Features

- System depth of 4-1/2" (114.3)
- Available as OX, XO, OXO and OXXO configurations, common mullion allows for additional fixed lites to be stacked (OOX and XOO)
- Infill range from 1/4" (6.4) to 1" (25.4)
- Heavy duty steel ball-bearing, tandem roller assembly
- Stainless steel track insert for sliding panels
- Corrosion-resistant stainless steel locks and fasteners
- Permanodic™ anodized finishes in seven choices
- Painted finishes in standard and custom choices

Optional Features

- Expansion mullion allows for multiple units to be stacked
- Horizontal cross rails available
- Optional interior insect screens available

Product Applications

- The 990 Sliding Door is designed for low to high rise applications for use in condominiums, hotel and apartments

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

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

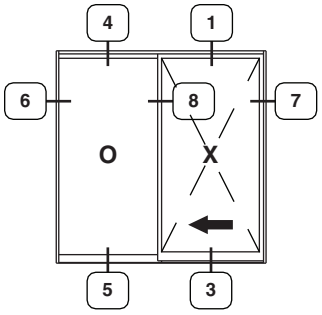
m – meter
cm – centimeter
mm – millimeter
s – second
Pa – pascal
MPa – megapascal

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

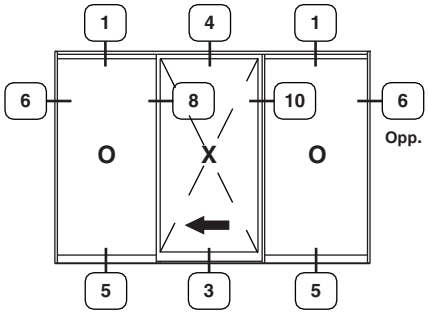
TYPICAL ELEVATIONS

ELEVATIONS ARE NUMBER KEYED TO DETAILS ON THE FOLLOWING PAGES

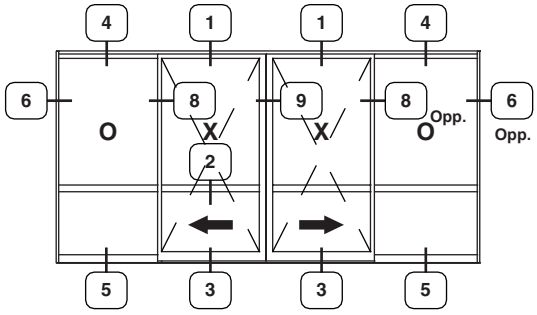
Note: Elevations shown with "Sub-Sash" framing in the fixed lite.



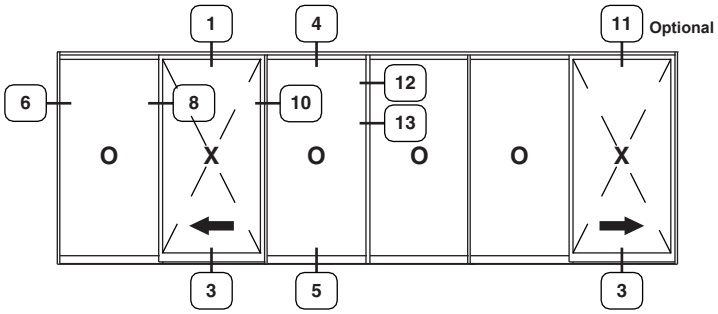
OX UNIT



OXO UNIT

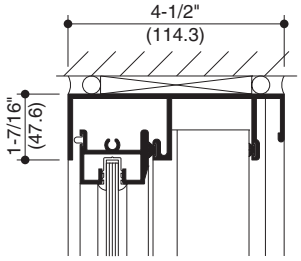


OXXO UNIT

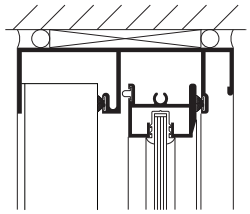


OXO BESIDE OOX UNIT

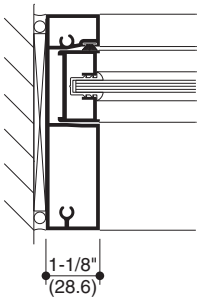
Note: 1/4" infill shown. See Glazing Options for other infills.



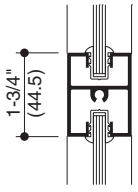
1
HEAD
AT SLIDING PANEL



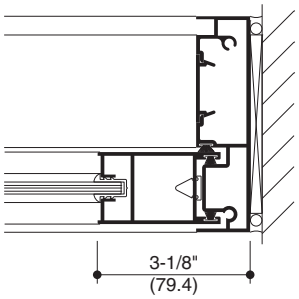
4
HEAD
AT FIXED PANEL



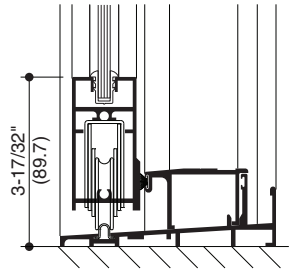
6
JAMB
AT FIXED PANEL



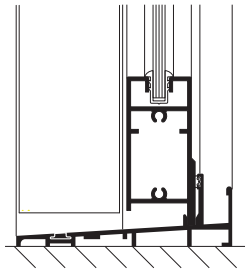
2
OPTIONAL HORIZONTAL
AT SLIDING PANEL



7
JAMB
AT SLIDING PANEL

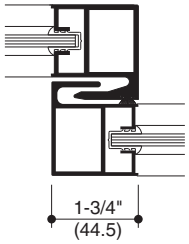
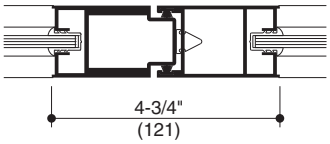
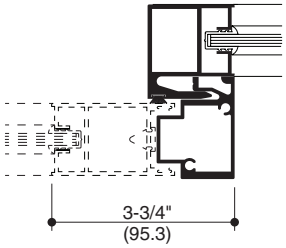
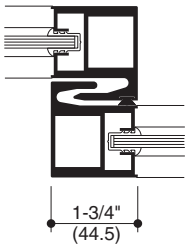
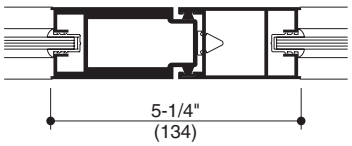
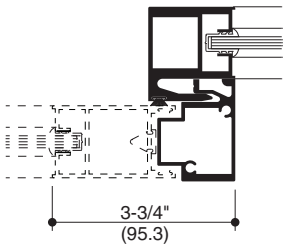
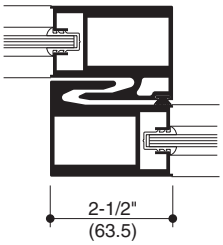
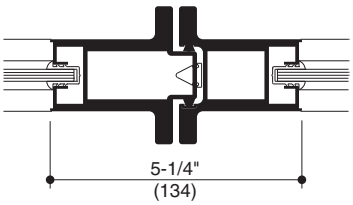
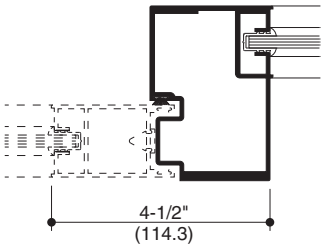


3
SILL
AT SLIDING PANEL

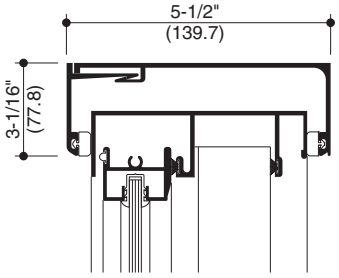


5
SILL
AT FIXED PANEL

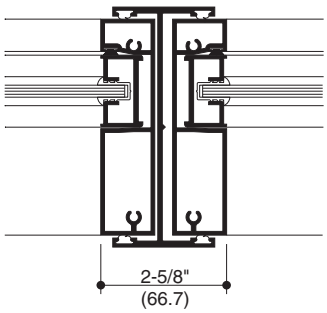
Additional information and CAD details are available at www.kawneer.com

	8 INTERLOCK STILE	9 OXXO MEETING STILES	10 LOCK STILE MULLION WITH 1848 LOCK
STANDARD RANGE			
MID-RANGE			
MAXIMUM RANGE			

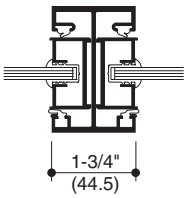
OPTIONAL MEMBERS



11
HEAD RECEPTOR
(EXTERIOR INSTALLED)



12
EXPANSION MULLION

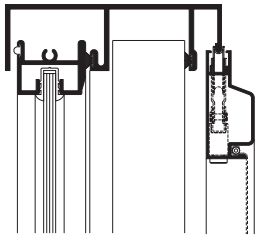


13
FIXED STILE MULLION

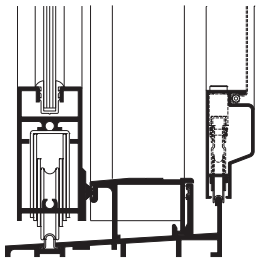
Additional information and CAD details are available at www.kawneer.com

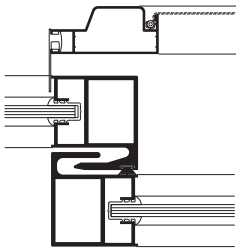
TYPICAL SCREEN DETAILS

HEAD

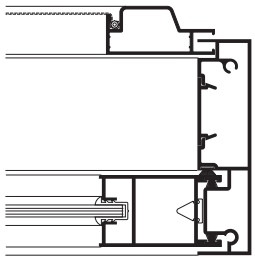


SILL





INTERLOCK



LOCK JAMB

NOTE:
Standard Screen includes plated steel hardware.
Optional Screen available with stainless steel hardware.

INFILL OPTIONS

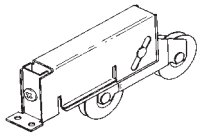
1/4" (6.4)

3/8" (9.5)

5/8" (15.9)

1" (25.4)

STANDARD CASTER

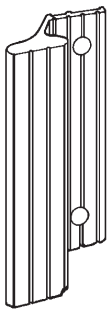


BUMPER

1-Point Lock	Handles	Exterior	Option	Interior	Option
	Extruded Pulls	Blank (Std)	1	Slide Operator (Std)	3
		Blank	1	Thumbturn	4
		Basic Cylinder (5/8")	2	Thumbturn	4
	Flush Pulls	Blank	5	Slide Operator	7
		Basic Cylinder (5/8")	6	Slide Operator	7

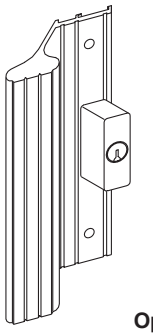
EXTERIOR HANDLES

Extruded Pulls



Option 1

Blank Pull
(Standard)



Option 2

Basic Cylinder (5/8") Pull

Flush Pulls

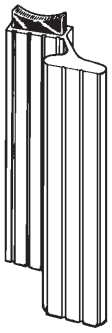
Option 5

Blank Pull

Option 6

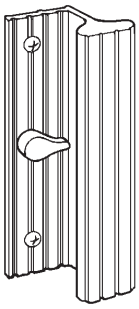
Basic Cylinder (5/8") Pull

INTERIOR HANDLES



Option 3

Slide Operator Pull
(Standard)

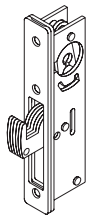


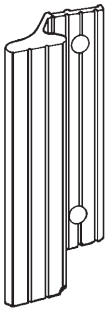
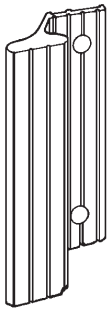
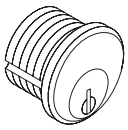
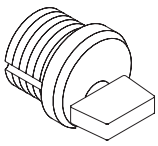
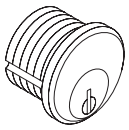
Option 4

Thumb Pull

Option 7

Slide Operator Pull

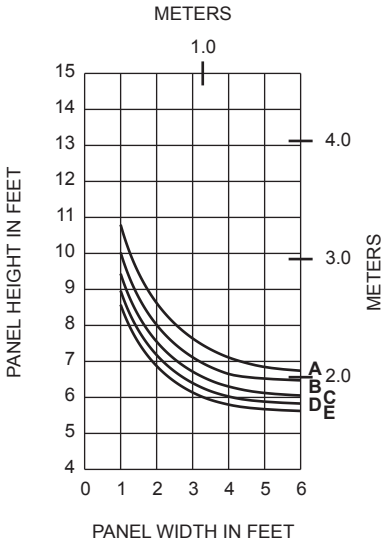
MS Hook Bolt Lock	Handles	Exterior	Option	Interior	Option
	Extruded Pulls	Blank	1	Blank	1
		Mortise Cylinder	9	Mortise Cylinder	9
		Blank	1	Blank	1
		Mortise Cylinder	9	Thumbturn	10
		Blank	1	Blank	1
		---	---	Thumbturn	10
		Blank	1	Blank	1
		---	---	Mortise Cylinder	9
	Flush Pulls	Blank	5	Blank	8
		Mortise Cylinder	9	Mortise Cylinder	9
		Blank	5	Blank	5
		Mortise Cylinder	9	Thumbturn	10
		Blank	5	Blank	5
		---	---	Thumbturn	10
		Blank	5	Blank	5
		---	---	Mortise Cylinder	9

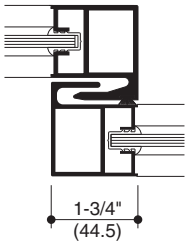
EXTERIOR HANDLES	INTERIOR HANDLES
Extruded Pulls	
 **Option 1**	 **Option 1**
Blank Pull	Blank Pull
Flush Pulls	
 **Option 5**	 **Option 8**
Blank Pull	Blank Pull
EXTERIOR	**INTERIOR**
 **Option 9**	 **Option 10**  **Option 9**
Mortise Cylinder	Thumbturn Mortise Cylinder

WIND LOAD CHARTS

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

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	25 PSF (1200)	42 PSF (2000)
C =	30 PSF (1440)	50 PSF (2400)
D =	40 PSF (1920)	67 PSF (3200)
E =	50 PSF (2400)	83 PSF (4000)

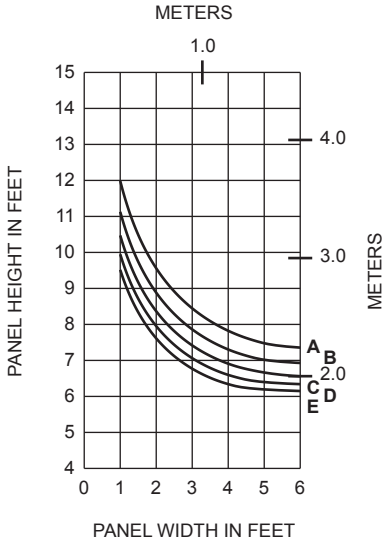


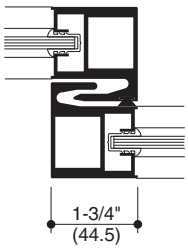


590088 / 590015
STANDARD RANGE INTERLOCKS

590088
I = 0.434 (18.06 x 10^4)
S = 0.430 (7.05 x 10^3)

590015
I = 0.387 (16.11 x 10^4)
S = 0.396 (6.49 x 10^3)

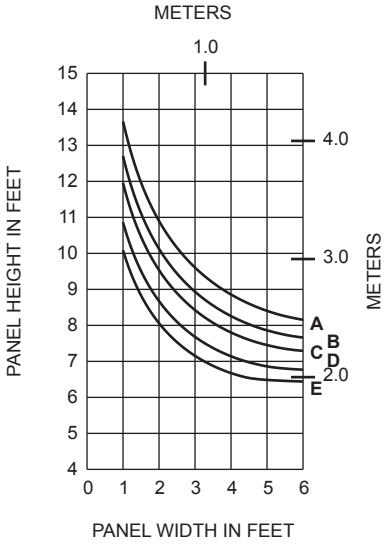


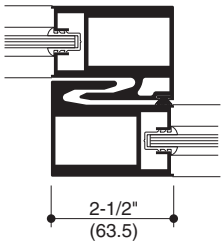


590090 / 590017
MID-RANGE INTERLOCKS

590090
I = 0.572 (23.81 x 10^4)
S = 0.565 (9.26 x 10^3)

590017
I = 0.552 (22.98 x 10^4)
S = 0.527 (8.64 x 10^3)



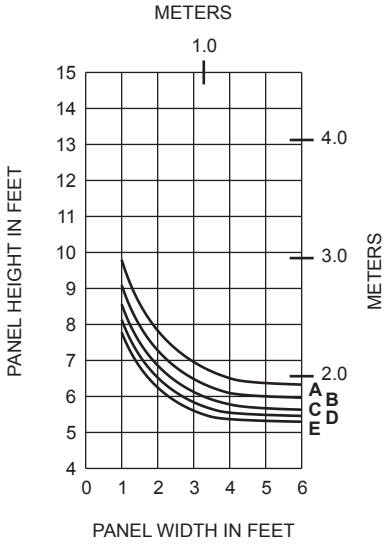


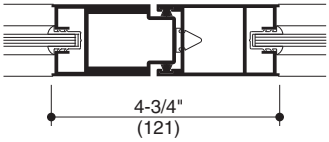
590092 / 590019
MAXIMUM RANGE INTERLOCKS

590092
I = 0.839 (34.92 x 10^4)
S = 0.821 (13.45 x 10^3)

590019
I = 0.835 (34.76 x 10^4)
S = 0.807 (13.22 x 10^3)

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	25 PSF (1200)	42 PSF (2000)
C =	30 PSF (1440)	50 PSF (2400)
D =	40 PSF (1920)	67 PSF (3200)
E =	50 PSF (2400)	83 PSF (4000)

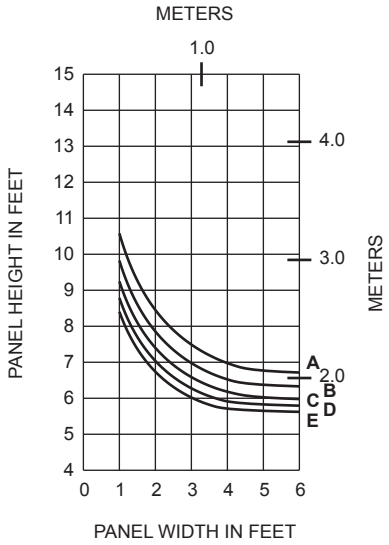


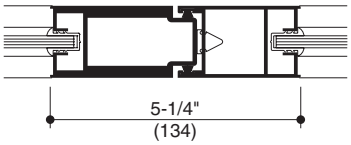


590021 / 590027
STANDARD RANGE
MEETING STILES

590021
I = 0.350 (14.57 x 10^4)
S = 0.467 (7.65 x 10^3)

590027
I = 0.263 (10.95 x 10^4)
S = 0.351 (5.75 x 10^3)

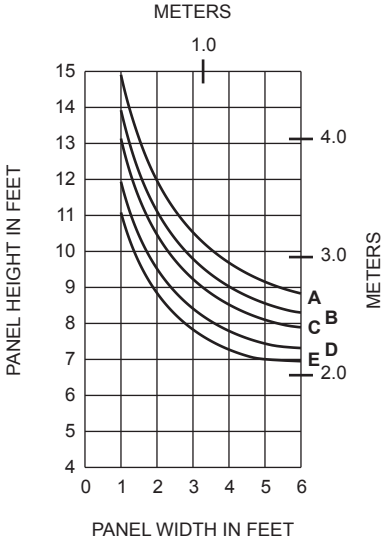


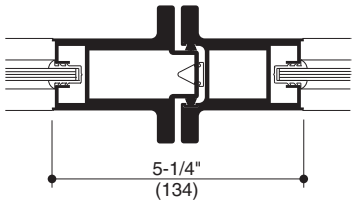


590023 / 590027
MID-RANGE
MEETING STILES

590023
I = 0.510 (21.23 x 10^4)
S = 0.680 (11.14 x 10^3)

590027
I = 0.263 (10.95 x 10^4)
S = 0.351 (5.75 x 10^3)



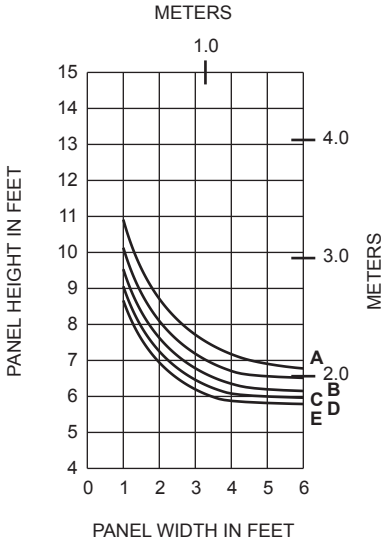


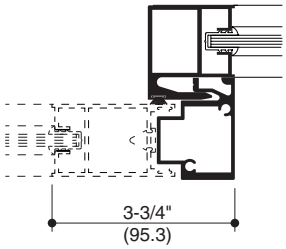
590025 / 590029
MAXIMUM RANGE
MEETING STILES

590025
I = 1.145 (47.66 x 10^4)
S = 0.796 (13.04 x 10^3)

590029
I = 1.077 (44.83 x 10^4)
S = 0.749 (12.27 x 10^3)

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	25 PSF (1200)	42 PSF (2000)
C =	30 PSF (1440)	50 PSF (2400)
D =	40 PSF (1920)	67 PSF (3200)
E =	50 PSF (2400)	83 PSF (4000)

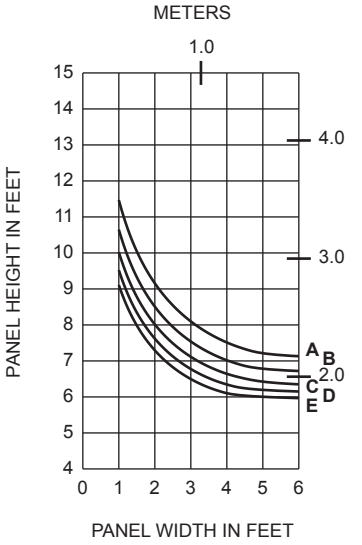


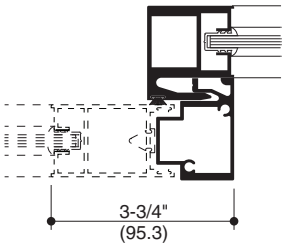


590088 / 590043
STANDARD RANGE
LOCK STILE MULLION

590088
I = 0.434 (18.06 x 10^4)
S = 0.430 (7.05 x 10^3)

590043
I = 0.414 (17.23 x 10^4)
S = 0.368 (6.03 x 10^3)

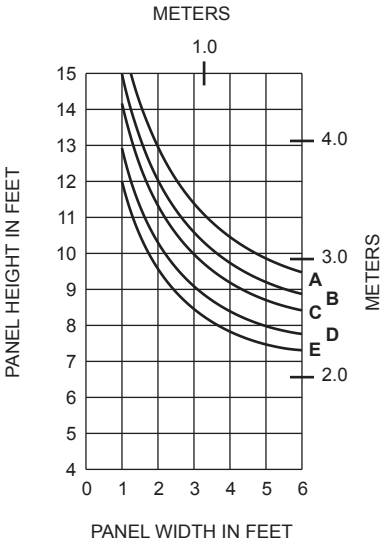


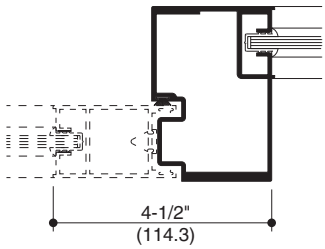


590090 / 590043
MID-RANGE
LOCK STILE MULLION

590090
I = 0.572 (23.81 x 10^4)
S = 0.565 (9.26 x 10^3)

590043
I = 0.414 (17.23 x 10^4)
S = 0.368 (6.03 x 10^3)

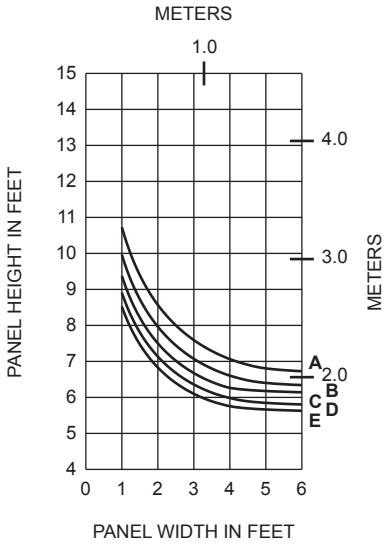


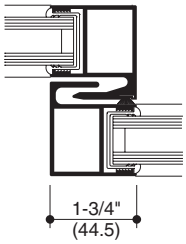


590094
MAXIMUM RANGE
LOCK STILE MULLION

590094
I = 2.823 (117.50 x 10^4)
S = 1.506 (24.68 x 10^3)

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	25 PSF (1200)	42 PSF (2000)
C =	30 PSF (1440)	50 PSF (2400)
D =	40 PSF (1920)	67 PSF (3200)
E =	50 PSF (2400)	83 PSF (4000)

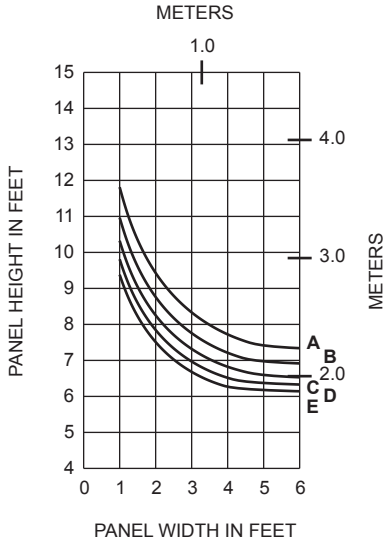


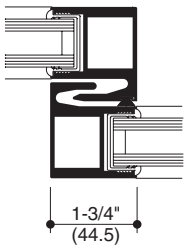


590089 / 590016
STANDARD RANGE INTERLOCKS

590089
I = 0.429 (17.86 x 10^4)
S = 0.398 (6.52 x 10^3)

590016
I = 0.377 (15.69 x 10^4)
S = 0.379 (6.21 x 10^3)

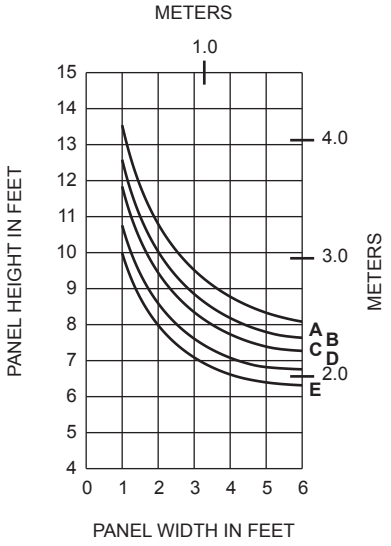


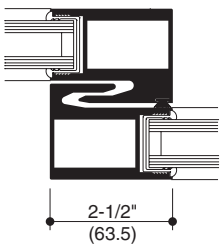


590091 / 590018
MID-RANGE INTERLOCKS

590091
I = 0.550 (22.89 x 10^4)
S = 0.558 (9.14 x 10^3)

590018
I = 0.528 (21.98 x 10^4)
S = 0.514 (8.42 x 10^3)



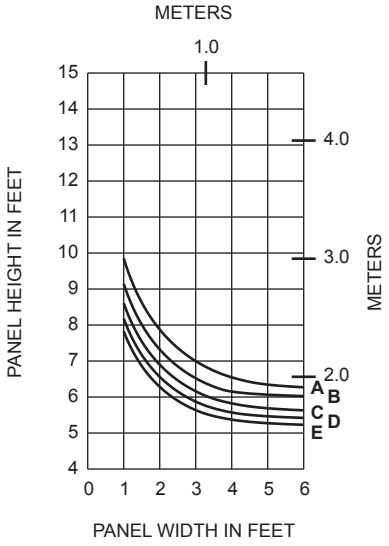


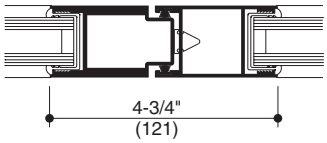
590093 / 590020
MAXIMUM RANGE INTERLOCKS

590093
I = 0.818 (34.05 x 10^4)
S = 0.794 (13.01 x 10^3)

590020
I = 0.808 (33.63 x 10^4)
S = 0.792 (12.98 x 10^3)

	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	25 PSF (1200)	42 PSF (2000)
C =	30 PSF (1440)	50 PSF (2400)
D =	40 PSF (1920)	67 PSF (3200)
E =	50 PSF (2400)	83 PSF (4000)

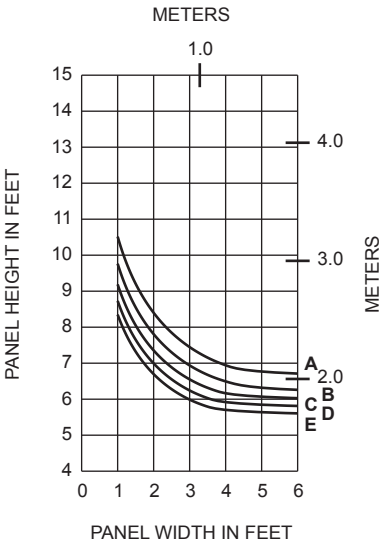


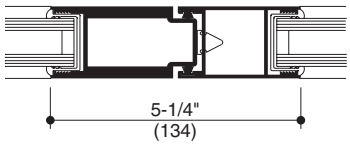


590022 / 590028
STANDARD RANGE
MEETING STILES

590022
I = 0.359 (14.94 x 10^4)
S = 0.479 (7.85 x 10^3)

590028
I = 0.264 (10.99 x 10^4)
S = 0.353 (5.78 x 10^3)

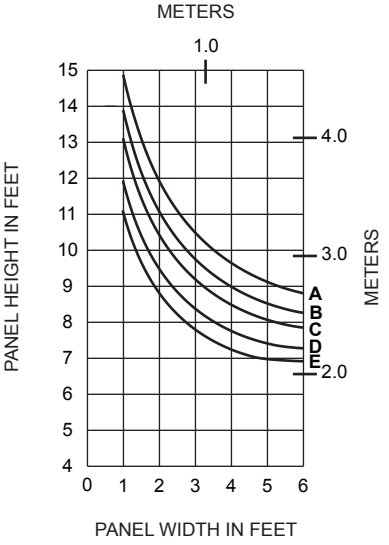


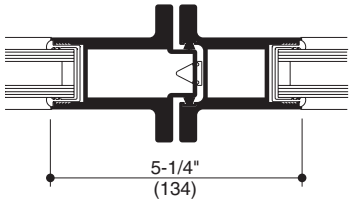


590024 / 590028
MID-RANGE
MEETING STILES

590024
I = 0.494 (20.56 x 10^4)
S = 0.658 (10.78 x 10^3)

590028
I = 0.264 (10.99 x 10^4)
S = 0.353 (5.78 x 10^3)



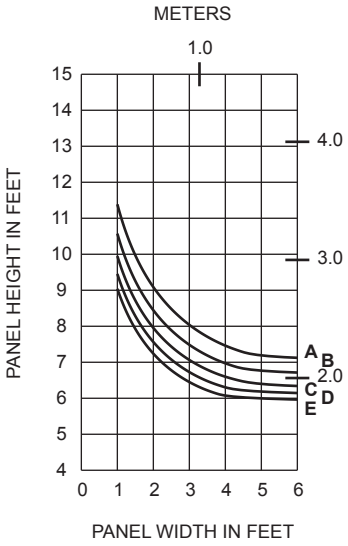


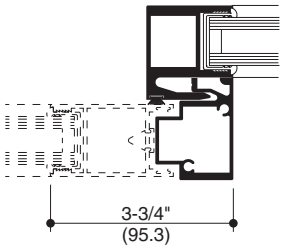
590026 / 590030
MAXIMUM RANGE
MEETING STILES

590026
I = 1.129 (46.99 x 10^4)
S = 0.785 (12.86 x 10^3)

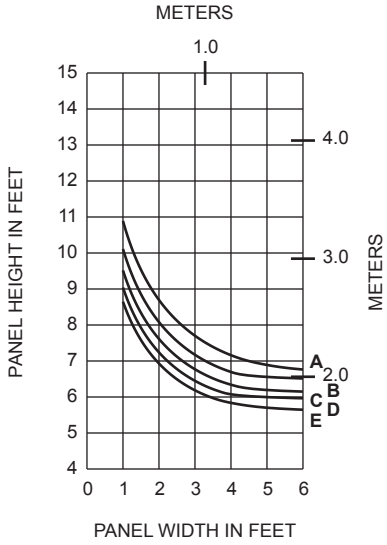
590030
I = 0.264 (10.99 x 10^4)
S = 0.739 (12.11 x 10^3)

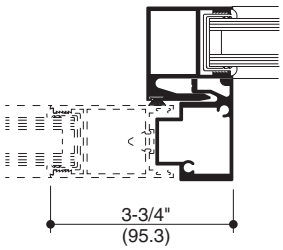
	Allowable Stress Design Load	LRFD Ultimate Design Load
A =	20 PSF (960)	33 PSF (1580)
B =	25 PSF (1200)	42 PSF (2000)
C =	30 PSF (1440)	50 PSF (2400)
D =	40 PSF (1920)	67 PSF (3200)
E =	50 PSF (2400)	83 PSF (4000)



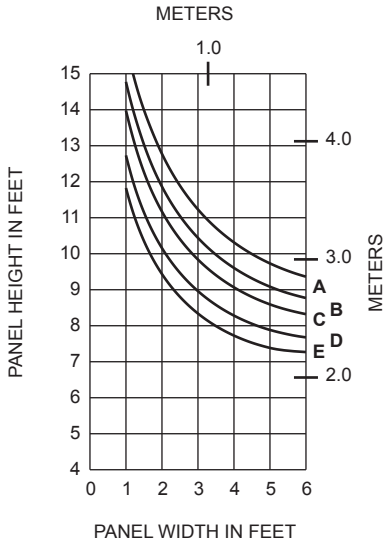


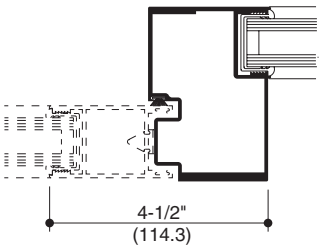
590091 / 590043
MID-RANGE
LOCK STILE MULLION
590091
I = 0.550 (22.89 x 10^4)
S = 0.558 (9.14 x 10^3)
590043
I = 0.414 (17.23 x 10^4)
S = 0.368 (6.03 x 10^3)





590089 / 590043
STANDARD RANGE
LOCK STILE MULLION
590089
I = 0.429 (17.86 x 10^4)
S = 0.398 (6.52 x 10^3)
590043
I = 0.414 (17.23 x 10^4)
S = 0.368 (6.03 x 10^3)





590095
MAXIMUM RANGE
LOCK STILE MULLION
590095
I = 2.703 (112.51 x 10^4)
S = 1.479 (24.24 x 10^3)