

# Ultimate Casement Polygon

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**Unit Features**

Ultimate Casement Operator Polygon: UCA OPER POLY

Ultimate Casement Narrow Frame Operator Polygon: UCANF OPER POLY

**Frame:**

- Minimum frame angle 15°, minimum short leg of Rough Opening 6"

**UCA OPER POLY Hardware:**

- Folding handles are standard.
  - Color: Satin Taupe is standard with optional colors White, Matte Black, Bronze, Satin Chrome, Satin Nickel, Oil Rubbed Bronze, Brass, Antique Brass.
- Locks used are a concealed multi-point sequential system.
  - OM spring line heights over 26 1/8" (664) to 53 1/8" (1349) will have a 2 point locking system.
  - OM spring line heights greater than 53 1/8" (1349) will have a 3 point locking system.
- Operable polygons have a single arm operator that includes a crank hardware system that allows the window to open to a full 90 degrees with a minimal reduction of egress net clear opening. All steel is covered with an E-Gard™ protection coat and the standard track is stainless steel. Operation force at handle is 5 lbs. or less.
- Units greater than 71 1/8" (1807) in height will require the use of a sash limiter, which is located on the operator track.
- Stainless Steel packages are available for coastal application.
- Replacement frame does not allow for the wash-mode feature.

**Optional Glass for Full Frame Units:**

- 1" Tripane Low E1 outer piece and Low E1 Argon inner piece
- 1" Tripane Low E1 outer piece and Low E1 Krypton-Argon inner piece
- 1" Tripane Low E2 outer piece and Low E2 Argon inner piece
- 1" Tripane Low E2 outer piece and Low E2 Krypton-Argon inner piece
- 1" Tripane Low E3 outer piece and Low E1 Argon inner piece
- 1" Tripane Low E3 outer piece and Low E1 Krypton-Argon inner piece

**Mulling:**

- For mull performance, refer to the General Mulling chapter of the ADM.

**CE Optional Glazing:**

- Optional Tripane glass types: Low E1/E1 Argon or Krypton-Argon, Low E2/E2 Argon or Krypton-Argon, Low E3/E1 Argon or Krypton-Argon
- Glass panes available is 3, 4, and 6 mm thicknesses
- Glazing will be altitude adjusted for higher elevations, Argon, Argon-Krypton, and Krypton gas not included

**CE Mulling Options:**

- Mullled assemblies up to 64" (1626) x 71 1/8" (1807) as a 1H x multi-width
- Mullled assemblies with 1" (25) LVL or 3/8" (10) aluminum mull reinforcement up to 122" (3099) x 104 1/4" (2648) as a multi-wide or multi-high assembly

**Minimum and Maximum Guidelines**

Minimum and Maximum Extended Frame Size- Full and Replacement Ultimate Casement Polygon - Operable, Includes CE										
Unit Type	Min Width		Min Height		Max Width		Max Height		Min Short Leg	
	in	mm	in	mm	in	mm	in	mm	in	mm
P4, P5, P6 IG 3/4" or 1" (Replacement N/A 1")	16	(406)	26 1/8	(664)	36	(914)	96 1/8	(2442)	26 1/8	(664)
					40	(1016)	92	(2337)	26 1/8	(664)
P8-1 IG 3/4" or 1" (Replacement N/A 1")	28	(711)	N/A		48	(1219)	N/A		N/A	

Minimum and Maximum Certified Frame Size - Full and Replacement - Stationary, Includes CE										
Unit Type	Min Width		Min Height		Max Width		Max Height		Min Short Leg	
	in	mm	in	mm	in	mm	in	mm	in	mm
P3-IG 3/4"	23	(584)	23 1/2	(597)	64	(1626)	96 1/8	(2442)	N/A	
					96 1/8	(2442)	64	(1626)		
P4, P5 IG 3/4"	15	(381)	15 1/2	(394)	64	(1626)	96 1/8	(2442)	7 1/2	(191)
					96 1/8	(2442)	64	(1626)	7 1/2	(191)
P6, P8 IG 3/4"	21	(533)	21 1/2	(546)	64	(1626)	96 1/8	(2442)	N/A	
					96 1/8	(2442)	64	(1626)		
P3 1" Full Frame (Replacement N/A 1")	23	(584)	23 1/2	(597)	88	(2235)	96 1/8	(2442)	N/A	
					96 1/8	(2442)	88	(2235)		
P4, P5 1" Full Frame (Replacement N/A 1")	15	(381)	15 1/2	(394)	88	(2235)	96 1/8	(2442)	7 1/2	(191)
					96 1/8	(2442)	88	(2235)	7 1/2	(191)
P6, P8 1" Full Frame (Replacement N/A 1")	21	(533)	21 1/2	(546)	88	(2235)	96 1/8	(2442)	N/A	
					96 1/8	(2442)	88	(2235)		

Maximum Extended Frame Size - Full and Replacement - Stationary				
Unit Type	Max Width		Max Height	
	in	mm	in	mm
P3, P4, P5, P6, P8 3/4" IG	64	(1626)	104	(2642)
	104	(2642)	64	(1626)
P3, P4, P5, P6, P8 1" IG - Full Frame (Replacement N/A 1")	88	(2235)	120	(3048)
	120	(3048)	88	(2235)

NOTE: All operating polygons are non-certified units.

**Minimum and Maximum Guidelines - IZ3**

Minimum and Maximum Certified Frame Size - Full Frame - Stationary IZ3										
Unit Type	Min Width		Min Height		Max Width		Max Height		Min Short Leg	
	in	mm	in	mm	in	mm	in	mm	in	mm
P3-IG 3/4"	23	(584)	23 1/2	(597)	36	(914)	83 1/8	(2111)	N/A	
					83 1/8	(2111)	36	(914)		
P4, P5 IG 3/4"	15	(381)	15 1/2	(394)	36	(914)	83 1/8	(2111)	7 1/2	(191)
					83 1/8	(2111)	36	(914)	7 1/2	(191)
P6, P8 IG 3/4"	21	(533)	21 1/2	(546)	36	(914)	83 1/8	(2111)		
					83 1/8	(2111)	36	(914)		
P3 1" Full Frame (Replacement N/A 1")	23	(584)	23 1/2	(597)	72 5/8	(1845)	77 1/8	(1959)		
					77 1/8	(1959)	72 5/8	(1845)		
P4, P5 1" Full Frame (Replacement N/A 1")	15	(381)	15 1/2	(394)	72 5/8	(1845)	77 1/8	(1959)		
					77 1/8	(1959)	72 5/8	(1845)		
P6, P8 1" Full Frame (Replacement N/A 1")	21	(533)	21 1/2	(546)	72 5/8	(1845)	77 1/8	(1959)		
					77 1/8	(1959)	72 5/8	(1845)		

NOTE: CE mark not available on IZ3 units.

**Certified Sizes and Ratings**

Product	Air Tested to psf	Water Tested to psf	Structural Overload Tested to psf	Certification Rating	Max Width In	Max Width mm	Max Height In	Max Height mm
Ultimate Casement Polygon Stationary 3/4" (Full Frame and Narrow Frame)	1.57	7.5	75	CW-PG50	64	(1626)	96 1/8	(2442)
Ultimate Casement Polygon Stationary 3/4" (Full Frame and Narrow Frame)	1.57	7.5	75	CW-PG50	72	(1829)	71 1/8	(1806)
Ultimate Casement Polygon Stationary 1" (Full Frame)	1.57	7.5	75	CW-PG50	88	(2235)	96 1/8	(2441)

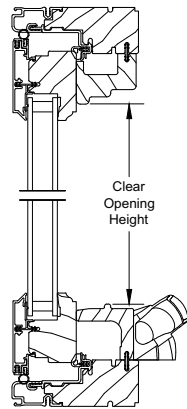
Product	Air Tested to psf	Water Tested to psf	Structural Overload Tested to psf	Certification Rating	Max Width In	Max Width mm	Max Height In	Max Height mm
Ultimate Casement Polygon Picture 3/4" IZ3 (Full Frame)	1.57	9.75	97.5	CW-PG65	36	(914)	83 1/8	(2111)
Ultimate Casement Polygon Picture 1" IZ3 (Full Frame)	1.57	9.75	97.5	CW-PG65	72 5/8	(1845)	77 1/8	(1959)

*NOTE: All operating polygons are non-certified units.*

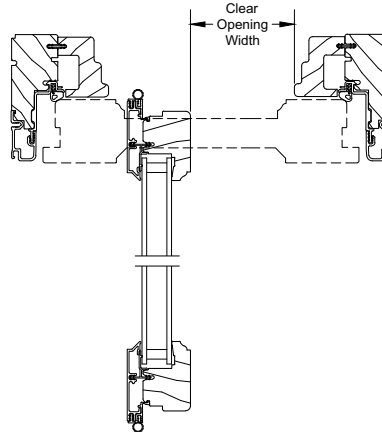
*CE mark not available on IZ3 units. For CE ratings, please refer to CE Performance Section.*

**Measurement Conversions**

In-Sash Polygon					
Unit Measurements		Width		Height	
From	To				
Rough Opening		in	mm	in	mm
OM of Frame	Rough Opening	+1	(25)	1/2	(13)
Masonry Opening w/BMC	Rough Opening	-2 1/8	(54)	-1 11/16	(43)
Masonry Opening w/Flat Casing	Rough Opening	-5 1/2	(140)	-3 3/8	(86)
Masonry Opening w/out BMC	Rough Opening	+1/2	(13)	+1/4	(06)
Masonry Opening w/BMC (all sides)	Rough Opening	+2 1/8	(54)	+2 1/8	(54)
Masonry Opening w/Flat Casing (all sides)	Rough Opening	+5 1/2	(140)	+5 1/2	(140)
Sash		in	mm	in	mm
OM of Sash	Rough Opening	+2 11/16	(68)	+2 3/16	(56)
Glass		in	mm	in	mm
Daylight Opening	Glass	+1 3/32	(28)	+1 3/32	(28)
Glass Size	Sash OM	+3 1/64	(77)	+3 1/64	(77)



Head Jamb and Sill



Jambs

Slope to Angle and Angle to Pitch Conversions

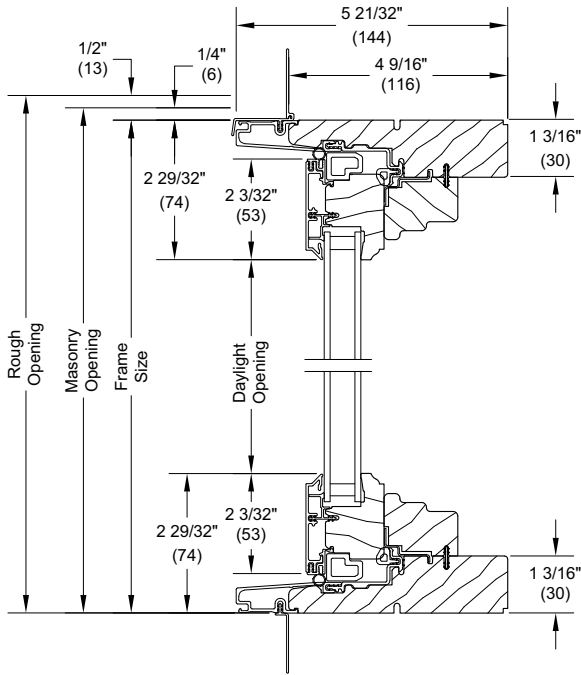
Slope to Angle / Degree Conversions					
Slope	Angle	Degree / Minutes	Slope	Angle	Degree / Minutes
1/12	4.76	4 degree 46'	13/12	47.29	47 degree 14'
2/12	9.46	9 degree 28'	14/12	49.40	49 degree 24'
3/12	14.04	14 degree 2'	15/12	51.34	51 degree 20'
4/12	18.43	18 degree 26'	16/12	53.13	53 degree 8'
5/12	22.62	22 degree 37'	17/12	54.78	54 degree 47'
6/12	26.57	26 degree 34'	18/12	56.31	56 degree 19'
7/12	30.26	30 degree 15'	19/12	57.72	57 degree 43'
8/12	33.69	33 degree 41'	20/12	59.04	59 degree 2'
9/12	36.87	36 degree 52'	21/12	60.26	60 degree 15'
10/12	39.81	39 degree 48'	22/12	61.39	61 degree 23'
11/12	42.51	42 degree 31'	23/12	62.45	62 degree 27'
12/12	45.00	45 degree 0'	24/12	63.43	63 degree 26'

Angle to Pitch Conversions							
Angle	Pitch	Angle	Pitch	Angle	Pitch	Angle	Pitch
1	0.21/12	26	5.85/12	51	14.82/12	76	48.13/12
2	0.42/12	27	6.11/12	52	15.36/12	77	51.98/12
3	0.63/12	28	6.38/12	53	15.92/12	78	56.56/12
4	0.84/12	29	6.65/12	54	16.52/12	79	61.73/12
5	1.05/12	30	6.93/12	55	17.14/12	80	68.06/12
6	1.26/12	31	7.21/12	56	17.79/12	81	75.77/12
7	1.47/12	32	7.50/12	57	18.48/12	82	85.38/12
8	1.69/12	33	7.79/12	58	19.20/12	83	97.73/12
9	1.90/12	34	8.09/12	59	19.97/12	84	114.17/12
10	2.12/12	35	8.40/12	60	20.78/12	85	137.16/12
11	2.33/12	36	8.72/12	61	21.65/12	86	171.61/12
12	2.55/12	37	9.04/12	62	22.57/12	87	228.97/12
13	2.77/12	38	9.38/12	63	23.55/12	88	343.64/12
14	2.99/12	39	9.72/12	64	24.60/12	89	687.48/12
15	3.22/12	40	10.07/12	65	25.73/12		
16	3.44/12	41	10.43/12	66	26.95/12		
17	3.67/12	42	10.80/12	67	28.27/12		
18	3.90/12	43	11.19/12	68	29.70/12		
19	4.13/12	44	11.59/12	69	31.26/12		
20	4.37/12	45	12.00/12	70	32.97/12		
21	4.61/12	46	12.43/12	71	34.85/12		
22	4.85/12	47	12.87/12	72	36.93/12		
23	5.09/12	48	13.33/12	73	39.25/12		
24	5.34/12	49	13.80/12	74	41.85/12		
25	5.60/12	50	14.30/12	75	44.78/12		



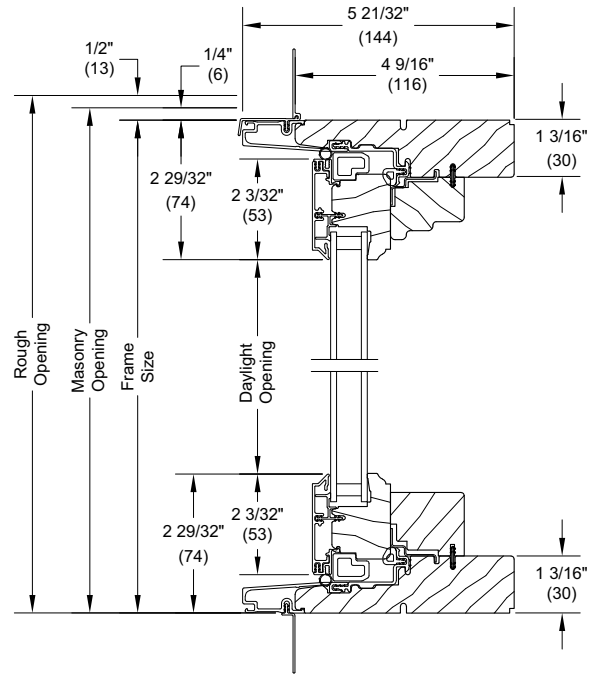
**Section Details: Stationary in Full Frame**

Scale: 3" = 1' 0"



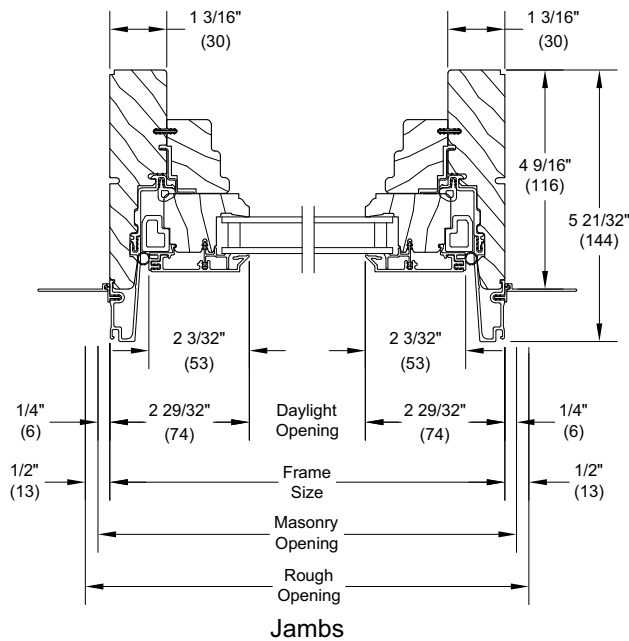
**Head Jamb and Sill - Sloped Sill Cover**

- P3 - 3 through 22
- P4 - 1, 2, 3, 4, 11, 12, 13, 14, 15, 16, 17
- P5 - 2, 7, 8
- P6 - 1, 2, 3, 4, 6
- P8 - 1, 2, 3, 4



**Head Jamb and Sill - Flat Sill Cover**

- P3 - 1, 2
- P4 - 5, 6, 7, 8, 9, 10
- P5 - 1, 3, 4, 5, 6, 9, 10, 11, 12, 13, 14, 15, 16
- P6 - 5, 7, 8

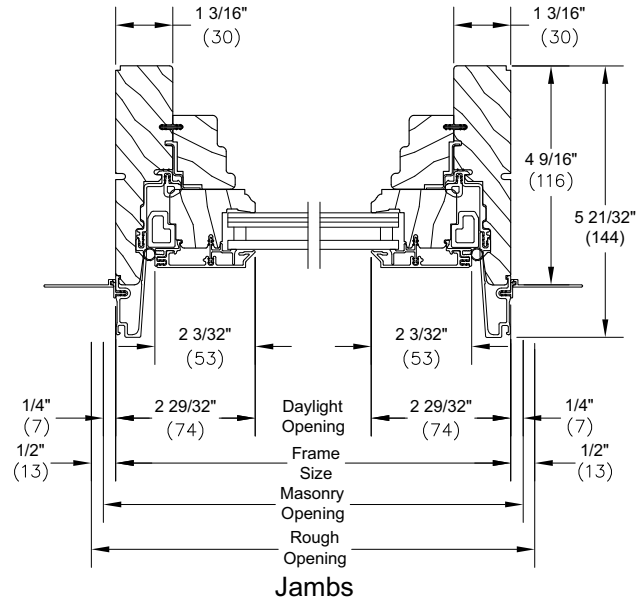
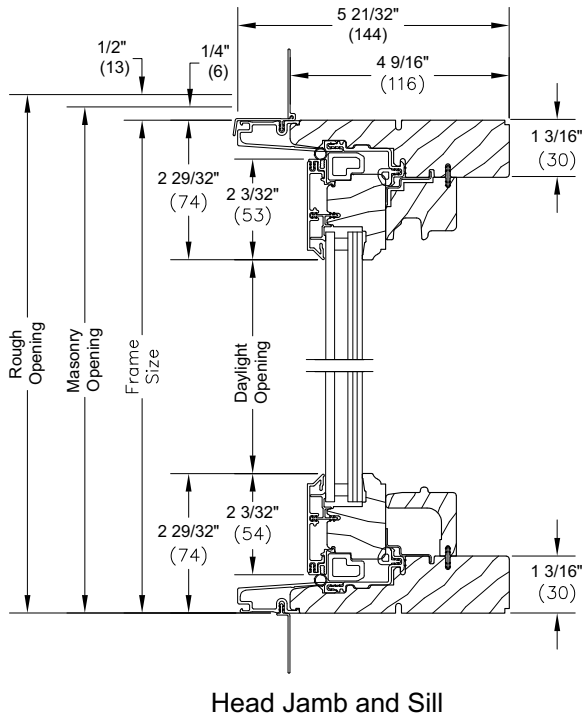


**Jambs**

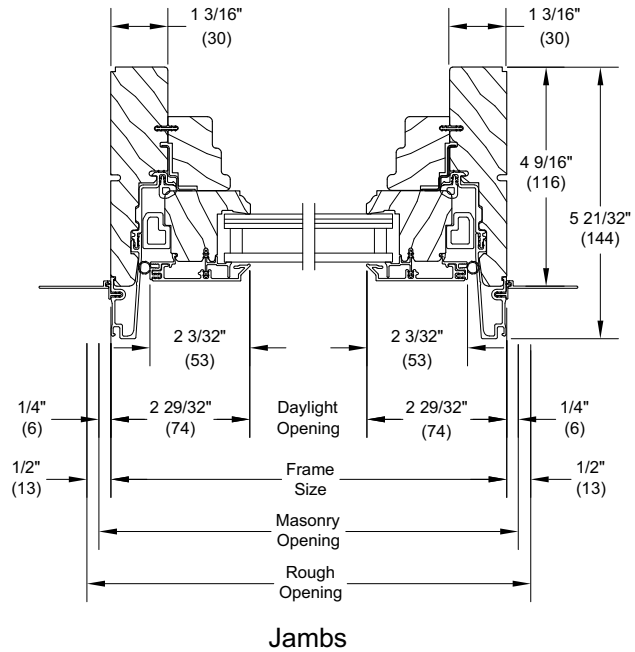
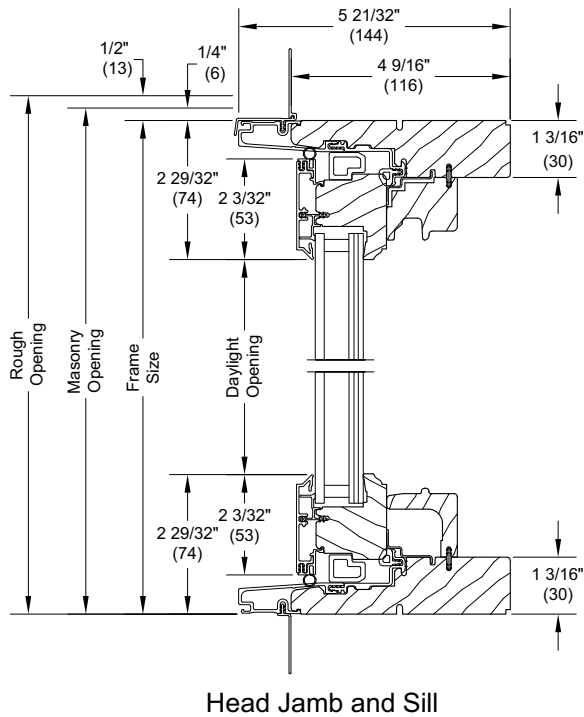
**Section Details: Stationary IZ3 - 3/4" (19) and 1" (25) IG**

Scale: 3" = 1' 0"

**3/4" (19) IG**

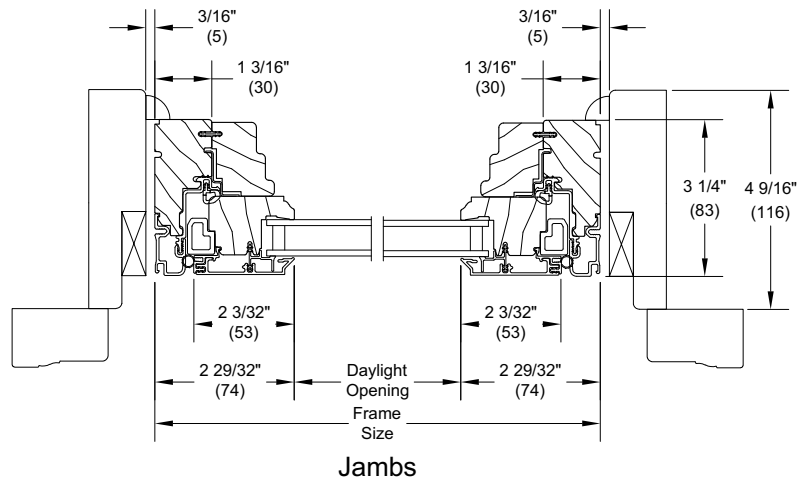
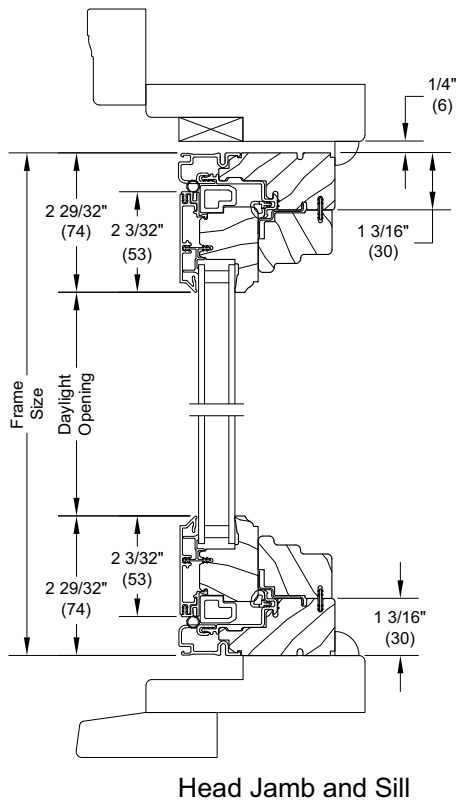
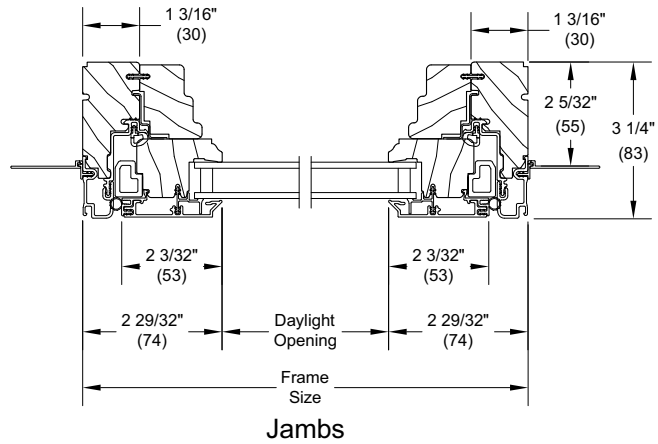
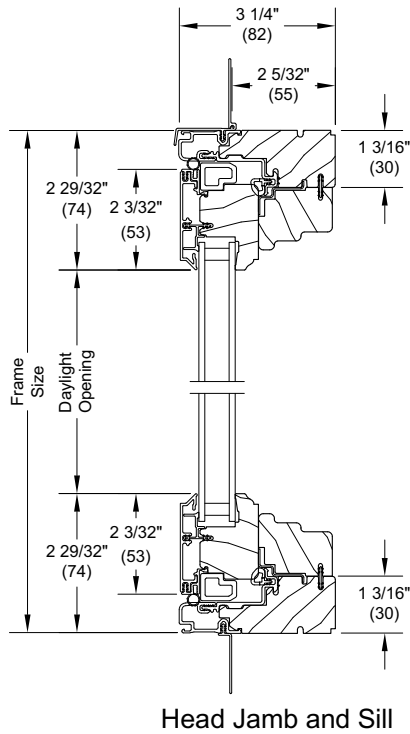


**1" (25) IG**



**Section Details: Stationary Narrow Frame**

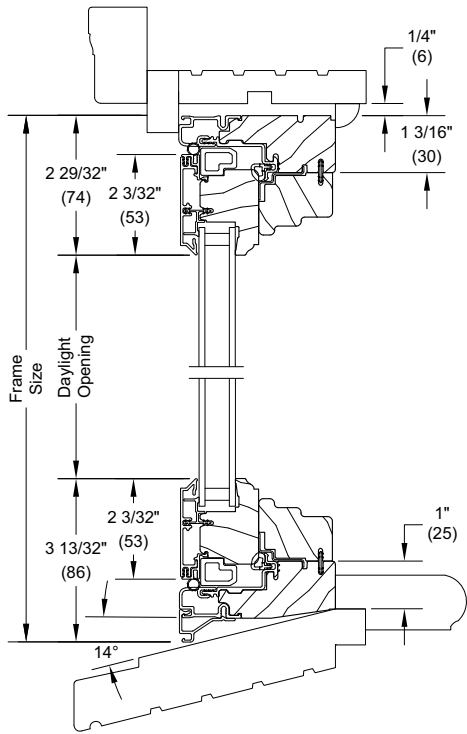
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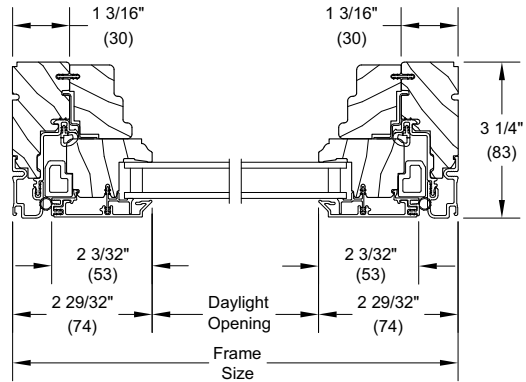
*NOTE: Square sticking is the default for the narrow frame product.*

**Section Details: Stationary in Double Hung Narrow Frame**

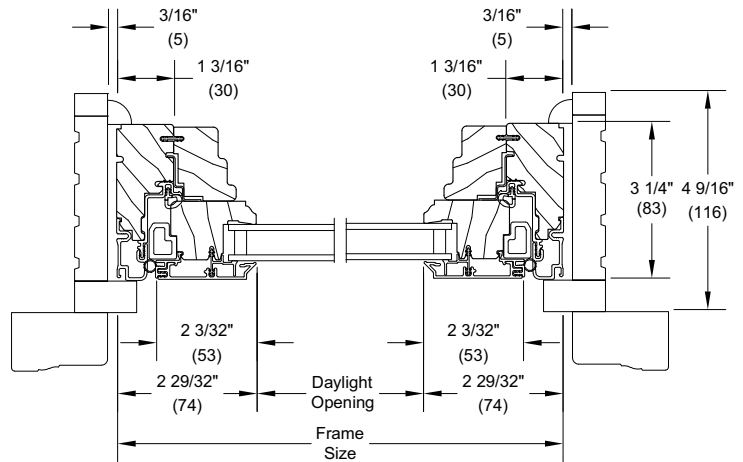
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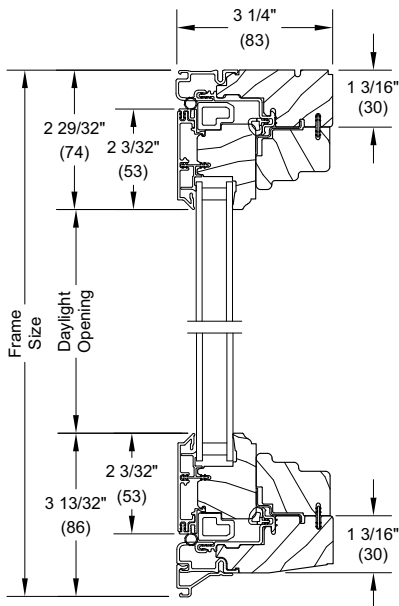
**In Existing 14 Deg. DH Frame  
UCANF STAT Poly-Sloped Sill**



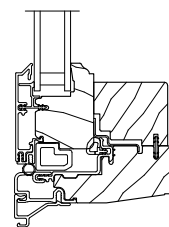
**Jamb**



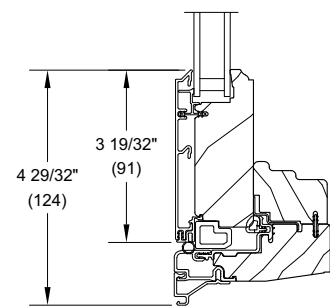
**Jamb  
In Existing DH Frame**



**Head Jamb and Sill  
Sloped Sill Cover**



**Sill Detail  
Flat Sill Cover**

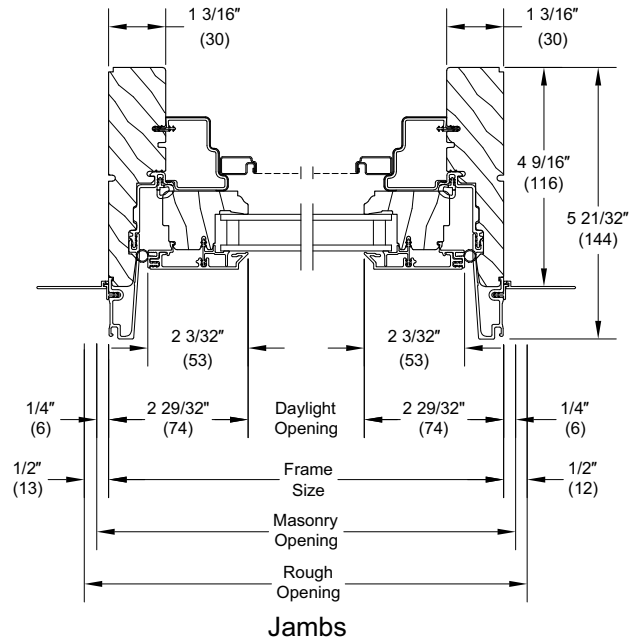
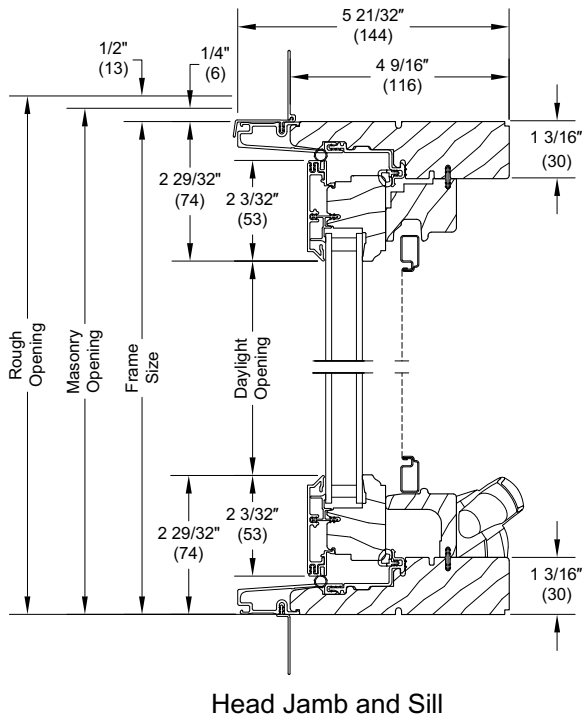


**Sill Detail  
Tall Bottom Rail**

*NOTE: Square sticking is the default for the narrow frame product.*

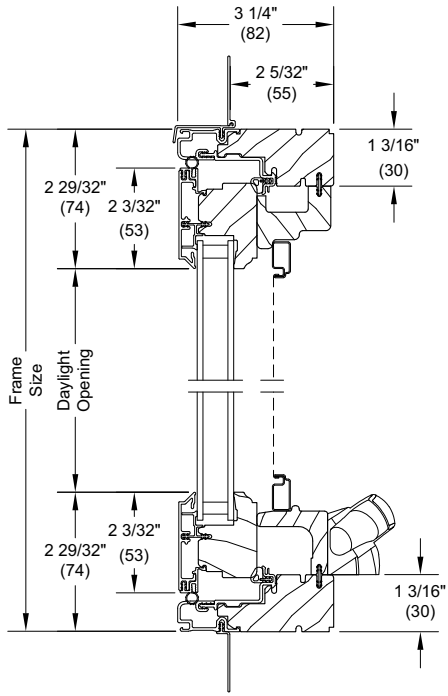
**Section Details: Operable Full Frame**

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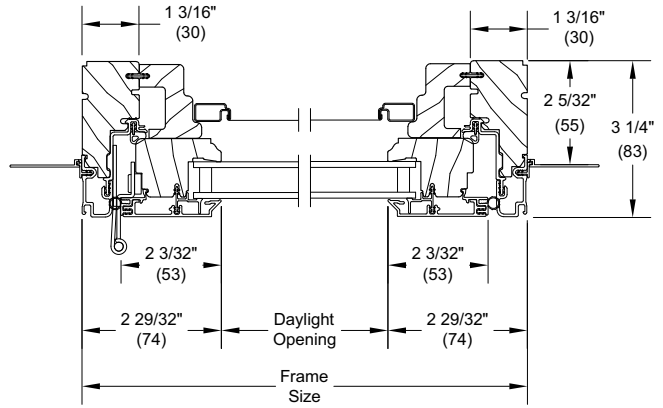


**Section Details: Operable Narrow Frame**

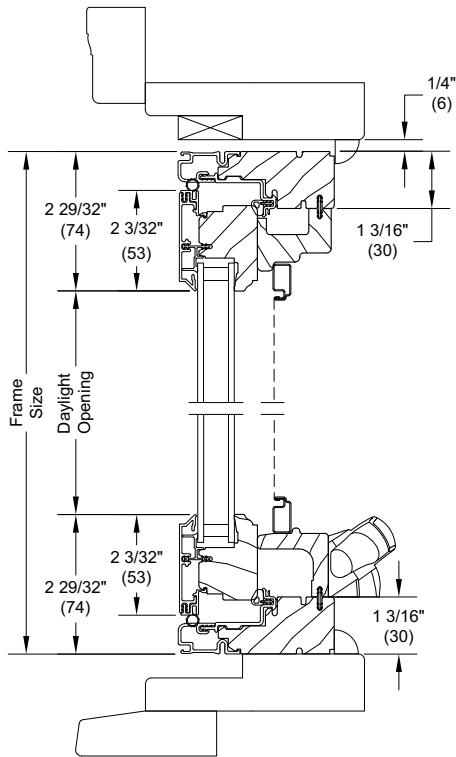
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**Head Jamb and Sill**

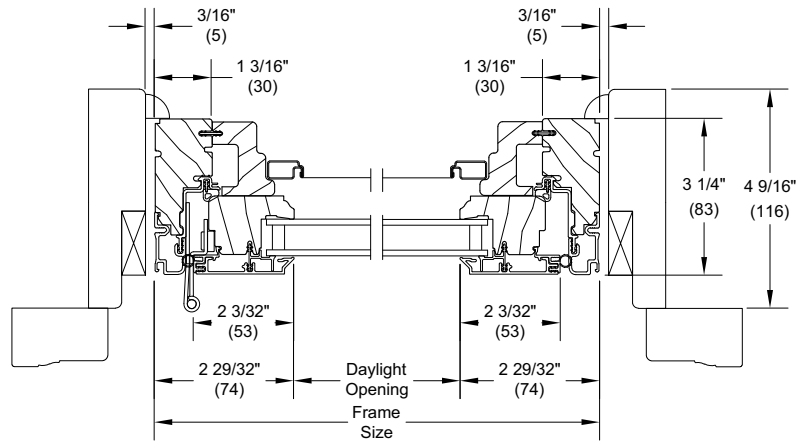


**Jamb**



**Head Jamb and Sill**

**In Casement Frame**

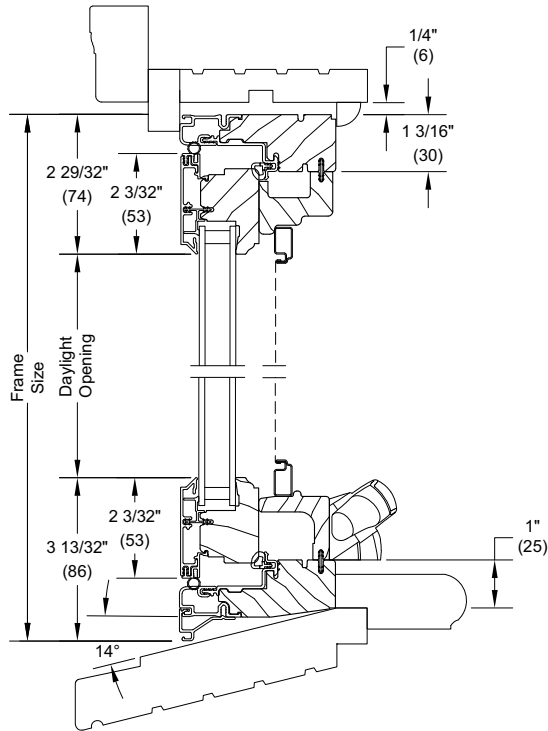


**Jamb**

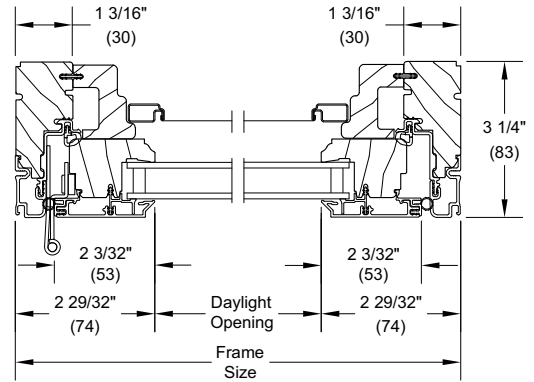
*NOTE: Square sticking is the default for the narrow frame product.*

**Section Details: Operable Narrow Frame in Double Hung Frame**

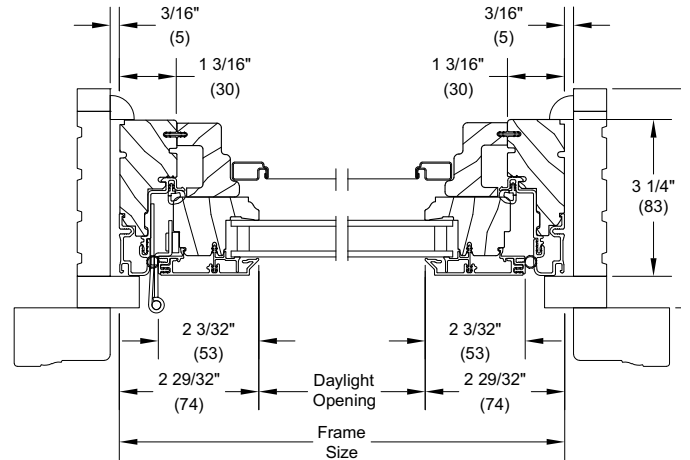
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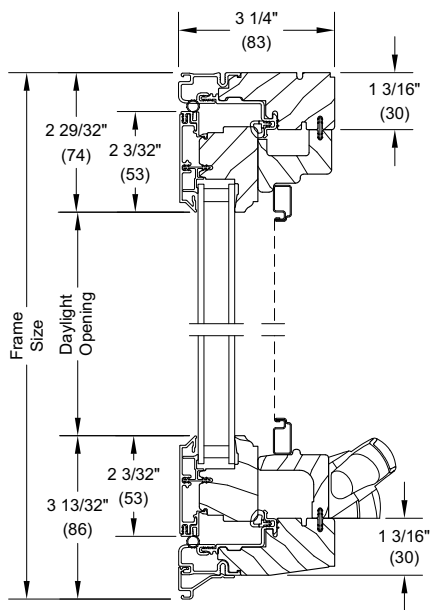
In Existing 14 Deg. DH Frame  
UCANF OPER POLY-Sloped Sill



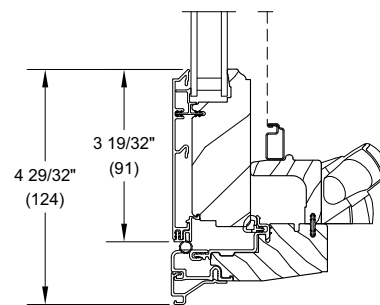
Jamb



Jamb  
In Existing DH Frame



Head Jamb and Sill  
Sloped Sill Cover

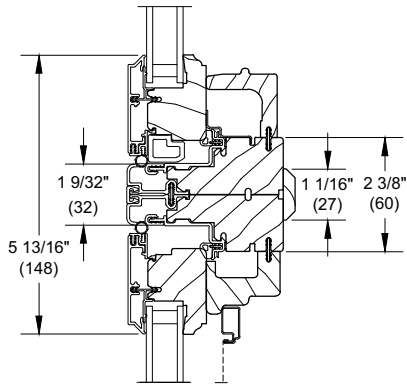


Sill Detail  
Tall Bottom Rail

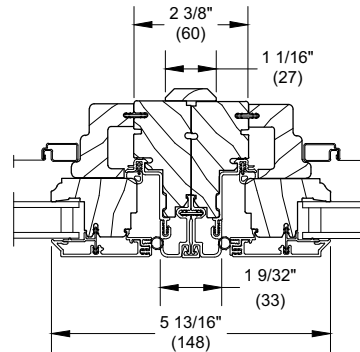
*NOTE: Square sticking is the default for the narrow frame product.*

**Section Details: Operable In-Sash Casement Polygon Mullion Options**

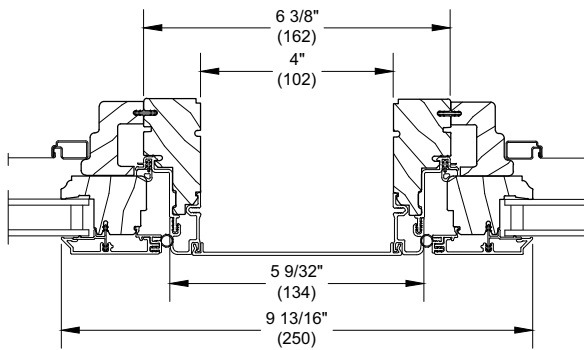
Scale: 3" = 1'0"



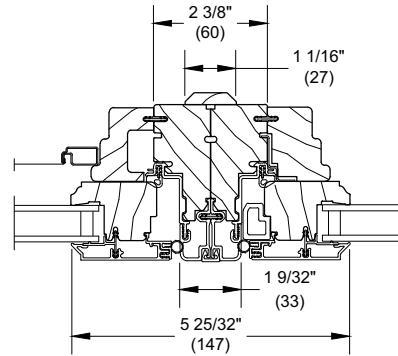
Horizontal Mullion - Stationary/Operator



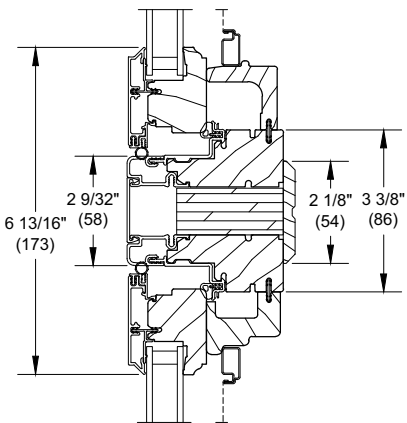
Vertical Mullion - Operator/Operator/Direct Mull



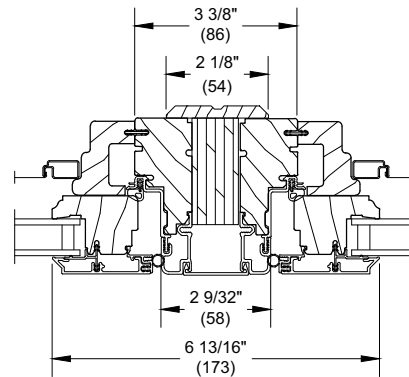
Vertical Mullion - with 4" Space Mull Operator/Operator



Vertical Mullion - Operator/Picture/Direct Mull



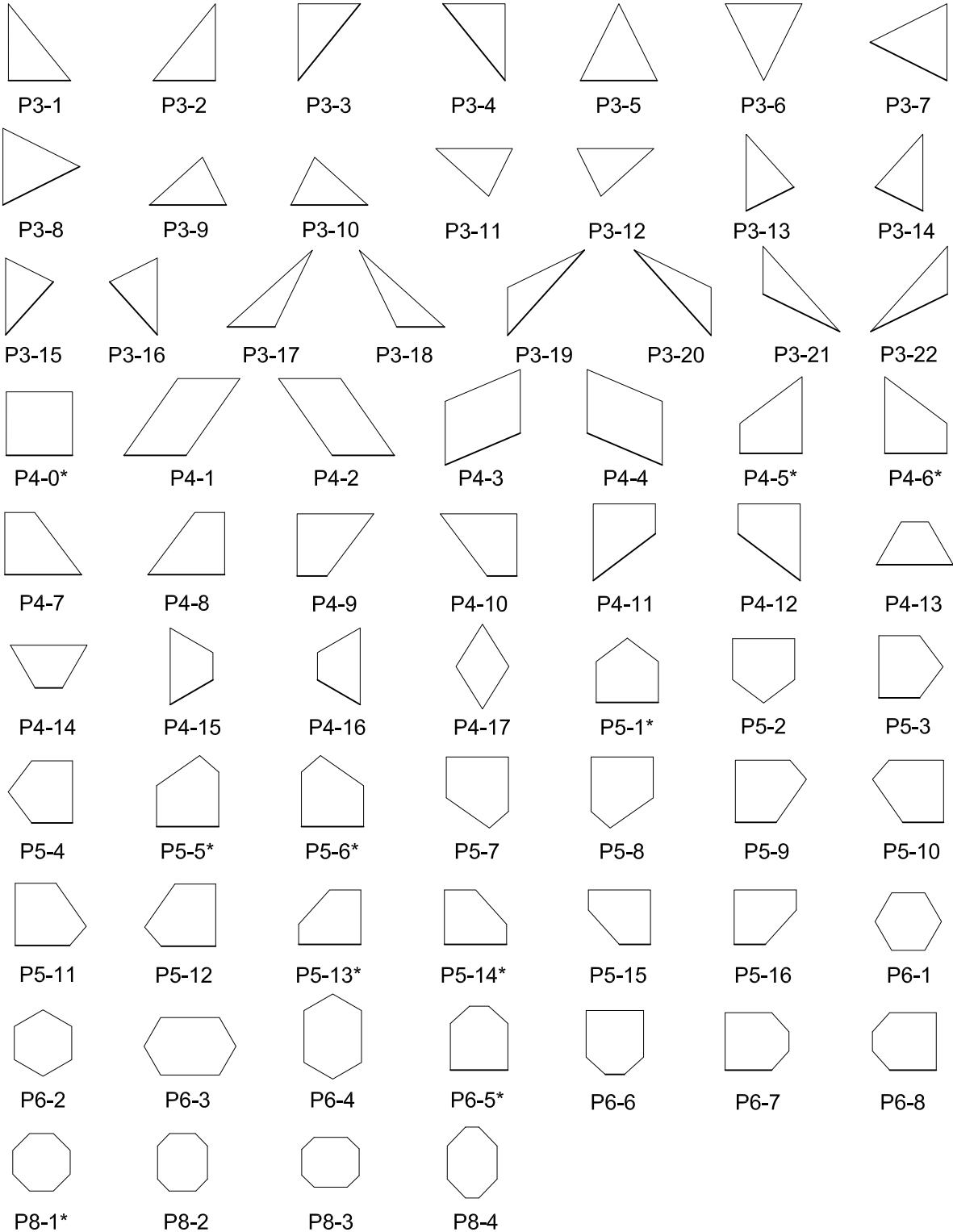
Horizontal Mullion - LVL Operator/Operator



Vertical Mullion - LVL Operator/Operator



**Polygon Shape Reference**



*NOTE: Please contact your Marvin representative for availability and more information.  
Units with asterisks are available as stationary units or operable units*

**Field Measurement**

Operator and Stationary Ultimate Casement Polygon Conversion from Field Measurement to Frame OSM		
Width		
Condition	Formula	
If blind stop width is 1/2" (13) or less)	Frame OM Width - inside opening width - 0.375	
Height		
Condition	Type of Sill Bevel	Formula
If old sill angle is less than 8°	Flat-bottom Sill	Frame OM Height = inside opening height - 0.250
If old sill angle is greater than 8° and less than 14°	8-degreee-bottom sill	Frame OM Height = inside opening height - 0.0563 (frame IM height has a .250 clearance)
If old is angle is 14° of greater	14-degree bottom sill	Frame OM Height = inside height = .431 (frame OM Height has a .250 clearance)

Interior Frame Size to Frame Size (exterior)	
Frame Bevel	Conversions
0°	0
8°	+3/16" (5)
14°	+11/16" (17)

