Modern Casement and Awnings

Unit Features

Modern Abbreviations

Casement Crank-out: MCA
Casement Push-out: MCAPO
Casement Automated: MCAMOTO
Awning Crank-out: MAWN
Awning Push-out: MAWNPO
Awning Automated: MAWNMOTO
Modern Casement/Awning Picture: MCAP

Frame:

- High-Density Fiberglass exterior with aluminum interior covers
- Jamb Depth: 4 1/2” (114)
- Frame Thickness: 1 7/16” (37)
- Vinyl Nailing Fin: 2" (51)
- Optional Frame Filler

Glass and Glazing:

- All glass is of select quality complying with commercial industry standards.
- Preserve film applied on interior and exterior panes
- Glazing seal: Black silicone beading.
- Black Stainless Steel Spacer
- Dual-pane insulating glass thickness: 15/16" (23)
- Triple-pane insulating glass thickness: 1 1/4" (32)
- Insulating Glass Coatings: Low E1, Low E2, Low E3, Low ERS, Low ELR
- Gas Fill: Air, Argon
- Other Glass Types: Gray or Bronze Tint, Obscure, Frost
- Glass panes are based on overall unit size and may be 3.1, 3.9, 4.7, and 5.7 mm thicknesses
  - Low ELR units to 5.7mm sizes and below
  - Tint limited to 5.7mm pane thickness and 15/16" glass make-up
  - Frost is limited to 5.7mm and 3.9mm pane thicknesses
  - Obscure (Pattern 62) glass is limited to 4.7mm pane thickness and below

Unit Features

Electrical requirements (Automated only):

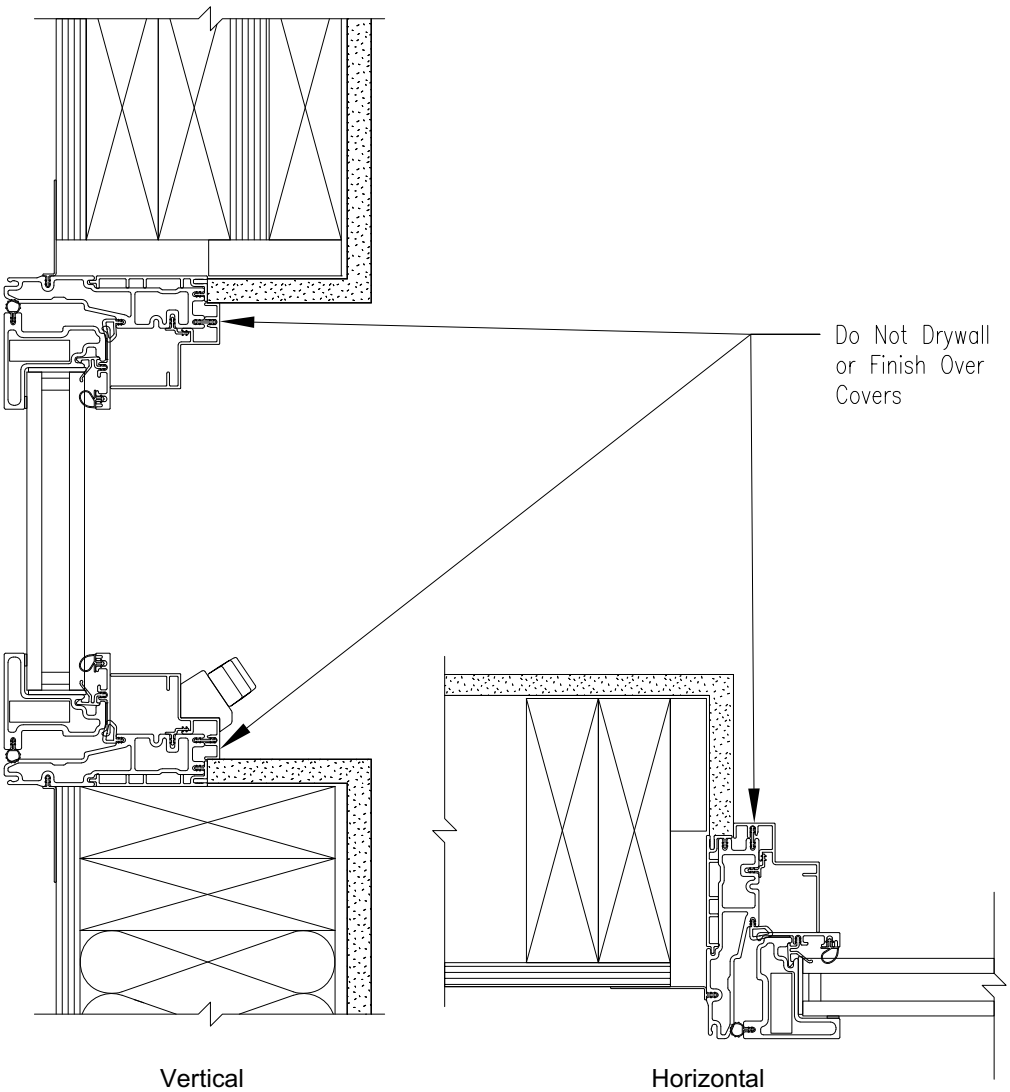
- Input voltage: 24VDC +/- 10%, 1A for each window
  - When idle, each window draws about 2 watts
  - Input voltage at the window must not exceed 26.5 VDC
- UL Certified

Mulling:

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

Installation

- Do not drywall/finish over interior covers so they can be removed if service is needed.



Vertical Horizontal

Unit Features Continued

CRANK-OUT HARDWARE

Casement and Awning Hardware:

- Folding handles
  - Color: Matte Black, Matte Bronze, Silver, Satin Nickel, Stone White
- Lever(s) with concealed multi-point locks
- Aluminum pole crank (Optional)
  - Color: mill finish
  - Sizes: 60" (1524), 96" (2438), 138" (3505)

NOTE: Aluminum pole crank intended to operate out of reach roto hardware

Casement Specific:

- Casement operator 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
  - Operation force at handle is 5 lbs. (2 kg) or less
- Casement hinges allow the user the ability to slide the sash across the frame opening so the sash exterior will rotate toward the user for the easy wash-mode
  - Each unit includes one single arm operator
- Hinges are stainless steel
- Casement hinges are designed to support up to a 145 pound sash

Awning Specific:

- Operation force at handle is 5 lbs. (2 kg) or less
- Each unit includes one single arm operator
- Hinges are stainless steel
- Awning hinges are designed to support up to a 212 pound sash

Custodial Sash Limiters

- Available with Casement and Awning.
- If Casement frame OM is larger than 32" (813) x 108" (2743), or 36" (914) x 102" (2591), 40" (1016) x 96" (2438), or 44" (1118) x 72" (1829) custodial limiters will be applied, limiting travel
- If Awning frame OM is larger than 72" (1829) x 72" (1829) custodial limiters will be applied, limiting travel

Lock Status Sensor (Optional):

- Available for all Casement and Awning operating units
- Refer to Lock Status Sensor Installation Instructions for requirements.
- Lock Status Sensor detects a locked or unlocked status. It allows easy integration with home automation systems using a wired or wireless connection.
  - For wired options, check with local codes on potential contractor requirements for low voltage networking connections.
  - Wireless option available. Requires purchase of secondary transmitter for operation. Marvin will prep for this.
- Wireless Lock Status sensor within the frame.
- Sensor Location
  - Casement - will be on locking side.
  - Awning - will be on both sides.
- For Wired or Wireless, Black or White Magnet Covers available only visible from secondary surfaces. Cover color dependent upon interior finish.
  - White: Stone White Painted Interior Finish
  - Black: All other finish options

Unit Features Continued

PUSH-OUT HARDWARE

Casement and Awning Hardware:

- Concealed handle and receiver
  - Color: Matte Black, Matte Bronze, Silver, Satin Nickel, Stone White
- Lever(s) with concealed multi-point locks.
- Stainless steel

Casement Specific:

- Casement hardware includes a friction limiter that allows the window to be opened and locked into several different positions.
- Casement hinges allow the user the ability to slide the sash across the frame opening so the sash exterior will rotate toward the user for the easy wash mode
- Hinges are stainless steel
- Casement hinges are designed to support up to a 145 pound sash

Awning Specific:

- Hinges are stainless steel
- Awning hinges are designed to support up to 130 pound sash

Custodial Sash Limiters:

- Available with Casement and Awning.
- If Casement frame OM is larger than 32" (813) x 108" (2743), or 36" (914) x 102" (2591), 40" (1016) x 96" (2438), or 44" (1118) x 72" (1829) custodial limiters will be applied, limiting travel
- If Awning frame OM is larger than 72" (1829) x 72" (1829) custodial limiters will be applied, limiting travel

Weather strip:

- Frame weather strip is made of a foamed EPDM material with a hollow built init to reduce compression force. The material is UV resistant, durable, has a low COE, and is flexible enough to be bent around 90 degree corners to allow for fewer seams in it around the frame
  - Color: Black
- Sash weather strip is made of glass filled polypropylene material and is formulated to be UV resistant, have low COE, and slide easily in and out of frame.
  - Color: Black

Screen:

- Fixed screen is an extruded aluminum full surround with an integrated flush latch to secure the screen into the frame opening
  - Available on the crank out casement and awning
- Inswing screen is an extruded aluminum full surround with an integrated continuous extruded aluminum hinge and an integrated flush latch to secure the screen into the frame opening.
  - Available on the push out casement and awning
- Screen frame is color matched to the interior frame color.
- Standard screen mesh is high transparency

Lock Status Sensor (Optional):

- Available for All casement and awning operating units
- Refer to Lock Status Sensor Installation Instructions for requirements.
- Lock Status Sensor detects a locked or unlocked status. It allows easy integration with home automation systems using a wired or wireless connection.
  - For wired options, check with local codes on potential contractor requirements for low voltage networking connections.
  - Wireless option available. Requires purchase of secondary transmitter for operation. Marvin will prep for this.
- Wireless Lock Status sensor within the frame.
- Sensor Location
  - Casement - will be on locking side.
  - Awning - will be on both sides.
- For Wired or Wireless, Black or White Magnet Covers available only visible from secondary surfaces. Cover color dependent upon interior finish.
  - White: Stone White Painted Interior Finish
  - Black: All other finish options

Unit Features Continued

AUTOMATED HARDWARE

Casement and Awning Hardware:

- No handles
- On-window switch on lower locking side jamb (Color: Stone White or Matte Black)
- Lock lever present on 38" and taller casements only with concealed multi-point locks
- Concealed locking and sash motors only visible when open
  - Color: Black and stainless steel

Casement Specific:

- Casement hardware allows manual operation and egress without power by throwing the lock lever and pressing another lever that disengages the sash cylinder - applicable to egress sized units only
- Removal of a short bolt is required to allow the user the ability to slide the sash across the frame opening so the sash exterior will rotate toward the user for wash-mode
- Hinges are stainless steel
- Casement hinges are designed to support up to a 145 pound sash

Awning Specific:

- No handles or lock levers, matches picture unit when closed (on window switch included on all)
- Hinges are stainless steel
- Awning hinges are designed to support up to 212 pound sash

Custodial Sash Limiters:

- Available with Casement and Awning.
- If Casement frame OM is larger than 32" (813) x 108" (2743), or 36" (914) x 102" (2591), 40" (1016) x 96" (2438), or 44" (1118) x 72" (1829) custodial limiters will be applied, limiting travel
- If Awning frame OM is larger than 72" (1829) x 72" (1829) custodial limiters will be applied, limiting travel

Weather strip:

- Frame weather strip is made of a foamed EPDM material with a hollow built in it to reduce compression force. The material is UV resistant, durable, and has a low COE. The weather strip is flexible enough to be bent around 90 degree corners to allow for fewer seams in it around the frame
  - Color: Black
- Sash weather strip is made of glass filled polypropylene material and is formulated to be UV resistant, have low COE, and slide easily in and out of frame
  - Color: Black

Screen:

- Fixed screen is an extruded aluminum full surround with an integrated flush latch to secure the screen into the frame opening
  - Available on Automated Casement and Awning
- Screen frame is color matched to the interior frame color
- Standard screen mesh is high transparency

Unit Features Continued

AUTOMATED HARDWARE (Continued)

Lock Status Sensor (Optional):

- Available for Casement units 32" and taller and awning units 32" and wider
- Refer to Lock Status Sensor Installation Instructions for requirements.
- Lock Status Sensor detects a locked or unlocked status. It allows easy integration with home automation systems using a wired or wireless connection.
  - For wired options, check with local codes on potential contractor requirements for low voltage networking connections.
  - Wireless ready: Requires purchase of secondary transmitter for operation. Marvin will prep for this.
- Lock Status Sensor integrated on the locking mechanism, wire leads can be connected locally at the window to a wireless sensor hidden in the routed pocket, or run back to a security panel or other automation device/system.
- Lock Status Sensor is an independent option on automated units
- Sensor Location
  - Casement - will be on locking side.
  - Awning - will be on the sill.
- For Wired or Wireless, Black or White Magnet Covers available only visible from secondary surfaces. Cover color dependent upon interior finish.
  - White: Stone White
  - Black: All other finish options

Measurement Conversions

Unit Measurements		Width		Height	
From	**To**				
Rough Opening		**in**	**mm**	**in**	**mm**
Masonry Opening	Rough Opening	+ 1	(38)	+ 1/2	(19)
OM of Frame	Rough Opening	+ 1 1/2	(38)	+ 3/4	(19)
Daylight Opening	Rough Opening	+ 7 3/64	(179)	+ 6 19/64	(160)
Frame		**in**	**mm**	**in**	**mm**
Daylight Opening	OM of Frame	+ 5 35/64	(141)	+ 5 35/64	(141)
Sash		**in**	**mm**	**in**	**mm**
OM of Frame	OM of Sash	-1 35/64	-(39)	-1 35/64	-(39)
Glass		**in**	**mm**	**in**	**mm**
OM of Frame	Glass	-4 5/64	-(103)	-4 5/64	-(103)
Daylight Opening	Glass	+ 1 31/64	(38)	+ 1 31/64	(38)
Screen		**in**	**mm**	**in**	**mm**
OM of Frame	OM of Screen	-3 11/64	-(81)	-3 11/64	-(81)
Net Clear Opening		**in**	**mm**	**in**	**mm**
OM of Frame	NCO*	-7 9/16	-(192)	-4 45/64	-(119)
OM of Motorized Frame	NCO*	Refer to chart	-(192)	-4 45/64	-(119)

* NCO is only applicable for Casement.

Casement Custodial Sash Limiter Requirements			
Frame Size	Operation		Units larger than what is shown in either dimension requires a custodial sash limiter. Ex: 44 X 73 requires custodial sash limiter.
32X108	Unlimited		
36X102	Unlimited		
40X96	Unlimited		
44X72	Unlimited		

Awning Custodial Sash Limiter Requirements			
Frame Size	Operation		Units that exceed 72.000 height require custodial sash limiter. Units that exceed 72.000 width and 23.999 height require custodial sash limiter. Custodial sash limiter not available on units under 24.000 height.
72X72	Unlimited		

Certified Sizes

Product	Air Tested to PSF	Water Tested to PSF	Design Pressure (DP)	Certification Rating	Max Overall Width		Max Overall Height	
					in	mm	in	mm
MCA, MCAPO, MCAMOTO	1.57	12.1	50	CW-PG50-C	32	(813)	108	(2743)
MCA, MCAPO, MCAMOTO	1.57	12.1	50	CW-PG50-C	36	(914)	102	(2591)
MCA, MCAPO, MCAMOTO	1.57	12.1	50	CW-PG50-C	40	(1016)	96	(2438)
MCA, MCAPO, MCAMOTO	1.57	12.1	50	CW-PG50-C	44	(1118)	92	(2337)
MAWN	1.57	12.1	50	CW-PG50-C	64	(1626)	96	(2438)
MAWN	1.57	12.1	45	LC-PG45-C	96	(2438)	64	(1626)
MAWN	1.57	12.1	50	CW-PG50-C	72	(1829)	72	(1829)
MAWNPO	1.57	12.1	50	CW-PG50-C	89	(2261)	48	(1219)
MAWNMOTO	1.57	12.1	50	CW-PG50-C	96	(2438)	40	(1016)
MAWNMOTO	1.57	12.1	50	CW-PG50-C	92	(2337)	44	(1118)
MCAP	1.57	12.1	50	CW-PG50-FW	108	(2743)	74	(1880)
MCAP	1.57	12.1	50	CW-PG50-FW	74	(1880)	108	(2743)
MCAP	1.57	12.1	50	CW-PG50-FW	102	(2591)	79	(2007)
MCAP	1.57	12.1	50	CW-PG50-FW	79	(2007)	102	(2591)
MCAP	1.57	12.1	50	CW-PG50-FW	96	(2438)	84	(2134)
MCAP	1.57	12.1	50	CW-PG50-FW	84	(2134)	96	(2438)
* **Casement Mull (all products)	1.57	7.5	40	CW-PG40-FW	168	(4267)	96	(2438)
* **Casement Mull (all products)	1.57	7.5	40	CW-PG40-FW	96	(2438)	168	(4267)

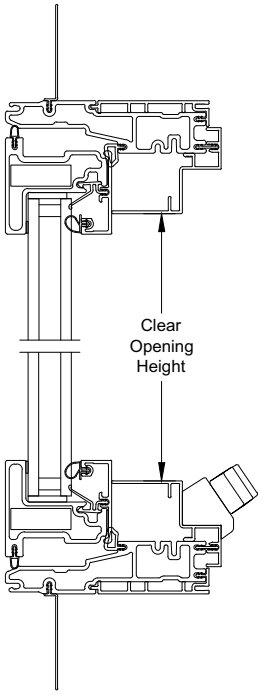
* 84" max tributary span

** Includes Ribbon and Stacked Mulls. Does not include Multi-Wide/Multi-High configurations.

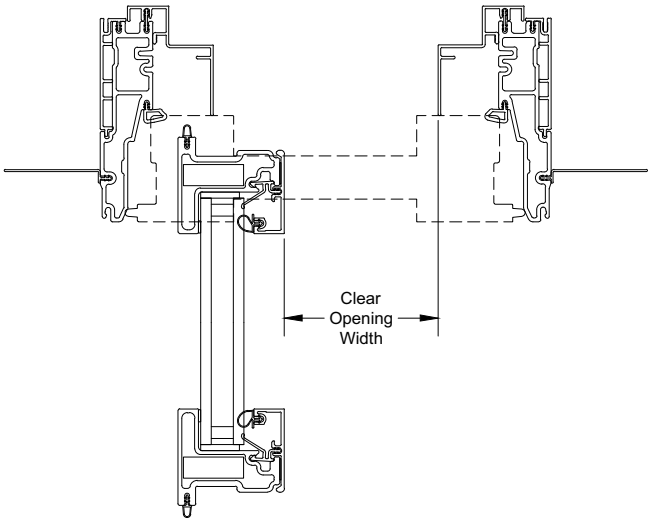
Minimum and Maximum Guidelines

Unit Type		Frame Size Min Width		Frame Size Min Height		Frame Size Max Width		Frame Size Max Height		Glass Limit	
		in	mm	in	mm	in	mm	in	mm	ft2	Sq. Meters
MCA	Insulating Glass	20	(512)	16	(410)	32	(819)	108	(2765)	20.2	1.87
						36	(922)	102	(2611)	21.7	2.02
						40	(1024)	96	(2458)	22.9	2.13
						44	(1126)	92	(2355)	24.4	2.26
MCA	Lock Status Sensor	20	(512)	18.5	(474)	32	(819)	108	(2765)	20.2	1.87
						36	(922)	102	(2611)	21.7	2.02
						40	(1024)	96	(2458)	22.9	2.13
						44	(1126)	92	(2355)	24.4	2.26
MCAPO	Insulating Glass	20	(512)	24	(614)	32	(819)	108	(2765)	20.2	1.87
						36	(922)	102	(2611)	21.7	2.02
						40	(1024)	96	(2458)	22.9	2.13
						44	(1126)	92	(2355)	24.4	2.26
MCAPO	Lock Status Sensor	20	(512)	29	(742)	32	(819)	108	(2765)	20.2	1.87
						36	(922)	102	(2611)	21.7	2.02
						40	(1024)	96	(2458)	22.9	2.13
						44	(1126)	92	(2355)	24.4	2.26
MCAMOTO	Insulating Glass	20	(512)	23.5	(602)	32	(819)	108	(2765)	20.2	1.87
						36	(922)	102	(2611)	21.7	2.02
						40	(1024)	96	(2458)	22.9	2.13
						44	(1126)	92	(2355)	24.4	2.26
MCAMOTO	Lock Status Sensor	20	(512)	32	(819)	32	(819)	108	(2765)	20.2	1.87
						36	(922)	102	(2611)	21.7	2.02
						40	(1024)	96	(2458)	22.9	2.13
						44	(1126)	92	(2355)	24.4	2.26
MAWN	Insulating Glass	20	(512)	16	(410)	72	(1843)	72	(1843)	32.0	2.98
						64	(1638)	96	(2458)	38.3	3.55
						96	(2458)	64	(1638)	38.3	3.55
MAWN	Lock Status Sensor	20	(512)	20	(512)	72	(1843)	72	(1843)	32.0	2.98
						64	(1638)	96	(2458)	38.3	3.55
						96	(2458)	64	(1638)	38.3	3.55
MAWNPO	Insulating Glass	20	(512)	16	(410)	89	(2278)	48	(1229)	25.9	2.41
MAWNPO	Lock Status Sensor	20	(512)	20	(512)	89	(2278)	48	(1229)	25.9	2.41
MAWNMOTO	Insulating Glass	23.5	(602)	18	(461)	96	(2458)	44	(1126)	25.5	2.37
MAWNMOTO	Lock Status Sensor	32	(819)	18	(461)	96	(2458)	44	(1126)	25.5	2.37
MCAP	Insulating Glass	20	(512)	16	(410)	108	(2765)	74	(1894)	50.5	4.69
						74	(1894)	108	(2765)	50.5	4.69
						102	(2611)	79	(2022)	51.0	4.73
						79	(2022)	102	(2611)	51.0	4.73
						96	(2458)	84	(2150)	51.0	4.74
						84	(2150)	96	(2458)	51.0	4.74

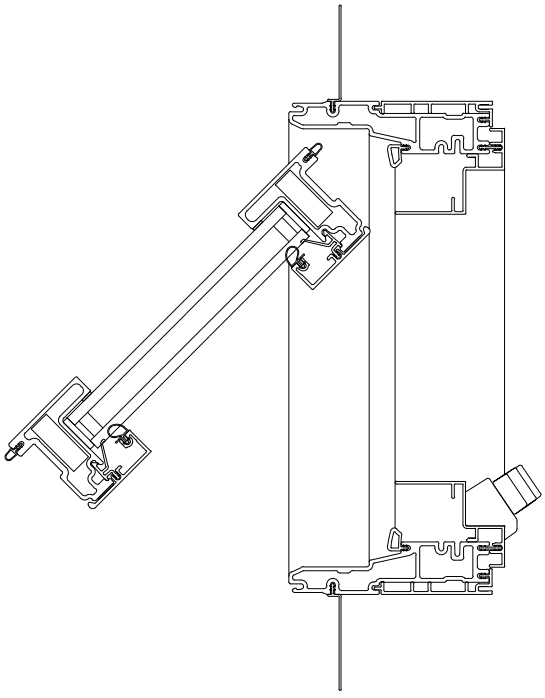
Egress and Vent Opening Measurements



Casement and Awning
Head Jamb and Sill



Casement
Jambs



Awning
Vent Opening

Automated Casement Egress Chart

Modern Automated Casement																	
	Frame width (inches)	20.000	26.999	27.000	28.000	29.749	29.750	30.000	32.000	34.000	34.999	35.000	36.000	38.000	40.000	42.000	44.000
Frame Height (inches)	Max Sash Opening Angle	54 degrees		75 degrees			69 degrees					55 degrees					
23.500																	
37.999				38" is the minimum frame height for egress*													
38.000																	
40.000																	
42.000																	
44.000																	
46.000																	
72.000																	
72.001							Egress Sizes										
92.000																	
92.001																	
96.000																	
96.001																	
102.000																	
102.001																	
108.000																	

Custodial Sash Limiter Required

* 38" is the minimum frame height to use the manual capable lock actuator needed for manual egress

Automated Awning Opening Angle Chart

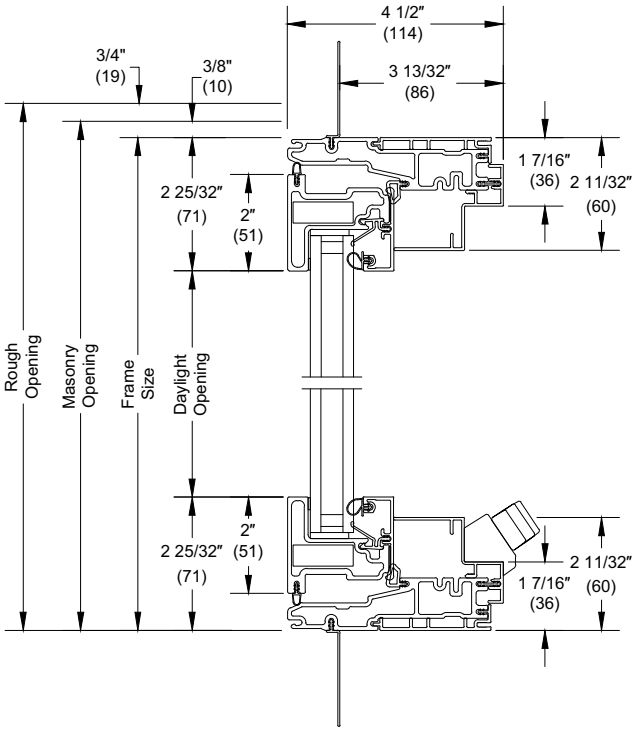
Modern Automated Awning							
	Frame width (inches)	23.500	72.000	72.001	92.000	92.001	96.000
Frame Height (inches)	Max sash opening angle						
18.000	27 degrees						
19.999							
20.000	36 degrees						
23.999							
24.000							
29.749							
29.750	25 degrees						
35.999							
36.000	23 degrees						
40.000							
40.001							
44.000							

Non-Certified Sizes
Custodial Sash Limiter Required

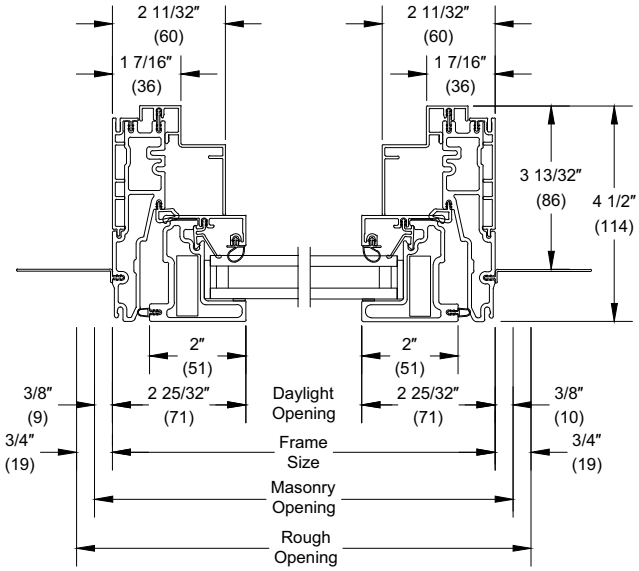
Section Details: Operating Crank-out

Scale: 3" = 1' 0"

15/16" Dual Pane Glass

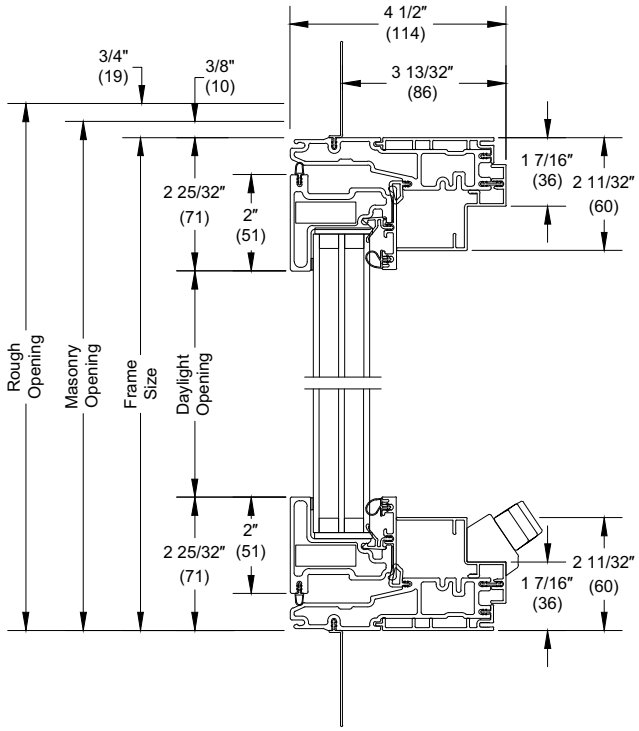


Head Jamb and Sill

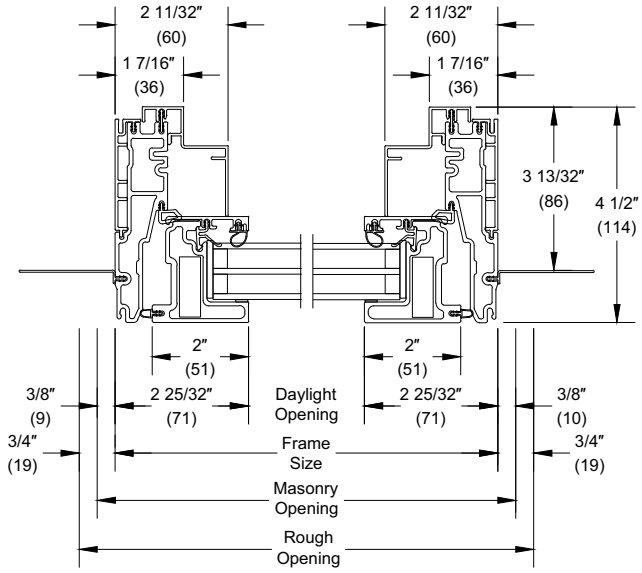


Jambs

1 1/4" Tripane Glass



Head Jamb and Sill

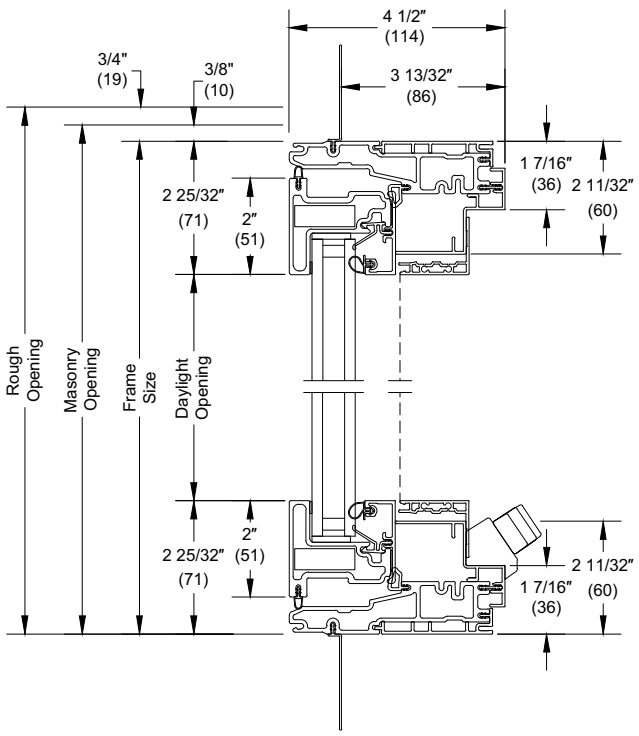


Jambs

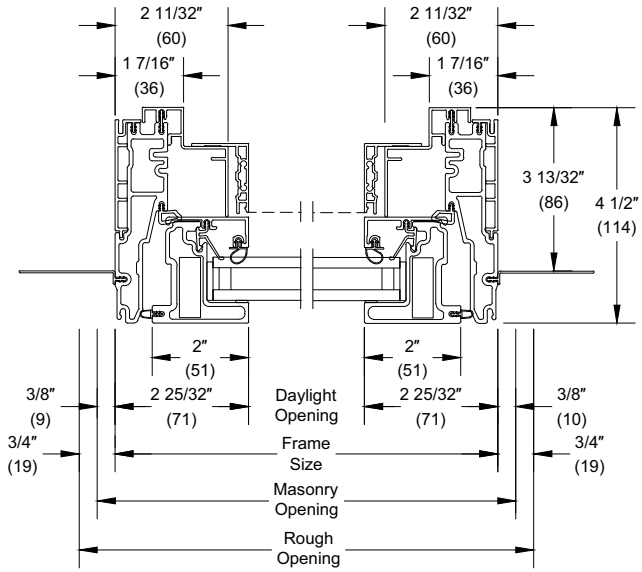
Section Details: Operating Crank-out with Screen

Scale: 3" = 1' 0"

Casement

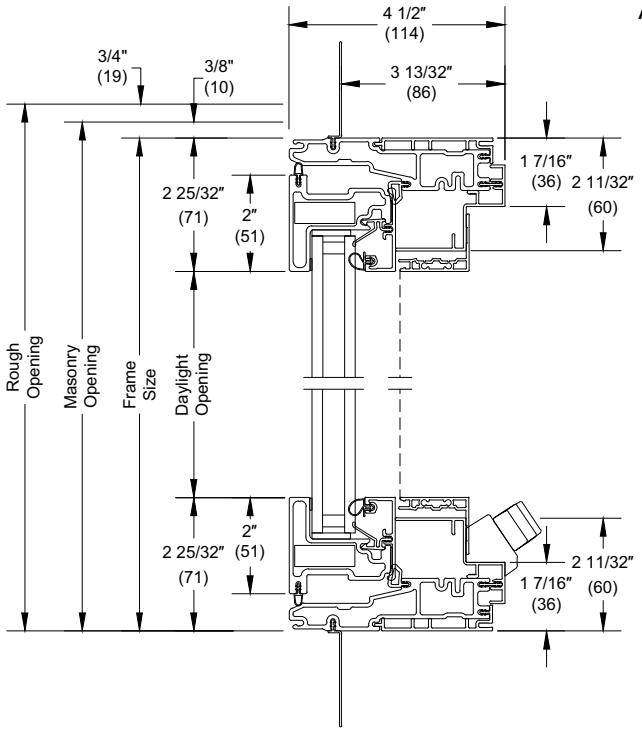


Head Jamb and Sill

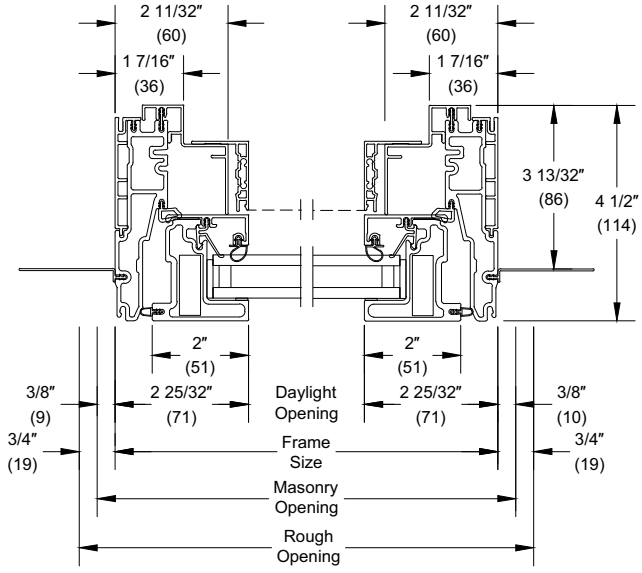


Jambs

Awning



Head Jamb and Sill

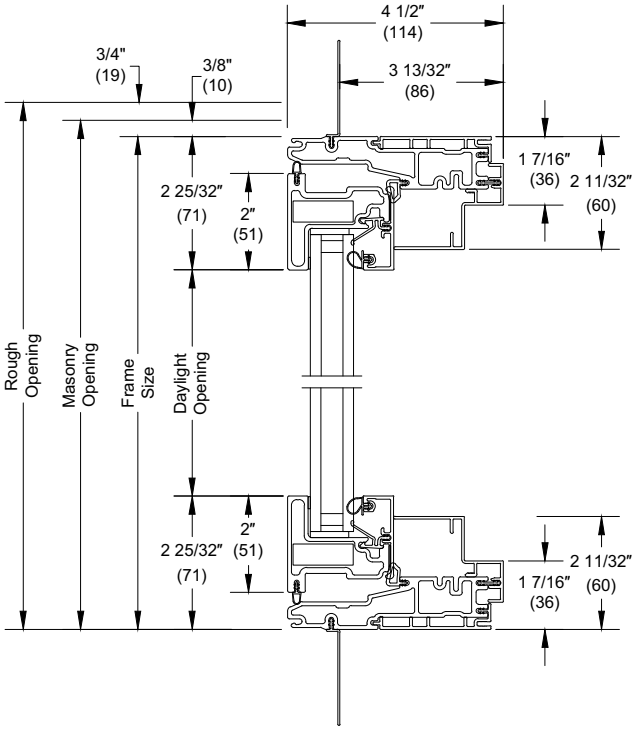


Jambs

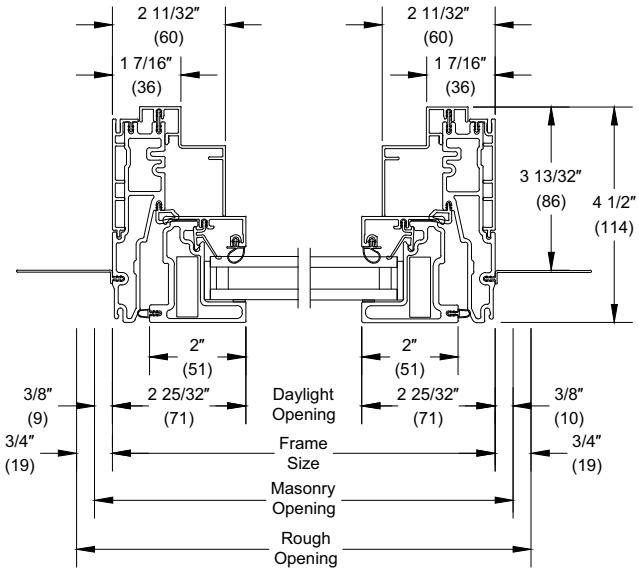
Section Details: Operating Push-out

Scale: 3" = 1' 0"

15/16" Dual Pane Glass

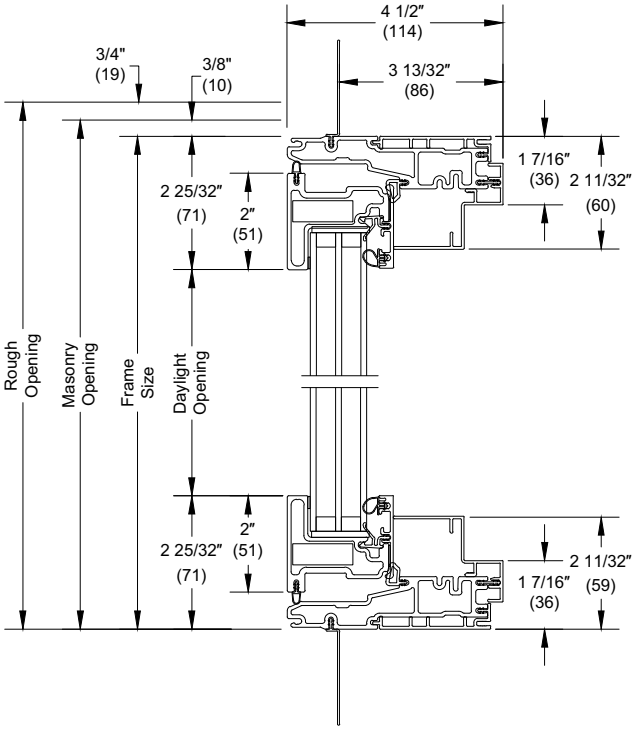


Head Jamb and Sill

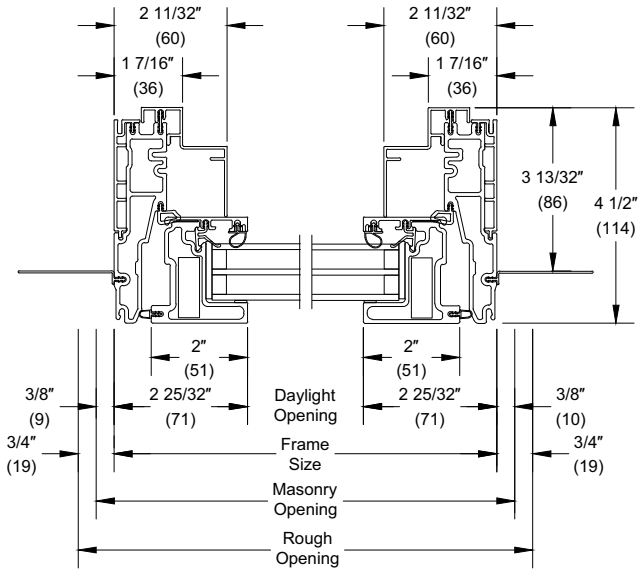


Jambs

1 1/4" Tripane Glass



Head Jamb and Sill

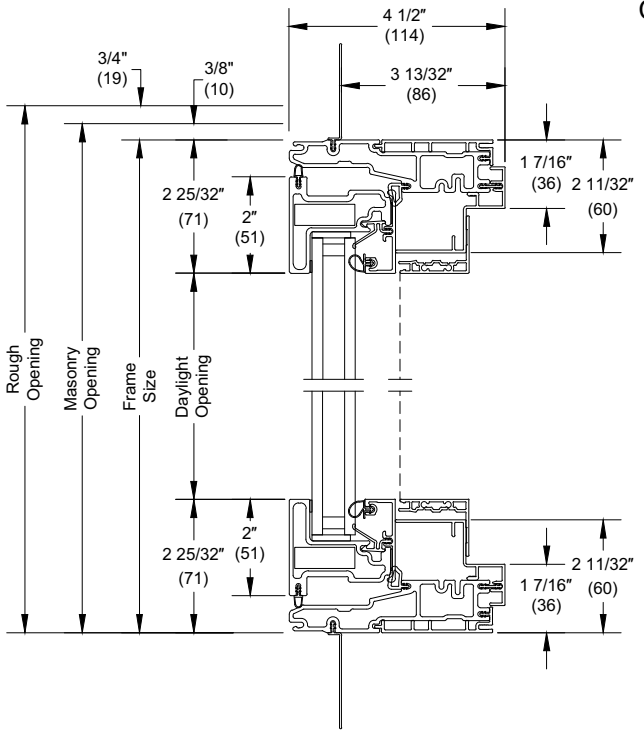


Jambs

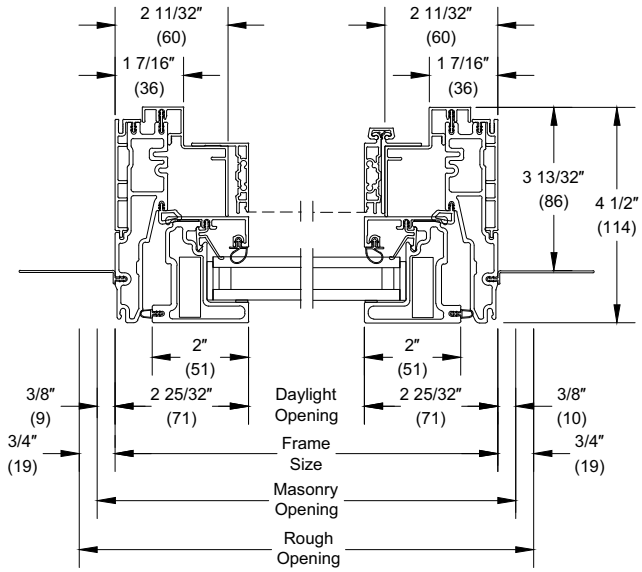
Section Details: Operating Push-out with Screen

Scale: 3" = 1' 0"

Casement

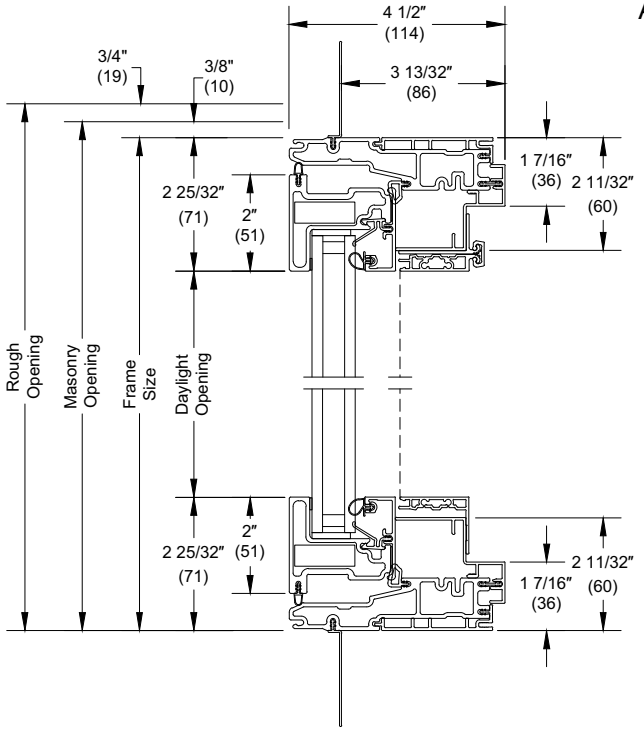


Head Jamb and Sill

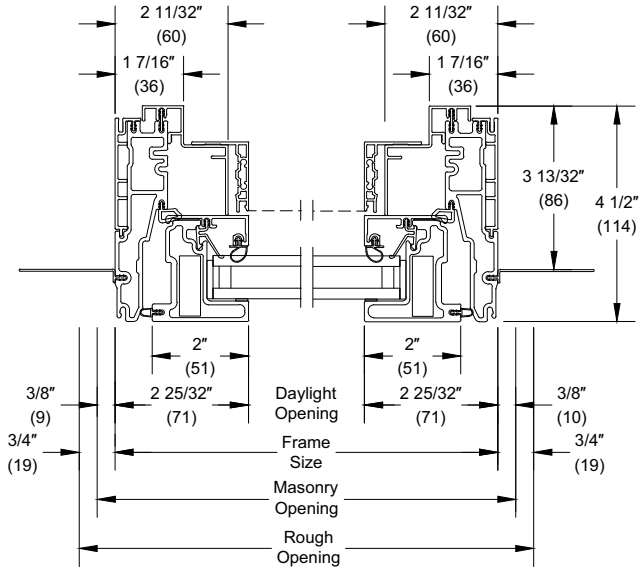


Jambs

Awning



Head Jamb and Sill

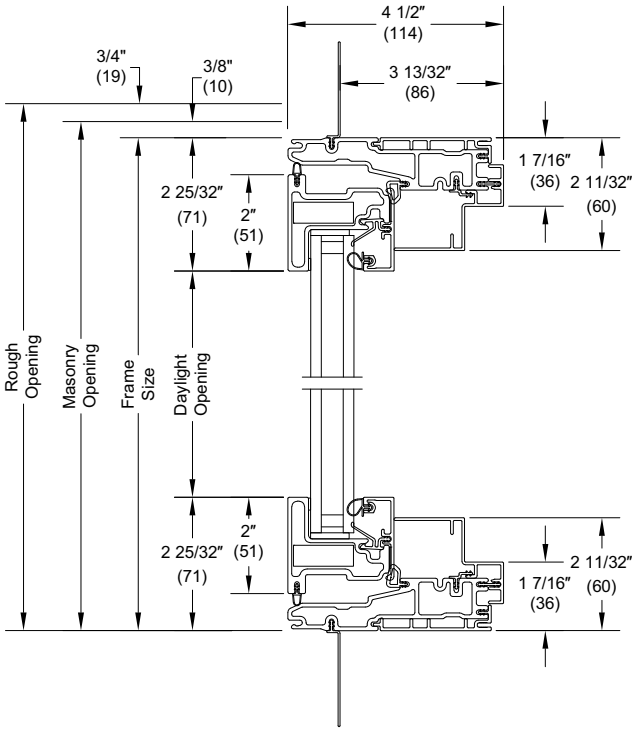


Jambs

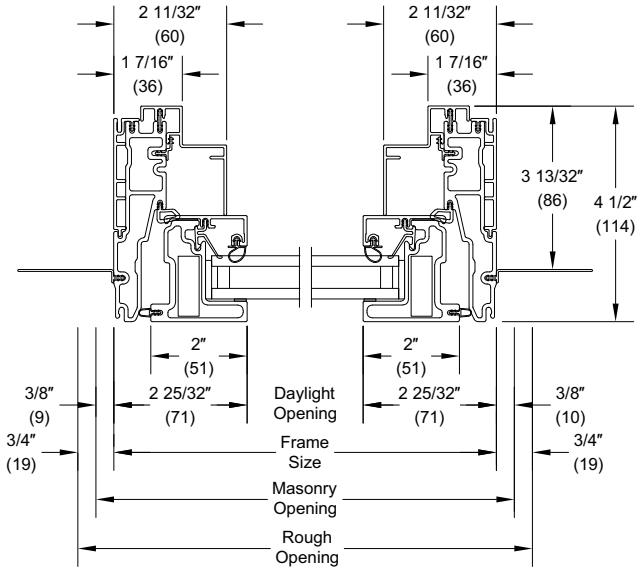
Section Details: Casement Picture

Scale: 3" = 1' 0"

15/16" Dual Pane Glass

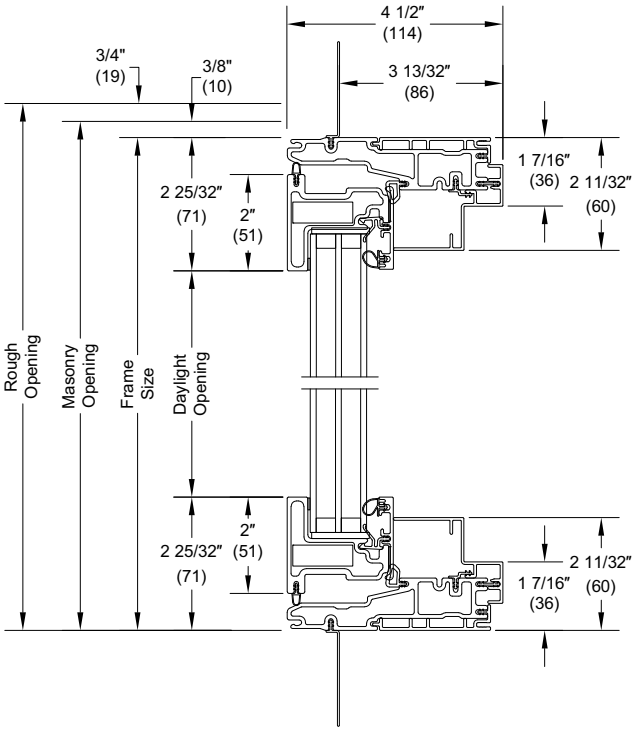


Head Jamb and Sill

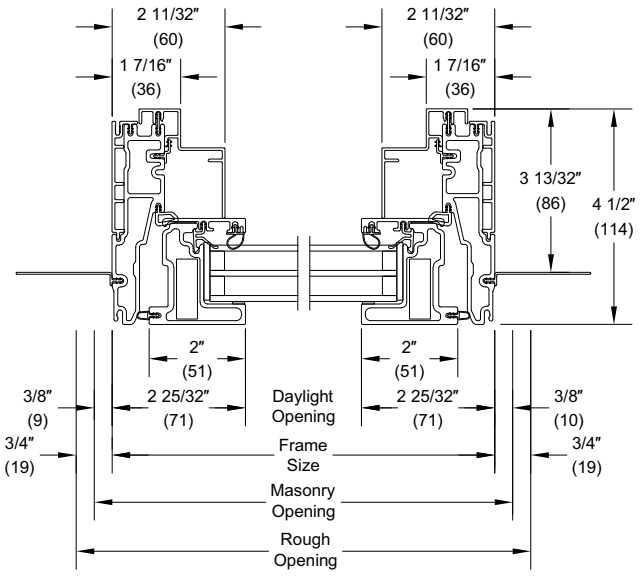


Jambs

1 1/4" Tripane Glass



Head Jamb and Sill

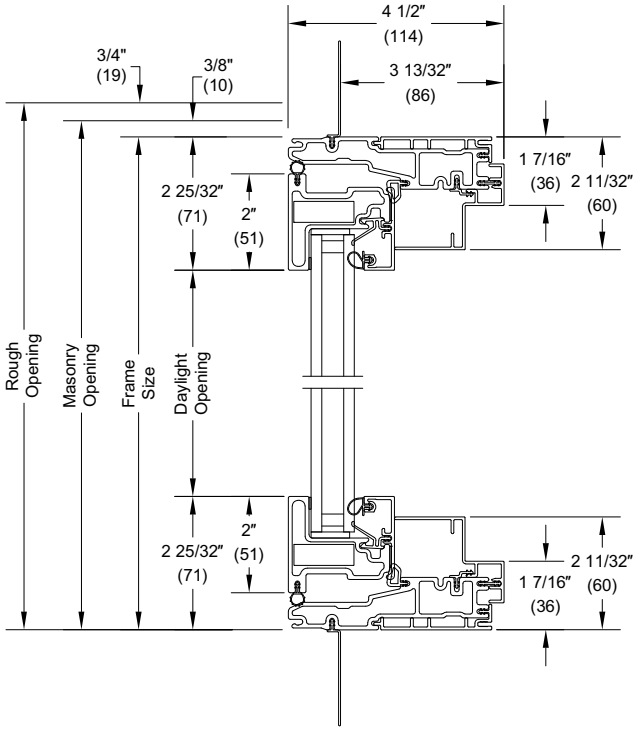


Jambs

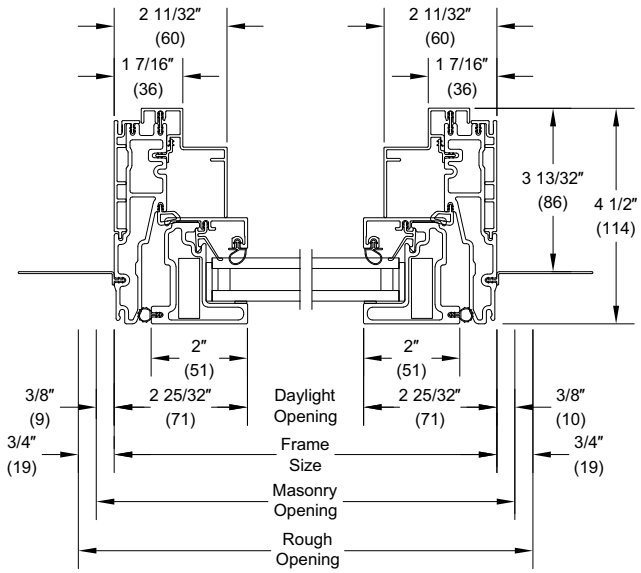
Section Details: Automated

Scale: 3" = 1' 0"

15/16" Dual Pane Glass

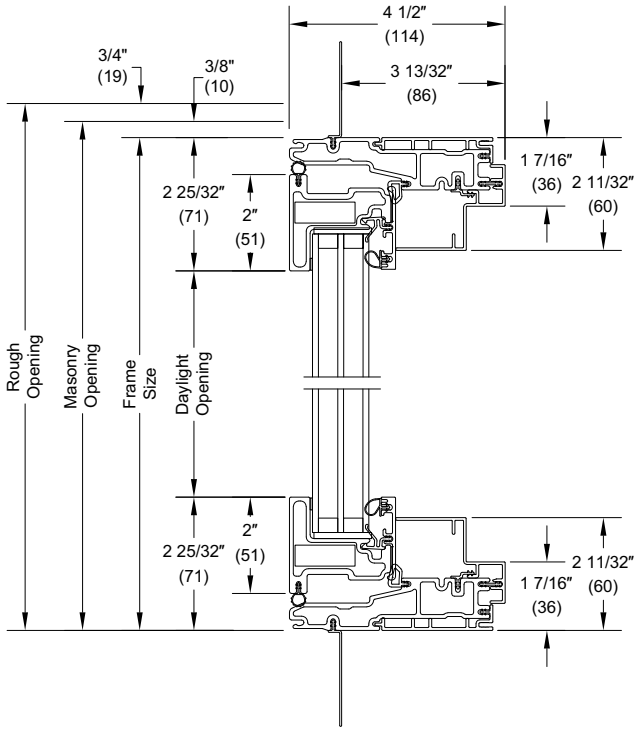


Head Jamb and Sill

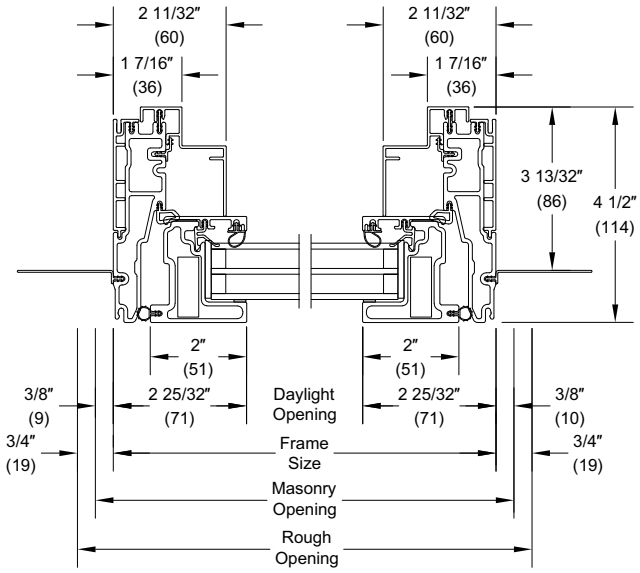


Jambs

1 1/4" Tripane Glass



Head Jamb and Sill



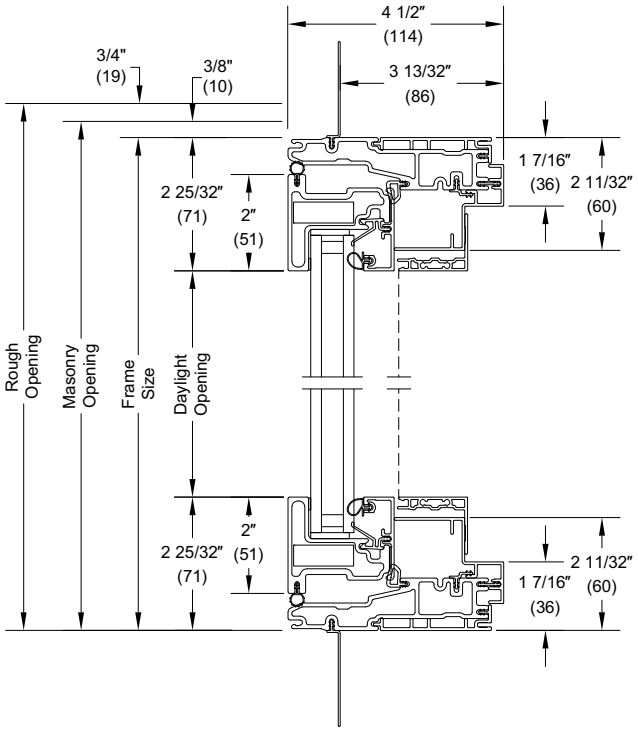
Jambs

NOTE: All automation components sit within the interior covers.

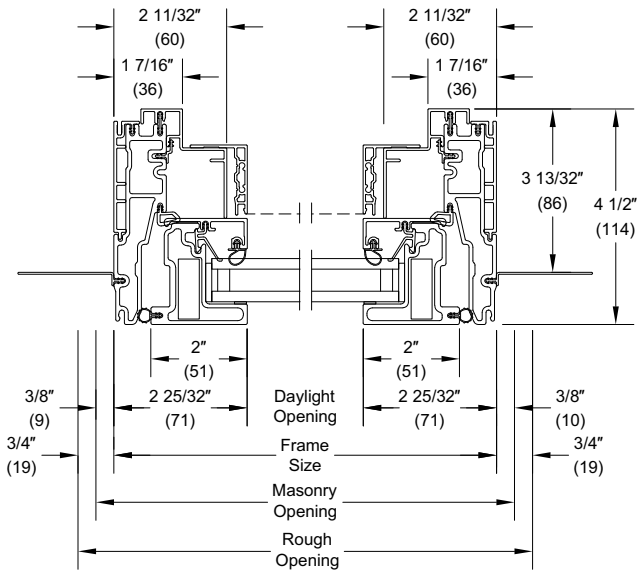
Section Details: Automated with Screen

Scale: 3" = 1' 0"

Casement

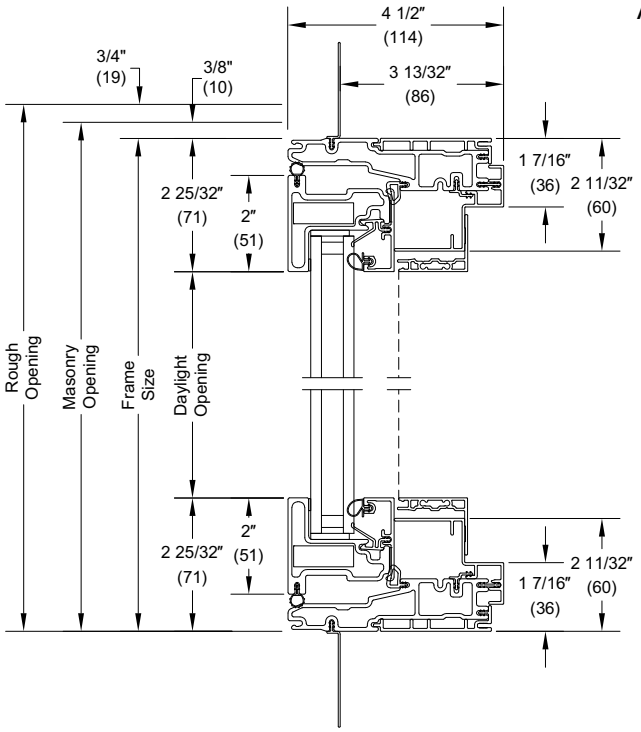


Head Jamb and Sill

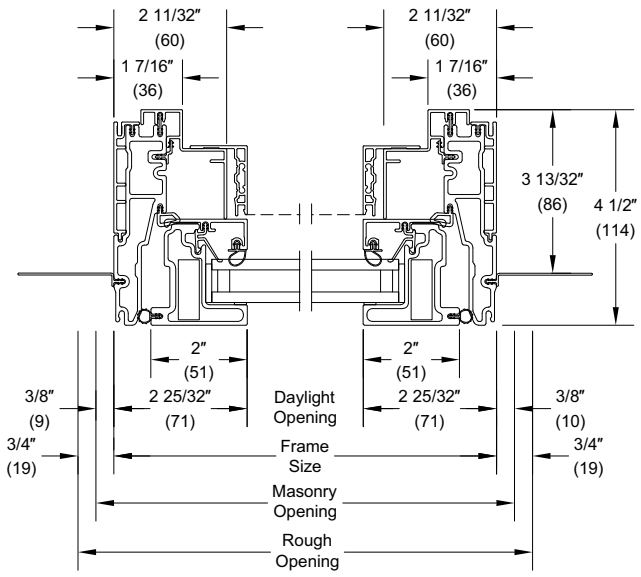


Jambs

Awning



Head Jamb and Sill

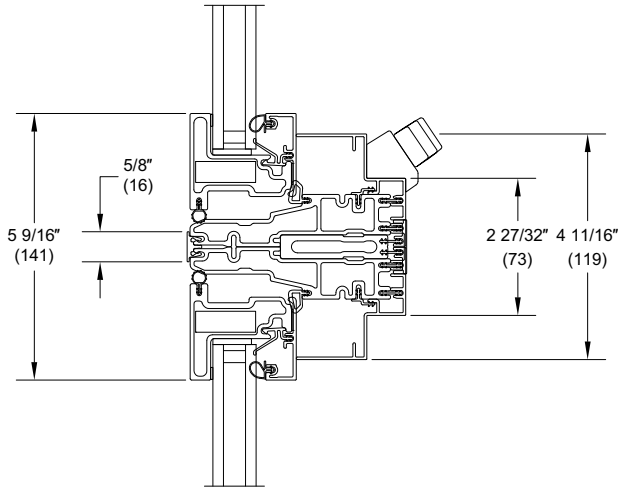


Jambs

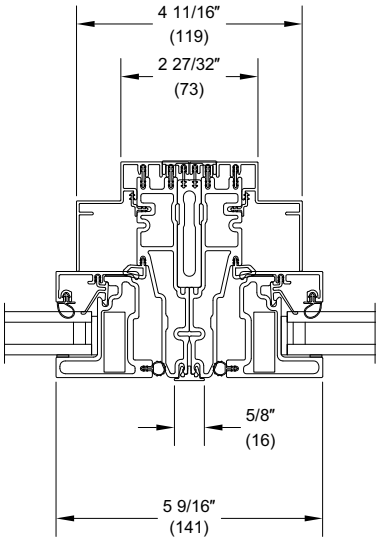
NOTE: All automation components sit within the interior covers.

Section Details: Modern Casement - Mullions

15/16" Dual Pane Glass



Head Jamb and Sill

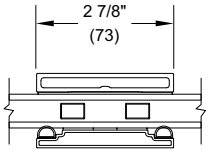


Jambs

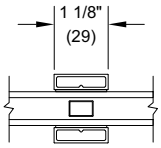
NOTE: Refer to the Mull ADM for more information on mulling options.

Automated units can be mulled, but certain mulls between units in the middle of an assembly may prevent access to wiring routes. For example, mulls around the center unit in a 3x3 assembly may block access. Check with an electrician to ensure enough room is provided for at least two conductors of 16 gauge wire plus any time needed for an optional wall switch.

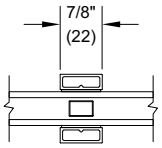
Divided Lite Options



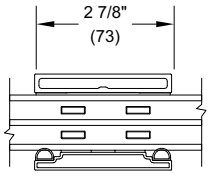
2 7/8" SDL
15/16" Dual Pane



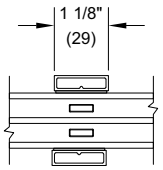
1 1/8" SDL
15/16" Dual Pane



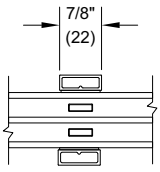
7/8" SDL
15/16" Dual Pane



2 7/8" SDL
1 1/4" Tripane



1 1/8" SDL
1 1/4" Tripane



7/8" SDL
1 1/4" Tripane

NOTE: Due to the inherent qualities of tempered glass, daylight gaps may be seen when using simulated divided lite bars.

Daylight gaps could be visible between the internal spacer bar and surface applied bars when viewing from an acute angle to the glass on the following applications:

- Tempered glass over 72" high while using 5/8" SDL bars
- Tempered glass over 91" high while using 7/8" SDL bars.