3/4" triple glazing similar.
Actual project conditions will determine specific anchor design. Details on this page are for reference only.

NOTE: 1-3/4" triple glazing similar.
WIND LOAD CHARTS

Mullions are designed for deflection limitations in accordance with AAMA TIR-A11 of L/175 up to 13'-6" and L/240 +1/4" above 13'-6". These curves are for mullions WITH HORIZONTALS and are based on engineering calculations for stress and deflection. Allowable wind load stress for ALUMINUM 15,152 psi (104 MPa), STEEL 30,000 psi (207 MPa). Charted curves, in all cases are for the limiting value. Wind load charts contained herein are based upon nominal wind load utilized in allowable stress design. A conversion from Load Resistance Factor Design (LRFD) is provided. To convert ultimate wind loads to nominal loads, multiply ultimate wind loads by a factor of 0.6 per ASCE/SEI 7. A 4/3 increase in allowable stress has not been used to develop these curves. For special situations not covered by these curves, contact your Kawneer representative for additional information.

DEADLOAD CHARTS

Horizontal or deadload limitations are based upon 1/8" (3.2), maximum allowable deflection at the center of an intermediate horizontal member. The accompanying charts are calculated for 1" (25.4) thick insulating glass or 1-3/4" (44.5) thick glass supported on two setting blocks placed at the loading points shown.
SINGLE SPAN

METERS

MULLION HEIGHT IN FEET

WIND LOAD CHARTS (1" INFILL)

TWIN SPAN

METERS

MULLION HEIGHT IN FEET

171215

I = 7.915(329.45 x 10^4)
S = 2.635(43.18 x 10^3)

MULLION CENTERS IN FEET

171216

I = 9.594(399.33 x 10^4)
S = 3.163(51.83 x 10^3)

MULLION CENTERS IN FEET

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)

SINGLE SPAN

TWIN SPAN

MULLION HEIGHT

MULLION HEIGHT

MULLION CENTERS IN FEET

MULLION CENTERS IN FEET

MULLION HEIGHT IN FEET

MULLION HEIGHT IN FEET

I = 9.694(399.33 x 10^4)
S = 3.163(51.83 x 10^3)
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**Single Span**

- **Mullion Centers in Feet**: 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8
- **Mullion Height in Feet**: 3, 4, 5, 6, 7, 8

**Wind Load Charts (1-3/4" Infill)**

- **Allowable Stress**
  - **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)

- **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)

**Twin Span**

- **Mullion Centers in Feet**: 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8
- **Mullion Height in Feet**: 3, 4, 5, 6, 7, 8

**Allowable Stress**

- **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)

**Design Load**

- **A**: 20 PSF (960) 33 PSF (1580)
- **B**: 30 PSF (1440) 50 PSF (2400)
- **C**: 40 PSF (1920) 67 PSF (3200)
- **D**: 50 PSF (2400) 83 PSF (4000)
- **E**: 60 PSF (2880) 100 PSF (4790)
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SINGLE SPAN

MULLION HEIGHT IN FEET

METERS

MULLION CENTERS IN FEET

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)

WIND LOAD CHARTS (1-3/4" INFILL)

I = 42.441(1766.52 x 10^4)
S = 8.816(144.47 x 10^3)

171264

11-1/4" (285.8)
### 1600UT System™1 Curtain Wall

**DEADLOAD CHARTS (TUBULAR)**

**EC 97911-205**

**MAY, 2019**

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---

### Deadload Charts (Tubular)

**A - 1” Glass (1/4 Point Loading)**

**B - 1” Glass (1/8 Point Loading)**

#### 6” (152.4)

![Diagram](image1.png)

#### 7-1/2” (190.5)

![Diagram](image2.png)

#### 6” (152.4)

![Diagram](image3.png)

#### 7-1/2” (190.5)

![Diagram](image4.png)

---

### Deadload Chart Details

<table>
<thead>
<tr>
<th>Glass Height in Feet</th>
<th>Meters</th>
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A - 1-3/4" GLASS (1/4 POINT LOADING)
B - 1-3/4" GLASS (1/8 POINT LOADING)

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ADMD080EN
MAY, 2019
1600UT System™1 Curtain Wall

DEADLOAD CHARTS (OPENBACK)

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

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DEADLOAD CHARTS (OPENBACK)

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

DEADLOAD CHARTS (OPENBACK)

1600UT System™1 Curtain Wall

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A - 1-3/4" GLASS (1/4 POINT LOADING)
B - 1-3/4" GLASS (1/8 POINT LOADING)

DEADLOAD CHARTS (OPENBACK)
Generic Project Specific U-factor Example Calculation
(Percent of Glass will vary on specific products depending on sitelnes)
(Based on single bay of Curtain Wall/Window Wall)

Vision Area

Example Glass U-factor = 0.48 Btu/(ft² · h · °F)

Vision Area = 5(9 + 8 + 4) = 105.0 ft²

Total Area (Vision) = 5' 2-1/2" (9' 3-3/4" + 8' 2-1/2" + 4' 2-1/2") = 113.2 ft²

Percentage of Vision Glass = (Vision Area ÷ Total Area)100
= (105.0 ÷ 113.2)100 = 93%

Spandrel Area

Example Spandrel R-value = 15 (ft² · h · °F)/Btu

Spandrel Area = 5(6 + 3) = 45.0 ft²

Total Area (Spandrel) = 5' 2-1/2" (6' 2-1/2" + 3' 3-3/4") = 49.6 ft²

Percent of Spandrel = (Spandrel Area ÷ Total Area)100
= (45.0 ÷ 49.6)100 = 91%
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)
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1" GLAZING WITH ALUMINUM PRESSURE PLATE

System U-Factor for Vision Glass

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

Notes for System U-Factor, SHGC and VT charts:
For glass values that are not listed, linear interpolation is permitted.
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.
Notes for System U-Factor, SHGC and VT charts:
For glass values that are not listed, linear interpolation is permitted.
Glass properties are based on center of glass values (winter conditions) and are obtained
from your glass supplier.
1" GLAZING WITH ALUMINUM PRESSURE PLATE

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.
**1600UT System™1 Curtain Wall**

**THERMAL PERFORMANCE MATRIX (NFRC SIZE)**

MAY, 2019

EC 97911-205

---

**Thermal Transmittance**  \(^{(1)}\) (BTU/hr \(\cdot\) ft\(^2\) \(\cdot\) °F)

<table>
<thead>
<tr>
<th>Glass U-Factor (^{(3)})</th>
<th>Overall U-Factor (^{(4)})</th>
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</table>

**1" GLAZING WITH ALUMINUM PRESSURE PLATE**

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

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

---

**SHGC Matrix**  \(^{(2)}\)

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<th>Glass SHGC (^{(3)})</th>
<th>Overall SHGC (^{(4)})</th>
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**Visible Transmittance**  \(^{(2)}\)

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<th>Glass VT (^{(3)})</th>
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</table>
Note:
Values in parentheses are metric.
COG=Center of Glass.
Charts are generated per AAMA 507.

1" GLAZING WITH FIBERGLASS PRESSURE PLATE

System U-Factor for Vision Glass

Notes for System U-Factor, SHGC and VT charts:
For glass values that are not listed, linear interpolation is permitted.
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.
1" GLAZING WITH FIBERGLASS PRESSURE PLATE

System U-Factor for Spandrel Glass

Spandrel Area / Total Area (%)

Spandrel R-Value

R-2

R-3

R-4

R-5

R11

R-15

R-19

R-30

System U-Factor (Btu/h·ft²·°F)

Notes for System U-Factor, SHGC and VT charts:
For glass values that are not listed, linear interpolation is permitted.
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.
1" GLAZING WITH FIBERGLASS PRESSURE PLATE

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.
1600UT System™1 Curtain Wall

THERMAL PERFORMANCE MATRIX (NFRC SIZE)

EC 97911-205

MAY, 2019

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

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

### Thermal Transmittance

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1" GLAZING WITH FIBERGLASS PRESSURE PLATE

### Visible Transmittance

<table>
<thead>
<tr>
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<td>0.04</td>
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</tbody>
</table>
1-3/4" GLAZING WITH ALUMINUM PRESSURE PLATE

System U-Factor for Vision Glass

Notes for System U-Factor, SHGC and VT charts:
For glass values that are not listed, linear interpolation is permitted.
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.
Note:
Values in parentheses are metric.
COG=Center of Glass.
Charts are generated per AAMA 507.

1-3/4" GLAZING WITH ALUMINUM PRESSURE PLATE

System U-Factor for Spandrel Glass

Spandrel Area / Total Area (%)
Spandrel R-Value

Notes for System U-Factor, SHGC and VT charts:
For glass values that are not listed, linear interpolation is permitted.
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.
1-3/4" GLAZING WITH ALUMINUM PRESSURE PLATE

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

Charts are generated per AAMA 507.

System Visible Transmittance (VT) vs Percent of Vision Area

Charts are generated per AAMA 507.
### Thermal Transmittance ¹ (BTU/hr • ft² • °F)

<table>
<thead>
<tr>
<th>Glass U-Factor ³</th>
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### SHGC Matrix ²

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<tr>
<th>Glass SHGC ³</th>
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### Visible Transmittance ²

<table>
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<th>Glass VT ³</th>
<th>Overall VT ⁴</th>
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<tr>
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### 1-3/4" GLAZING WITH ALUMINUM PRESSURE PLATE

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

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

System U-Factor for Vision Glass

Notes for System U-Factor, SHGC and VT charts:
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Note:
Values in parentheses are metric.
COG=Center of Glass.
Charts are generated per AAMA 507.

System U-Factor (Btu/hr·ft²·°F)
Vision Area / Total Area (%)
COG U-factor
0.32 (1.82)
0.30 (1.71)
0.28 (1.59)
0.26 (1.48)
0.24 (1.37)
0.22 (1.25)
0.20 (1.14)
0.18 (1.02)
0.16 (0.91)
0.14 (0.80)
0.12 (0.68)
0.10 (0.57)
0.08 (0.45)

0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80

95
90
85
80
75
70

kawneer.com
ADM080EN
1-3/4" GLAZING WITH FIBERGLASS PRESSURE PLATE

System U-Factor for Spandrel Glass

Notes for System U-Factor, SHGC and VT charts:
For glass values that are not listed, linear interpolation is permitted. Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.
1-3/4" GLAZING WITH FIBERGLASS PRESSURE PLATE

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.
### 1-3/4" GLAZING WITH FIBERGLASS PRESSURE PLATE

**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").

#### Thermal Transmittance

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<th>Glass U-Factor 3</th>
<th>Overall U-Factor 4</th>
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#### SHGC Matrix

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#### Visible Transmittance

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<tr>
<td>1-3/4&quot; TRIPLE GLAZING INFILL</td>
<td>ALUMINUM FIBERGLASS</td>
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