## Features

- 350 medium stile has 3-1/2" (88.9) vertical stile, 3-1/2" (88.9) top and 6-1/2" (165.1) bottom rail
- 500 wide stile has 5" (127) vertical stile, 5" (127) top and 6-1/2" (165.1) bottom rail
- Door is 2" (50.8) deep
- Door has 3/16" (4.8) wall thickness
- Dual moment welded corner construction
- Single acting
- Infills range from 1/4" (6.4) to 1" (25.4)
- Offset pivot, butt hinges or continuous geared hinge
- MS lock or exit device hardware
- Surface mounted or concealed closers
- Architects Classic push pulls
- Adjustable astragal utilizing pile weathering with polymeric fin at meeting stiles
- Polymeric bulb weatherstripping in door frames
- Permanodic® anodized finishes option
- Painted finishes in standard and custom choices

## Optional Features

- Paneline® exit device or Paneline® MEL exit device
- Wide variety of bottom rail and cross rail
- 3/16" (4.8) heavy wall door frame

## Product Applications

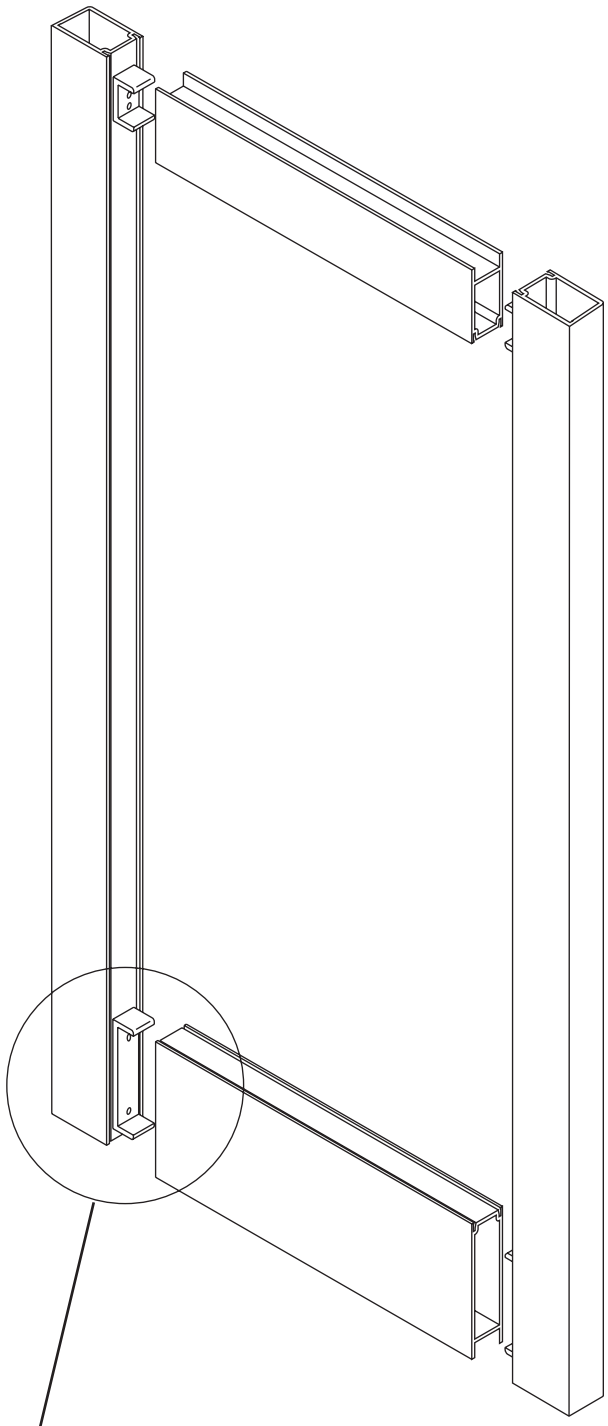
- Designed for high traffic applications such as schools, universities and office buildings

For specific product applications,
consult your Kawneer representative.

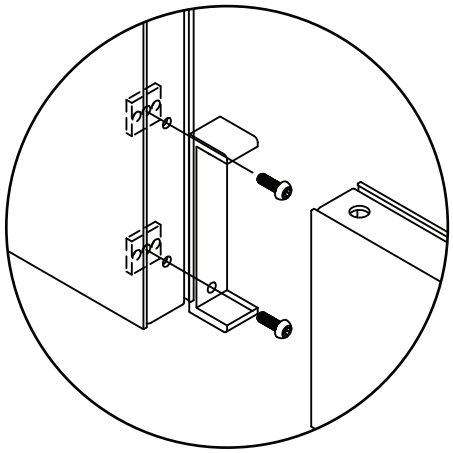
Metric (SI) conversion figures are included throughout these details for reference. Numbers in parentheses ( ) are millimeters unless otherwise noted.

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

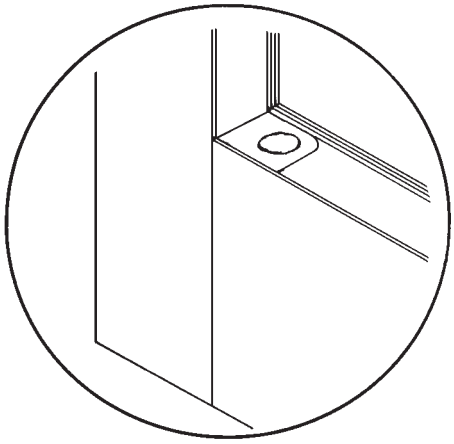
m – meter
cm – centimeter
mm – millimeter
s – second
Pa – pascal
MPa – megapascal



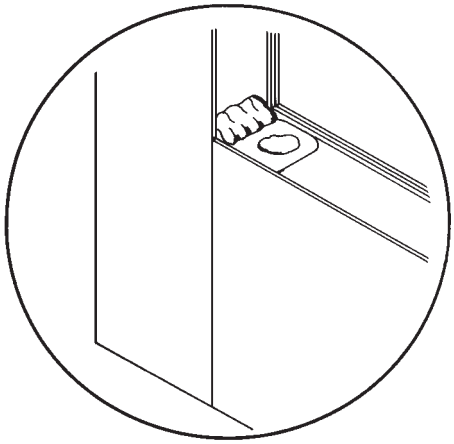
**DUAL MOMENT WELDED CORNER CONSTRUCTION**



**#1 MECHANICAL FASTENING** is accomplished by attaching a 5/16" (7.9) thick extruded aluminum channel clip to the vertical stile with 1/4"-20 heat strengthened bolts and 3/16" thick steel nut plates for a high strength welding base for attachment horizontal member.



**#2 SIGMA* DEEP PENETRATION PLUG WELDS** are made top and bottom after the horizontal is properly positioned over the channel clip to help provide the strongest door corner joint currently available.

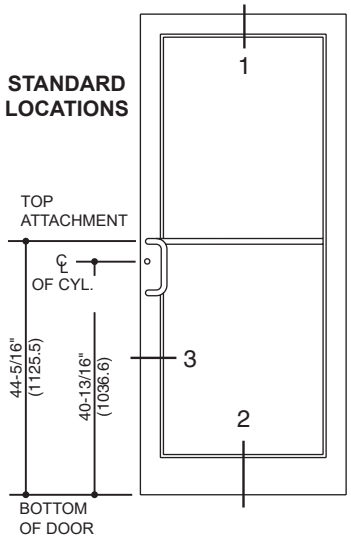


**#3 SIGMA* FILLET WELDS** along both top and bottom webs of the rail extrusion complete the Dual Moment corner construction.

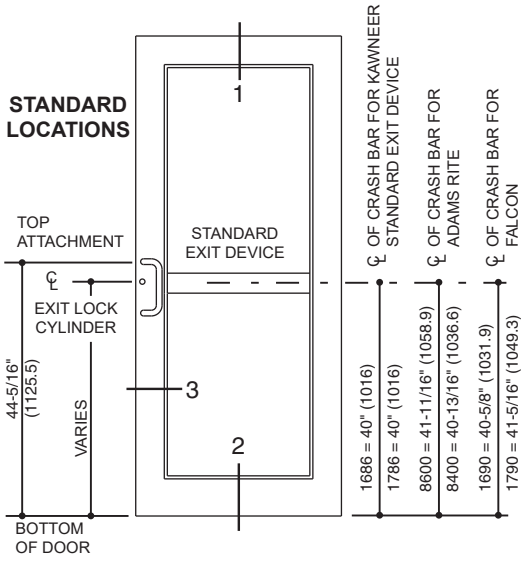
*** An arc welding process known as Shielded Inert Gas Metal Arc (SIGMA) or also known as Metal Inert Gas (MIG).**

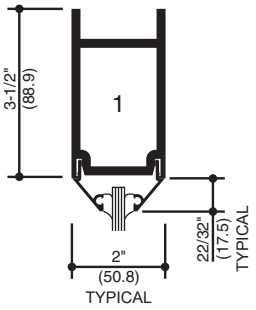
**Additional information and CAD details are available at www.kawneer.com**

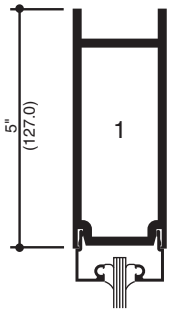
## 350 MEDIUM STILE

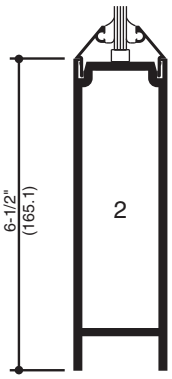


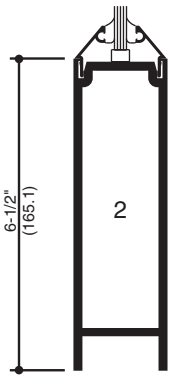

## 500 WIDE STILE

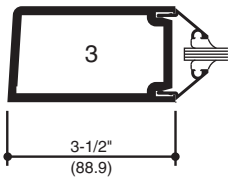


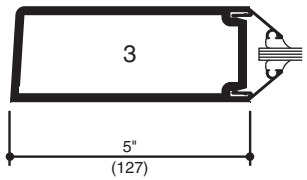



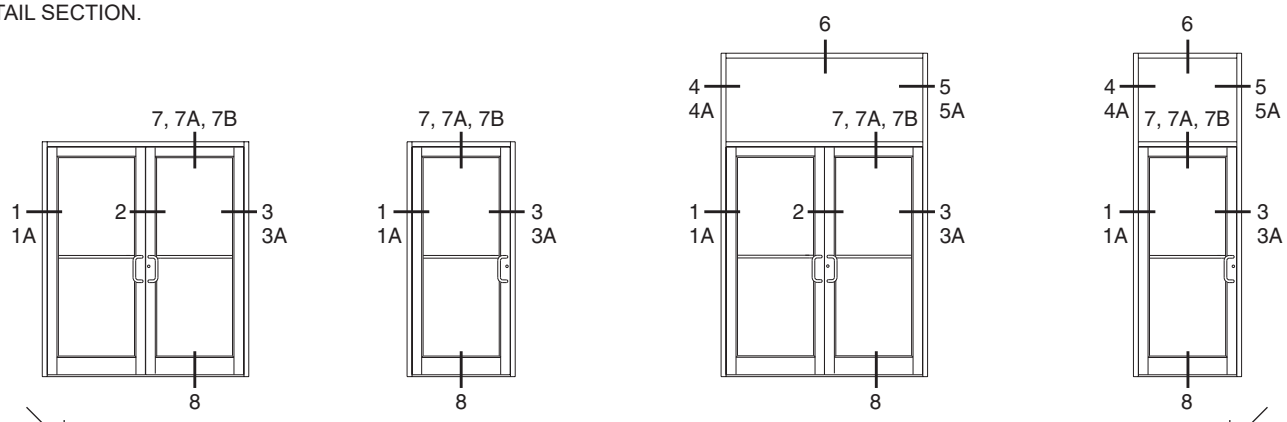
**Additional information and CAD details are available at www.kawneer.com**

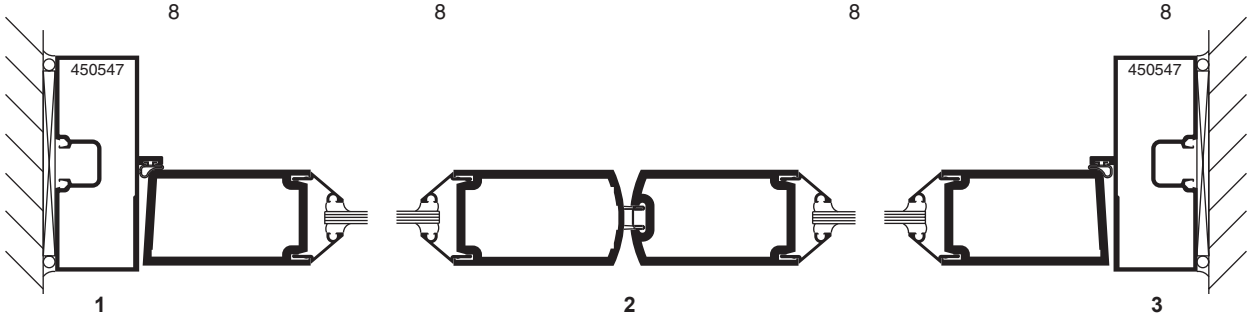
## 350 HEAVY WALL DOORS
## TRIFAB® VERSAGLAZE® 450 CENTER DOOR FRAMES SHOWN
(HEAVY WALL FRAME OPTIONAL)

**NOTE:**

**1.** SERIES 350 HEAVY WALL DOORS ARE DETAILED, 500 HEAVY WALL DOORS ALSO MAY BE USED.

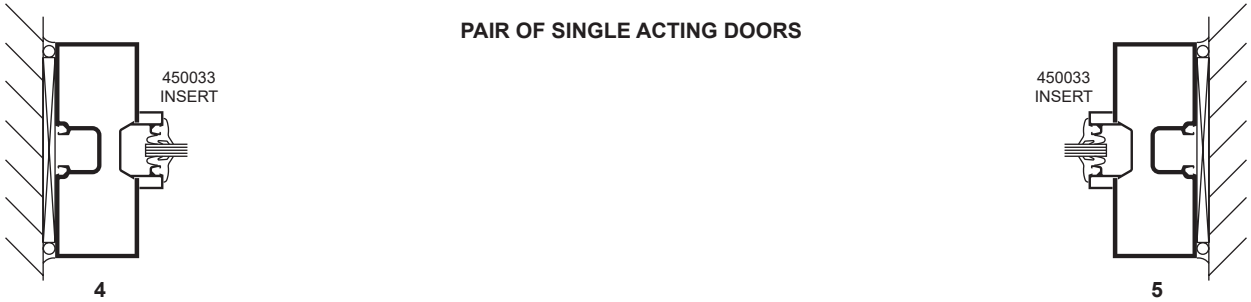
**2.** TRIFAB® VERSAGLAZE® 450 CENTER, 1-3/4" X 4-1/2" (44.5 X 114.3) FRAMING IS DETAILED WITH THE DOORS FOR REFERENCE. OTHER KAWNEER FRAMING SERIES OR CURTAIN WALL SYSTEMS MAY BE USED. REFER TO THE CATALOG INDEX FOR THE APPROPRIATE DETAIL SECTION.




1 2 3

**PAIR OF SINGLE ACTING DOORS**




4 5

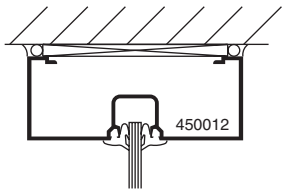

1A 3A


4A 5A

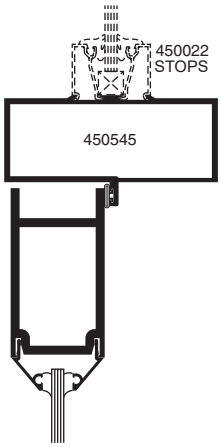
**Additional information and CAD details are available at www.kawneer.com**

## 350 HEAVY WALL DOORS SHOWN
## TRIFAB® VERSAGLAZE® 450 CENTER DOOR FRAMES SHOWN
(HEAVY WALL FRAME OPTIONAL)

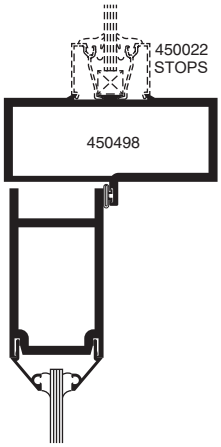
### SINGLE ACTING DOORS



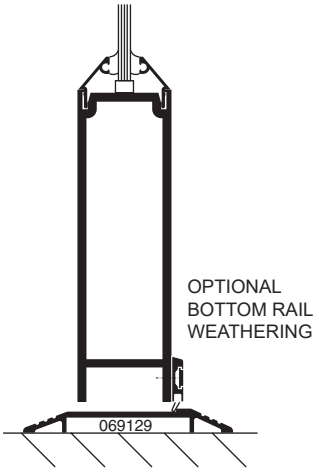

**6**
**TRANSOM HEAD**




**7**
**DOOR HEADER/**
**TRANSOM BAR**



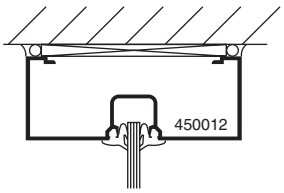

**7A**
**DOOR HEADER/**
**TRANSOM BAR**



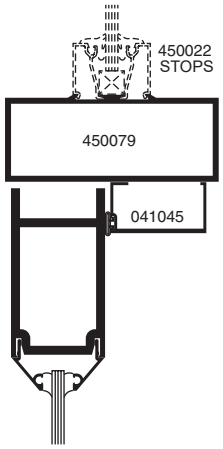

**8***
**BOTTOM RAIL**

***NOTE:** Some building codes limit threshold height to 1/2" (12.7) max.

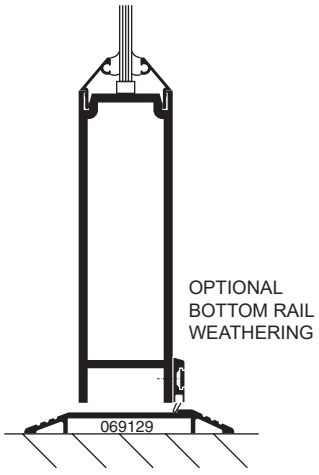
### COC WITH SINGLE ACTING OFFSET ARM




**6**
**TRANSOM HEAD**




**7B**
**DOOR HEADER/**
**TRANSOM BAR**




**8***
**BOTTOM RAIL**

***NOTE:** Some building codes limit threshold height to 1/2" (12.7) max.

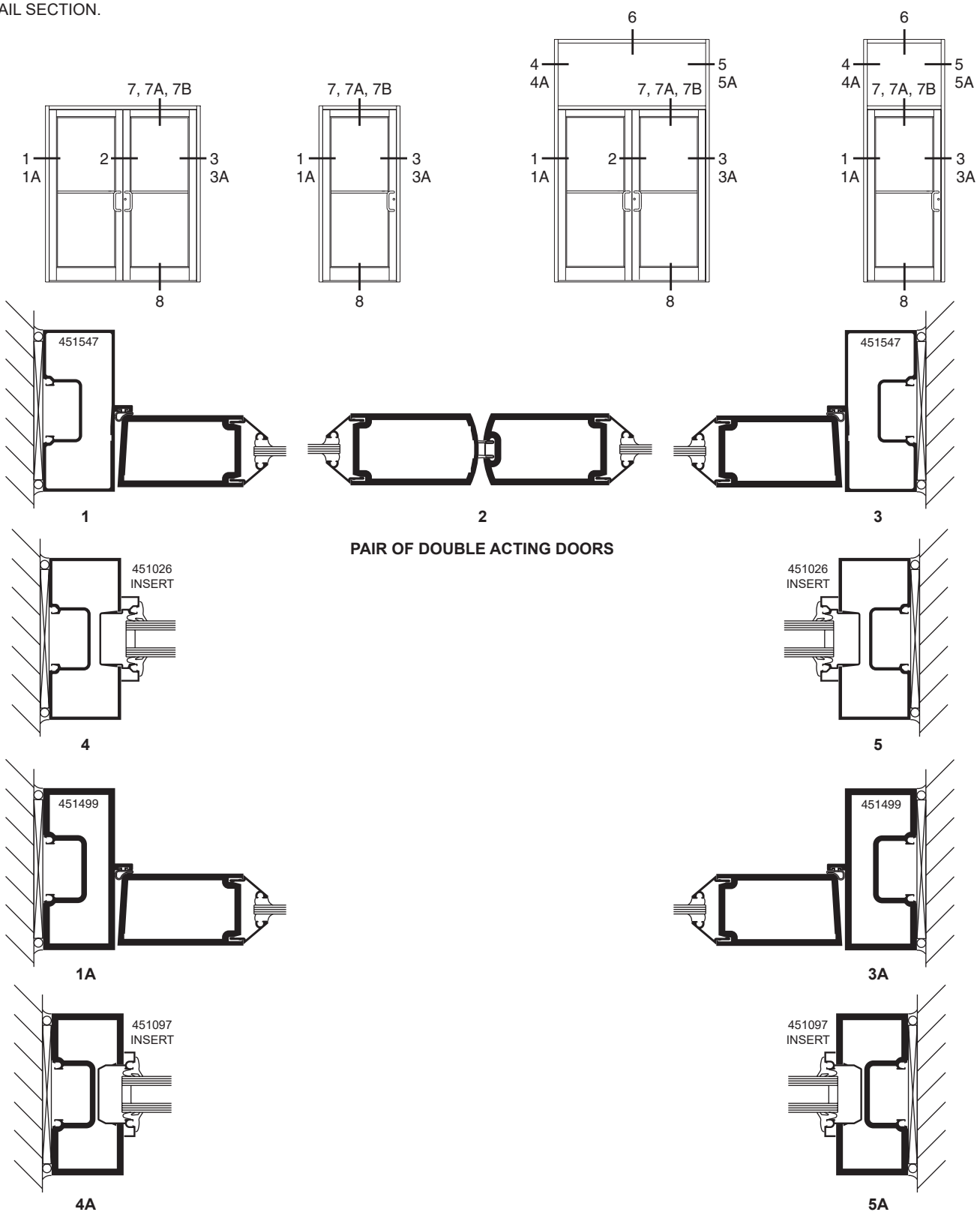
**Additional information and CAD details are available at www.kawneer.com**

## 350 HEAVY WALL DOORS SHOWN
## TRIFAB® VERSAGLAZE® 451 CENTER DOOR FRAMES SHOWN
(HEAVY WALL FRAME OPTIONAL)

**NOTE:**

**1.** SERIES 350 HEAVY WALL DOORS ARE DETAILED, 500 HEAVY WALL DOORS ALSO MAY BE USED.

**2.** TRIFAB® VERSAGLAZE® 451 CENTER, 2" X 4-1/2" (50.8 X 114.3) FRAMING IS DETAILED WITH THE DOORS FOR REFERENCE. OTHER KAWNEER FRAMING SERIES OR CURTAIN WALL SYSTEMS MAY BE USED. REFER TO THE CATALOG INDEX FOR THE APPROPRIATE DETAIL SECTION.

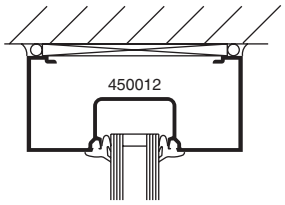



**PAIR OF DOUBLE ACTING DOORS**

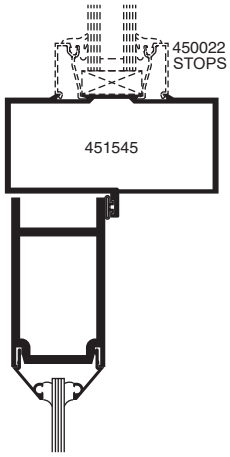
**Additional information and CAD details are available at www.kawneer.com**

## 350 HEAVY WALL DOORS
## TRIFAB® VERSAGLAZE® 451 CENTER DOOR FRAMES SHOWN
(HEAVY WALL FRAME OPTIONAL)

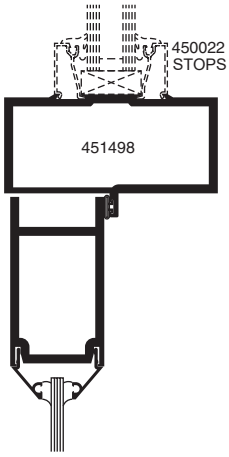
### SINGLE ACTING DOORS



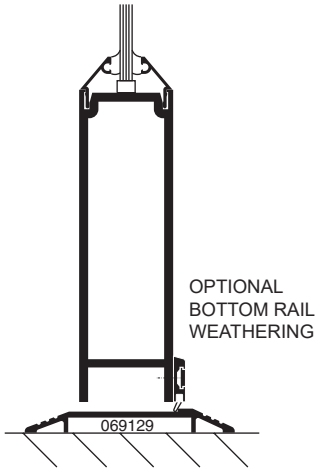

**6**
**TRANSOM HEAD**




**7**
**DOOR HEADER/**
**TRANSOM BAR**



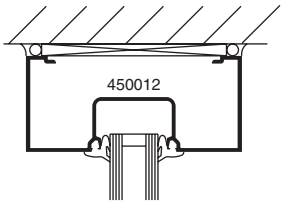

**7A**
**DOOR HEADER/**
**TRANSOM BAR**



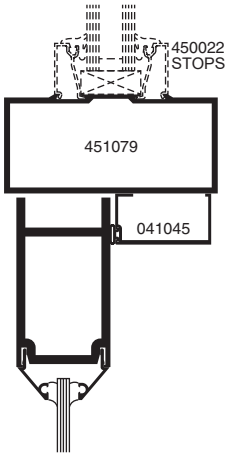

**8***
**BOTTOM RAIL**

***NOTE:** Some building codes limit threshold height to 1/2" (12.7) max.

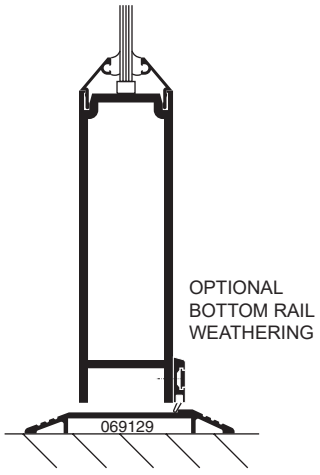
### COC WITH SINGLE ACTING OFFSET ARM




**6**
**TRANSOM HEAD**




**7B**
**DOOR HEADER/**
**TRANSOM BAR**



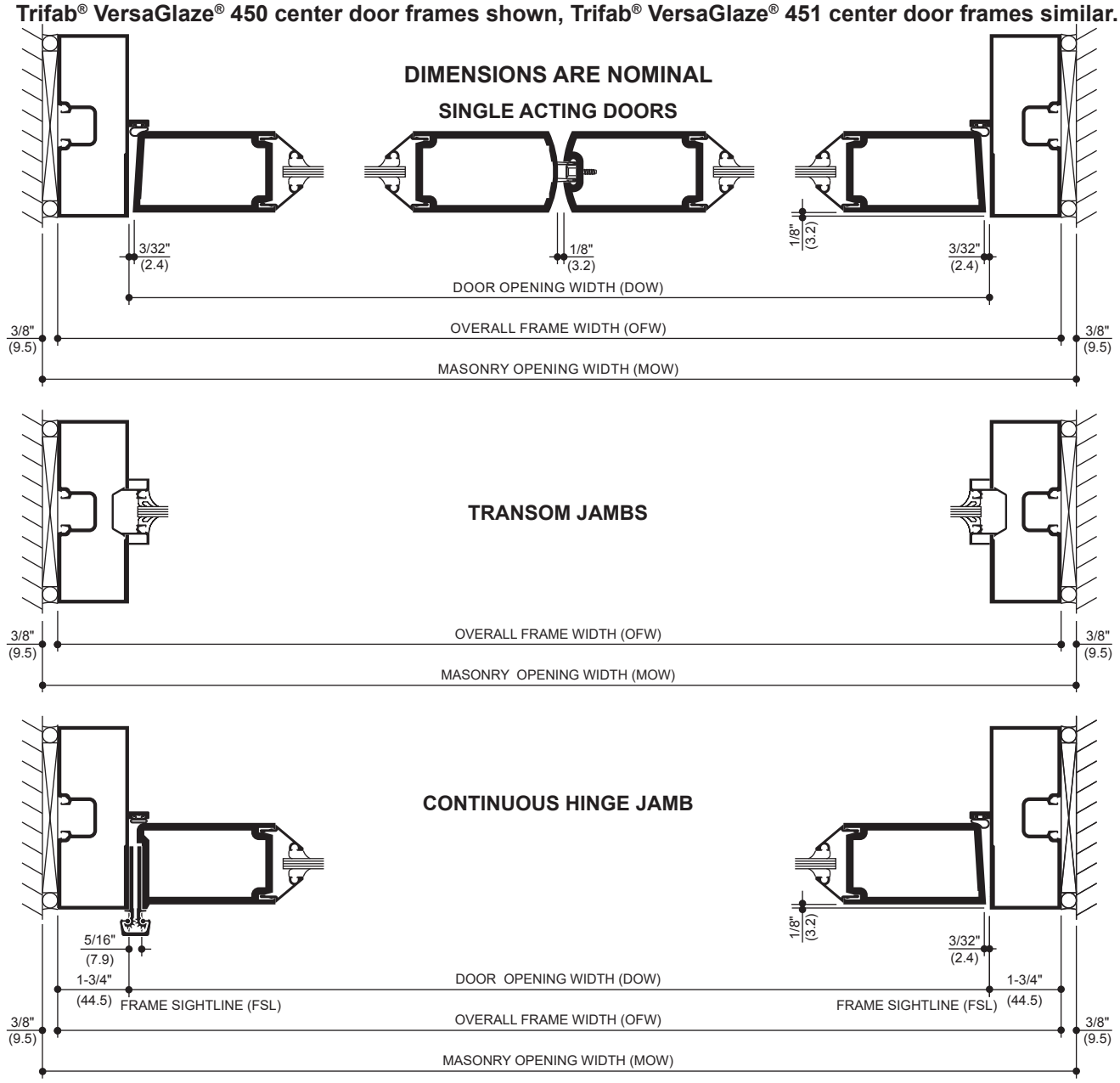

**8***
**BOTTOM RAIL**

***NOTE:** Some building codes limit threshold height to 1/2" (12.7) max.

**LEFT BLANK INTENTIONALLY**

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

**Trifab® VersaGlaze® 450 center door frames shown, Trifab® VersaGlaze® 451 center door frames similar.**




**STANDARD SIZES** (TRIFAB® VG 450 CENTER DOOR FRAMES)

**WITH AND WITHOUT TRANSOM**

| **Door Opening Dimension** (DOW) | | **Overall Frame Dimension** (OFW) | | **Masonry Opening Dimension** (MOW) | |
|---|---|---|---|---|---|
| 3' 0" | (914) | 3' 3-1/2" | (1,003) | 3' 4-1/4" | (1,022) |
| 3' 6" | (1,067) | 3' 9-1/2" | (1,156) | 3' 10-1/4" | (1,175) |
| 6' 0" | (1,829) | 6' 3-3/4" | (1,924) | 6' 4-1/4" | (1,937) |

**STANDARD SIZES** (TRIFAB® VG 451 CENTER DOOR FRAMES)

**WITH AND WITHOUT TRANSOM**

| **Door Opening Dimension** (DOW) | | **Overall Frame Dimension** (OFW) | | **Masonry Opening Dimension** (MOW) | |
|---|---|---|---|---|---|
| 3' 0" | (914) | 3' 4" | (1,016) | 3' 4-3/4" | (1,035) |
| 3' 6" | (1,067) | 3' 10" | (1,168) | 3' 10-3/4" | (1,187) |
| 6' 0" | (1,829) | 6' 4" | (1,930) | 6' 4-3/4" | (1,949) |

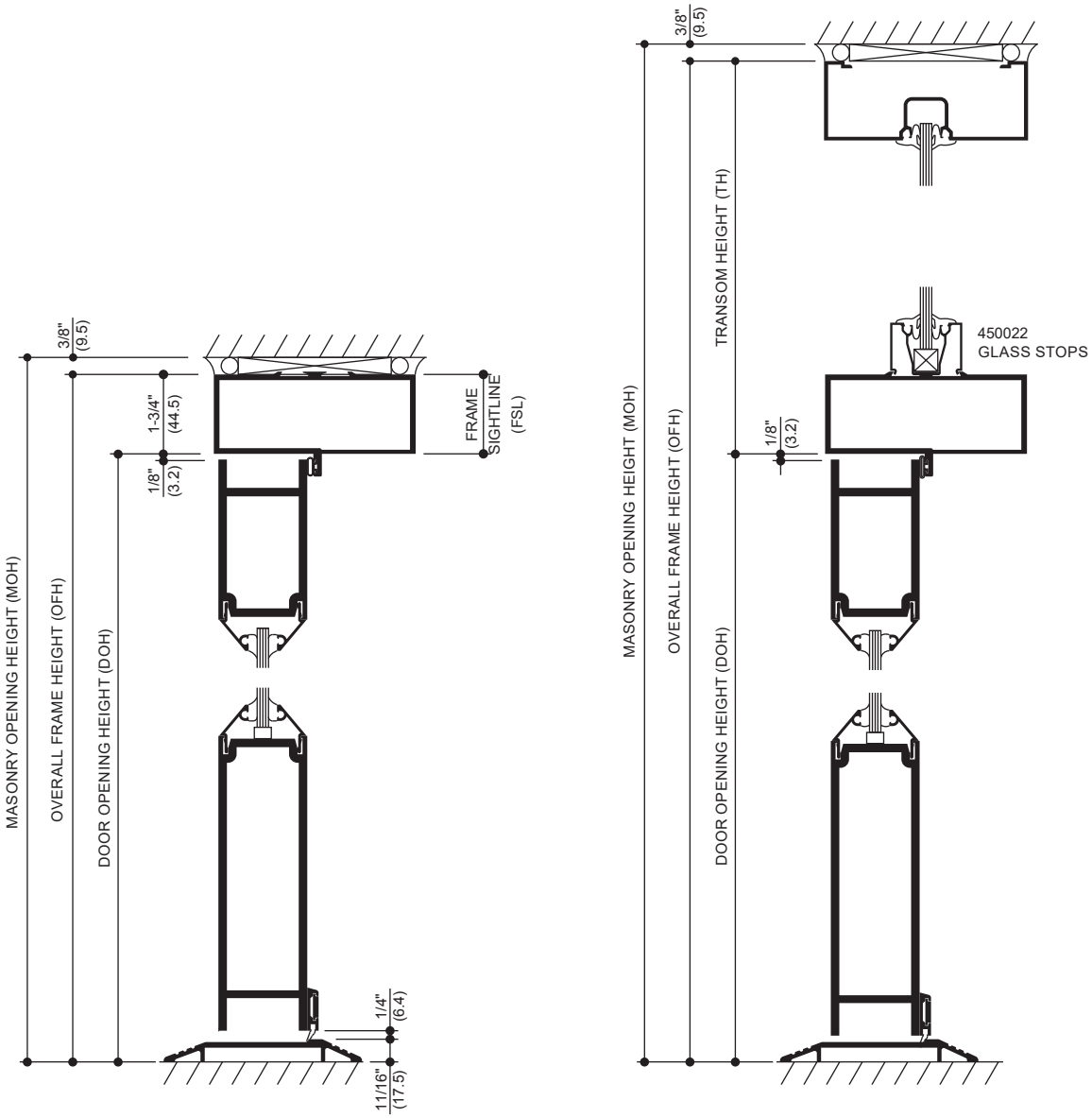
**WITH AND WITHOUT TRANSOM**

OFW = DOW + 2 FSL

MOW = OFW + 3/4"

**Note:** Dimensions shown above reflect A1 Price Book standard stock door frame height with transom at 10' 3-1/2" (3,137).

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




| **STANDARD SIZES** (TRIFAB® VG 450 CENTER DOOR FRAMES) | | | | | |
|---|---|---|---|---|---|
| **WITHOUT TRANSOM** | | | | | |
| **Door Opening Dimension** (DOH) | | **Overall Frame Dimension** (OFH) | | **Masonry Opening Dimension** (MOH) | |
| 7' 0" | (2,134) | 7' 1-3/4" | (2,178) | 7' 2-1/8" | (2,188) |
| 7' 0" | (2,134) | 7' 1-3/4" | (2,178) | 7' 2-1/8" | (2,188) |
| 7' 0" | (2,134) | 7' 1-3/4" | (2,178) | 7' 2-1/8" | (2,188) |

| **STANDARD SIZES** (TRIFAB® VG 451 CENTER DOOR FRAMES) | | | | | |
|---|---|---|---|---|---|
| **WITHOUT TRANSOM** | | | | | |
| **Door Opening Dimension** (DOH) | | **Overall Frame Dimension** (OFH) | | **Masonry Opening Dimension** (MOH) | |
| 7' 0" | (2,134) | 7' 2" | (2,184) | 7' 2-3/8" | (2,194) |
| 7' 0" | (2,134) | 7' 2" | (2,184) | 7' 2-3/8" | (2,194) |
| 7' 0" | (2,134) | 7' 2" | (2,184) | 7' 2-3/8" | (2,194) |

**WITHOUT TRANSOM**

OFH = DOH + FSL
MOH = OFH + 3/8"

**WITH TRANSOM**

OFH = DOH +TH
MOH = OFH + 3/8"

**Note:** Dimensions shown above reflect A1 Price Book standard stock door frame height with transom at 10' 3-1/2" (3,137).

| | STANDARD | OPTIONAL |
|---|---|---|
| **Door Sizes Std.** | Standard sizes shown on pages 12 and 13. | Any size up to 4' x 8' (1,219 x 2,438) |
| **Glass Stops** | Beveled glass stops for 1/4" (6.4) or 3/16" (4.0) infill. | Square glass stops for 3/16" (4.0) or 1/4" (6.4) infill.<br>Also 1" (25.4) stops. |
| **Door Frames** | **Trifab® VG 450** Center - 1-3/4" x 4-1/2" (44.5 x 114.3) for single glazing.<br><br>**Trifab® VG 451** Center - 2" x 4-1/2" (50.8 x 114.3) for double glazing. | Heavy Wall Trifab® VG 450 Center - (3/16" Wall).<br><br>Heavy Wall Trifab® VG 451 Center - (3/16" Wall).<br><br>Any Kawneer framing system suitable for door frames may be selected, but manufactured per order. |
| **Push-Pulls** | **Single Acting:** Architects Classic Hardware CO-9 Pull and CP-II Push Bar.<br><br>Architects Classic Hardware CO-9 Pull and CP Push Bar. | **Single Acting:** Architects Classic Hardware CO-12 and CP-II push bar.<br><br>Architects Classic Hardware CO-12 and CP push bar.<br><br>Architects Classic Hardware CO9/CO-9 Pulls.<br><br>Architects Classic Hardware CO12/CO-12 Pulls. |
| **Door Closers** | **Single Acting:** Norton 1601 adjustable or 1601 BF adjustable surface closer with back-check and with or without adjustable hold-open.<br><br>Standard concealed overhead closer with single acting offset arm. | **Single Acting:** LCN 1260 adjustable surface closer.<br><br>LCN 4040 surface closer with or without adjustable hold-open.<br><br>Norton 8100 surface closer with 50% spring power adjustment (for opening forces of less than 8 pounds.) Closer is available with standard back-checks and with or without the hold-open feature.<br><br>Falcon SC 60 surface closer.<br><br>International single acting concealed overhead closer. |
| **Hinging** | **Single Acting:** Kawneer top and bottom offset pivots (or) Kawneer top and bottom 4 1/2" x 4" (114.3 x 101.6) ball bearing butt hinge with non -removable pin (NRP) (or)<br><br>Kawneer Continuous Gear Hinge. | |
| **Intermediate Pivots/Butts** | **Single Acting:** Rixson M-19 or IVES #7215-INT offset pivot (or)<br><br>Kawneer 4-1/2" x 4" (114.3 x 101.6) ball bearing butt hinge with non-removable pin (NRP).<br><br>**Note:** Offset Pivots are not available for use with Heavy Wall Frames. | |
| **Power Transfers** | **Single Acting:** Rixson M-19 intermediate pivot with wire transfer (or)<br>Kawneer standard (4-1/2" x 4") (114.3 x 101.6) ball bearing (NRP) butt hinge with wire transfer (or)<br>EPT (Electric Power Transfer) | |
| **Power Supply** | **SP-1000X Power Supply:** For use with Paneline® EL exit devices. For use with Falcon EL 1690 and EL 1790 exit devices.<br><br>**SP-2000 Power Supply:** For use with Paneline® MEL exit devices. | **NP1 Power Supply:** For use with Kawneer 1686 MEL and 1786 MEL exit devices only. |
| **Locks - Active Leaf** | Adams-Rite MS 1850A deadlock with two 1-5/32" (29.4) diameter 5 pin cylinders. | Adams-Rite #4510 latch lock.<br>Adams-Rite #1850A-500 short throw deadlock.<br>Adams-Rite #1850A-505 hookbolt lock.<br>Adams-Rite #4015 two-point Lock.<br>Adams-Rite #4085 three-point Lock.<br>Adams-Rite #4089 exit indicator.<br>Kawneer cylinder guard.<br>Kawneer thumbturn (in lieu of cylinder). |

| | STANDARD | OPTIONAL |
|---|---|---|
| **Locks - Inactive Leaf** | One pair of Kawneer flush bolts in the inactive leaf of a pair of doors. | **Controller®** is a 3-point locking system consisting of a two point locking device in the inactive leaf in lieu of flush bolts, working in conjunction with the MS 1850A deadlock in the active leaf. This combination provides for greater security than possible with flush bolts and complies with the life safety considerations of building codes which prohibit the use of flush bolts. |
| **Thresholds** | A 1/2" x 4" (12.7 x 101.6) aluminum mill finish threshold. | A 1/2" x 6-3/4" (12.7 x 171.5) aluminum mill finish threshold. |
| **Weathering** | **Single Acting:** Weathering system in the door and frame consisting of a dense, bulb polymeric material, which remains resilient and retains its weathering ability under temperature extremes. (The system is complete with an optional EPDM blade gasket sweep strip applied to the bottom door rail with concealed fasteners). | Bottom Door Sweep |
| **Exit Device** | **Kawneer 1686 Concealed Rod Exit Device** with or without a mortised type cylinder.<br><br>**Kawneer 1786 Rim Exit Device** is a rim type exit device with or without a rim type cylinder.<br><br>**Paneline® Exit Device** is a concealed rod exit device applicable to single or pairs of doors. It features an activating panel contained within the door crossrail. | **Kawneer 1686 MEL Concealed Rod Exit Device** electric modification is available.<br><br>**Kawneer 1786 MEL Rim Exit Device** electric modification is available.<br><br>**Kawneer 1686 CD Concealed Rod Exit Device** available with cylinder dogging.<br><br>**Kawneer 1786 CD Concealed Rod Exit Device** available with cylinder dogging.<br><br>**Falcon 1690 Concealed Rod Exit Device** with or without a rim type cylinder.<br><br>**Falcon 1790 Rim Exit Device** with or without a rim type cylinder.<br><br>**Falcon EL 1690 Concealed Rod Exit Device** with or without a rim type cylinder.<br><br>**Falcon EL 1790 Rim Exit Device** with or without a rim type cylinder.<br><br>**Falcon 1990 Concealed Rod Exit Device** with or without a rim type cylinder.<br><br>**Falcon 2090 Rim Exit Device** with or without a rim type cylinder.<br><br>**Paneline® MEL Exit Device** is designed for electrified access control and is compatible with most key pad and card reader systems. |
| | **Exit Device Pulls:**<br><br>Architects Classic CO-9 Pull.<br><br>Architects Classic CPN Pull for Paneline® and Paneline® MEL exit devices. | **Optional Exit Device Pulls:**<br><br>Architects Classic CO-12 Pull (except for Paneline® and Paneline® MEL exit devices). |

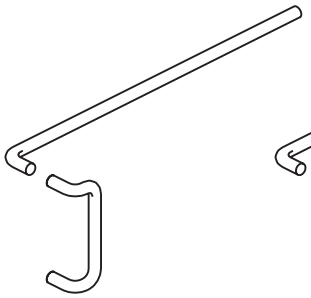


**Reference Hardware section for additional information**

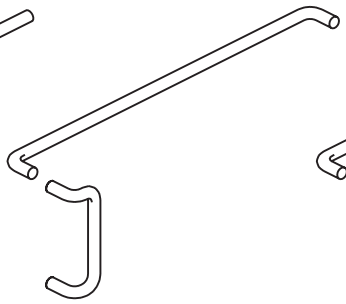
REFER TO **HARDWARE SECTION** FOR COMPLETE HARDWARE INFORMATION.

## ARCHITECTS CLASSIC (PUSH PULL SETS)

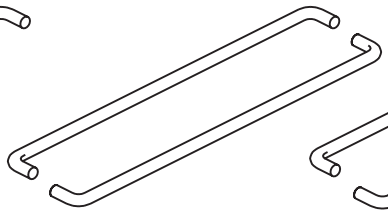
SINGLE ACTING DOORS USE A PULL HANDLE AND PUSH BAR AS STANDARD



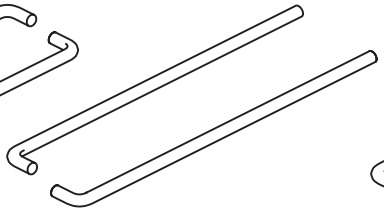
**CO-9 / CP**
**CO-12 / CP**



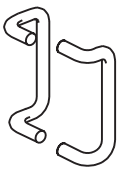
**CO-9 / CP-II**
**CO-12 / CP-II**



**CP-II / CP-II**

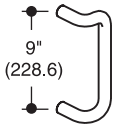


**CP / CP**

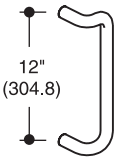


**CO-9 / CO-9**
**CO-12 / CO-12**

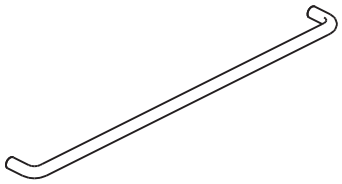
## ARCHITECTS CLASSIC (COMPONENTS)



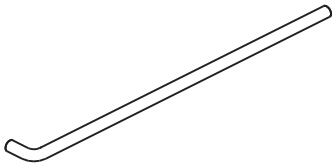

**CO-9 PULL**




**CO-12 PULL**



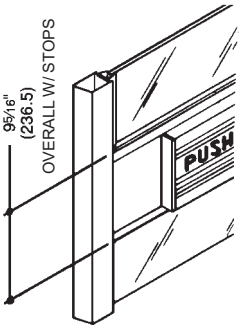
**CP-II PUSH BAR**



**CP PUSH BAR**

## EXIT DEVICES

**KAWNEER PANELINE® / PANELINE® MEL**

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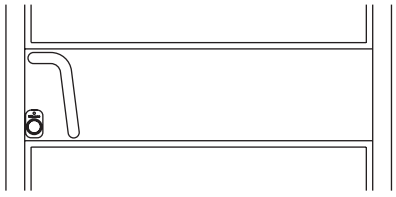
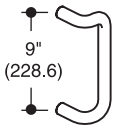
**CPN PULL ON EXTERIOR OF DOOR**



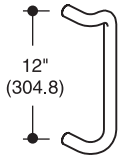
EXTERIOR VIEW OF 190 DOOR (350/500 SIMILAR)
CPN PULL AND OPTIONAL CYLINDER GUARD SHOWN.

**SEE PAGES 17 & 18 FOR COMPLETE PANELINE® INFORMATION**

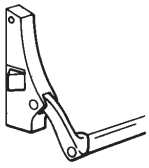
## EXIT DEVICES AND PULLS



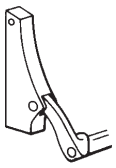

**CO-9 PULL**



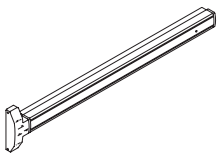

**CO-12 PULL**



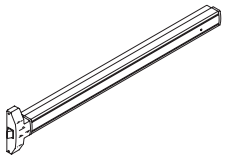
**RIM LATCH EXIT DEVICE**
**Falcon 2090**



**CONCEALED ROD EXIT DEVICE**
**Falcon 1990**



**CONCEALED ROD**
**Falcon 1690**
**Falcon EL 1690**



**RIM LATCH**
**Falcon 1790**
**Falcon EL 1790**

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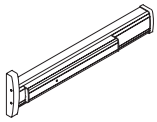
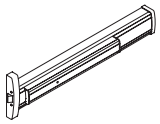
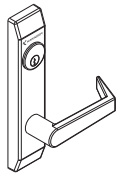


**CONCEALED ROD**
**Kawneer 1686**
**Kawneer 1686 CD**
**Kawneer 1686 MEL**



**RIM LATCH**
**Kawneer 1786**
**Kawneer 1786 CD**
**Kawneer 1786 MEL**



**LEVER HANDLE**
**Kawneer 1686**
**Kawneer 1786**

The Paneline® concealed rod exit device will accommodate variations in door width as shown in the following illustrations. Sidelites adjacent to Paneline® equipped doors not requiring exit devices may be fitted with fixed panels as detailed below to match the general appearance of the Paneline® cross rail.

The Optional Paneline® MEL device is designed for electrified access control and is compatible with most key pad and card reader systems.

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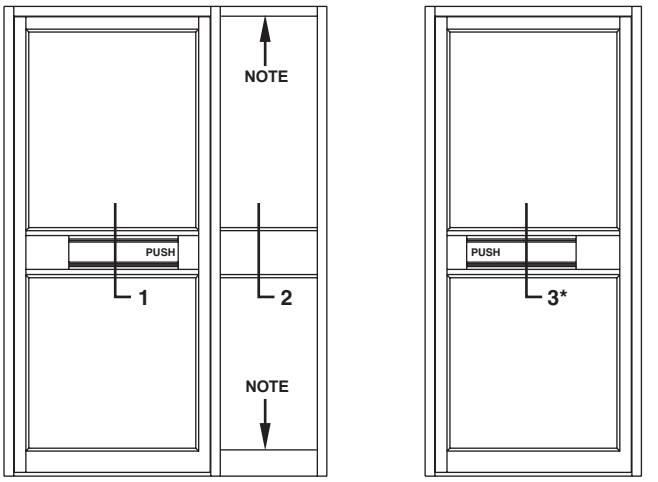
See **Hardware Section** for complete description of Paneline® hardware, including finish of units.

**Paneline® uses mortise cylinder in lieu of the normal rim-type.**
**Dummy Paneline® units should not use any type of lock.**

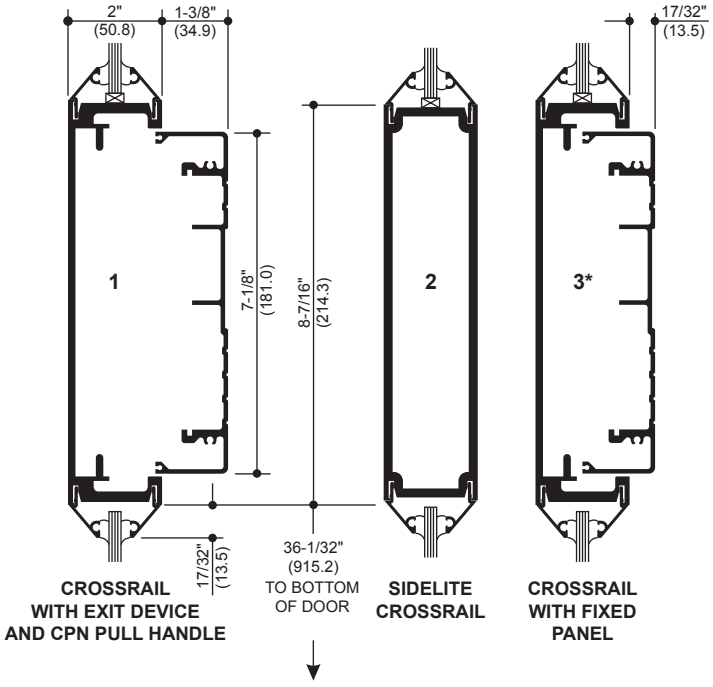
## INTERIOR ELEVATIONS

**NOTE**: Sidelites must be stop glazed above and below rail.



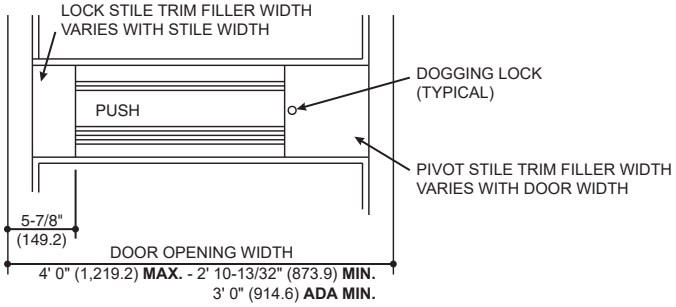

**ACTIVE DOOR** **SIDELITE**

***VESTIBULE DOOR**
(Without Exit Device or Lock)

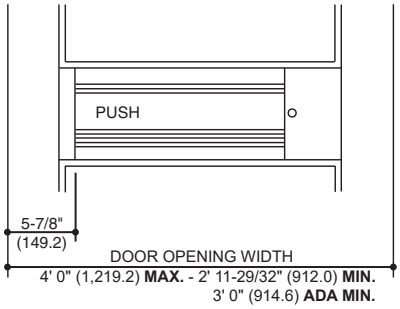



**CROSSRAIL WITH EXIT DEVICE AND CPN PULL HANDLE** **SIDELITE CROSSRAIL** **CROSSRAIL WITH FIXED PANEL**

## INTERIOR VIEW

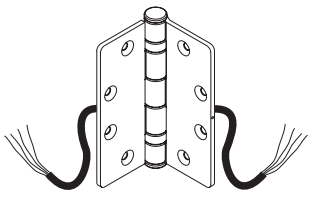



**350HW DOOR**

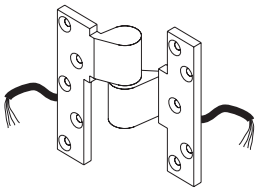



**500HW DOOR**

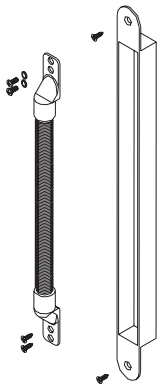
## PANELINE® MEL COMPONENTS



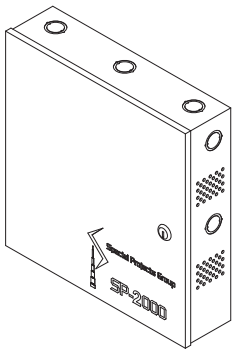
**POWER TRANSFER INTERMEDIATE BUTT HINGE**



**POWER TRANSFER INTERMEDIATE OFFSET PIVOT**



**ELECTRIC POWER TRANSFER (EPT)**




**SP-2000 POWER SUPPLY**

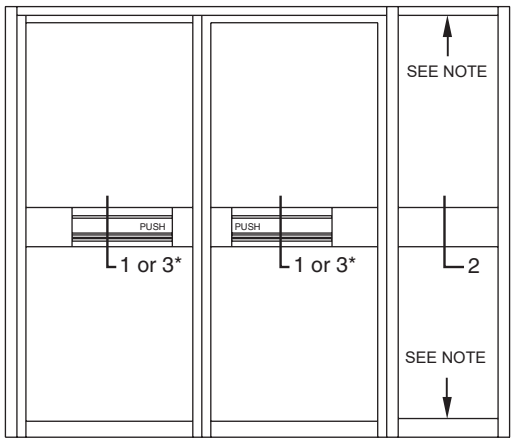
Sidelites adjacent to Paneline® equipped doors not requiring exit devices may be fitted with fixed panels as detailed below to match the general appearance of the Paneline® cross rail.

See **Hardware Section** for complete description of Paneline® hardware, including finish of units.

**Paneline® uses mortise cylinder in lieu of the normal rim-type.**
**Dummy Paneline® units should not use any type of lock.**

**INTERIOR ELEVATION**

**NOTE:** Sidelites must be stop glazed above and below rail.




*** ALTERNATE CROSSRAIL FOR VESTIBULE DOORS (Without Exit Device or Lock)**

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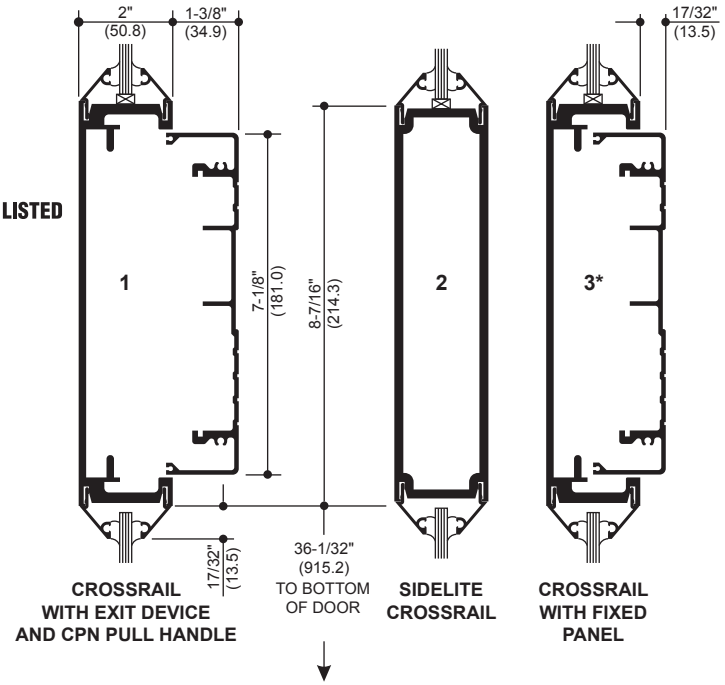
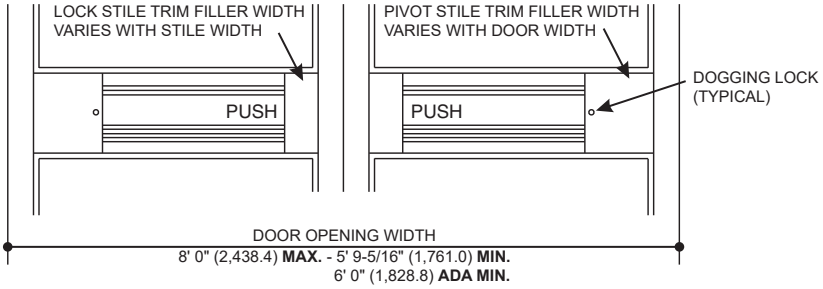
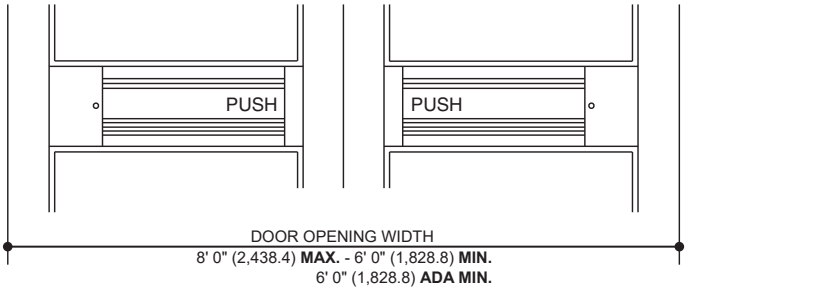


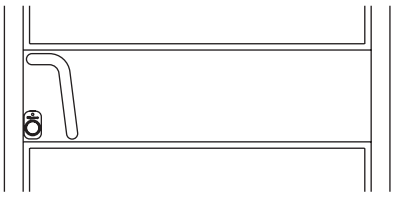




**350HW DOOR**




**500HW DOOR**

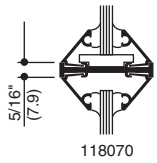
**CPN PULL ON EXTERIOR OF DOOR**



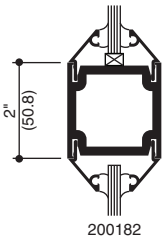
**EXTERIOR VIEW OF 190 DOOR (350-500 SIMILAR) WITH CPN PULL AND STANDARD CYLINDER GUARD SHOWN**

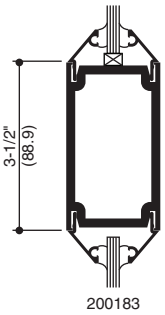
**Additional information and CAD details are available at www.kawneer.com**

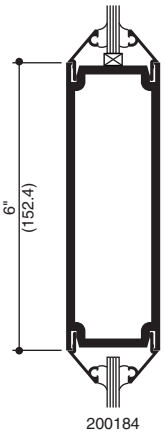
## HORIZONTAL / VERTICAL CROSS RAILS

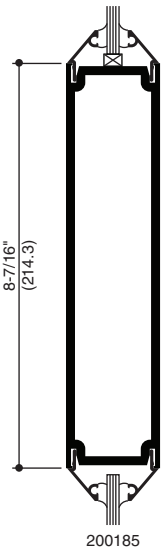


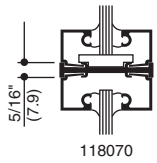

**5/16" CROSSRAIL WITH BEVELED STOPS FOR 1/4" INFILL**



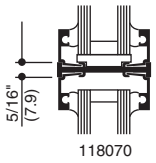



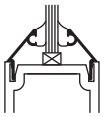

**5/16" CROSSRAIL WITH SQUARE STOPS FOR 1/4" INFILL**



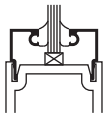

**5/16" CROSSRAIL WITH SQUARE STOPS FOR 1" INFILL**

## INFILL OPTIONS

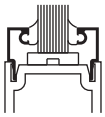
**1/4" (6.4)**



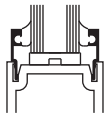
**1/4" (6.4)**



**5/8" (15.9)**

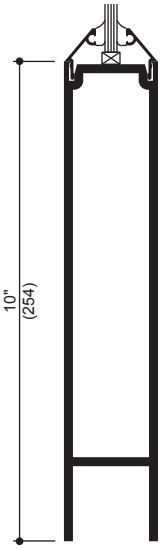


**1" (25.4)**

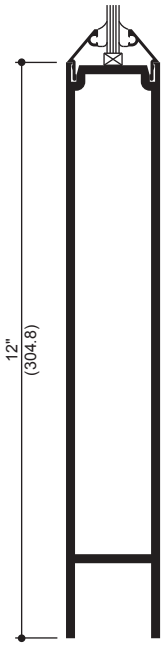


## BOTTOM RAILS


**10" BOTTOM RAIL**

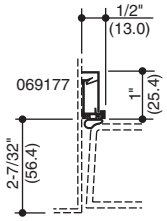



**10" DEEP WEB BOTTOM RAIL**



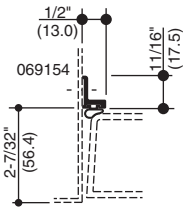

**12" DEEP WEB BOTTOM RAIL**

## ACCESSORY ITEMS




**APPLIED DOOR STOP**

**400086**
**(TF VERSAGLAZE® 450)**
**SNAP-IN DOOR STOP**




**APPLIED DOOR STOP**

**451098**
**(TF VERSAGLAZE® 451)**
**SNAP-IN DOOR STOP**

## WIND LOAD CHARTS

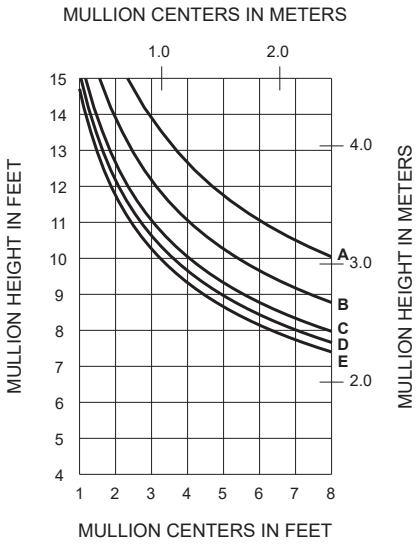
Mullions are designed for deflection limitations in accordance with AAMA TIR-A11 of L/175 up to 13' 6" and L/240 +1/4" above 13' 6". These curves are for mullions WITH HORIZONTALS and are based on engineering calculations for stress and deflection. Allowable wind load stress for ALUMINUM 15,152 psi (104 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 1/16" (1.6), 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" (6.35) thick glass supported on two setting blocks placed at the loading points shown.

| | 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 = | 45 PSF (2160) | 75 PSF (3600) |
| E = | 50 PSF (2400) | 83 PSF (4000) |

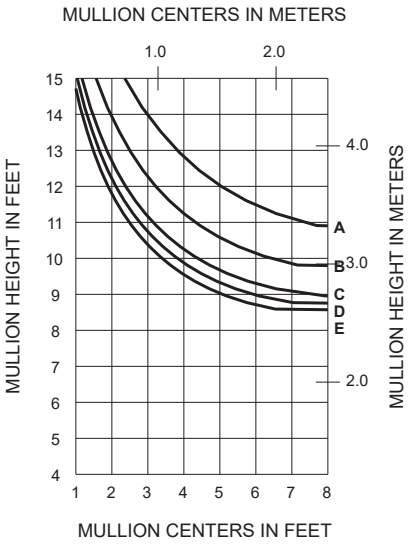
### WITH HORIZONTALS



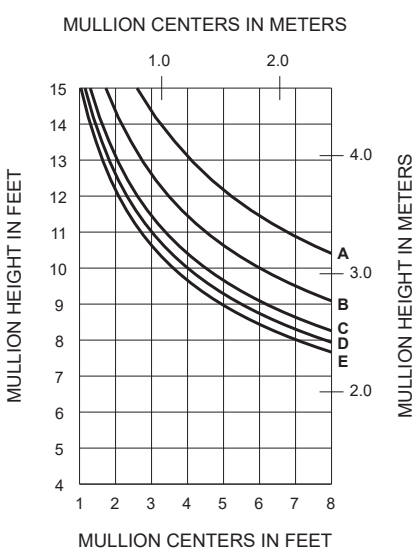

**450095**

I = 5.318 (221.35 x $10^4$)
S = 2.361 (38.69 x $10^3$)

### WITHOUT HORIZONTALS



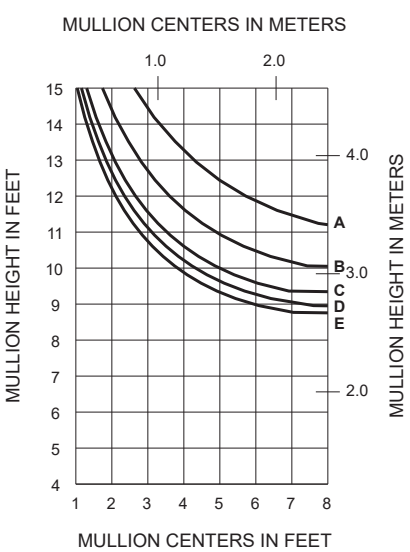

### WITH HORIZONTALS




**451095**

I = 5.912 (246.08 x $10^4$)
S = 2.625 (43.02 x $10^3$)

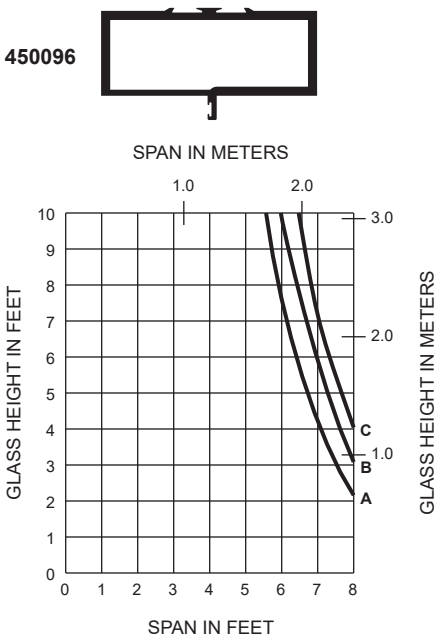
### WITHOUT HORIZONTALS



**1/4" GLASS**

**A** - 1/4" GLASS (1/4 POINT LOADING)
**B** - 1/4" GLASS (1/6 POINT LOADING)
**C** - 1/4" GLASS (1/8 POINT LOADING)

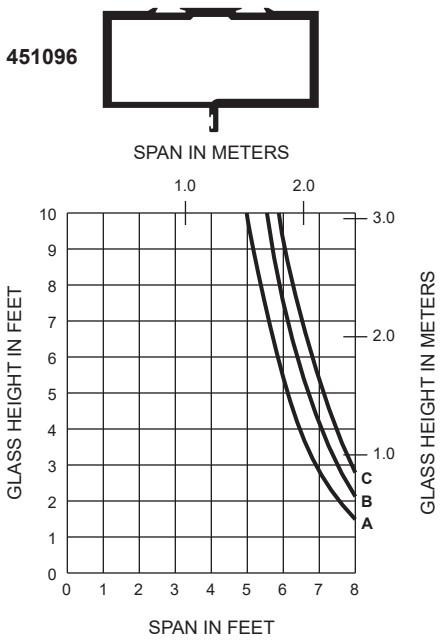
**450096**



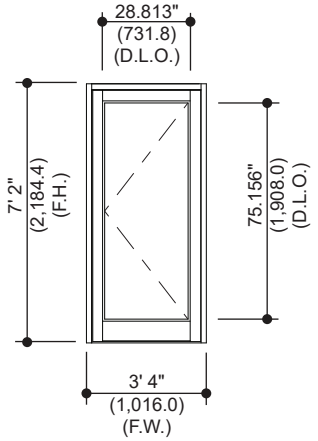

**1" GLASS**

**A** - 1" GLASS (1/4 POINT LOADING)
**B** - 1" GLASS (1/6 POINT LOADING)
**C** - 1" GLASS (1/8 POINT LOADING)

**451096**



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



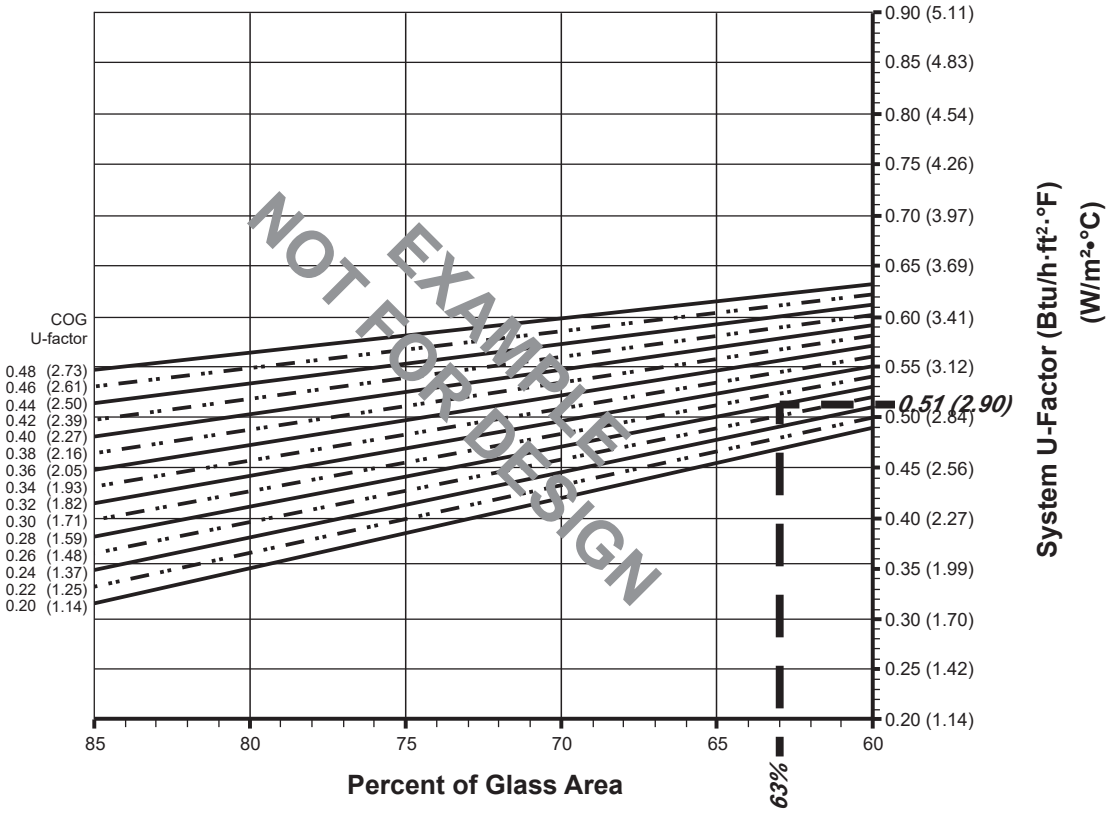

Example Glass U-Factor = 0.28 Btu/hr • ft² • °F

Total Daylight Opening = 28.813" x 75.156" = 15.04 ft²

Total Projected Area = 3' 4" x 7' 2" = 23.9 ft²

Percent of Glass = (Total Daylight Opening ÷ Total Projected Area)100
= (15.04 ÷ 23.9)100 = 63%

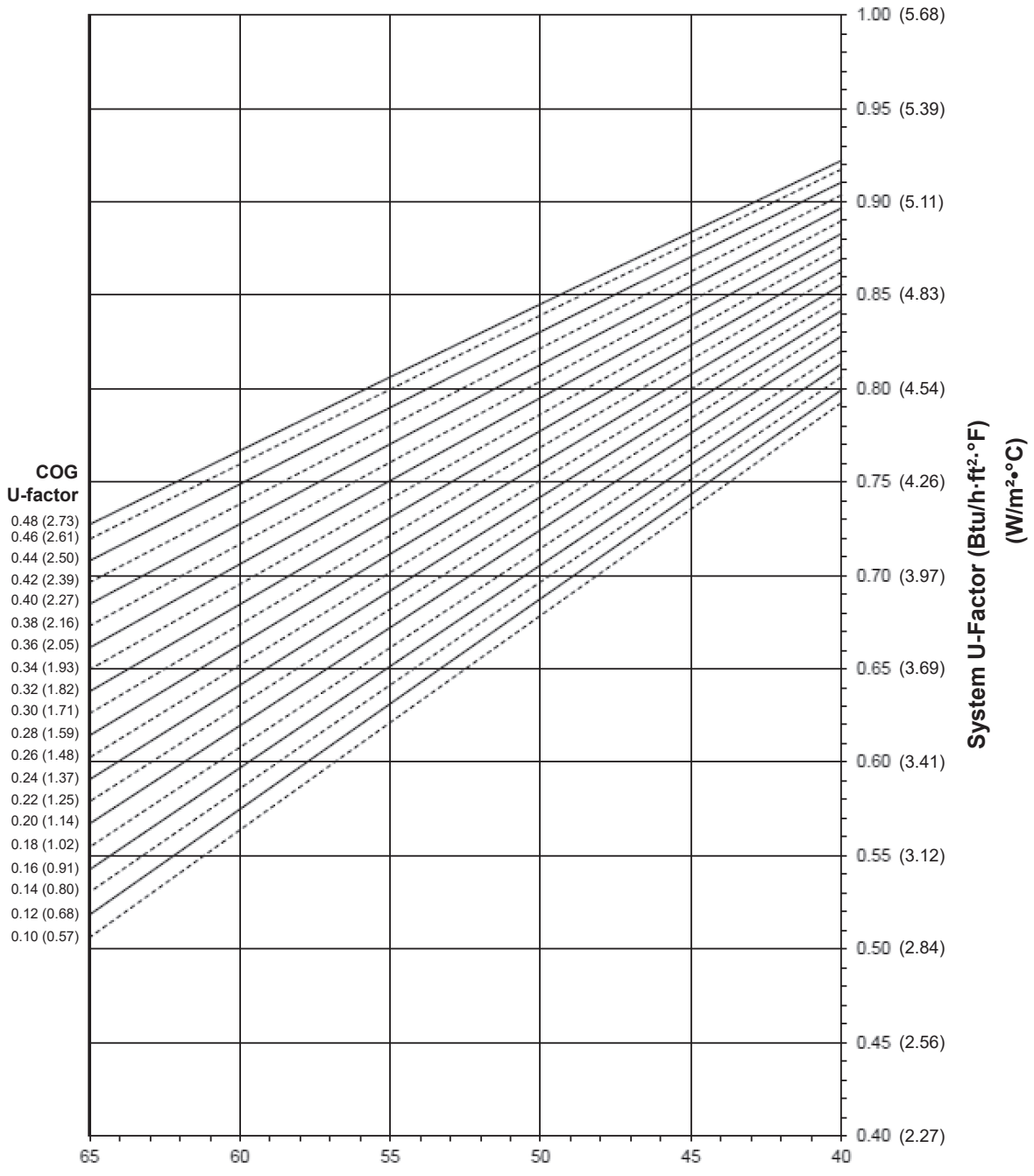
**System U-factor vs Percent of Glass Area**




Based on 63% glass and center of glass (COG) U-factor of 0.28
System U-factor is equal to 0.51 Btu/hr • ft² • °F

## 350 Heavy Wall® (SINGLE DOOR)

### System U-factor vs Percent of Glass Area




**Percent of Glass = Vision Area/Total Area**
**(Total Daylight Opening / Projected Area)**

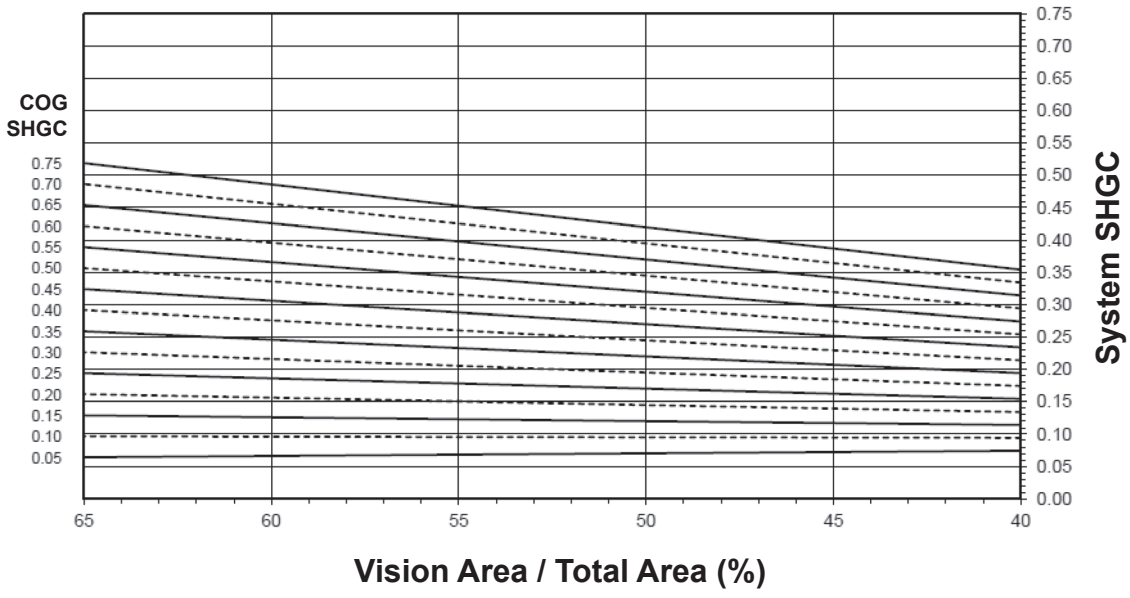
**Notes for System U-Factor, SHGC and VT charts:**

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

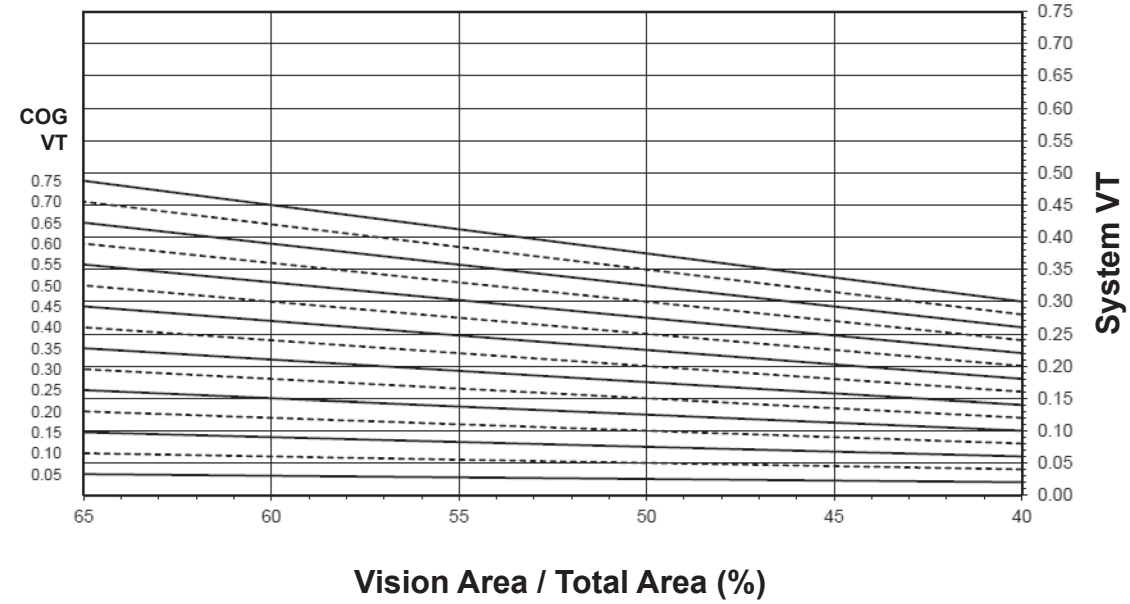
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

## 350 Heavy Wall® (SINGLE DOOR)

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




### System Visible Transmittance (VT) vs Percent of Vision Area



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

## 350 Heavy Wall® (SINGLE DOOR)

| Glass U-Factor [3] | Overall U-Factor [4] |
|---|---|
| 0.48 | 0.83 |
| 0.46 | 0.82 |
| 0.44 | 0.81 |
| 0.42 | 0.81 |
| 0.40 | 0.80 |
| 0.38 | 0.79 |
| 0.36 | 0.78 |
| 0.34 | 0.77 |
| 0.32 | 0.76 |
| 0.30 | 0.75 |
| 0.28 | 0.74 |
| 0.26 | 0.73 |
| 0.24 | 0.72 |
| 0.22 | 0.71 |
| 0.20 | 0.70 |
| 0.18 | 0.69 |
| 0.16 | 0.68 |
| 0.14 | 0.68 |
| 0.12 | 0.67 |
| 0.10 | 0.66 |

**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 960 mm wide by 2,090 mm high (37-3/4" by 82-3/8").

## SHGC Matrix [2]

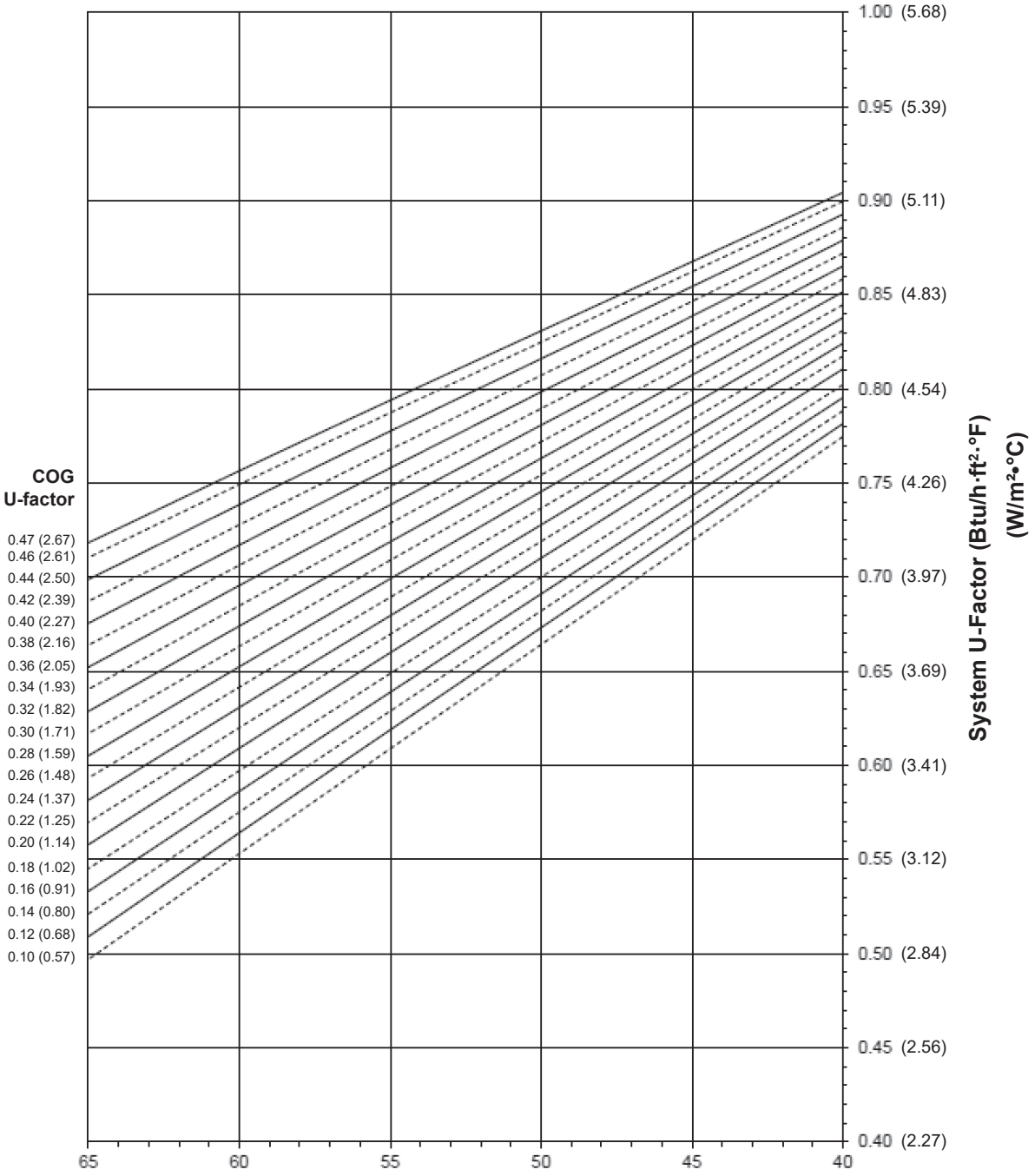
| Glass SHGC [3] | Overall SHGC [4] |
|---|---|
| 0.75 | 0.43 |
| 0.70 | 0.41 |
| 0.65 | 0.38 |
| 0.60 | 0.36 |
| 0.55 | 0.33 |
| 0.50 | 0.30 |
| 0.45 | 0.28 |
| 0.40 | 0.25 |
| 0.35 | 0.23 |
| 0.30 | 0.20 |
| 0.25 | 0.17 |
| 0.20 | 0.15 |
| 0.15 | 0.12 |
| 0.10 | 0.10 |
| 0.05 | 0.07 |

## Visible Transmittance [2]

| Glass VT [3] | Overall VT [4] |
|---|---|
| 0.75 | 0.39 |
| 0.70 | 0.36 |
| 0.65 | 0.34 |
| 0.60 | 0.31 |
| 0.55 | 0.29 |
| 0.50 | 0.26 |
| 0.45 | 0.23 |
| 0.40 | 0.21 |
| 0.35 | 0.18 |
| 0.30 | 0.16 |
| 0.25 | 0.13 |
| 0.20 | 0.10 |
| 0.15 | 0.08 |
| 0.10 | 0.05 |
| 0.05 | 0.03 |

## 350 Heavy Wall® (PAIR OF DOORS)

### System U-factor vs Percent of Glass Area



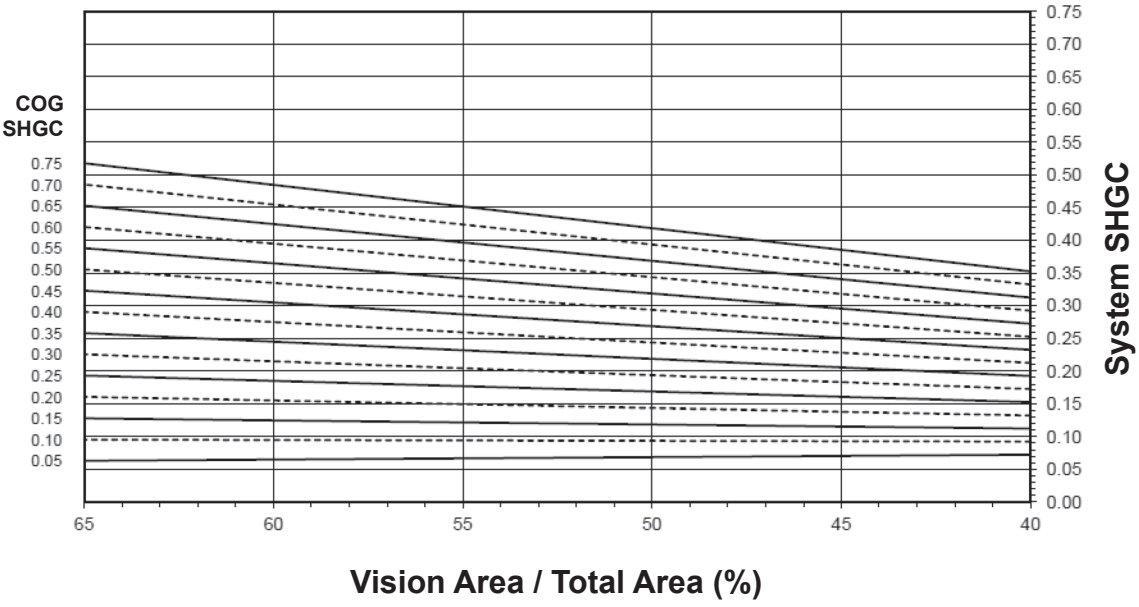

**Notes for System U-Factor, SHGC and VT charts:**

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

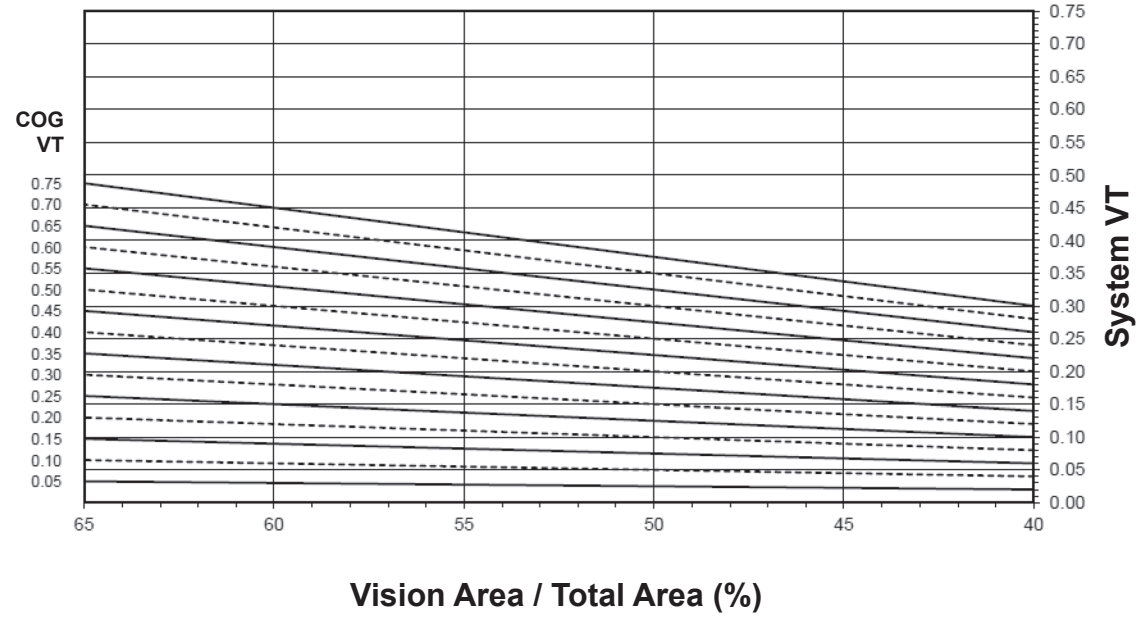
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

## 350 Heavy Wall® (PAIR OF DOORS)

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




### System Visible Transmittance (VT) vs Percent of Vision Area



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

| Glass U-Factor [3] | Overall U-Factor [4] |
|---|---|
| 0.47 | 0.79 |
| 0.46 | 0.78 |
| 0.44 | 0.77 |
| 0.42 | 0.76 |
| 0.40 | 0.75 |
| 0.38 | 0.74 |
| 0.36 | 0.73 |
| 0.34 | 0.72 |
| 0.32 | 0.71 |
| 0.30 | 0.70 |
| 0.28 | 0.69 |
| 0.26 | 0.68 |
| 0.24 | 0.67 |
| 0.22 | 0.66 |
| 0.20 | 0.65 |
| 0.18 | 0.64 |
| 0.16 | 0.63 |
| 0.14 | 0.62 |
| 0.12 | 0.61 |
| 0.10 | 0.60 |

## 350 Heavy Wall® (PAIR OF DOORS)

**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 1,920 mm wide by 2,090 mm high (75-1/2" by 82-3/8").

## SHGC Matrix [2]

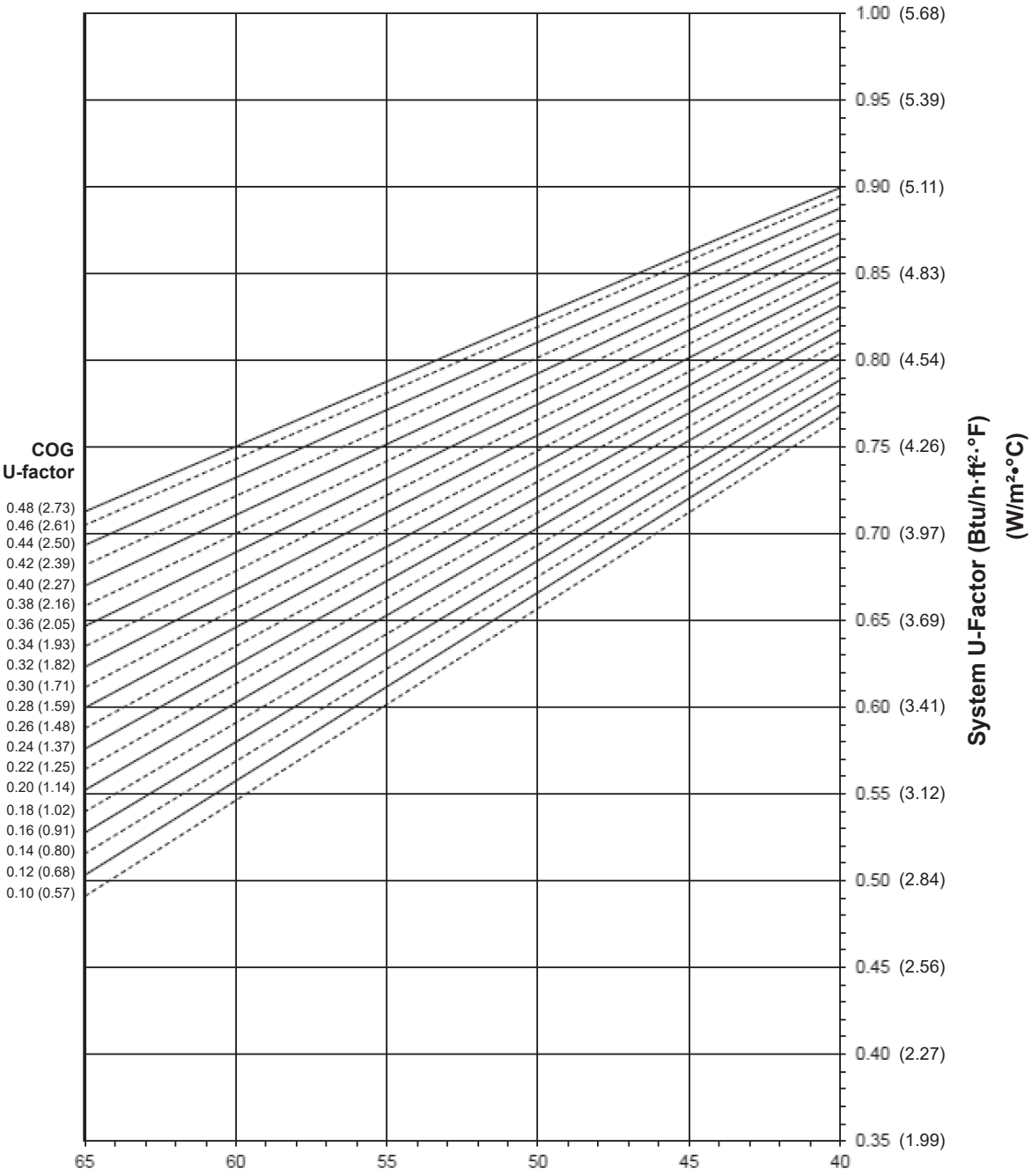
| Glass SHGC [3] | Overall SHGC [4] |
|---|---|
| 0.75 | 0.46 |
| 0.70 | 0.43 |
| 0.65 | 0.40 |
| 0.60 | 0.37 |
| 0.55 | 0.35 |
| 0.50 | 0.32 |
| 0.45 | 0.29 |
| 0.40 | 0.26 |
| 0.35 | 0.23 |
| 0.30 | 0.21 |
| 0.25 | 0.18 |
| 0.20 | 0.15 |
| 0.15 | 0.12 |
| 0.10 | 0.09 |
| 0.05 | 0.07 |

## Visible Transmittance [2]

| Glass VT [3] | Overall VT [4] |
|---|---|
| 0.75 | 0.42 |
| 0.70 | 0.39 |
| 0.65 | 0.36 |
| 0.60 | 0.34 |
| 0.55 | 0.31 |
| 0.50 | 0.28 |
| 0.45 | 0.25 |
| 0.40 | 0.22 |
| 0.35 | 0.20 |
| 0.30 | 0.17 |
| 0.25 | 0.14 |
| 0.20 | 0.11 |
| 0.15 | 0.08 |
| 0.10 | 0.06 |
| 0.05 | 0.03 |

## 500 Heavy Wall® (SINGLE DOOR)

### System U-factor vs Percent of Glass Area




**Percent of Glass = Vision Area/Total Area**
**(Total Daylight Opening / Projected Area)**

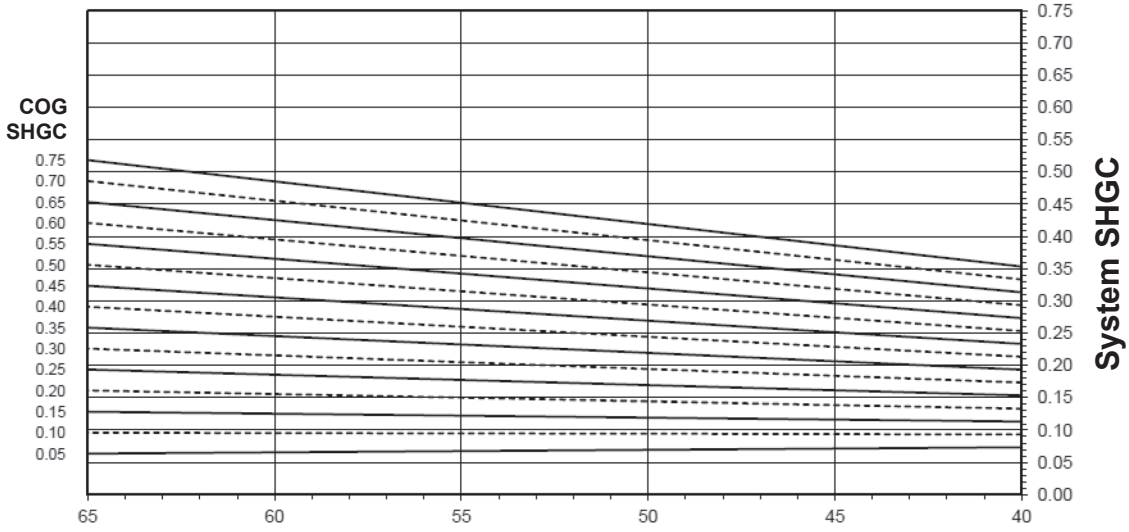
**Notes for System U-Factor, SHGC and VT charts:**

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

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

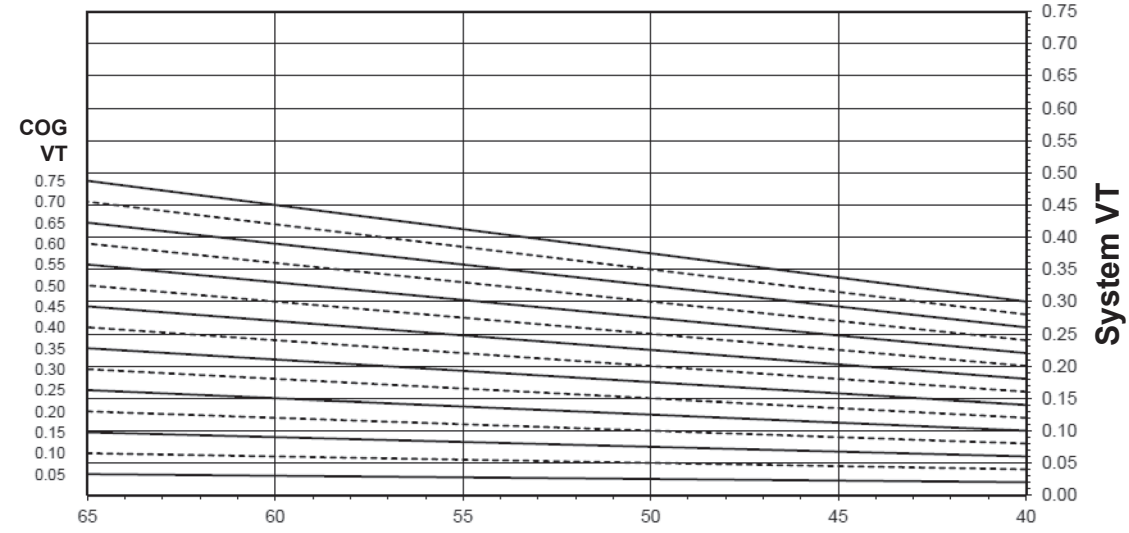
## 500 Heavy Wall® (SINGLE DOOR)

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




**Vision Area / Total Area (%)**

### System Visible Transmittance (VT) vs Percent of Vision Area




**Vision Area / Total Area (%)**

## 0.72Thermal Transmittance [1] (BTU/hr • ft [2] • °F)

| Glass U-Factor [3] | Overall U-Factor [4] |
|---|---|
| 0.48 | 0.87 |
| 0.46 | 0.86 |
| 0.44 | 0.85 |
| 0.42 | 0.84 |
| 0.40 | 0.84 |
| 0.38 | 0.83 |
| 0.36 | 0.82 |
| 0.34 | 0.81 |
| 0.32 | 0.81 |
| 0.30 | 0.80 |
| 0.28 | 0.79 |
| 0.26 | 0.78 |
| 0.24 | 0.77 |
| 0.22 | 0.77 |
| 0.20 | 0.76 |
| 0.18 | 0.75 |
| 0.16 | 0.74 |
| 0.14 | 0.73 |
| 0.12 | 0.73 |
| 0.10 | 0.72 |

## 500 Heavy Wall® (SINGLE DOOR)

**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 960 mm wide by 2,090 mm high (37-3/4" by 82-3/8").

## SHGC Matrix [2]

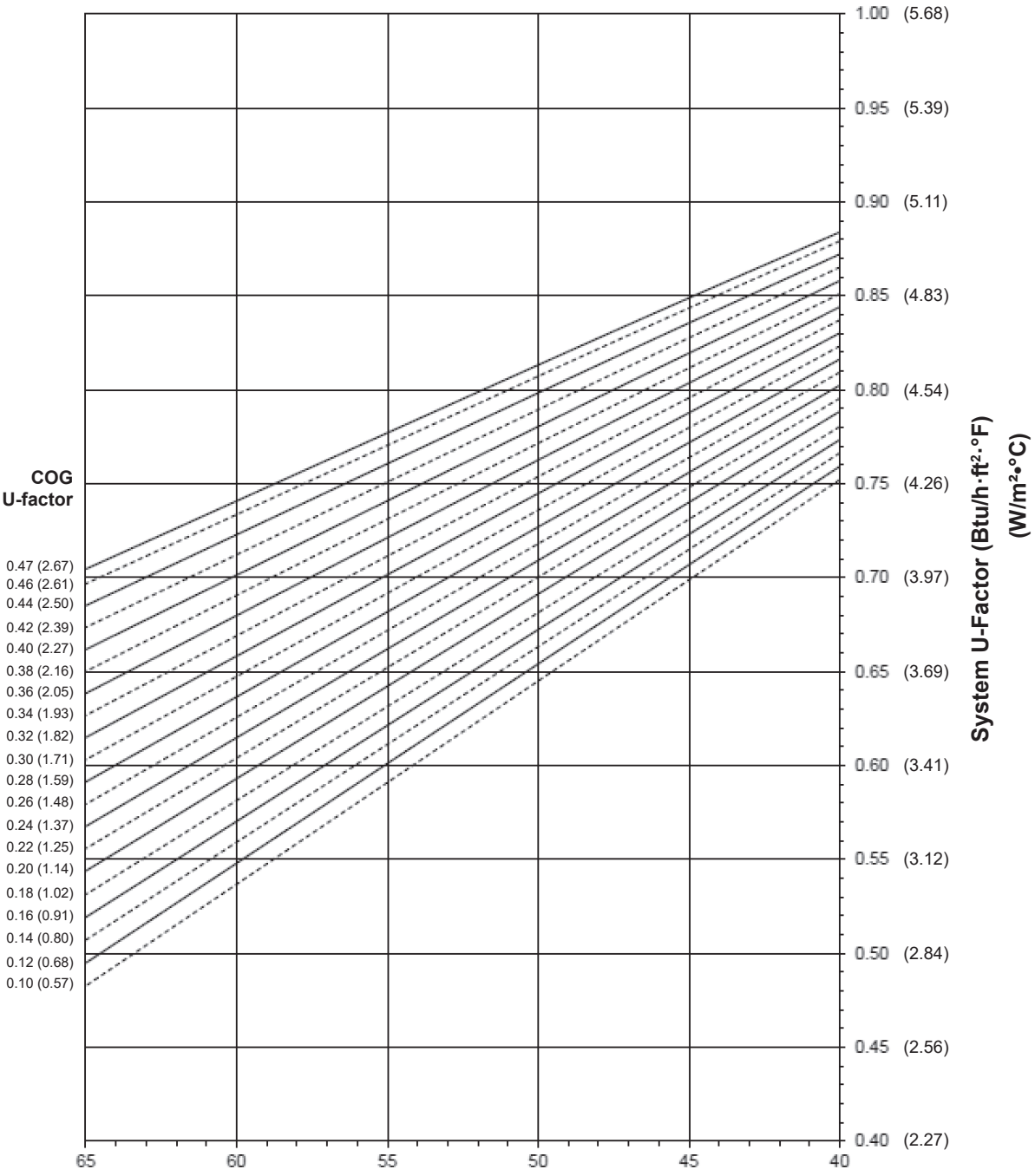
| Glass SHGC [3] | Overall SHGC [4] |
|---|---|
| 0.75 | 0.38 |
| 0.70 | 0.36 |
| 0.65 | 0.34 |
| 0.60 | 0.32 |
| 0.55 | 0.29 |
| 0.50 | 0.27 |
| 0.45 | 0.25 |
| 0.40 | 0.23 |
| 0.35 | 0.21 |
| 0.30 | 0.18 |
| 0.25 | 0.16 |
| 0.20 | 0.14 |
| 0.15 | 0.12 |
| 0.10 | 0.09 |
| 0.05 | 0.07 |

## Visible Transmittance [2]

| Glass VT [3] | Overall VT [4] |
|---|---|
| 0.75 | 0.33 |
| 0.70 | 0.31 |
| 0.65 | 0.29 |
| 0.60 | 0.27 |
| 0.55 | 0.25 |
| 0.50 | 0.22 |
| 0.45 | 0.20 |
| 0.40 | 0.18 |
| 0.35 | 0.16 |
| 0.30 | 0.13 |
| 0.25 | 0.11 |
| 0.20 | 0.09 |
| 0.15 | 0.07 |
| 0.10 | 0.04 |
| 0.05 | 0.02 |

## 500 Heavy Wall® (PAIR OF DOORS)

### System U-factor vs Percent of Glass Area

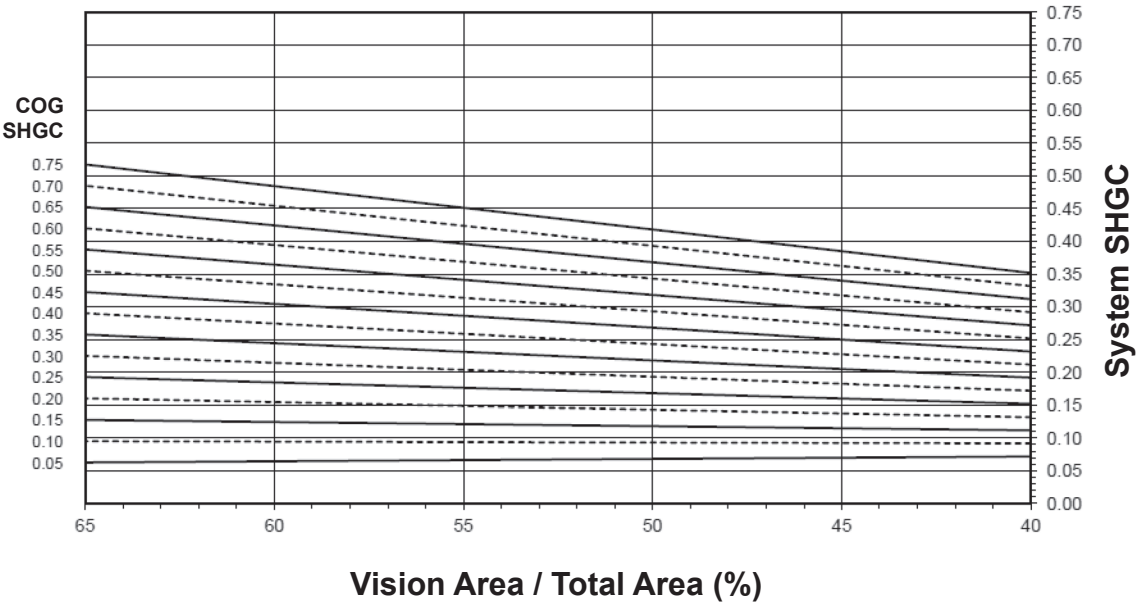



**Notes for System U-Factor, SHGC and VT charts:**

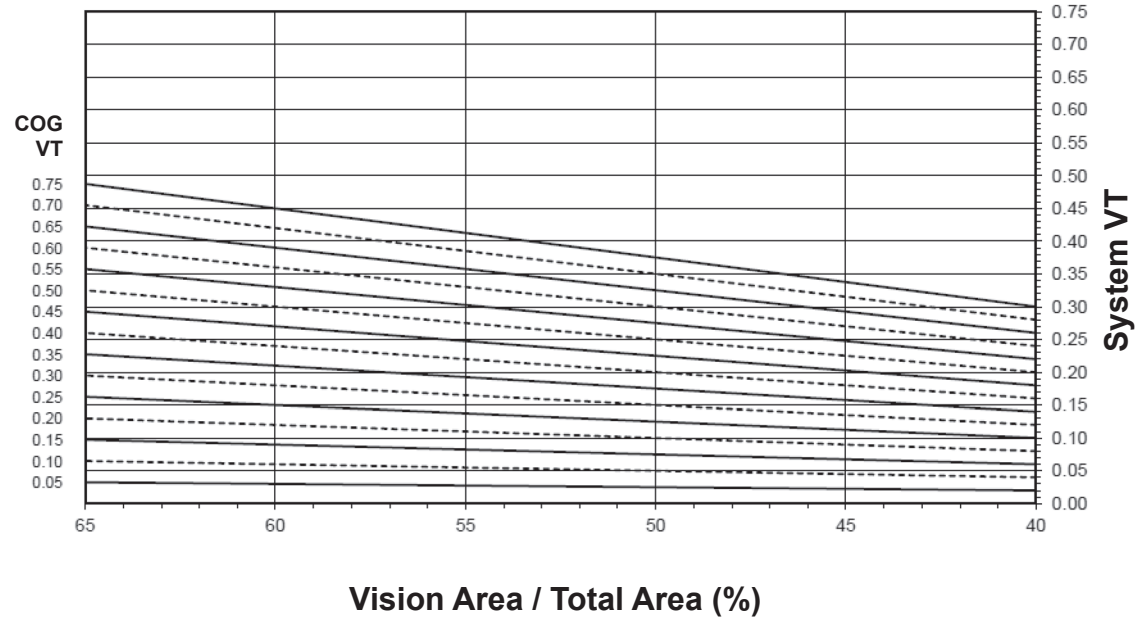
For glass values that are not listed, linear interpolation is permitted.
Glass properties are based on center of glass values (winter conditions) and are obtained from your glass supplier.

## 500 Heavy Wall® (PAIR OF DOORS)

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




### System Visible Transmittance (VT) vs Percent of Vision Area



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

| Glass U-Factor [3] | Overall U-Factor [4] |
|---|---|
| 0.48 | 0.82 |
| 0.46 | 0.82 |
| 0.44 | 0.81 |
| 0.42 | 0.80 |
| 0.40 | 0.79 |
| 0.38 | 0.78 |
| 0.36 | 0.77 |
| 0.34 | 0.77 |
| 0.32 | 0.76 |
| 0.30 | 0.75 |
| 0.28 | 0.74 |
| 0.26 | 0.73 |
| 0.24 | 0.72 |
| 0.22 | 0.71 |
| 0.20 | 0.70 |
| 0.18 | 0.70 |
| 0.16 | 0.69 |
| 0.14 | 0.68 |
| 0.12 | 0.67 |
| 0.10 | 0.66 |

## 500 Heavy Wall® (PAIR OF DOORS)

**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 1,920 mm wide by 2,090 mm high (75-1/2" by 82-3/8").

## SHGC Matrix [2]

| Glass SHGC [3] | Overall SHGC [4] |
|---|---|
| 0.75 | 0.41 |
| 0.70 | 0.38 |
| 0.65 | 0.36 |
| 0.60 | 0.34 |
| 0.55 | 0.31 |
| 0.50 | 0.29 |
| 0.45 | 0.26 |
| 0.40 | 0.24 |
| 0.35 | 0.21 |
| 0.30 | 0.19 |
| 0.25 | 0.17 |
| 0.20 | 0.14 |
| 0.15 | 0.12 |
| 0.10 | 0.09 |
| 0.05 | 0.07 |

## Visible Transmittance [2]

| Glass VT [3] | Overall VT [4] |
|---|---|
| 0.75 | 0.36 |
| 0.70 | 0.34 |
| 0.65 | 0.32 |
| 0.60 | 0.29 |
| 0.55 | 0.27 |
| 0.50 | 0.24 |
| 0.45 | 0.22 |
| 0.40 | 0.19 |
| 0.35 | 0.17 |
| 0.30 | 0.15 |
| 0.25 | 0.12 |
| 0.20 | 0.10 |
| 0.15 | 0.07 |
| 0.10 | 0.05 |
| 0.05 | 0.02 |