IR 500/501 Framing

Hurricane Resistant Product
Blast Mitigation Product

Features

- IR 500/501 is 5" (127) deep and has a 2-1/2" (63.5) sightline {Expansion mullions have a 2-3/4" (69.9) sightline}
- Screw Spline fabrication
- Center glazed
- Outside glazed with internal silicone seal
- IR 500 glazing options are 9/16" (14.3), 5/8" (15.9), and 1/4" (6.4) (non-impact)
- IR 501 glazing options are 1-5/16" (33.3) and 1" (25.4) (non-impact)
- Permanodic® anodized finishes option
- Painted finishes in standard and custom choices

Optional Features

- Integrated entrance framing
- 350/500 IR - single or pairs of entrances
- Profit$Maker® Plus die sets

Product Applications

- Impact resistant
- Blast mitigation
- Storefront, ribbon window or punched opening
- Low to mid-rise
- Single span

For specific product applications,
consult your Kawneer representative.

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EC 97911-282

Hurricane Resistant Product
Blast Mitigation Product

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

IR 500 Framing

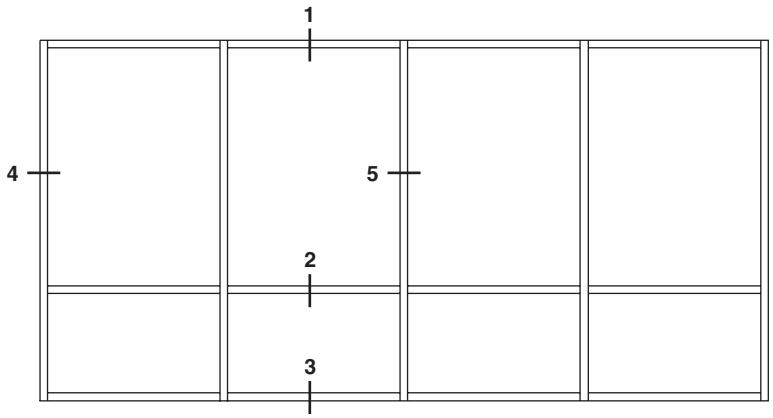
FEBRUARY, 2023

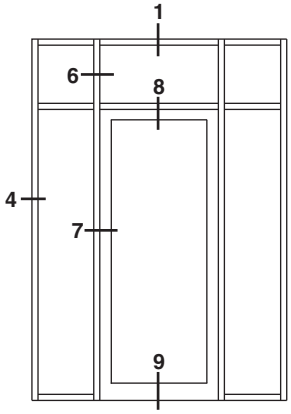
BASIC FRAMING DETAILS

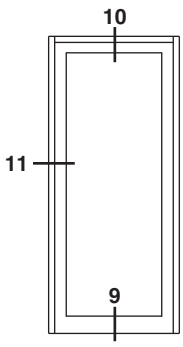
EC 97911-282

Hurricane Resistant Product

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

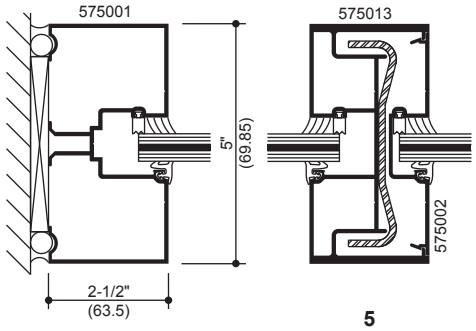




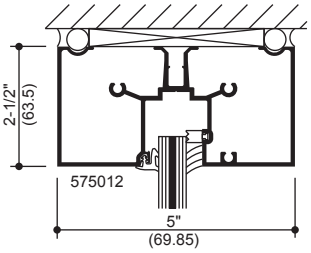


ELEVATION IS NUMBER KEYED TO DETAILS

9/16" INFILL

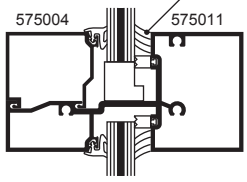


4 JAMB **5 VERTICAL**



1 HEAD

Structural Silicone Sealant (by Others)*



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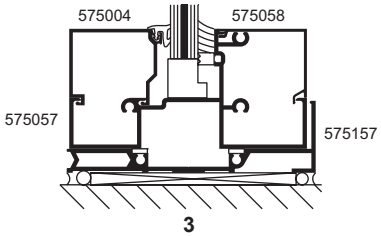
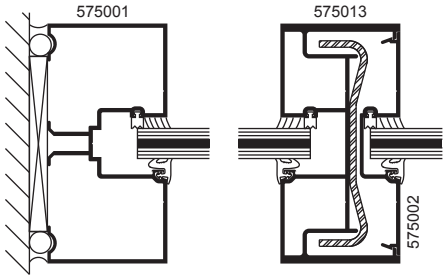


3 SILL

5/8" INFILL



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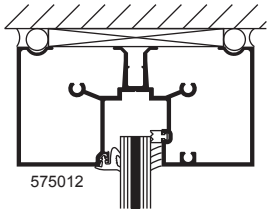
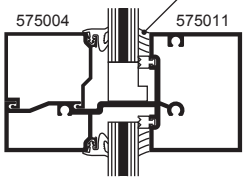


1 HEAD

Structural Silicone Sealant (by Others)*



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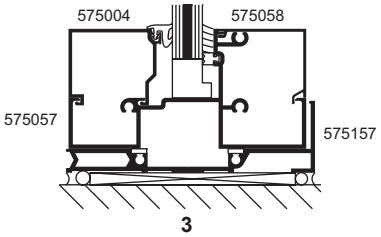
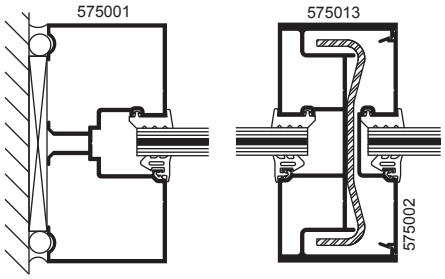


3 SILL

9/16" INFILL (DRY-GLAZED)



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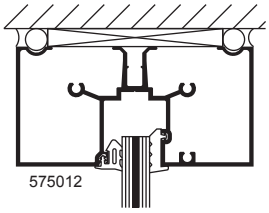

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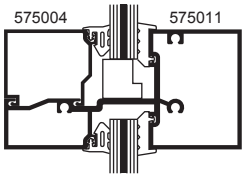

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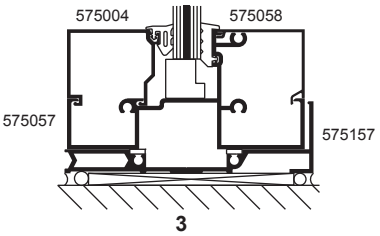

3 SILL

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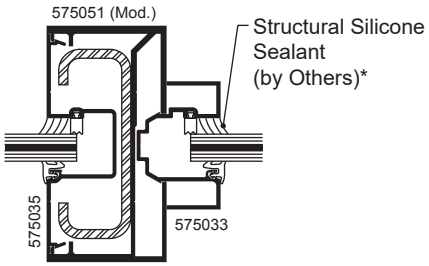
9/16" INFILL	5/8" INFILL	9/16" INFILL (DRY-GLAZED)



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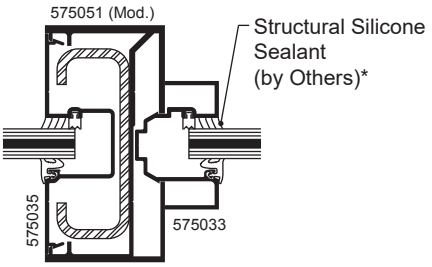
DOOR JAMB AT TRANSOM



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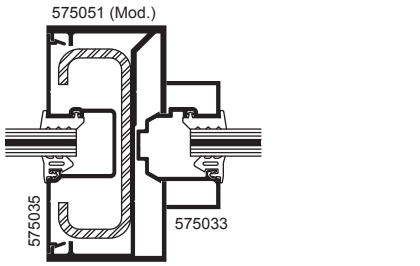

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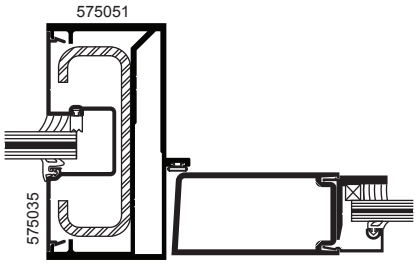

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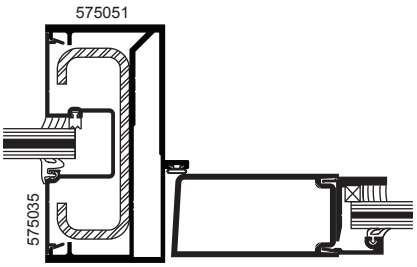

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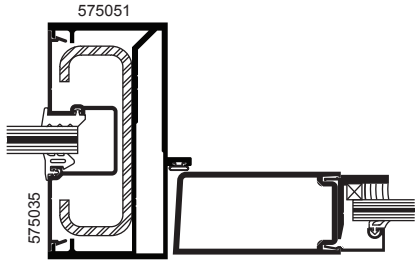

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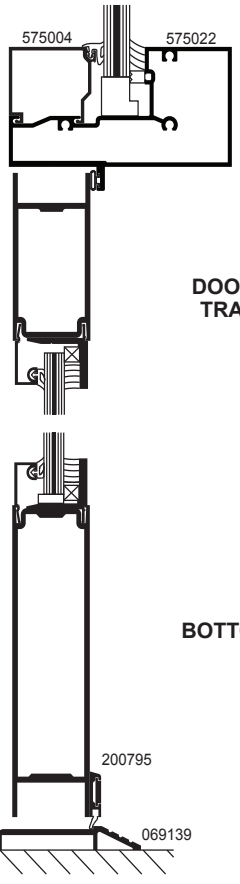
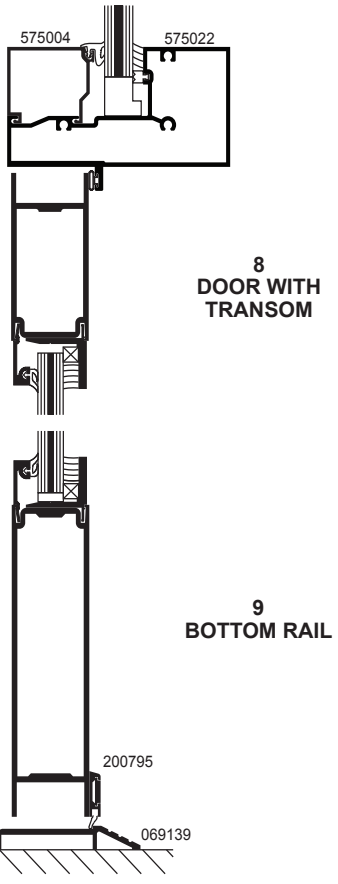


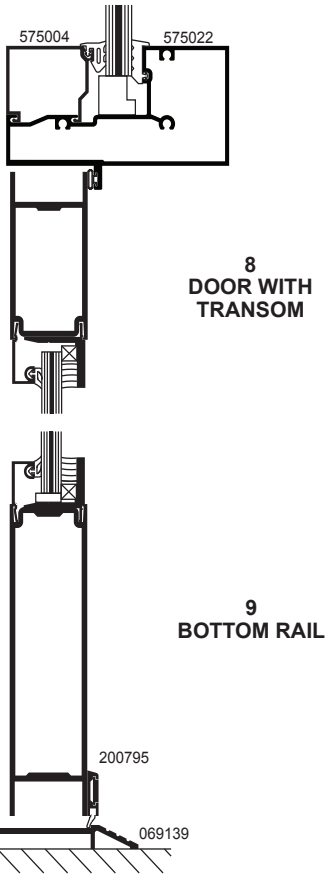
8
DOOR WITH TRANSOM

9
BOTTOM RAIL



8
DOOR WITH TRANSOM

9
BOTTOM RAIL



8
DOOR WITH TRANSOM

9
BOTTOM RAIL

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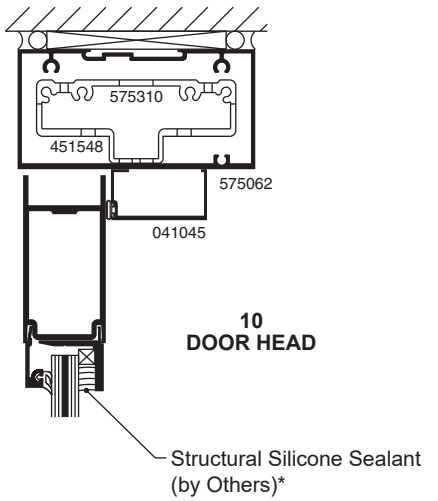
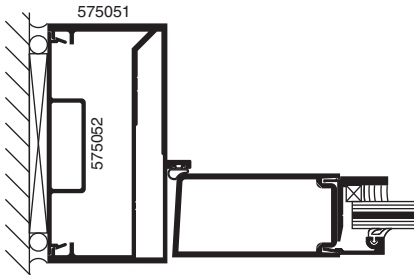
Hurricane Resistant Product

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



10
DOOR HEAD



11
DOOR JAMB

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Hurricane Resistant Product

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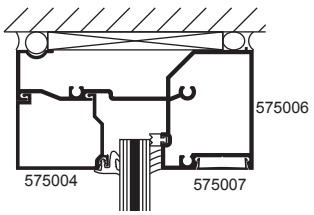
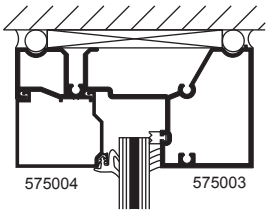
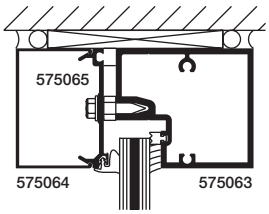
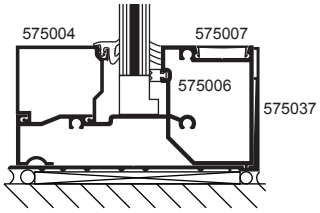
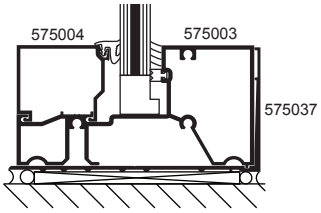




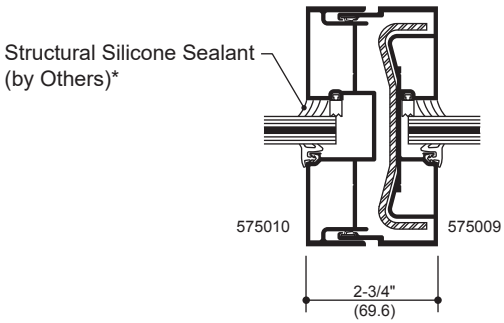


OPTIONAL RADIUS HEAD

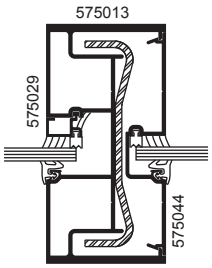




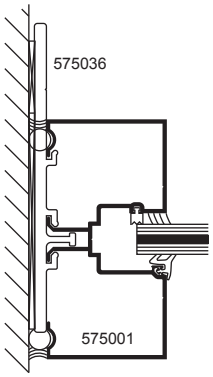
OPTIONAL HEAD & SILL (FOR CONCEALED PERIMETER FASTENERS)

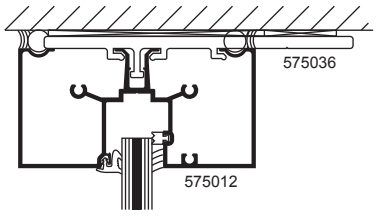


EXPANSION MULLION



1/4" INFILL (NON-IMPACT) GLAZING ADAPTOR





STRAP ANCHORS

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IR 501 Framing

FEBRUARY, 2023

BASIC FRAMING DETAILS

EC 97911-282

Hurricane Resistant Product

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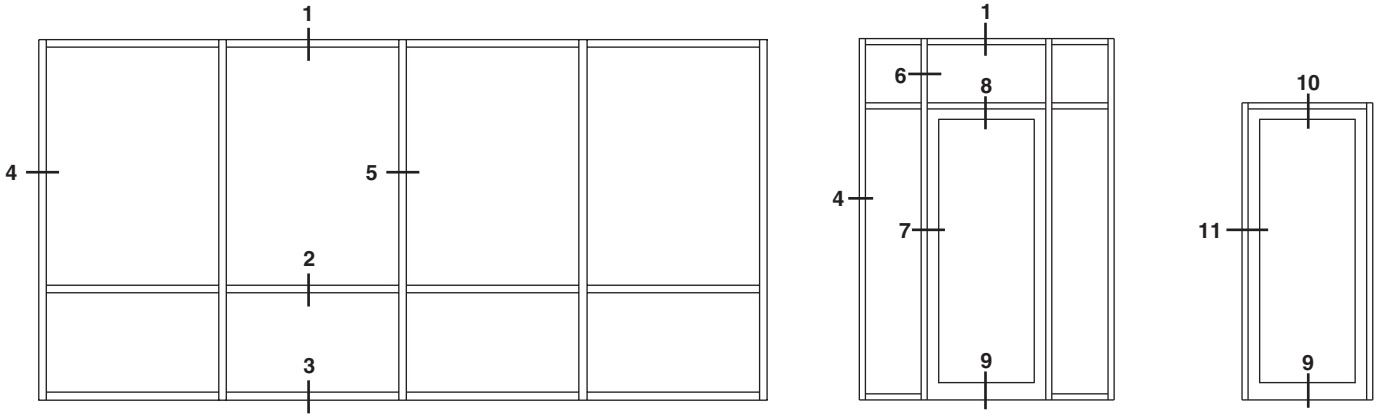
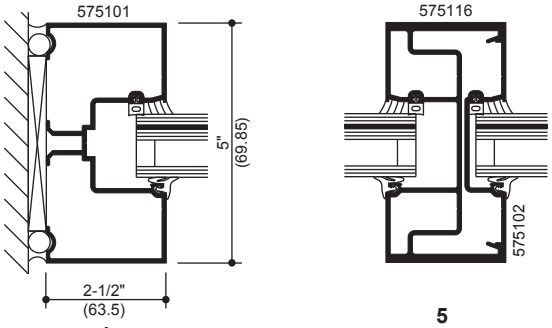
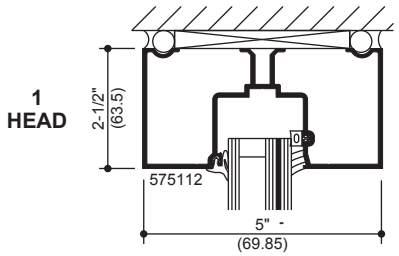


ELEVATIONS ARE NUMBER KEYED TO DETAILS

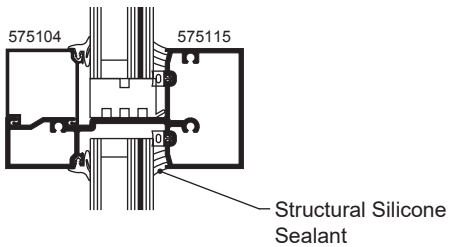
1-5/16" INFILL (WET GLAZED)



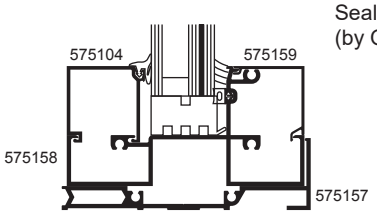
4 JAMB **5 VERTICAL**



1 HEAD

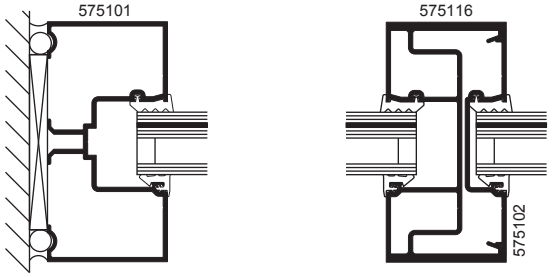


2 HORIZONTAL



3 SILL

1-5/16" INFILL (DRY GLAZED)



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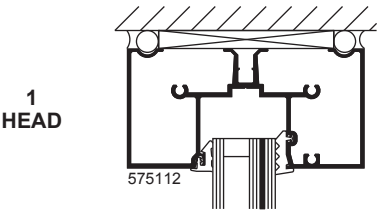
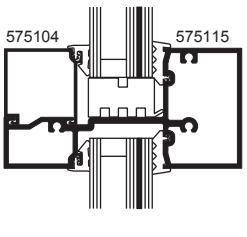


1 HEAD



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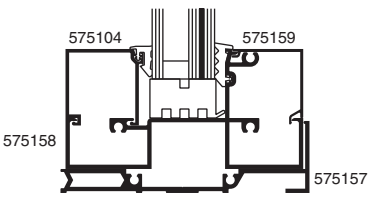

3 SILL

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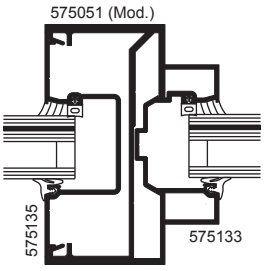
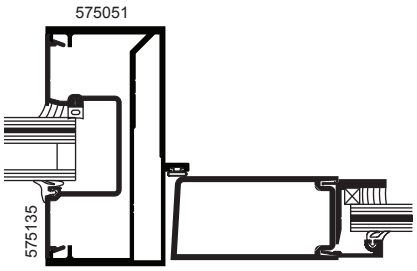
1-5/16" INFILL (WET GLAZED)



6
DOOR JAMB AT TRANSOM



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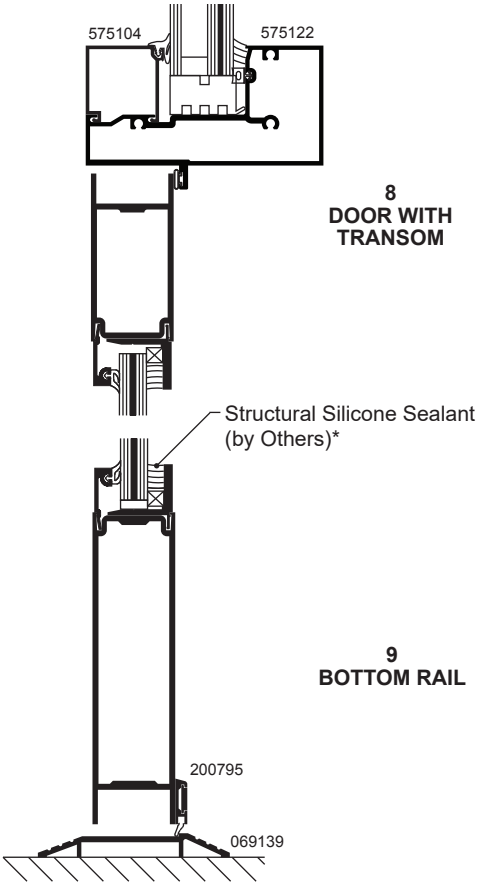
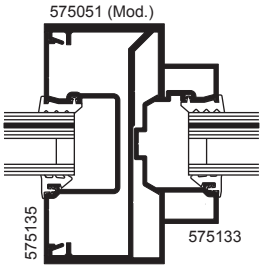
DOOR JAMB



8
DOOR WITH TRANSOM

9
BOTTOM RAIL

1-5/16" INFILL (DRY GLAZED)



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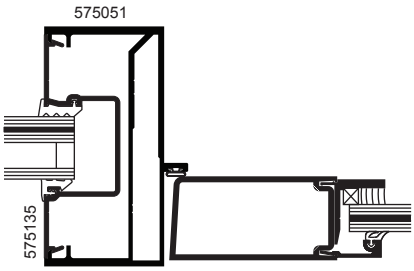
DOOR JAMB AT TRANSOM



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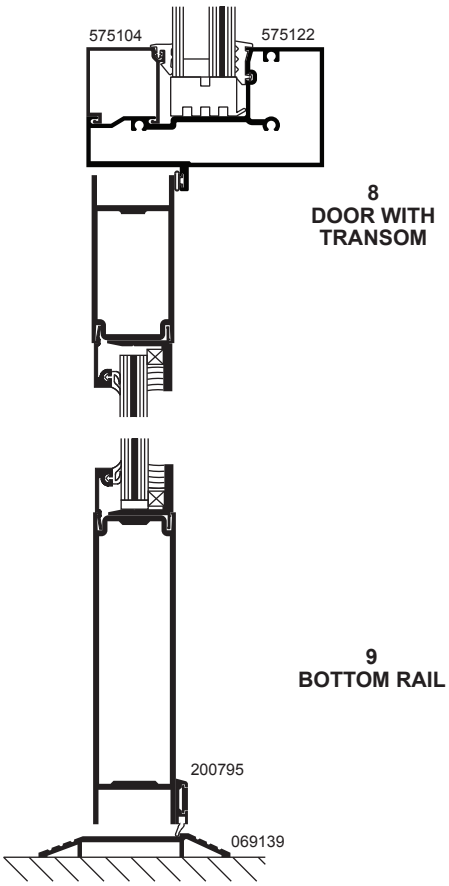
DOOR JAMB



8
DOOR WITH TRANSOM

9
BOTTOM RAIL

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Hurricane Resistant Product

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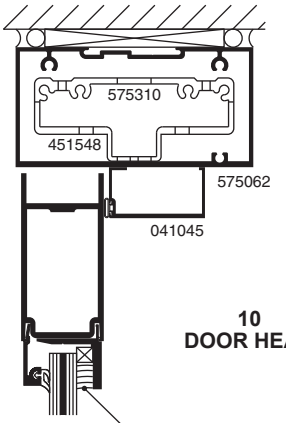
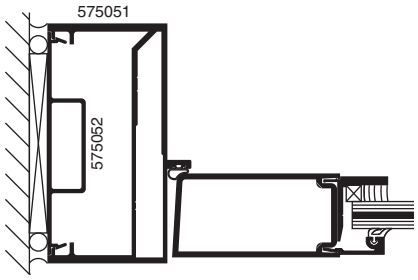


10
DOOR HEAD



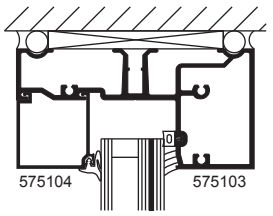
11
DOOR JAMB

Structural Silicone Sealant
(by Others)*

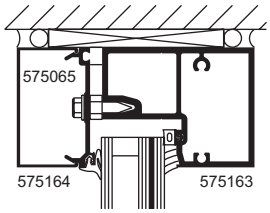
*** INSTALLER NOTE:** Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulated Glass Unit Manufacturers.

Hurricane Resistant Product

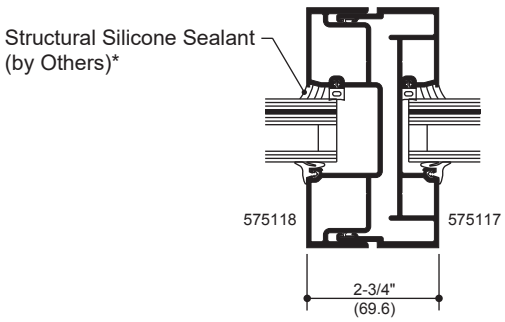
Additional information and CAD details are available at www.kawneer.com



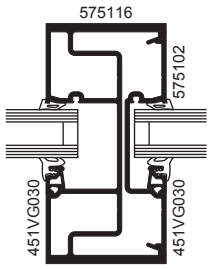
OPTIONAL HEAD WITH STOP



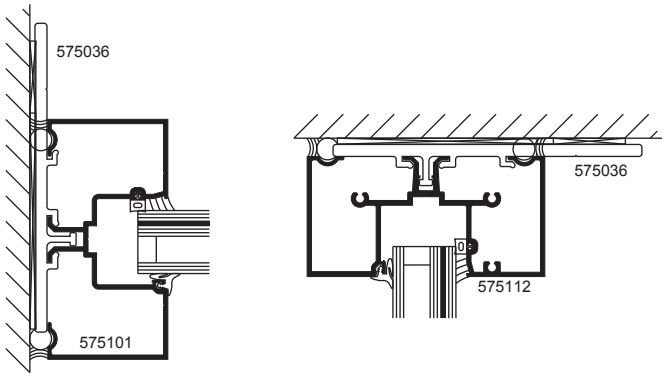
OPTIONAL RADIUS HEAD



EXPANSION MULLION



1" INFILL (NON-IMPACT) GLAZING ADAPTOR



STRAP ANCHORS

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

IR 501 Framing

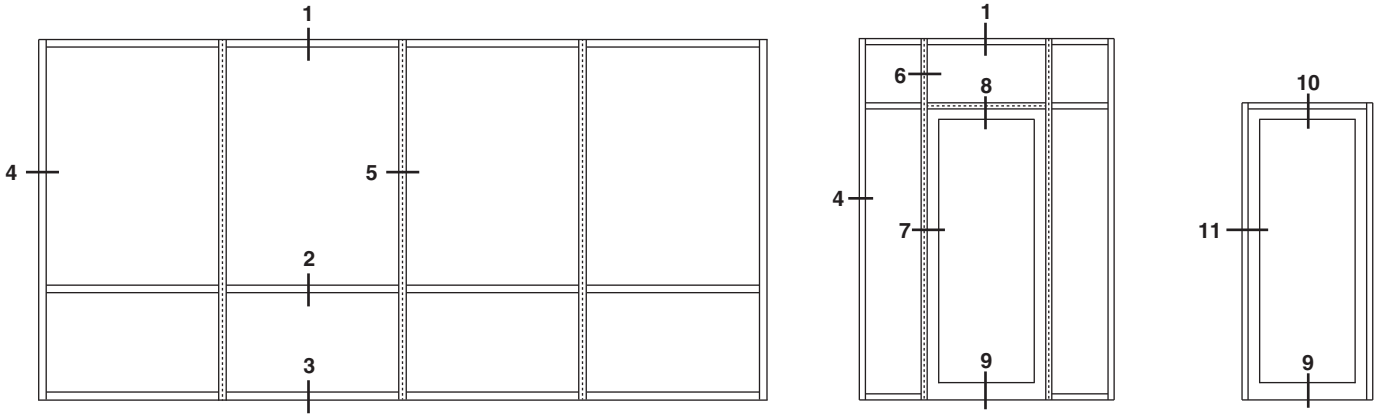
FEBRUARY, 2023

BASIC FRAMING DETAILS

EC 97911-282

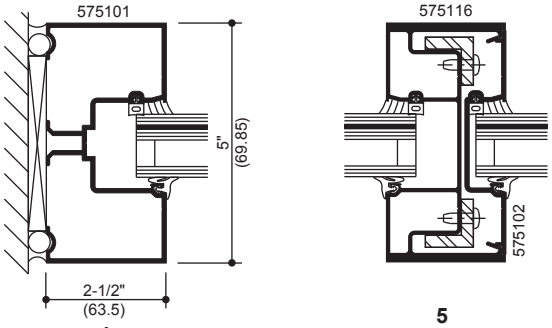
Blast Mitigation Product

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

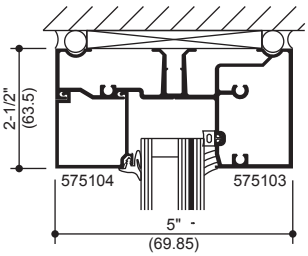


ELEVATIONS ARE NUMBER KEYED TO DETAILS

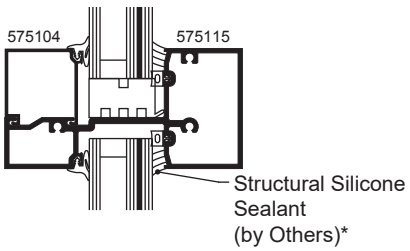
1-5/16" INFILL (WET GLAZED)



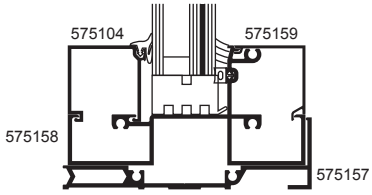
4 JAMB **5 VERTICAL**



1 HEAD

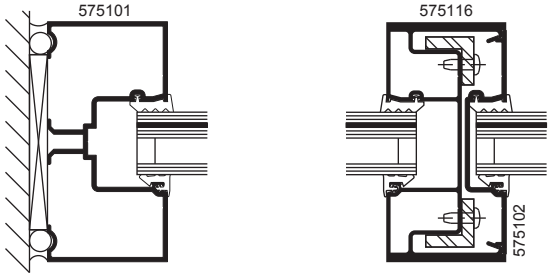


2 HORIZONTAL

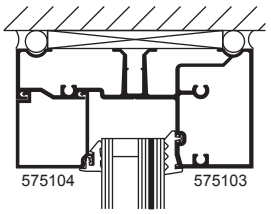


3 SILL

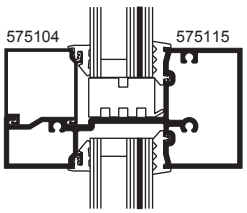
1-5/16" INFILL (DRY GLAZED)



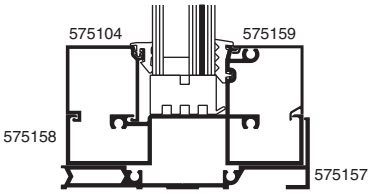
4 JAMB **5 VERTICAL**



1 HEAD



2 HORIZONTAL

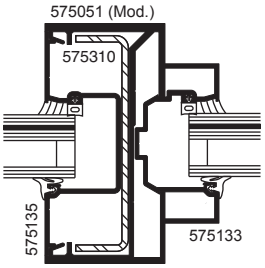


3 SILL

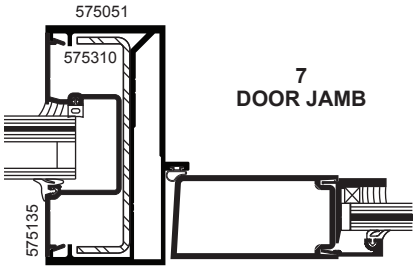
*** INSTALLER NOTE:** Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulated Glass Unit Manufacturers.

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

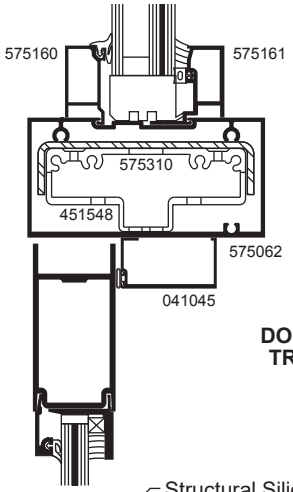
1-5/16" INFILL (WET GLAZED)



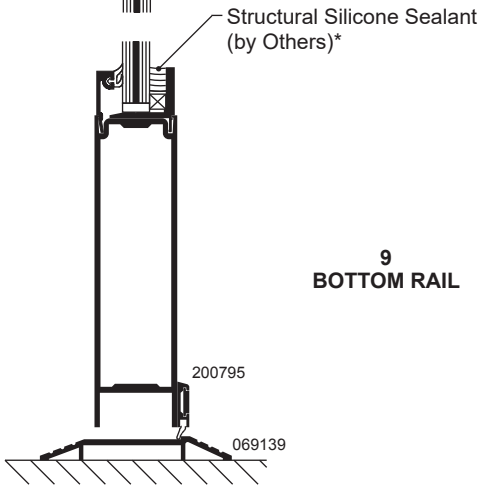
6
DOOR JAMB AT TRANSOM



7
DOOR JAMB

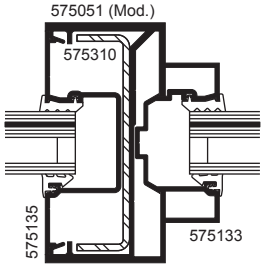


8
DOOR WITH TRANSOM

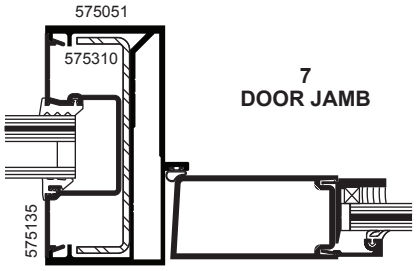


9
BOTTOM RAIL

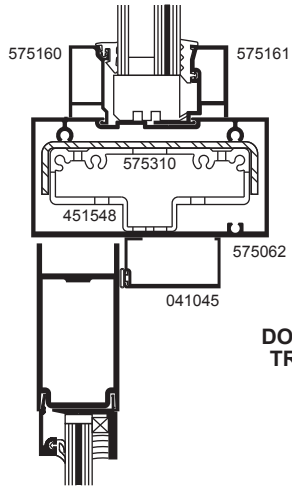
1-5/16" INFILL (DRY GLAZED)



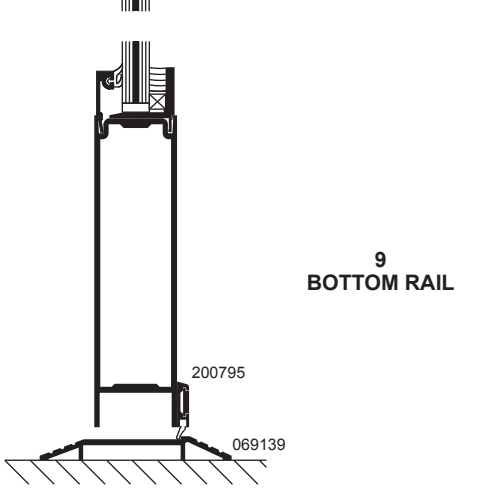
6
DOOR JAMB AT TRANSOM



7
DOOR JAMB



8
DOOR WITH TRANSOM

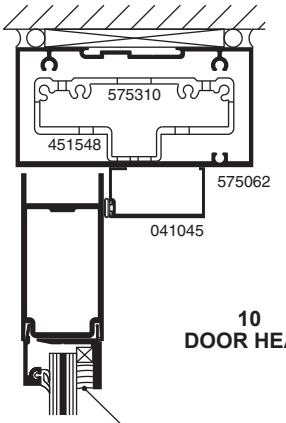


9
BOTTOM RAIL

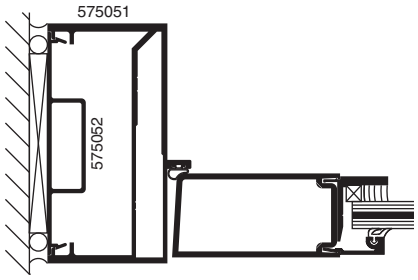
*** INSTALLER NOTE:** Installer is responsible for all required compatibility review and approvals with the Structural Silicone Manufacturer and the Insulated Glass Unit Manufacturers.

Blast Mitigation Product

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



10
DOOR HEAD



11
DOOR JAMB

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

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.

Note:
If the end reaction of the mullion [mullion spacing (ft.) times height (ft.) times specified wind load (psf) divided by two] is more than 500 lbs., the optional Mullion Anchors must be used. Consult Application Engineering. (Mullion Anchor not used with Lightweight Receptor.)

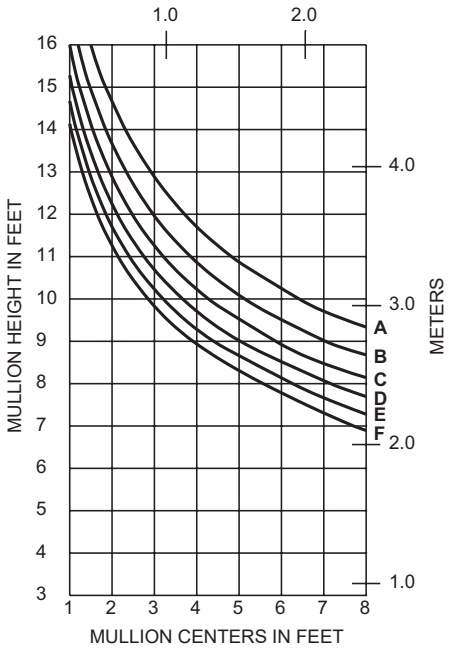
DEADLOAD CHARTS

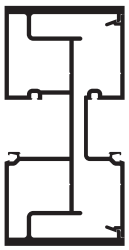
Horizontal or deadload limitations are based upon 1/8" (3.2), maximum allowable deflection at the center of an intermediate horizontal member. The accompanying charts are calculated for 9/16" (14.3) or 5/8" (15.9) thick impact resistant glass or 1-5/16" (33.3) thick insulated impact resistant glass supported on two setting blocks placed at the loading points shown.

Hurricane Resistant Product

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	40 PSF (1920)	67 PSF (3200)
B =	50 PSF (2400)	83 PSF (4000)
C =	60 PSF (2880)	100 PSF (4790)
D =	70 PSF (3360)	117 PSF (5600)
E =	80 PSF (3830)	133 PSF (6380)
F =	90 PSF (4310)	150 PSF (7200)

575013 & 575002 WITH HORIZONTALS

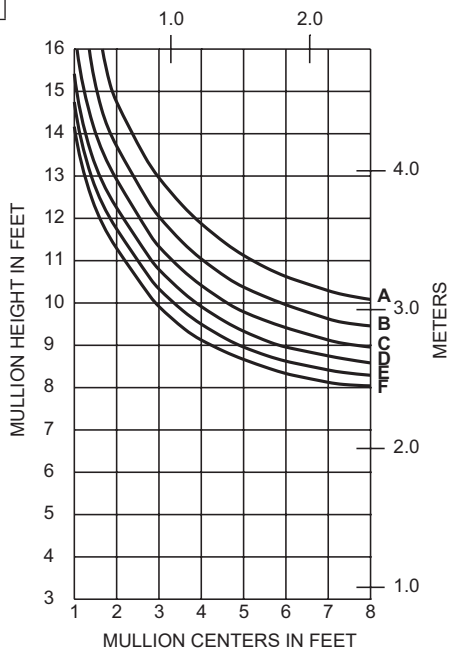




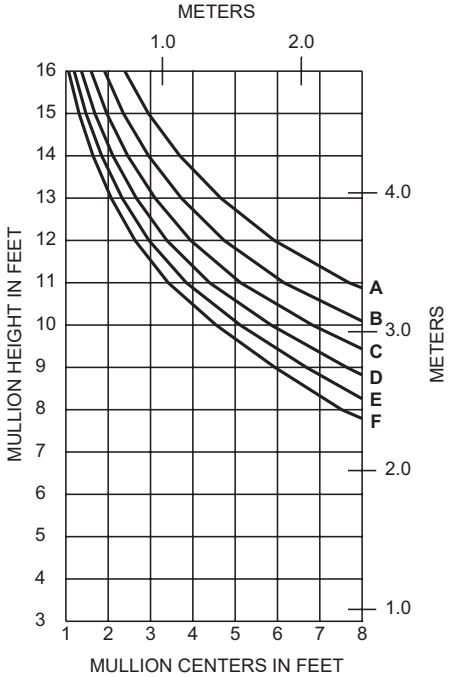
575013/575002

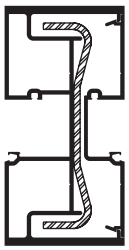
I_A = 8.422 in^4 (350.55 x 10^4 mm^4)
S_A = 3.363 in^3 (55.11 x 10^3 mm^3)

575013 & 575002 WITHOUT HORIZONTALS



575013 & 575002 AND 575110 STEEL WITH HORIZONTALS



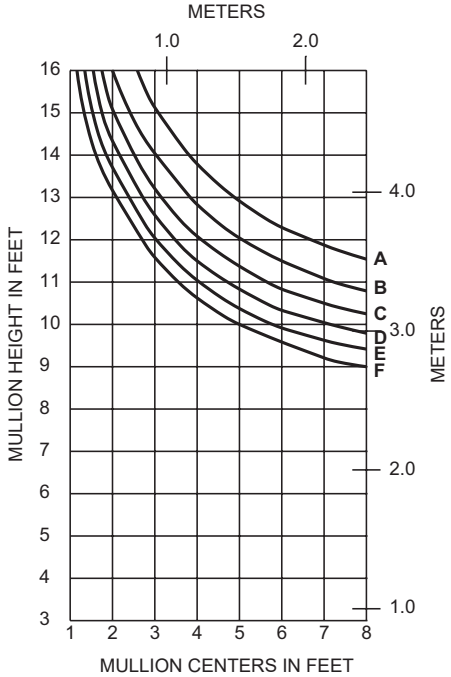


575013/575002 AND 575110 STEEL

I_A = 8.422 in^4 (350.55 x 10^4 mm^4)
S_A = 3.363 in^3 (55.11 x 10^3 mm^3)

I_S = 1.729 in^4 (71.97 x 10^4 mm^4)
S_S = 0.808 in^3 (13.24 x 10^3 mm^3)

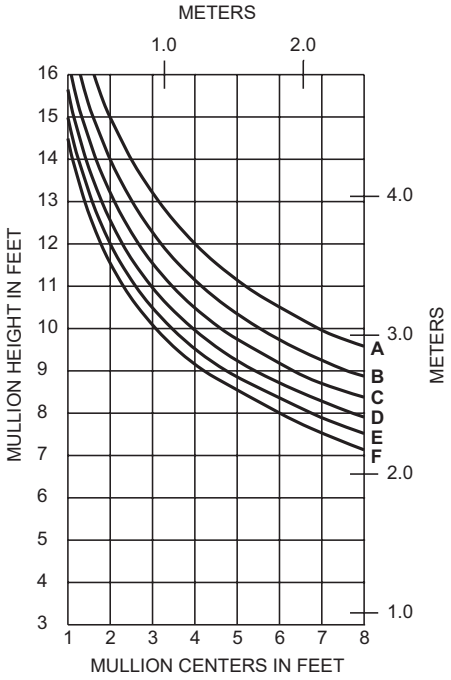
575013 & 575002 AND 575110 STEEL WITHOUT HORIZONTALS

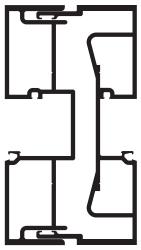


Hurricane Resistant Product

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	40 PSF (1920)	67 PSF (3200)
B =	50 PSF (2400)	83 PSF (4000)
C =	60 PSF (2880)	100 PSF (4790)
D =	70 PSF (3360)	117 PSF (5600)
E =	80 PSF (3830)	133 PSF (6380)
F =	90 PSF (4310)	150 PSF (7200)

575009 & 575010 WITH HORIZONTALS

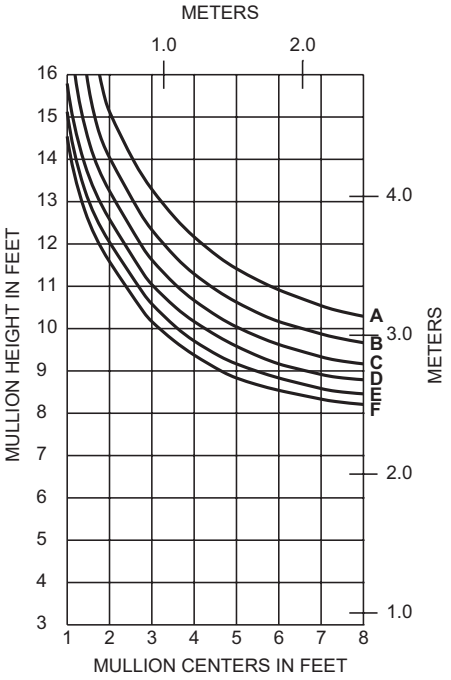




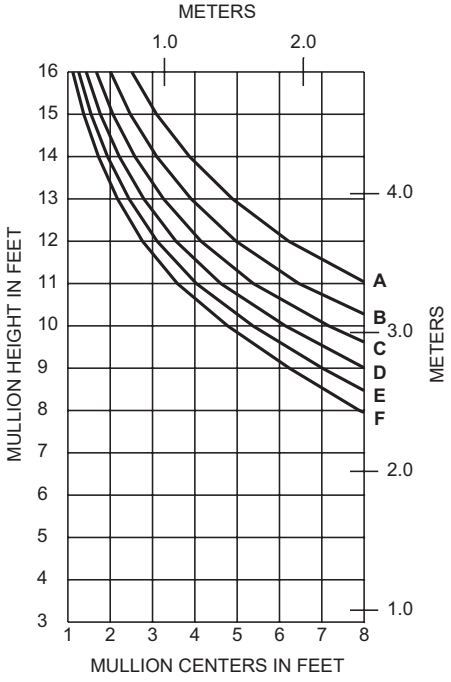
575009/575010

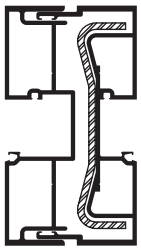
I_A = 9.086 in^4 (378.19 x 10^4 mm^4)
S_A = 3.627 in^3 (59.44 x 10^3 mm^3)

575009 & 575010 WITHOUT HORIZONTALS



575009 & 575010 AND 575110 STEEL WITH HORIZONTALS



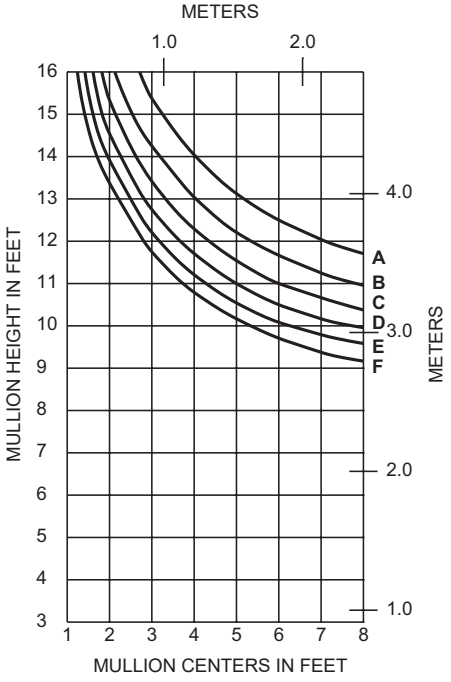


575009/575010 AND 575110 STEEL

I_A = 9.086 in^4 (378.19 x 10^4 mm^4)
S_A = 3.627 in^3 (59.44 x 10^3 mm^3)

I_S = 1.729 in^4 (71.97 x 10^4 mm^4)
S_S = 0.808 in^3 (13.24 x 10^3 mm^3)

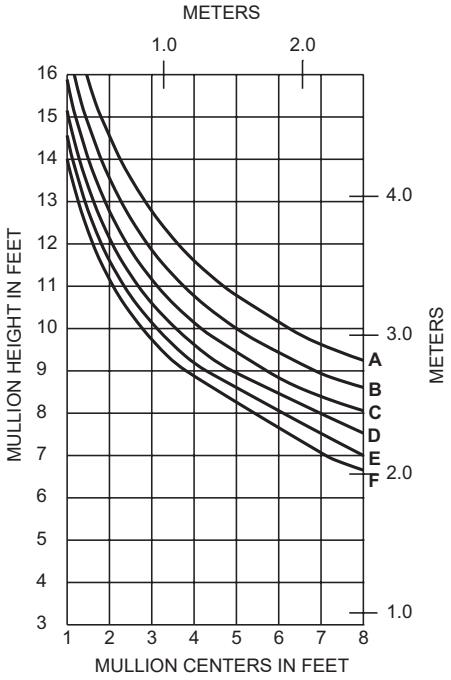
575009 & 575010 AND 575110 STEEL WITHOUT HORIZONTALS

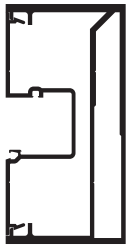


Hurricane Resistant Product

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	40 PSF (1920)	67 PSF (3200)
B =	50 PSF (2400)	83 PSF (4000)
C =	60 PSF (2880)	100 PSF (4790)
D =	70 PSF (3360)	117 PSF (5600)
E =	80 PSF (3830)	133 PSF (6380)
F =	90 PSF (4310)	150 PSF (7200)

575050 & 575035 WITH HORIZONTALS

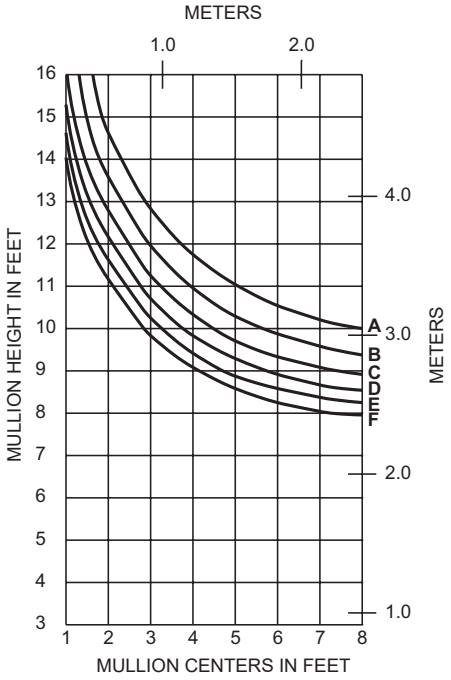




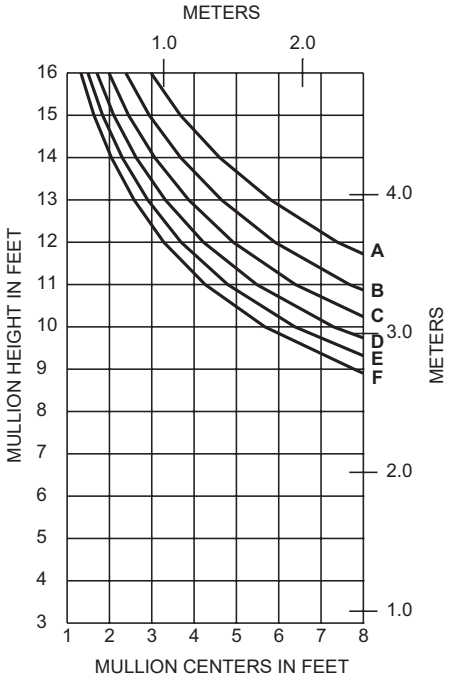
575050/575035

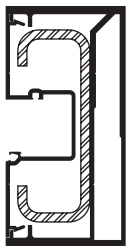
I_A = 8.209 in^4 (341.68 x 10^4 mm^4)
S_A = 3.105 in^3 (50.88 x 10^3 mm^3)

575050 & 575035 WITHOUT HORIZONTALS



575050 & 575035 AND 575111 STEEL WITH HORIZONTALS

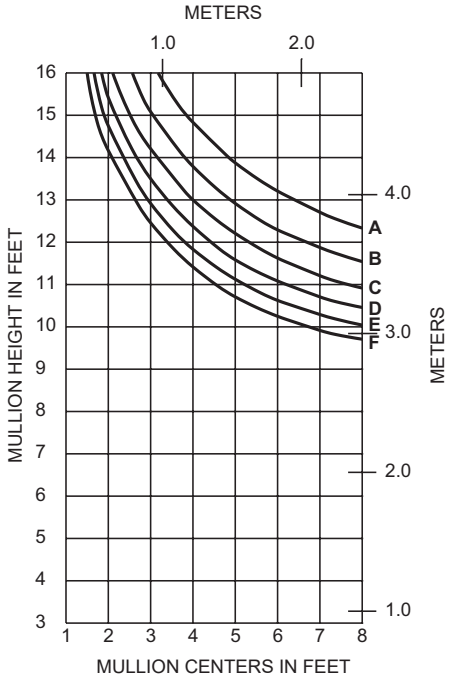




575050/575035 AND 575111 STEEL

I_A = 8.209 in^4 (341.68 x 10^4 mm^4)
S_A = 3.105 in^3 (50.88 x 10^3 mm^3)
I_S = 1. 729 in^4 (71.97 x 10^4 mm^4)
S_S = 0. 808 in^3 (13.24 x 10^3 mm^3)

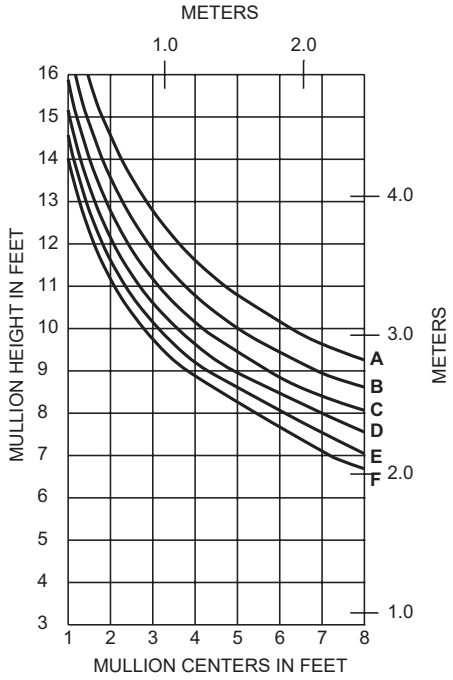
575050 & 575035 AND 575111 STEEL WITHOUT HORIZONTALS

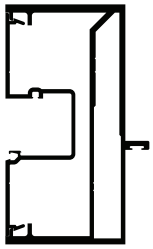


Hurricane Resistant Product

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	40 PSF (1920)	67 PSF (3200)
B =	50 PSF (2400)	83 PSF (4000)
C =	60 PSF (2880)	100 PSF (4790)
D =	70 PSF (3360)	117 PSF (5600)
E =	80 PSF (3830)	133 PSF (6380)
F =	90 PSF (4310)	150 PSF (7200)

575051 & 575035 WITH HORIZONTALS

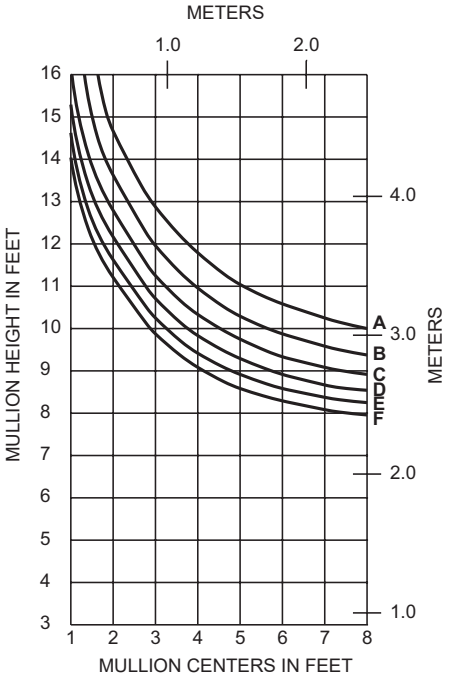




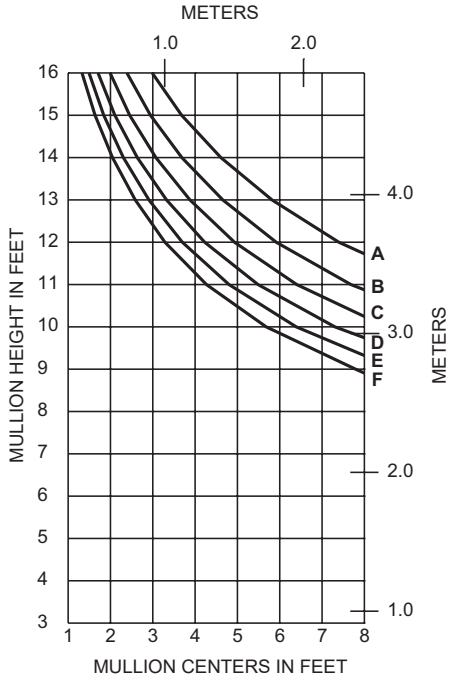
575051/575035

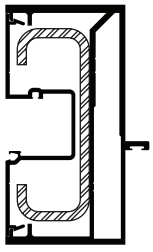
I_A = 8.233 in^4 (342.68 x 10^4 mm^4)
S_A = 3.138 in^3 (51.42 x 10^3 mm^3)

575051 & 575035 WITHOUT HORIZONTALS



575051 & 575035 AND 575111 STEEL WITH HORIZONTALS



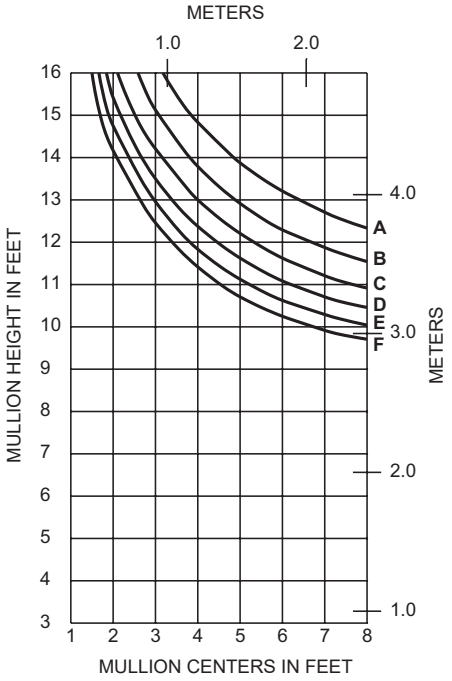


575051/575035 AND 575111 STEEL

I_A = 8.233 in^4 (342.68 x 10^4 mm^4)
S_A = 3.138 in^3 (51.42 x 10^3 mm^3)

I_S = 2.946 in^4 (122.62 x 10^4 mm^4)
S_S = 1.473 in^3 (24.14 x 10^3 mm^3)

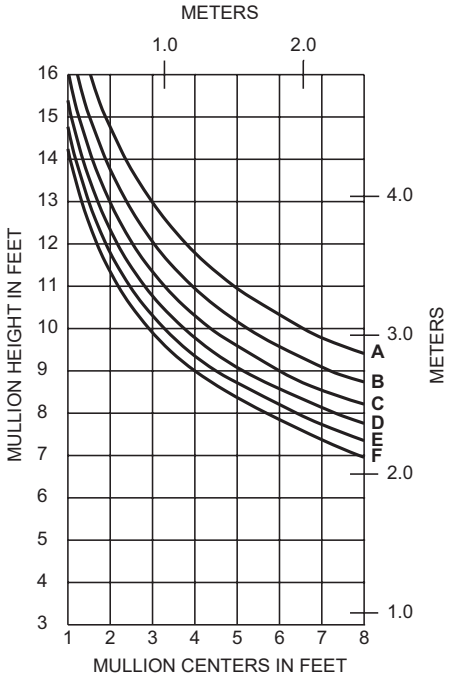
575051 & 575035 AND 575111 STEEL WITHOUT HORIZONTALS

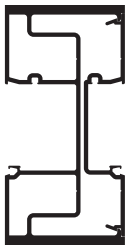


Hurricane Resistant Product

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	40 PSF (1920)	67 PSF (3200)
B =	50 PSF (2400)	83 PSF (4000)
C =	60 PSF (2880)	100 PSF (4790)
D =	70 PSF (3360)	117 PSF (5600)
E =	80 PSF (3830)	133 PSF (6380)
F =	90 PSF (4310)	150 PSF (7200)

575116 & 575102
WITH HORIZONTALS

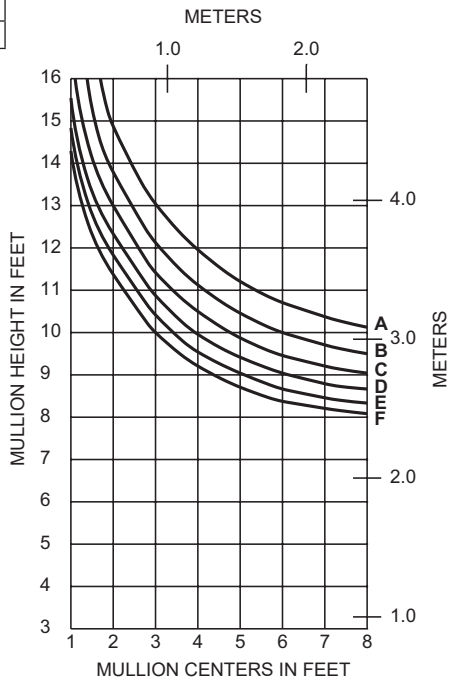




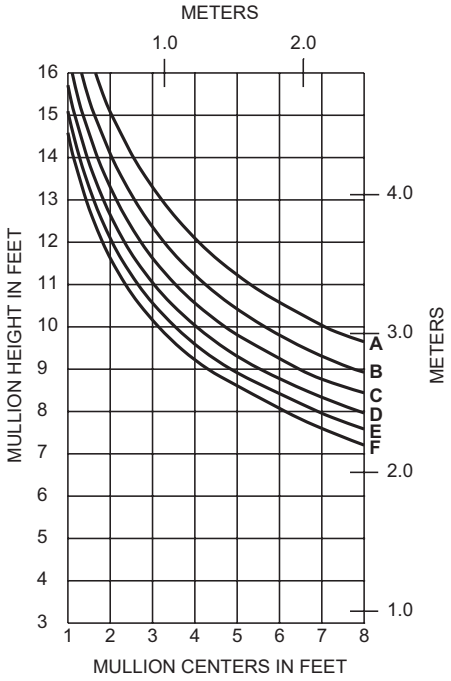
575116/575102

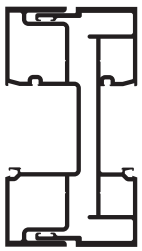
I_A = 8.612 in^4 (358.46 x 10^4 mm^4)
S_A = 3.669 in^3 (60.12 x 10^3 mm^3)

575116 & 575102
WITHOUT HORIZONTALS



575117 & 575118
WITH HORIZONTALS

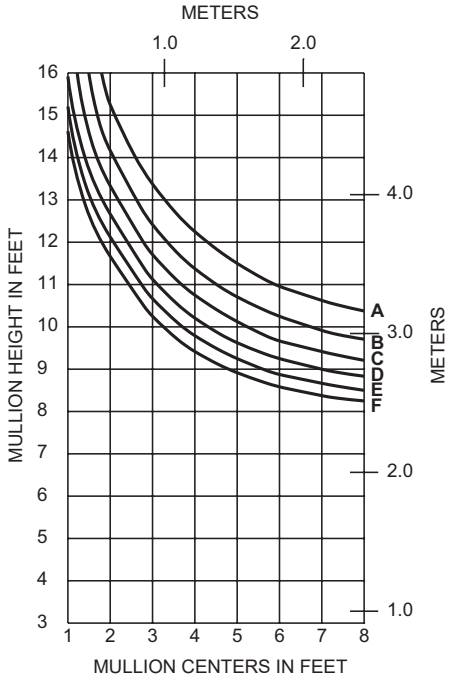




575117/575118

I_A = 9.285 in^4 (386.47 x 10^4 mm^4)
S_A = 3.704 in^3 (60.70 x 10^3 mm^3)

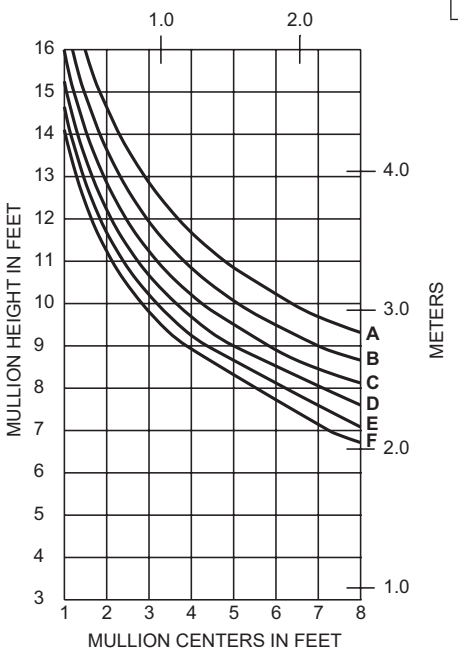
575117 & 575118
WITHOUT HORIZONTALS

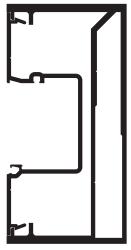


Hurricane Resistant Product

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	40 PSF (1920)	67 PSF (3200)
B =	50 PSF (2400)	83 PSF (4000)
C =	60 PSF (2880)	100 PSF (4790)
D =	70 PSF (3360)	117 PSF (5600)
E =	80 PSF (3830)	133 PSF (6380)
F =	90 PSF (4310)	150 PSF (7200)

575050 & 575135 WITH HORIZONTALS

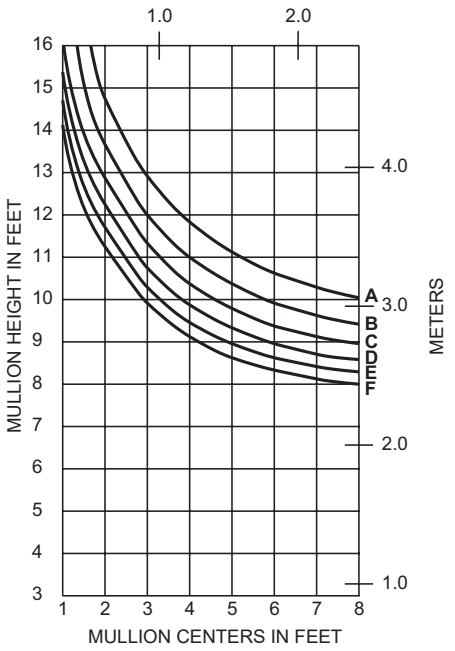




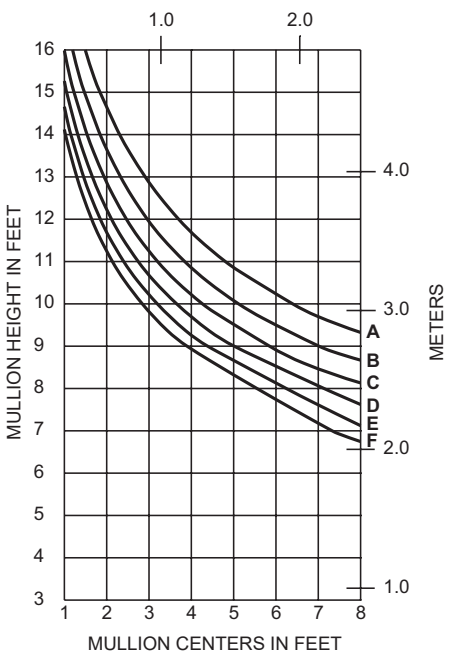
575050/575135

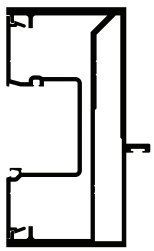
I_A = 8.371 in^4 (348.43 x 10^4 mm^4)
S_A = 3.166 in^3 (51.88 x 10^3 mm^3)

575050 & 575135 WITHOUT HORIZONTALS



575051 & 575135 WITH HORIZONTALS

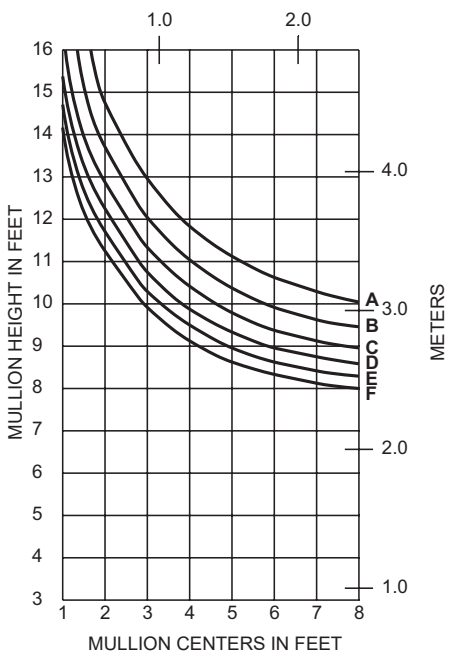




575051/575135

I_A = 8.393 in^4 (349.34 x 10^4 mm^4)
S_A = 3.200 in^3 (52.44 x 10^3 mm^3)

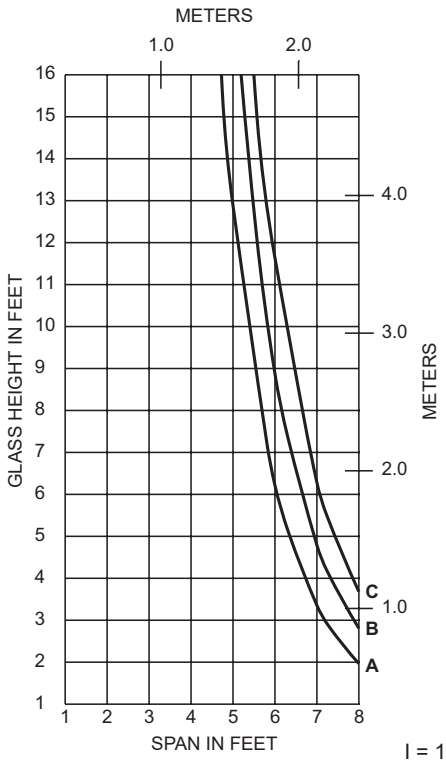
575051 & 575135 WITHOUT HORIZONTALS

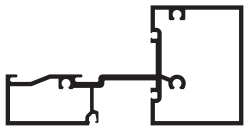


Hurricane Resistant Product

A = (1/4 POINT LOADING)
B = (1/6 POINT LOADING)
C = (1/8 POINT LOADING)

575011

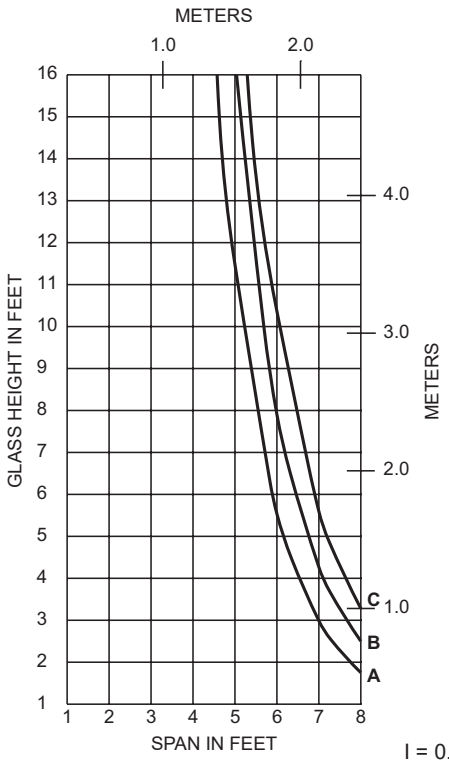


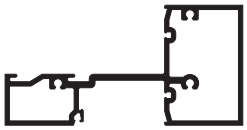


575011
(IR 500)

I = 1.043 in^4 (43.41 x 10^4 mm^4)
S = 0.697 in^3 (11.42 x 10^3 mm^3)

575115





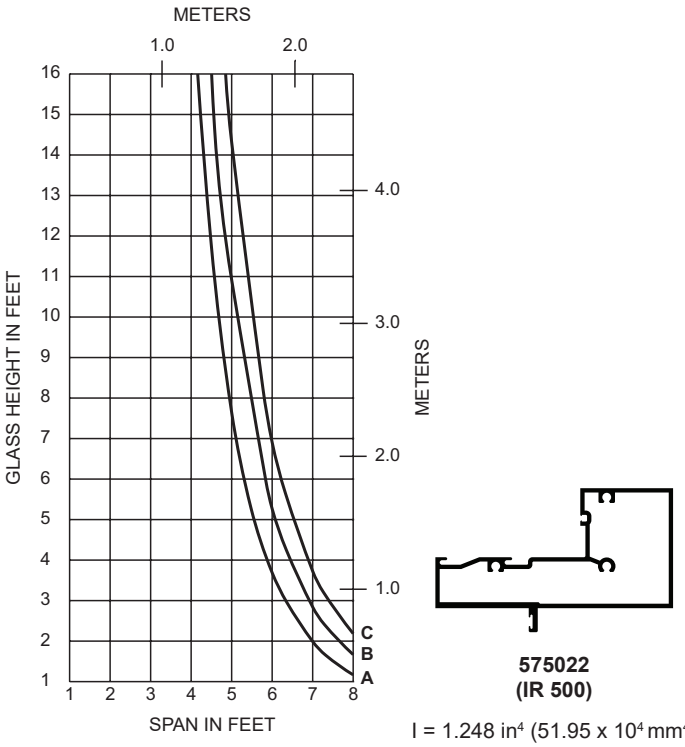
575115
(IR 501)

I = 0.929 in^4 (38.67 x 10^4 mm^4)
S = 0.620 in^3 (10.16 x 10^3 mm^3)

DEADLOADS ON ENTRANCE TRANSOM BARS

Height limitations for transom glass over a doorway are based on a 1/16" (1.6) maximum allowable deflection at the center of a transom bar. The accompanying chart is calculated for 9/16" or 5/8" thick impact resistant glass or 1-5/16" thick insulated impact resistant glass supported on two setting blocks placed at the loading points shown.

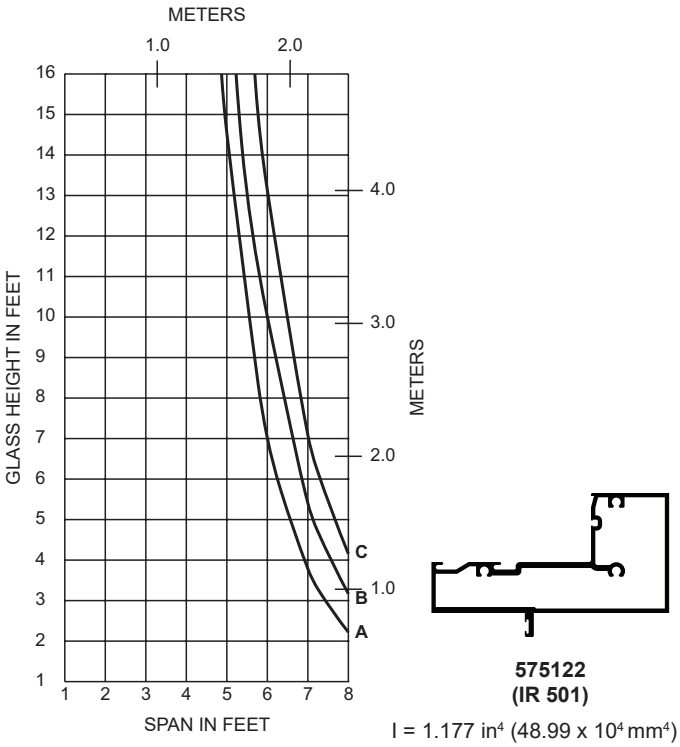
575022 HORIZONTAL



575022
(IR 500)

I = 1.248 in^4 (51.95 x 10^4 mm^4)
S = 0.777 in^3 (12.73 x 10^3 mm^3)

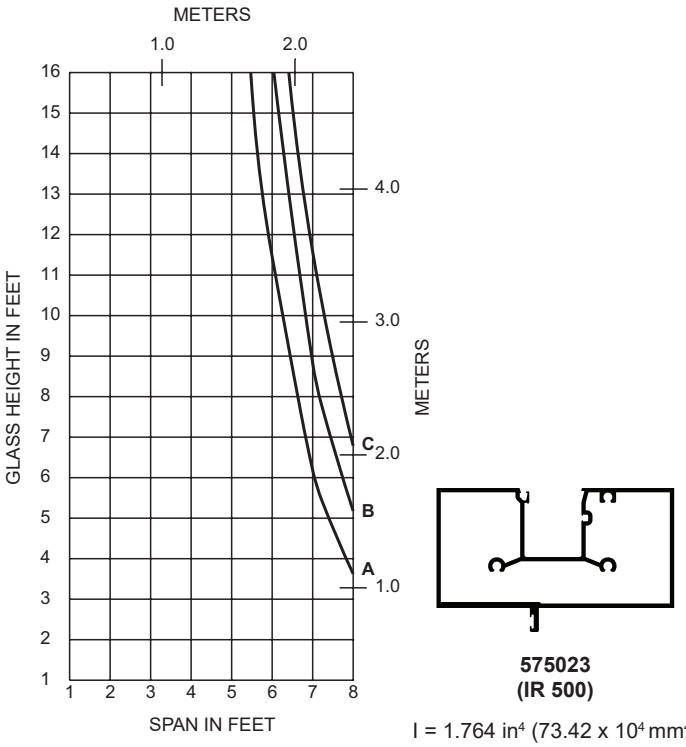
575122 HORIZONTAL



575122
(IR 501)

I = 1.177 in^4 (48.99 x 10^4 mm^4)
S = 0.722 in^3 (11.83 x 10^3 mm^3)

575023 HORIZONTAL



575023
(IR 500)

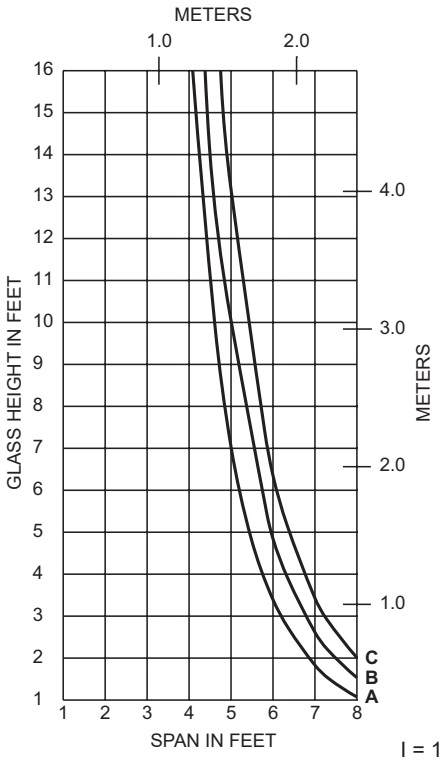
I = 1.764 in^4 (73.42 x 10^4 mm^4)
S = 1.081 in^3 (17.71 x 10^3 mm^3)

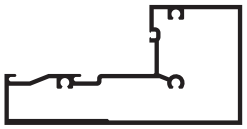
A = (1/4 POINT LOADING)
B = (1/6 POINT LOADING)
C = (1/8 POINT LOADING)

Hurricane Resistant Product

A = (1/4 POINT LOADING)
B = (1/6 POINT LOADING)
C = (1/8 POINT LOADING)

575020

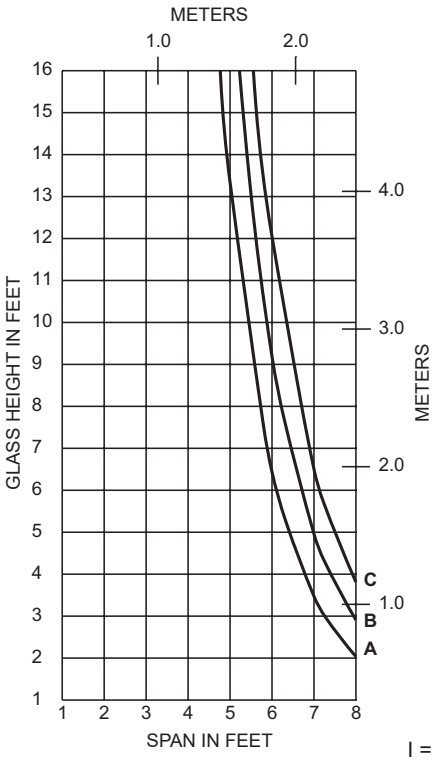




575020
(IR 500)

I = 1.148 in^4 (47.78 x 10^4 mm^4)
S = 0.751 in^3 (12.31 x 10^3 mm^3)

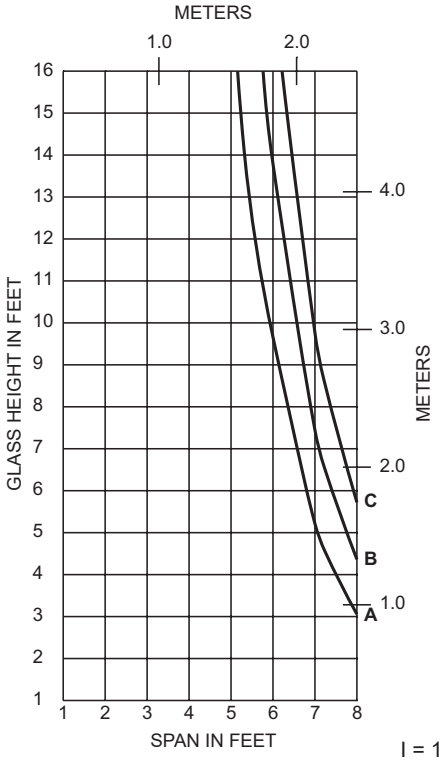
575120

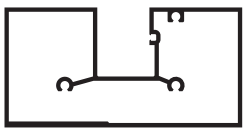


575120
(IR 501)

I = 1.080 in^4 (44.95 x 10^4 mm^4)
S = 0.683 in^3 (11.19 x 10^3 mm^3)

575021



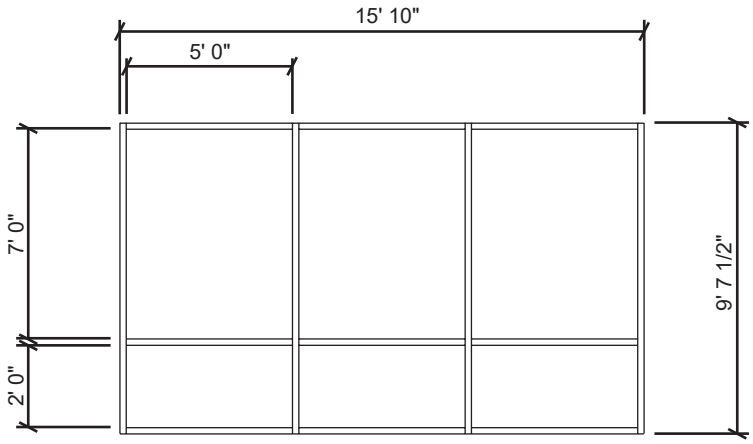


575021
(IR 500)

I = 1.621 in^4 (67.47 x 10^4 mm^4)
S = 1.234 in^3 (20.22 x 10^3 mm^3)

Hurricane Resistant Product

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



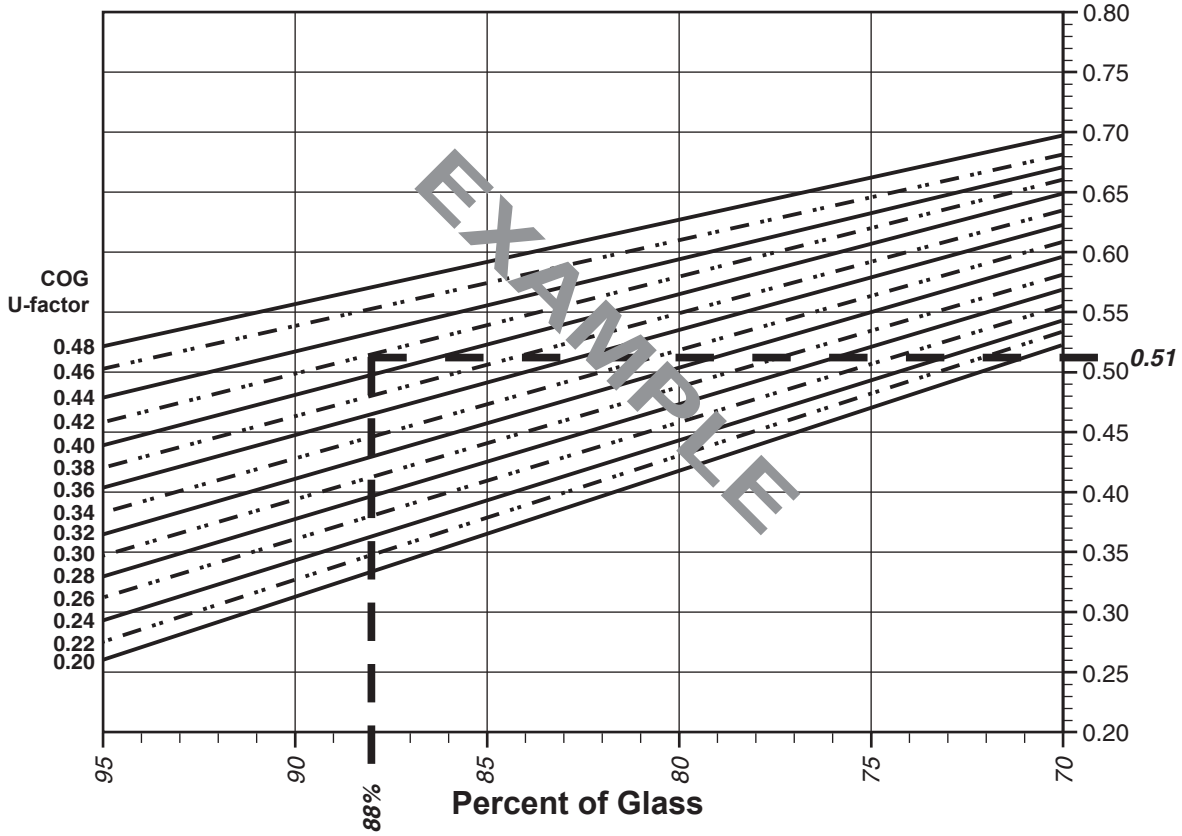
Example Glass U-factor = 0.42 Btu/hr·ft²·°F

Total Daylight Opening = 3(5' x 7') + 3(5' x 2') = 135ft²

Total Projected Area = (Total Daylight Opening + Total Area of Framing System)
= 15' 10" x 9' 7 1/2" = 152.39ft²

Percent of Glass = (Total Daylight Opening ÷ Total Projected Area)
= (135 ÷ 152.39)100 = 88%

System U-factor vs Percent of Glass Area

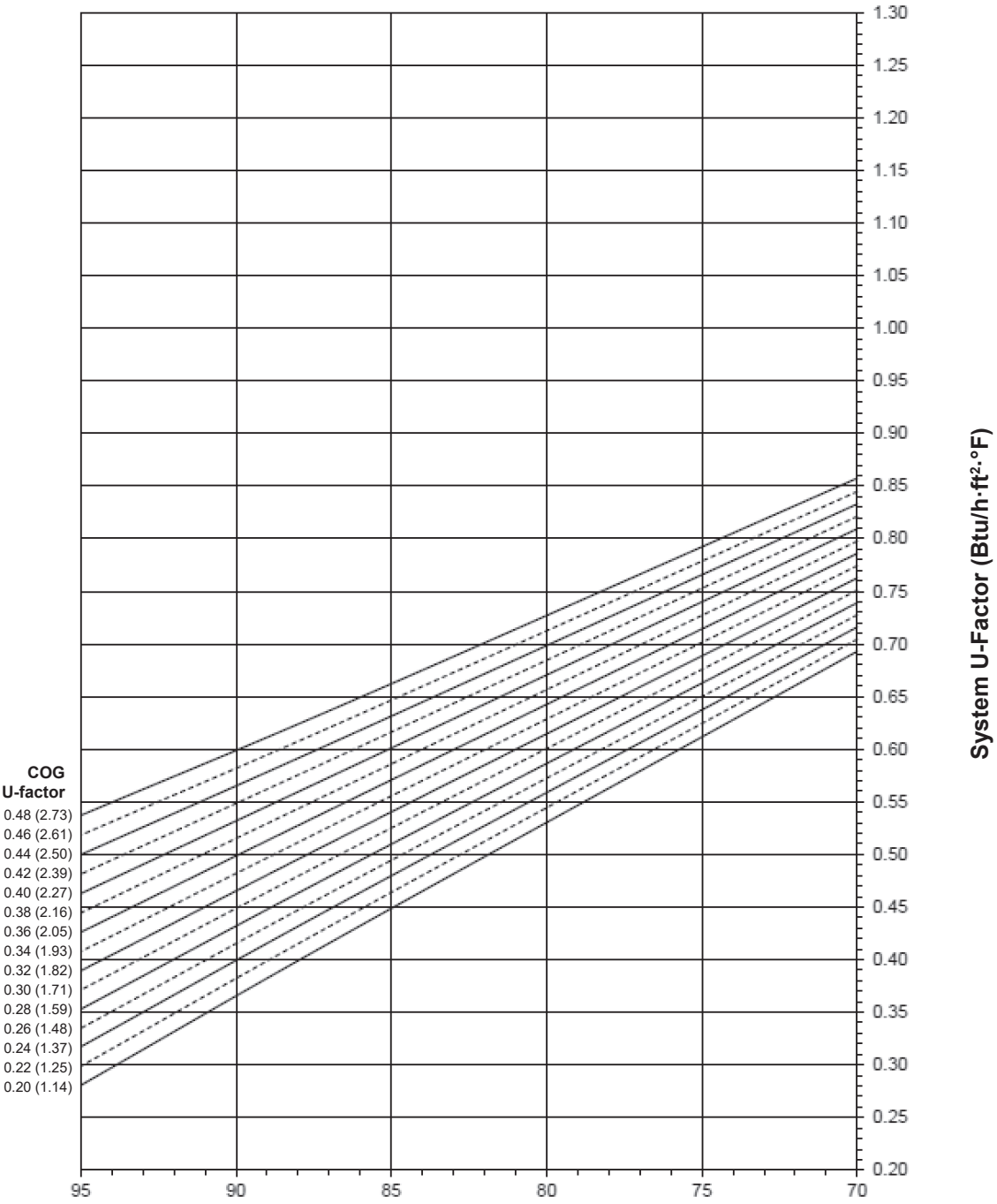


Based on 88% glass and center of glass (COG) U-factor of 0.42
System U-factor is equal to 0.51 Btu/hr x ft² x °F

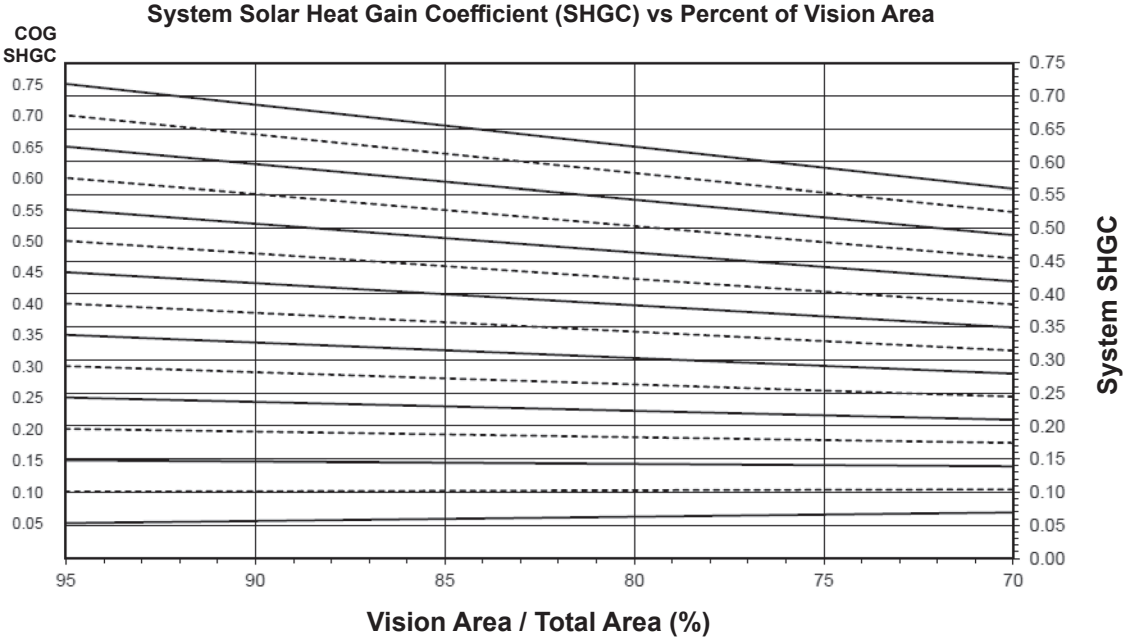
Hurricane Resistant Product

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

System U-Factor for Vision Glass

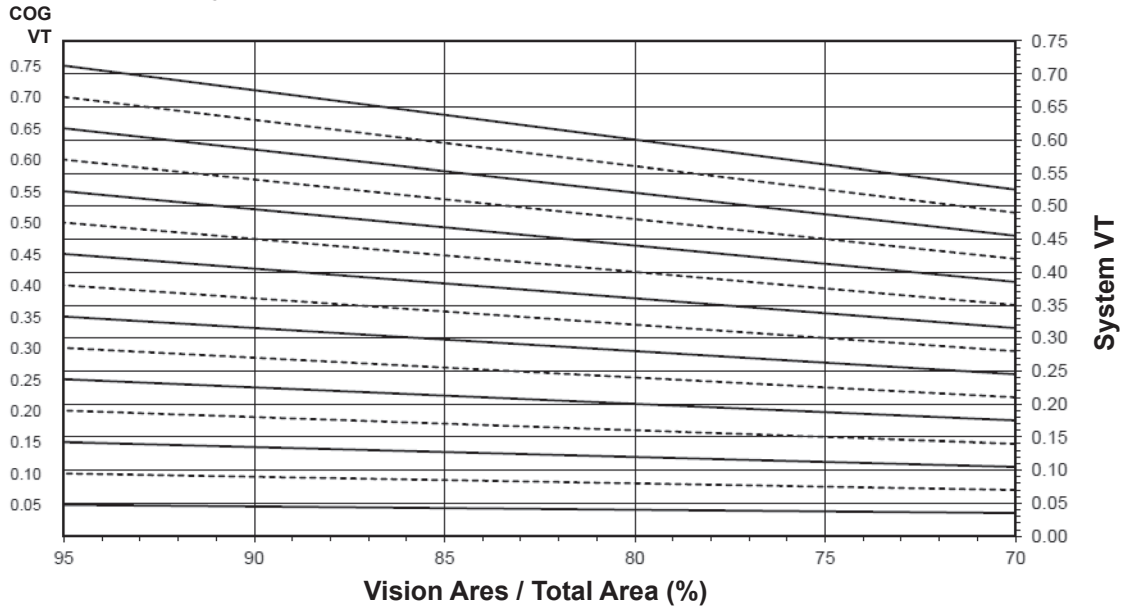


System Solar Heat Gain Coefficient (SHGC) vs Percent of Vision Area



Charts are generated per AAMA 507.

System Visible Transmittance (VT) vs Percent of Vision Area



Charts are generated per AAMA 507.

Hurricane Resistant Product

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

Glass U-Factor [3]	Overall U-Factor [4]
0.48	0.62
0.46	0.63
0.44	0.62
0.42	0.60
0.40	0.59
0.38	0.57
0.36	0.56
0.34	0.54
0.32	0.52
0.30	0.51
0.28	0.49
0.26	0.48
0.24	0.46
0.22	0.45
0.20	0.43

IR 501 Framing

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

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

SHGC Matrix [2]

Glass SHGC [3]	Overall SHGC [4]
0.75	0.66
0.70	0.62
0.65	0.58
0.60	0.53
0.55	0.49
0.50	0.45
0.45	0.40
0.40	0.36
0.35	0.32
0.30	0.27
0.25	0.23
0.20	0.19
0.15	0.15
0.10	0.10
0.05	0.06

Visible Transmittance [2]

Glass VT [3]	Overall VT [4]
0.75	0.65
0.70	0.60
0.65	0.56
0.60	0.52
0.55	0.47
0.50	0.43
0.45	0.39
0.40	0.34
0.35	0.30
0.30	0.26
0.25	0.22
0.20	0.17
0.15	0.13
0.10	0.09
0.05	0.04