

# Architectural Binder Section SL60

## SL60 — The Standard Thermally Broken Aluminum Framed Folding System

The SL60 is a thermally broken, aluminum folding panel system designed to provide an opening glass wall for openings up to 39 feet (12 m) wide. It is appropriate for mostly residential applications where high levels of resistance to air and water infiltration are desired. SL60 is available in various configurations utilizing one to twelve panels; units can be either inward opening or outward opening. Configurations with swing entry/exit panel(s) exist; note the further panel size constraints with a swing panel not hinged to a side jamb.

For benefits of all NanaWall systems, see the “General Introduction” section. For features common to aluminum folding systems, see the “Aluminum Folding Systems” Introduction.

### High Weather Resistance

The system is engineered to provide high weather resistance and structural performance. Excellent independent testing results were achieved per AAMA/WDMA/CSA 101/IS.2/A440 standards. The inward opening unit with higher weather performance (raised) sill tested with no water entry at 12 psf and the outward opening unit with the same sill tested with no water entry at 9 psf. See the “Performance and Testing Results” section for more details.

### NFRC-Approved Thermal Performance

The SL60 has been rated, certified, and labeled in accordance with NFRC 100 and 200; see the “Performance and Testing Results” section for more details. Meets Energy Star values with selected glazing, STC ratings.

### Florida Approval

The SL60 system is Florida statewide approved with Product Approval number FL37263. This information with limitations can be viewed at <http://www.floridabuilding.org>.

### Acoustical Performance

The SL60 system has been tested by an independent acoustic lab for acoustical performance. The SL60 with Raised Sill (higher weather performance sill) and STC 38 laminated glass achieved STC and Rw values of 36.

### Life Cycle Performance

The SL60 meets the German “DIN EN 1191/12400 Classification,” where a unit is tested after 20,000 opening and closing cycles and is still functional.

### Superior Thermal Break

The system is thermally broken with a wide polyamide plastic

reinforced with glass fibers. This thermal barrier provides increased strength, superior humidity control, improved acoustics, and energy savings.

### Top Hung or Floor Mounted

On the top hung SL60/o, the main weight is carried by the head track. On the floor-mounted SL60/u, the lower running carriages ride on top of the sill track. Variable interlocking profiles minimize expansion problems.

### Especially for High Rises: Easy Cleaning Feature

For high rise, top hung inward opening window applications, there is an easy hinge removal option, facilitating glass cleaning from the inside.

### Dual Color Option

The option of different finishes on the inside and outside is available; see the “Color Selection” section in General Introduction.

### Hardware Options

For the main entry panel, several different locking options are available.

### Frame and Panels

The nominal extruded aluminum frame and panel thickness is 2 3/8" (60 mm), thermally broken with a wide polyamide plastic; see section drawings. In addition to the choices from the NanaWall Powder Coating Finish Chart, the full range of RAL high gloss and matte powder coatings are available. It is possible to have different finishes on the interior and exterior surfaces.

Panel stiles and rails are connected by special cast-alloy, thermally broken corner fittings that incorporate hinge components, with finish that will be closest powder coat match to finish of frame and panels. Panels are pre-assembled, and all pins and screws needed to assemble frames are provided.

Besides the more weather resistant Raised Sill in profile matching finish, various other thermally broken aluminum sills (shown in section drawings) are available as an option in a clear or dark bronze anodized finish.

### Glazing

Units can be supplied either glazed with 15/16" (24 mm) clear insulating tempered or insulating Low-E tempered glass or other high performing safety glass such as Heat Mirror, Triple Glazed, acoustic, special tint, etc., or other glass on request.

See “Glazing” in the General Introduction for other glass thickness possible.

### Weatherstripping

All weather-stripping (consisting of EPDM or brush seals) is provided for sealing between panels and between panel and frame; see section drawings.

### Sliding/Folding Hardware

For sliding and folding of each pair of panels for the SL60/o system, attached to the upper corner of the panel (as indicated on the section drawings) is an upper load-bearing running carriage. Attached as a guide to the lower corner of that panel is a lower-running carriage. The double pair, twin-tandem, upper-running carriage is constructed to ensure even distribution of pressure on all four rollers.

For the SL60/u system, a floor supported, two-wheeled, lower-running carriage is attached to the lower corner of a panel, and an upper-running carriage is attached to the upper corner of that panel as a guide. Rollers have sealed bearings and are coated with toughened Polyamide to ensure quiet running and optimal resistance to extreme temperature. Hinges at the corners of each panel are provided to connect panels together and to connect panels to frames.

For commercial applications with a swing panel attached to the side jamb, heavy duty surface mounted hinges are provided.

### Locking Hardware and Handle Options

For each pair of folding panels (except for the pair to be opened first in a unit with no swing panels), provided is two-point locking hardware consisting of top and bottom Polyamide capped locking bolts operated by a 180° turn of a flat handle on the inside only. Locking is independently tested for acoustics, structural, air, water, and forced entry.

For a unit with a **swing panel**, there are the following hardware options on the main entry panel:

**1. Multi-point locking** consisting of lever handles on both sides, a lockset, lockable latch, deadbolt and rods at the top and the bottom. After turn of key or thumbturn, depression of handles withdraws latch, lifting of handles engages rods and turn of key or thumbturn engages deadbolt and locks. Available with European profile cylinder or an adapter to accommodate a 5-7 pin SFIC core (SFIC core supplied by others).

**2. Deadbolt Lock** on swing panels attached to the side jamb and surface mounted hinges only that consist of push/pull

handles on both sides with deadbolt(s) operated by a lockset. Turn of key or thumb turn operates lock. Available is a lockset option of having key operation on both sides and secured with European profile cylinder or an adapter to accommodate a 5-7 pin SFIC core (SFIC core supplied by others). To keep the panel closed, a door closer should be field installed, but please note that a door closer by others can only be installed for a swing panel that is attached to the side jamb.

**3. No Hardware** on swing panels attached to the side jamb and surface mounted hinges only.

For a unit with a **secondary swing panel**, available are matching dummy lever handles on both sides and concealed flush bolts that operate the rods at the top and the bottom.

For a unit with **no swing panel**, on the folding pair to be opened first, provided is two-point locking hardware consisting of top and bottom Polyamide capped locking rods operated by a 180° turn on the inside of a L-shaped handle for an inward opening unit and a flat handle for an outward opening unit. In both cases, there will be a flat handle on the outside. Lockable with a lockset. Turn of key or thumb turn operates lock. Please note that for an outward opening unit, locking from the inside will need to be with a key that may not meet egress requirements.

For a unit where locking/handles on the inside only is desired, like in window applications, on all swing panels or pair of folding panels to be opened first, provided is two-point locking with a flat handle on the inside only.

### Handle Finish Schemes:

Standard – Stainless steel lever, flat and L-shaped handles in brushed satin or black titanium finish.

Push/pull handles in brushed stainless steel.

Optional – Brass lever handles in oil rubbed, satin nickel or white finish and flat handles closest powdercoat match to panel aluminum finish.



## Higher Weather Performance (Raised) Sill

## SL60

TYPE OF TEST	INWARD OPENING UNITS	OUTWARD OPENING UNITS
 <b>Air Infiltration</b> <sup>①</sup> ASTM E-283, ft <sup>3</sup> /min./ft. In accordance with NFRC 400	@ <b>1.57</b> psf (75 Pa): <b>0.02</b> (0.01 exfiltration) <b>A3</b> <sup>③</sup>	@ <b>1.57</b> psf (75 Pa): <b>0.01</b> (0.02 exfiltration) <b>A3</b> <sup>③</sup>
	@ <b>6.24</b> psf (300 Pa): <b>0.06</b>	@ <b>6.24</b> psf (300 Pa): <b>0.01</b>
 <b>Water Penetration</b> <sup>①*</sup> ASTM E-547 and E-331	No uncontrolled water entry @ <b>7.5</b> psf (360 Pa)	No uncontrolled water entry @ <b>7.5</b> psf (360 Pa)
 <b>Structural Load Deflection</b> ASTM E-330: pass <b>See design windload charts for other sized panels</b> <i>Note that the structural test pressures were 50% higher than the design pressures.</i>	<b>DESIGN PRESSURE</b> <sup>②</sup> Positive @ <b>45</b> psf (2160 Pa) Negative @ <b>45</b> psf (2160 Pa) Class SP-PG45, Panel size - 2' 11" x 7' 9" (899 mm x 2362) mm <sup>③</sup>	<b>DESIGN PRESSURE</b> <sup>②</sup> Positive @ <b>45</b> psf (2160 Pa) Negative @ <b>40</b> psf (1920 Pa) Class SP-PG45, Panel size - 2' 11" x 7' 9" (899 mm x 2362) mm <sup>③</sup>
	In accordance with AAMA-1304 requirements	
 <b>Forced Entry Resistance</b> <sup>①</sup>		
 <b>Life Cycle Performance</b>	The SL60 meets the German "DIN EN 1191/12400 Classification," where a unit is tested after 20,000 opening and closing cycles and is still functional.	
 <b>Acoustical Performance</b> <sup>④</sup>	Achieved STC and Rw values of 36 with STC 38 laminated glass.	

① Excerpts of results of 9' 5" W x 8' 2 1/2" H three panel units (3L and 3R configurations) tested by Architectural Testing, Inc., Fresno, CA, an independent testing laboratory in August 2006.

② Excerpts of results of 9' 7" W x 8' 5" H three panel unit (3L configuration) tested by Architectural Testing, Inc., Fresno, CA, an independent testing laboratory in April 2013.

③ For Canada, tested to NAFS-08 or equivalent and CSA A44051-09 (with weep holes installed by others to drain standing water in sill channels).

④ Excerpts of results with raised sill tested by Nusing Mobile Trennwandtechnik, Munster, Germany, an independent testing laboratory, in August 2005.

\* Water rating may not be applicable for configuration not tested, especially even panels and even panels configurations.

Higher Weather Performance (Raised) Sill  
SL60



Thermal Performance  
(Top-hung units)

Rated, certified, and labeled in accordance with NFRC 100 + 200

			INWARD OPENING UNITS				OUTWARD OPENING UNITS			
TYPE OF GLASS (1 LITE) ④	CENTER OF GLASS U-FACTOR	IG GLASS THICKNESS	UNIT U-FACTOR	SHGC⑤	VT⑥	2015 ENERGY STAR	UNIT U-FACTOR	SHGC⑤	VT⑥	2015 ENERGY STAR
Double IG Clear (air filled)	.48	15/16" (24 mm)	.51	.52	.55	–	.52	.52	.55	–
Double IG Low E (argon filled)	.26	15/16" (24 mm)	.35	.19	.42	–	.35	.19	.42	–
Double IG Low E (air filled)	.30	15/16" (24 mm)	.38	.19	.42	–	.39	.19	.42	–
Double IG Low E #2 & #4 surfaces (argon filled)	.21	15/16" (24 mm)	.32	.19	.41	–	.32	.19	.41	–
Double IG Low E #2 & #4 surfaces (air filled)	.24	15/16" (24 mm)	.34	.19	.41	–	.35	.19	.41	–
Triple IG Low E x 2 (argon filled)	.13	1 3/8" (35 mm)	.26	.17	.30	*	.26	.17	.30	*
Triple IG Low E x 2 (air filled)	.16	1 3/8" (35 mm)	.28	.17	.30	*	.29	.17	.30	*

NOTES

④ NFRC simulated U factors of units with a horizontal mullion will have values of .01 to .03 higher than units with no horizontal mullion. Please contact NanaWall for details.

⑤ SHGC = Solar Heat Gain Coefficient  
⑥ VT = Visible Transmittance

\* 2015 Energy Star Qualification Criteria: U-Factor for doors in all climate zones ≤.30, SHGC ≤.25 in South/South Central zones and ≤.40 in North/North Central zones. (For guidance only. NanaWall is not a participant of the Energy Star program.)

Values shown are for limited select glass types only. Call NanaWall for U-Factor & SHGC for other glass types including Suntuitive Dynamic glass options.

## Higher Weather Performance (Raised) Sill

### SL60



#### Thermal Performance

(Floor supported units)

Rated, certified, and labeled in accordance with NFRC 100 + 200

TYPE OF GLASS (1 LITE) ④	CENTER OF GLASS U-FACTOR	IG GLASS THICKNESS	INWARD OPENING UNITS				OUTWARD OPENING UNITS			
			UNIT U-FACTOR	SHGC <sup>⑤</sup>	VT <sup>⑥</sup>	2015 ENERGY STAR	UNIT U-FACTOR	SHGC <sup>⑤</sup>	VT <sup>⑥</sup>	2015 ENERGY STAR
Double IG Clear (air filled)	.48	15/16" (24 mm)	.51	.52	.56	–	.51	.52	.56	–
Double IG Low E (argon filled)	.26	15/16" (24 mm)	.34	.19	.43	–	.35	.19	.43	–
Double IG Low E (air filled)	.30	15/16" (24 mm)	.38	.20	.43	–	.38	.20	.43	–
Double IG Low E #2 & #4 surfaces (argon filled)	.21	15/16" (24 mm)	.31	.19	.42	–	.31	.19	.42	–
Double IG Low E #2 & #4 surfaces (air filled)	.24	15/16" (24 mm)	.33	.19	.42	–	.34	.19	.42	–
Triple IG Low E x 2 (argon filled)	.13	1 3/8" (35 mm)	.25	.17	.31	*	.25	.17	.31	*
Triple IG Low E x 2 (air filled)	.16	1 3/8" (35 mm)	.27	.17	.31	*	.28	.17	.31	*

#### NOTES

④ NFRC simulated U factors of units with a horizontal mullion will have values of .01 to .03 higher than units with no horizontal mullion. Please contact NanaWall for details.

⑤ SHGC = Solar Heat Gain Coefficient  
⑥ VT = Visible Transmittance

\* 2015 Energy Star Qualification Criteria: U-Factor for doors in all climate zones ≤.30, SHGC ≤.25 in South/South Central zones and ≤.40 in North/North Central zones. (For guidance only. NanaWall is not a participant of the Energy Star program.)

Values shown are for limited select glass types only. Call NanaWall for U-Factor & SHGC for other glass types including Suntuitive Dynamic glass options.

## Low Profile Saddle Sill

### SL60

TYPE OF TEST	INWARD OPENING UNITS (based on outswing unit test)	OUTWARD OPENING UNITS
 <b>Air Infiltration</b> <sup>①</sup> ASTM E-283, ft <sup>3</sup> /min./ft. in accordance with NFRC 400	@ <b>1.57</b> psf (75 Pa): <b>0.10</b> (0.08 exfiltration) <b>A3</b> <sup>③</sup>	@ <b>1.57</b> psf (75 Pa): <b>0.08</b> (0.10 exfiltration) <b>A3</b> <sup>③</sup>
	@ <b>6.24</b> psf (300 Pa): <b>0.37</b>	@ <b>6.24</b> psf (300 Pa): <b>0.17</b>
 <b>Water Penetration</b> <sup>①</sup> ASTM E-547 and E-331	#1. Unit with weep holes from middle channel: <b>No uncontrolled water entry</b> @ <b>2.1</b> psf (100 Pa) Subject to the following adaptations of the sill in the field by others: 1. Remove the gaskets covering the middle channel. 2. Drill weep holes through the outer bottom wall in middle channel (3/8" weep hole per panel). 3. Drill weep holes through the lower front face of sill (3/8" weep hole per panel).	
	#2. Unit with weep holes from inner channel: <b>No uncontrolled water entry</b> @ <b>5.43</b> psf (260 Pa) Subject to the following adaptations of the sill in the field by others: 1. Remove the gaskets covering the inner channel. 2. Drill weep holes through the bottom of this channel (about one 3/8" weep hole per panel). 3. Drill weep holes through the lower front face of the sill to the inner channel bottom (about 3/8" weep hole per panel). Please note that due to varying site requirements and conditions, these sills will not be prepared for drainage by Nana Wall Systems, Inc. If this drainage system is desired, we recommend that a qualified professional construct this system on the project site strictly in accordance with NanaWall instructions with good waterproofing techniques. If drain connections are not made or are not possible, unit may leak with wind driven rain.	
 <b>Structural Load Deflection</b> <sup>①</sup> ASTM E-330: pass <b>See design windload charts for other sized panels</b> <i>Note that the structural test pressures were 50% higher than the design pressures.</i>	<b>DESIGN PRESSURE</b>	
	Positive @ <b>40</b> psf (1920 Pa) Negative @ <b>45</b> psf (2160 Pa) For saddle sill specimen #2 above, class SP-PG35, Panel size - 3' 1" x 8' (940 mm x 2450 mm) <sup>②</sup> <i>(weep holes by others)</i>	Positive @ <b>45</b> psf (2160 Pa) Negative @ <b>40</b> psf (1920 Pa) For saddle sill specimen #2 above, class SP-PG35, Panel size - 3' 1" x 8' (940 mm x 2450 mm) <sup>②</sup> <i>(weep holes by others)</i>
 <b>Forced Entry Resistance</b> <sup>①</sup>	In accordance with AAMA-1304 requirements	
 <b>Life Cycle Performance</b>	The SL60 meets the German "DIN EN 1191/12400 Classification," where a unit is tested after 20,000 opening and closing cycles and is still functional. Meets AAMA 920 for swing panel attached to the side jamb with surface mounted hinges: 500,000 cycles - pass <sup>②</sup>	

① Excerpts of results of 13' 1" W x 8' 6" H (4000 mm x 2600 mm) 4 panel unit with saddle sill tested by Architectural Testing Inc., an independent testing laboratory, in October 2015 per AAMA/WDMA/CSA 101/I.S.2/A440, NAFS - North American Fenestration Standard

② Excerpts of results of 3/4" W x 8' 5" H one panel unit tested by Architectural Testing, Inc., Fresno, CA, an independent testing laboratory in April 2013.

③ For Canada, tested to NAFS-08 or equivalent and CSA A44051-09 (with weep holes installed by others).

## Low Profile Saddle Sill

### SL60



#### Thermal Performance (Top-hung units)

Rated, certified, and labeled in accordance with NFRC 100 + 200

TYPE OF GLASS (1 LITE) ④	CENTER OF GLASS U-FACTOR	IG GLASS THICKNESS	INWARD OPENING UNITS				OUTWARD OPENING UNITS			
			UNIT U-FACTOR	SHGC ⑤	VT ⑥	2015 ENERGY STAR	UNIT U-FACTOR	SHGC ⑤	VT ⑥	2015 ENERGY STAR
Double IG Clear (air filled)	.48	15/16" (24 mm)	.52	.52	.56	–	.52	.52	.56	–
Double IG Low E (argon filled)	.26	15/16" (24 mm)	.36	.19	.43	–	.36	.19	.43	–
Double IG Low E (air filled)	.30	15/16" (24 mm)	.39	.20	.43	–	.39	.20	.43	–
Double IG Low E #2 & #4 surfaces (argon filled)	.21	15/16" (24 mm)	.32	.19	.42	–	.33	.19	.42	–
Double IG Low E #2 & #4 surfaces (air filled)	.24	15/16" (24 mm)	.35	.19	.42	–	.35	.19	.42	–
Triple IG Low E x 2 (argon filled)	.13	1 3/8" (35 mm)	.26	.17	.31	*	.27	.17	.31	*
Triple IG Low E x 2 (air filled)	.16	1 3/8" (35 mm)	.29	.17	.31	*	.29	.17	.31	*

#### NOTES

④ NFRC simulated U factors of units with a horizontal mullion will have values of .01 to .03 higher than units with no horizontal mullion. Please contact NanaWall for details.

⑤ SHGC = Solar Heat Gain Coefficient

⑥ VT = Visible Transmittance

\* 2015 Energy Star Qualification Criteria: U-Factor for doors in all climate zones ≤.30, SHGC ≤.25 in South/South Central zones and ≤.40 in North/North Central zones. (For guidance only. NanaWall is not a participant of the Energy Star program.)

Values shown are for limited select glass types only. Call NanaWall for U-Factor & SHGC for other glass types including Suntuitive Dynamic glass options.



## Low Profile Saddle Sill

### SL60



#### Thermal Performance

(Floor supported units)

Rated, certified, and labeled in accordance with NFRC 100 + 200

TYPE OF GLASS (1 LITE) <sup>④</sup>	CENTER OF GLASS U-FACTOR	IG GLASS THICKNESS	INWARD OPENING UNITS				OUTWARD OPENING UNITS			
			UNIT U-FACTOR	SHGC <sup>⑤</sup>	VT <sup>⑥</sup>	2015 ENERGY STAR	UNIT U-FACTOR	SHGC <sup>⑤</sup>	VT <sup>⑥</sup>	2015 ENERGY STAR
Double IG Clear (air filled)	.48	15/16" (24 mm)	.51	.53	.57	–	.52	.53	.57	–
Double IG Low E (argon filled)	.26	15/16" (24 mm)	.35	.20	.44	–	.35	.20	.44	–
Double IG Low E (air filled)	.30	15/16" (24 mm)	.38	.20	.44	–	.39	.20	.44	–
Double IG Low E #2 & #4 surfaces (argon filled)	.21	15/16" (24 mm)	.31	.19	.43	–	.32	.19	.43	–
Double IG Low E #2 & #4 surfaces (air filled)	.24	15/16" (24 mm)	.34	.19	.43	–	.34	.19	.43	–
Triple IG Low E x 2 (argon filled)	.13	1 3/8" (35 mm)	.25	.17	.31	*	.25	.17	.31	*
Triple IG Low E x 2 (air filled)	.16	1 3/8" (35 mm)	.28	.17	.31	*	.28	.17	.31	*

#### NOTES

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⑤ SHGC = Solar Heat Gain Coefficient

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\* 2015 Energy Star Qualification Criteria: U-Factor for doors in all climate zones ≤.30, SHGC ≤.25 in South/South Central zones and ≤.40 in North/North Central zones. (For guidance only. NanaWall is not a participant of the Energy Star program.)

Values shown are for limited select glass types only. Call NanaWall for U-Factor & SHGC for other glass types including Suntuitive Dynamic glass options.

## Hybrid Sill SL60

TYPE OF TEST	INWARD OPENING UNITS	OUTWARD OPENING UNITS
<div></div> <div><b>Air Infiltration</b> <sup>①</sup></div> <div>ASTM E-283, ft<sup>3</sup>/min./ft. In accordance with NFRC 400</div>	@ <b>1.57</b> psf (75 Pa): <b>0.05</b> (0.09 exfiltration) <b>A3</b> <sup>③</sup>	@ <b>1.57</b> psf (75 Pa): <b>0.02</b> (0.07 exfiltration) <b>A3</b> <sup>③</sup>
	@ <b>6.24</b> psf (300 Pa): <b>0.13</b>	@ <b>6.24</b> psf (300 Pa): <b>0.10</b>
<div></div> <div><b>Water Penetration</b> *</div> <div>ASTM E-547 and E-331</div>	<div><b>No uncontrolled water entry</b> <sup>①</sup></div> <div>@ <b>7.5</b> psf (360 Pa)</div> <div>Subject to the following adaptations of the sill in the field by others:</div> <div><div>1. Drill weep holes through the outer bottom wall in middle channel (3/8" weep hole per panel +1 additional weep hole).</div><div>2. Drill weep holes through the lower front face of sill (3/8" weep hole per panel).</div></div> <div>Please note that due to varying site requirements and conditions, these sills will not be prepared for drainage by Nana Wall Systems, Inc. If this drainage system is desired, we recommend that a qualified professional construct this system on the project site strictly in accordance with NanaWall instructions with good waterproofing techniques. if drain connections are not made or are not possible, unit may leak with wind driven rain.</div>	
<div></div> <div><b>Structural Load Deflection</b> <sup>①</sup></div> <div>ASTM E-330: pass</div> <div>See design windload charts for other sized panels</div> <div>Note that the structural test pressures were 50% higher than the design pressures.</div>	<div><b>DESIGN PRESSURE</b> <sup>①</sup></div> <div><div>Positive</div><div>@ <b>45</b> psf (2160 Pa)</div></div> <div><div>Negative</div><div>@ <b>45</b> psf (2160 Pa)</div></div> <div>Class SP-PG45, Panel size - 3' 1" x 8' 1" (940 mm x 2486 mm) <sup>③</sup></div>	<div><b>DESIGN PRESSURE</b> <sup>①</sup></div> <div><div>Positive</div><div>@ <b>45</b> psf (2160 Pa)</div></div> <div><div>Negative</div><div>@ <b>45</b> psf (1920 Pa)</div></div> <div>Class SP-PG45, Panel size - 3' 1" x 8' 1" (940 mm x 2486 mm) <sup>③</sup></div>
	<div></div> <div><b>Forced Entry Resistance</b> <sup>①</sup></div>	In accordance with AAMA -1304 requirements
<div></div> <div><b>Life Cycle Performance</b></div>	The SL60 meets the German "DIN EN 1191/12400 Classification," where a unit is tested after 20,000 opening and closing cycles and is still functional.	

<sup>①</sup> Excerpts of results of 13' 1" W x 8' 6" H (4000 mm x 2600 mm) 4 panel unit with hybrid sill tested by Architectural Testing Inc., an independent testing laboratory, in October 2015 per AAMA/WDMA/CSA 101/I.S.2/A440, NAFS - North American Fenestration Standard.

<sup>③</sup> For Canada, tested to NAFS-08 or equivalent and CSA A44051-09 (with weep holes installed by others).

\* Water rating may not be applicable for configuration not tested, especially even panels and even panels configurations.

## Hybrid Sill SL60



### Thermal Performance (Top-hung units)

Rated, certified, and labeled in accordance with NFRC 100 + 200

			INWARD OPENING UNITS				OUTWARD OPENING UNITS			
TYPE OF GLASS (1 LITE) ④	CENTER OF GLASS U-FACTOR	IG GLASS THICKNESS	UNIT U-FACTOR	SHGC ⑤	VT ⑥	2015 ENERGY STAR	UNIT U-FACTOR	SHGC ⑤	VT ⑥	2015 ENERGY STAR
Double IG Clear (air filled)	.48	15/16" (24 mm)	.51	.53	.56	–	.52	.53	.56	–
Double IG Low E (argon filled)	.26	15/16" (24 mm)	.35	.19	.43	–	.36	.19	.43	–
Double IG Low E (air filled)	.30	15/16" (24 mm)	.38	.20	.43	–	.39	.20	.43	–
Double IG Low E #2 & #4 surfaces (argon filled)	.21	15/16" (24 mm)	.32	.19	.42	–	.32	.19	.42	–
Double IG Low E #2 & #4 surfaces (air filled)	.24	15/16" (24 mm)	.34	.19	.42	–	.35	.19	.42	–
Triple IG Low E x 2 (argon filled)	.13	1 3/8" (35 mm)	.26	.17	.31	*	.26	.17	.31	*
Triple IG Low E x 2 (air filled)	.16	1 3/8" (35 mm)	.28	.17	.31	*	.29	.17	.31	*

#### NOTES

④ NFRC simulated U factors of units with a horizontal mullion will have values of .01 to .03 higher than units with no horizontal mullion. Please contact NanaWall for details.

⑤ SHGC = Solar Heat Gain Coefficient  
⑥ VT = Visible Transmittance

\* 2015 Energy Star Qualification Criteria: U-Factor for doors in all climate zones ≤.30, SHGC ≤.25 in South/South Central zones and ≤.40 in North/North Central zones. (For guidance only. NanaWall is not a participant of the Energy Star program.)

Values shown are for limited select glass types only. Call NanaWall for U-Factor & SHGC for other glass types including Suntuitive Dynamic glass options.

## Hybrid Sill

### SL60



#### Thermal Performance

(Floor supported units)

Rated, certified, and labeled in accordance with NFRC 100 + 200

TYPE OF GLASS (1 LITE) ④	CENTER OF GLASS U-FACTOR	IG GLASS THICKNESS	INWARD OPENING UNITS				OUTWARD OPENING UNITS			
			UNIT U-FACTOR	SHGC ⑤	VT ⑥	2015 ENERGY STAR	UNIT U-FACTOR	SHGC ⑤	VT ⑥	2015 ENERGY STAR
Double IG Clear (air filled)	.48	15/16" (24 mm)	.51	.54	.57	–	.52	.54	.57	–
Double IG Low E (argon filled)	.26	15/16" (24 mm)	.34	.20	.44	–	.35	.20	.44	–
Double IG Low E (air filled)	.30	15/16" (24 mm)	.38	.20	.44	–	.38	.20	.44	–
Double IG Low E #2 & #4 surfaces (argon filled)	.21	15/16" (24 mm)	.31	.19	.43	–	.31	.19	.43	–
Double IG Low E #2 & #4 surfaces (air filled)	.24	15/16" (24 mm)	.33	.19	.43	–	.34	.19	.43	–
Triple IG Low E x 2 (argon filled)	.13	1 3/8" (35 mm)	.25	.17	.31	*	.25	.17	.31	*
Triple IG Low E x 2 (air filled)	.16	1 3/8" (35 mm)	.27	.17	.31	*	.28	.17	.31	*

#### NOTES

④ NFRC simulated U factors of units with a horizontal mullion will have values of .01 to .03 higher than units with no horizontal mullion. Please contact NanaWall for details.

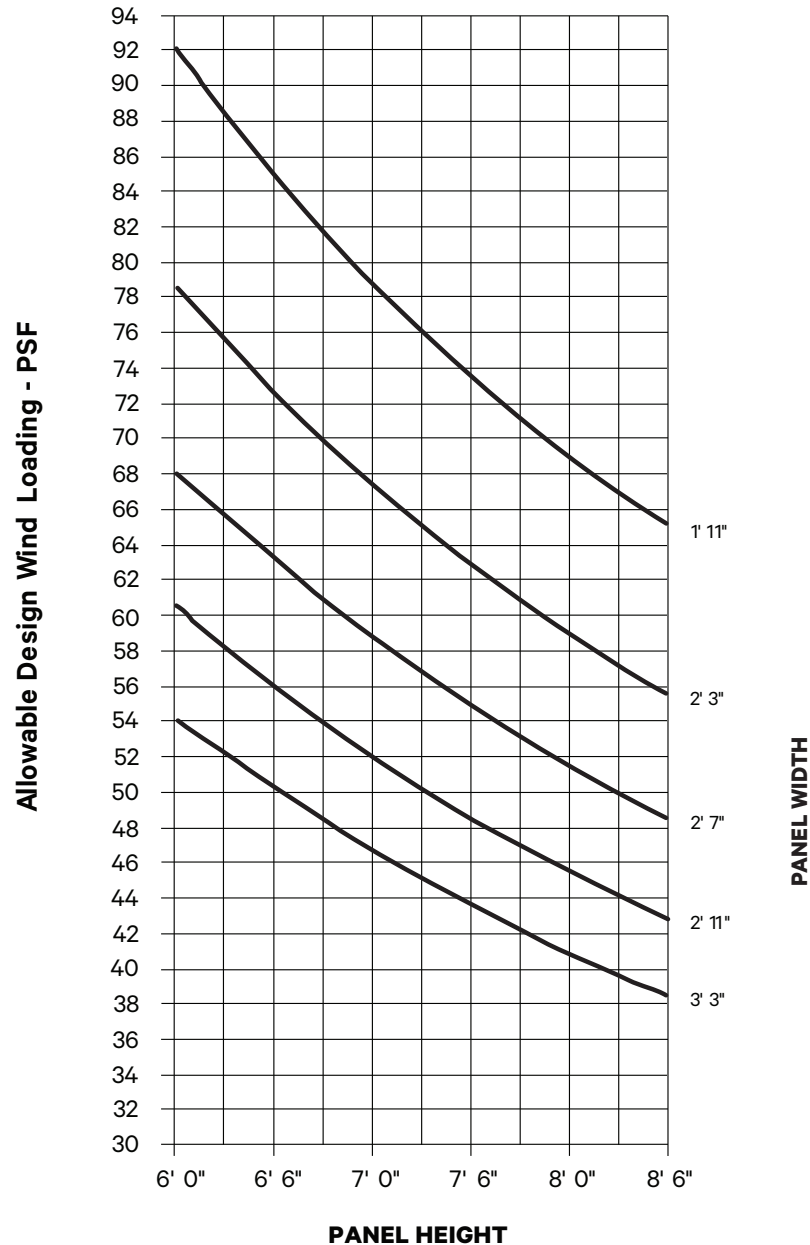
⑤ SHGC = Solar Heat Gain Coefficient  
⑥ VT = Visible Transmittance

\* 2015 Energy Star Qualification Criteria: U-Factor for doors in all climate zones ≤.30, SHGC ≤.25 in South/South Central zones and ≤.40 in North/North Central zones. (For guidance only. NanaWall is not a participant of the Energy Star program.)

Values shown are for limited select glass types only. Call NanaWall for U-Factor & SHGC for other glass types including Suntuitive Dynamic glass options.

**Applies to Positive and Negative Design Pressures  
for both Inward and Outward Opening Units**

(In Accordance with Allowable Stress Design (ASD) Design Pressures\*)

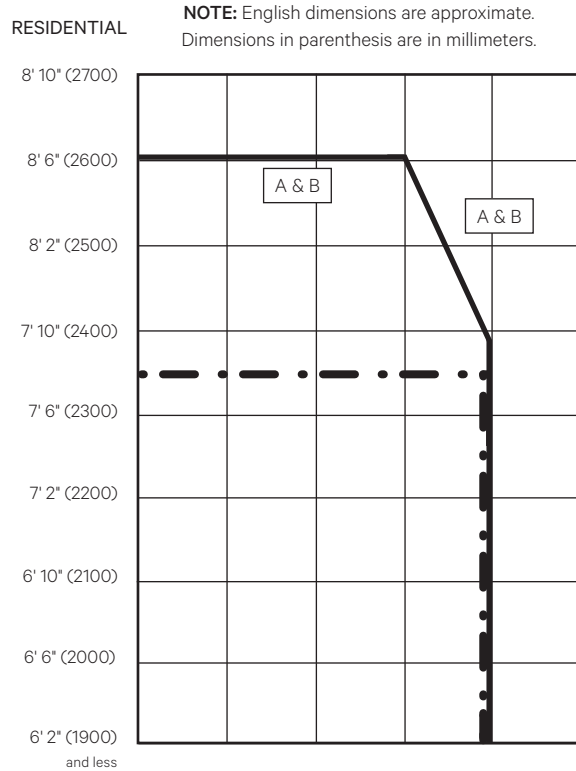


**Any Custom Size is Possible. See Maximum Frame Size Chart for Maximum Possible Sizes.**

(Derived from Comparative Analysis) Test Unit Size: 9' 5" W x 8' 2 1/2" H (3 panels).

Please note that some jurisdictions may limit the use of these charts or may not accept them at all. Design pressures and/or sizes may be restricted to what was tested. For Florida approved products, please see detailed FL Evaluation Report for restrictions. This chart is only applicable for units with referenced NanaWall supplied locking and is not accounted for any water rating or L/175 deflection restrictions.

\* If the project design pressures have been calculated in accordance with Ultimate Design Wind Speed (ULT), then these design pressures have to be multiplied by a factor of 0.6 to obtain the equivalent ASD design pressures shown in this chart.



1	1' 11" (600)	2' 3" (700)	2' 7" (800)	2' 11" (900)	3' 3" (1000)
2	3' 11" (1200)	4' 7" (1400)	5' 3" (1600)	5' 10" (1800)	6' 6" (2000)
3	5' 10" (1800)	6' 10" (2100)	7' 10" (2400)	8' 10" (2700)	9' 10" (3000)
4	7' 10" (2400)	9' 2" (2800)	10' 6" (3200)	11' 9" (3600)	13' 1" (4000)
5	9' 10" (3000)	11' 5" (3500)	13' 1" (4000)	14' 9" (4500)	16' 4" (5000)
6	11' 9" (3600)	13' 10" (4200)	15' 8" (4800)	17' 8" (5400)	19' 8" (6000)
7	13' 10" (4200)	16' (4900)	18' 4" (5600)	20' 7" (6300)	22' 10" (7000)
8	15' 8" (4800)	18' 4" (5600)	20' 11" (6400)	23' 6" (7200)	26' 1" (8000)
9	17' 9" (5400)	20' 7" (6300)	23' 6" (7200)	26' 5" (8100)	29' 4" (9000)
10	19' 8" (6000)	22' 10" (7000)	26' 1" (8000)	29' 4" (9000)	32' 9" (10000)
11	21' 7" (6600)	25' 1" (7700)	28' 8" (8800)	32' 5" (9900)	36' 1" (11000)
12	23' 6" (7200)	27' 4" (8400)	31' 5" (9600)	35' 5" (10800)	39' 4" (12000)

NUMBER OF PANELS IN UNIT

FRAME WIDTH OF UNIT

**Up to twelve panels are possible in a unit.  
Any custom panel size is possible up to the  
maximum size shown.**

— Solid dark line on chart indicates maximum frame height possible for a given maximum frame width.

• — For units with triple glazing, a horizontal mullion is needed for sizes beyond this line.

**A.** For configurations hinged to a side jamb combined with a pair(s) of folding panels or for configurations with a pair(s) of folding panels only.

Includes models 1L, 1R, 1L1R, 2L, 2R, 1L2R, 2L1R, 2L2R, 4L, 4R, 1L4R, 4L1R, 2L4R, 4L2R, 6L, 6R, 1L6R, 6L1R, 4L4R, 2L6R, 6L2R, 4L6R, 6L4R, 6L6R

**B.** For all configurations.

If larger sized panels are needed, please consider NW Aluminum 640.

The maximum size limits shown are based on the weight of a panel that has a net glass thickness of not more than 8 mm (5/16"). For larger net glass thickness, this maximum size limit chart will not apply.

For configurations with no swing panels, the minimum panel width needed is 2' 1" (625 mm).

For cornerless units, a horizontal mullion is needed for all heights above 8' 4" (2550 mm).

**Dimensions in millimeters unless noted. Calculation applies to the standard stiles and rails.****Glass dimensions of all panels in a unit are equal.**

Nominal Panel Height (PH) is defined as Glass Daylight Opening Height + 120 (4 3/4").

Nominal Panel Width (PW) is defined as Glass Daylight Opening Width + 120 (4 3/4").

Panel Height is as seen from the inside on an inward opening unit and is as seen from the outside on an outward opening unit. Please note that with the overlap of the head jamb and the sill with the panel, the Clear Opening Height will not be the same as the Panel Height.

See Cross-Section Details of both stiles of each panel to determine actual Panel Width. With astragals, overlapping, etc., the actual Panel Width not only varies with position of panel in a configuration, but the inside and outside surface widths of each stile may be different.

For each configuration, the Frame Width (FW) is the sum of the nominal Panel Width (PW) x the number of panels + a number (N) which is the sum of the side jamb dimensions and dimensions of space between panels in excess of the nominal Panel Width as shown in the Cross-Section Details.

**Frame Height (FH)**

Higher Weather Performance/Intermediate Sill:

Low Profile Saddle Sill:

**SL60/o Top Hung System**

Frame Height = Panel Height + 149 (5 7/8") = Clear Opening Height + 165 (6 1/2")

Frame Height = Panel Height + 149 (5 7/8") = Clear Opening Height + 150 (5 7/8")

**Frame Height (FH)**

Higher Weather Performance/Intermediate Sill:

Low Profile Saddle Sill:

**SL60/u Floor Supported System**

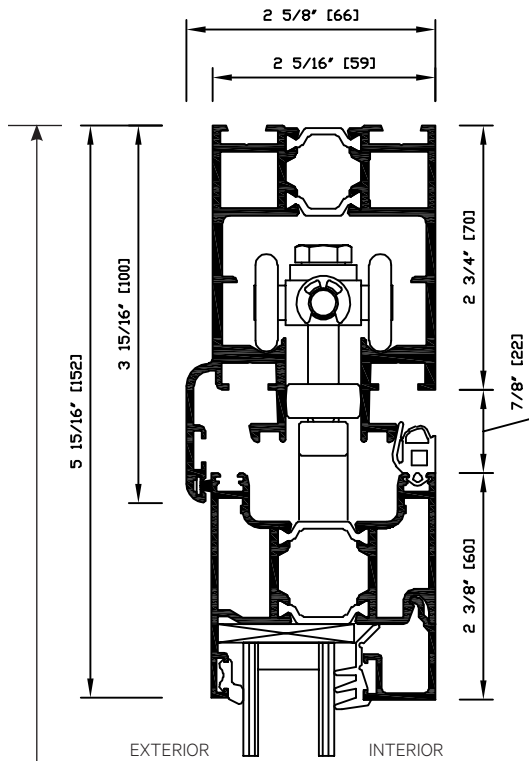
Frame Height = Panel Height + 114 (4 1/2") = Clear Opening Height + 130 (5 1/8")

Frame Height = Panel Height + 114 (4 1/2") = Clear Opening Height + 115 (4 1/2")

**Frame Widths for Different Configurations with Majority of Panels Folding to Right (and their Mirror Image Configurations with Majority of Panels Folding to Left). See Maximum Size Charts for size limits.** These numbers can be used as a guideline only. Contact NanaWall for the exact calculations for a particular unit.

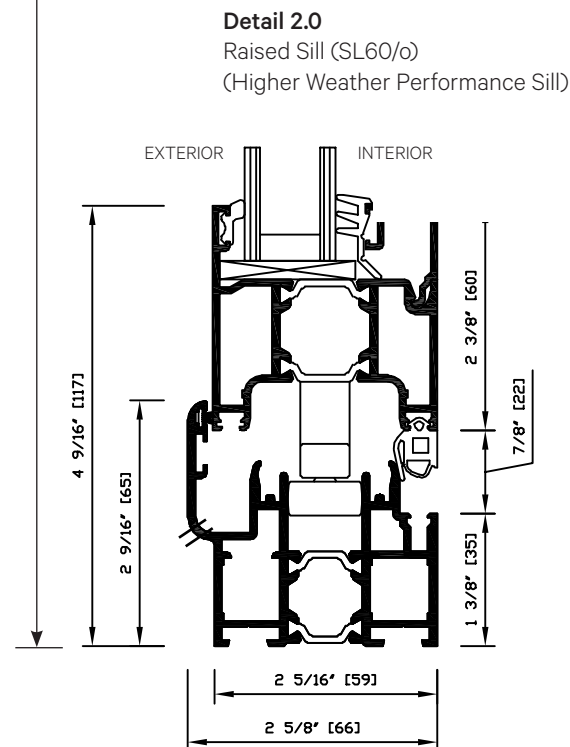
Please note that widths for units with unhinged panels or angle turns will be different.

Model 1R	Frame Width = 1 x Panel Width + 133 = 1 x Panel Width + 5 1/4"
Model 1L1R	Frame Width = 2 x Panel Width + 147 = 2 x Panel Width + 5 13/16"
Model 2R	Frame Width = 2 x Panel Width + 175 = 2 x Panel Width + 6 7/8"
Model 3R	Frame Width = 3 x Panel Width + 154 = 3 x Panel Width + 6 1/16"
Model 1L2R	Frame Width = 3 x Panel Width + 187 = 3 x Panel Width + 7 3/8"
Model 4R	Frame Width = 4 x Panel Width + 196 = 4 x Panel Width + 7 11/16"
Model 1L3R	Frame Width = 4 x Panel Width + 168 = 4 x Panel Width + 6 5/8"
Model 2L2R	Frame Width = 4 x Panel Width + 229 = 4 x Panel Width + 9"
Model 5R	Frame Width = 5 x Panel Width + 175 = 5 x Panel Width + 6 7/8"
Model 1L4R, Model 2L3R	Frame Width = 5 x Panel Width + 208 = 5 x Panel Width + 8 3/16"
Model 3L3R, Model 1L5R	Frame Width = 6 x Panel Width + 189 = 6 x Panel Width + 7 7/16"
Model 2L4R	Frame Width = 6 x Panel Width + 250 = 6 x Panel Width + 9 13/16"
Model 6R	Frame Width = 6 x Panel Width + 217 = 6 x Panel Width + 8 9/16"
Model 3L4R, Model 2L5R, Model 1L6R	Frame Width = 7 x Panel Width + 228 = 7 x Panel Width + 9"
Model 4L4R, Model 2L6R	Frame Width = 8 x Panel Width + 270 = 8 x Panel Width + 10 5/8"
Model 3L5R	Frame Width = 8 x Panel Width + 209 = 8 x Panel Width + 8 1/4"
Model 4L5R, Model 3L6R	Frame Width = 9 x Panel Width + 249 = 9 x Panel Width + 9 13/16"
Model 5L5R	Frame Width = 10 x Panel Width + 230 = 10 x Panel Width + 9 1/16"
Model 4L6R	Frame Width = 10 x Panel Width + 291 = 10 x Panel Width + 11 7/16"
Model 5L6R	Frame Width = 11 x Panel Width + 270 = 11 x Panel Width + 10 5/8"
Model 6L6R	Frame Width = 12 x Panel Width + 312 = 12 x Panel Width + 12 1/4"



**Detail 12.0**  
Top Hung Head Jamb  
(SL60/o)

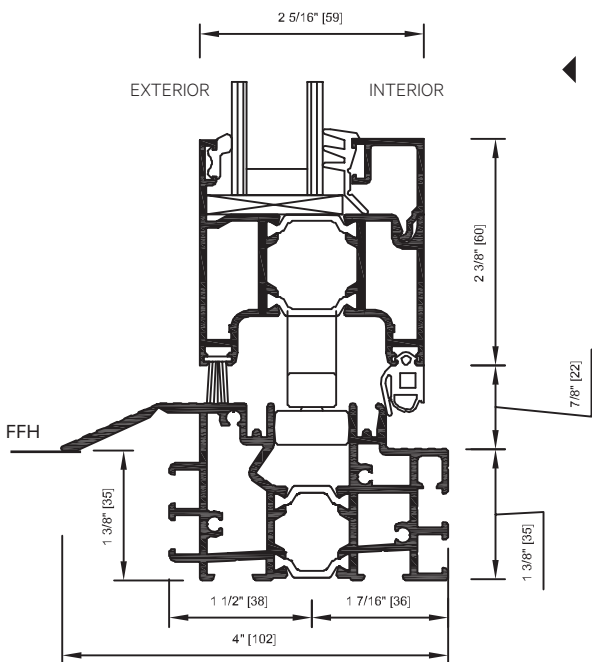
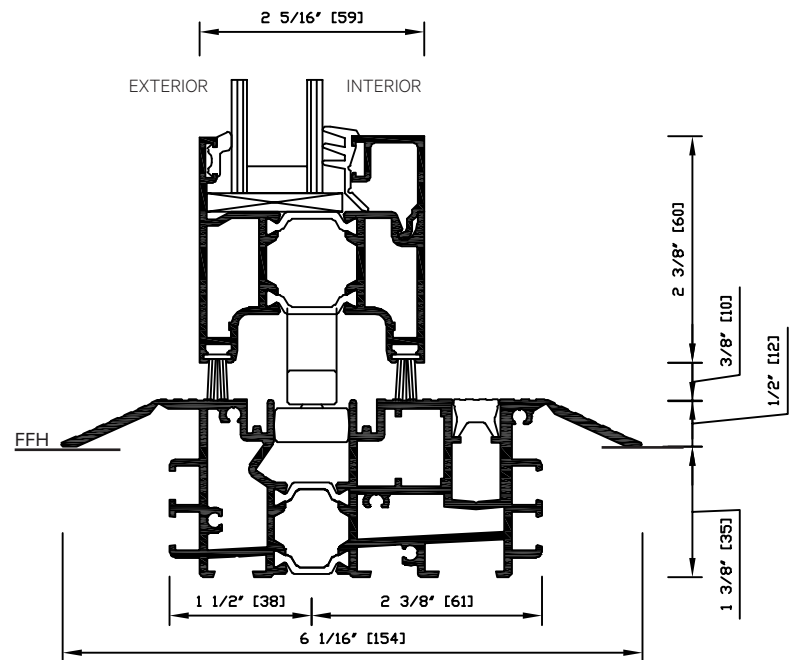
FRAME HEIGHT



**Detail 2.0**  
Raised Sill (SL60/o)  
(Higher Weather Performance Sill)

**Detail 22.0**  
Low Profile Saddle Sill (SL60/o)

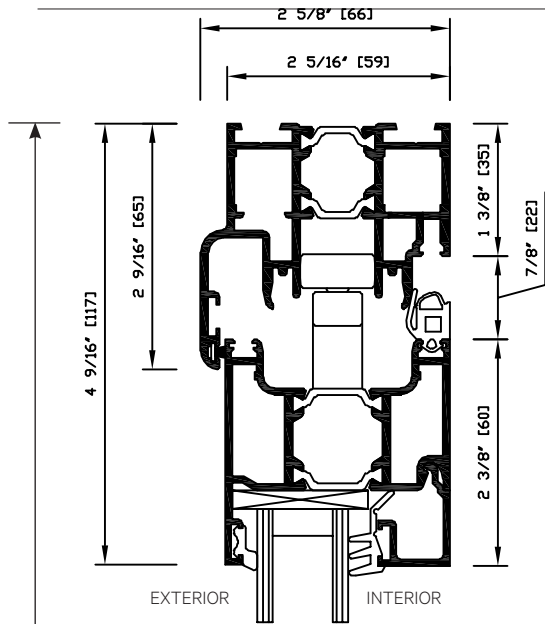
(Weep holes and drainage by others necessary for water rating.  
This sill is not centered with the other frame components.)



**Detail 15.0**  
Hybrid Sill (SL60/o)  
(For resistance against  
wind driven rain, drain  
connections by others  
necessary.)

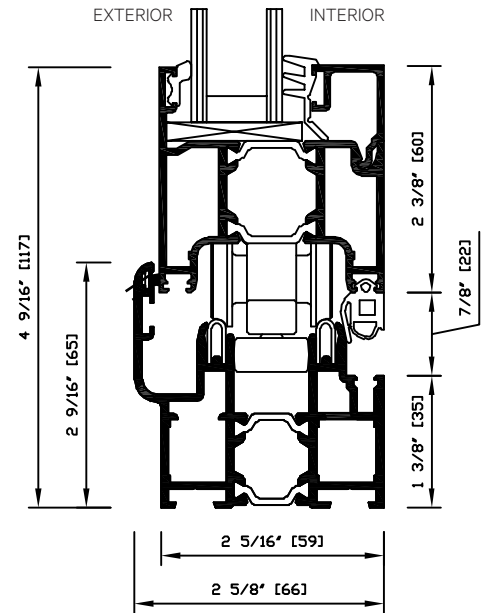
**Note:** For ADA compliance, a gasket to cover the channel in the sill at swing panels is provided for the saddle sill.





**Detail 1.0**  
Floor Supported Head Jamb  
(SL60/u)

**Detail 21.0**  
Raised Sill  
(higher weather  
performance sill)  
(SL60/u)



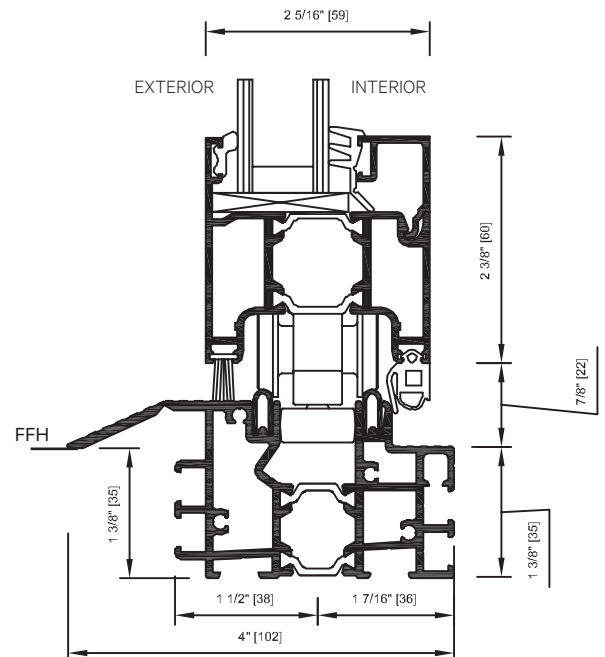
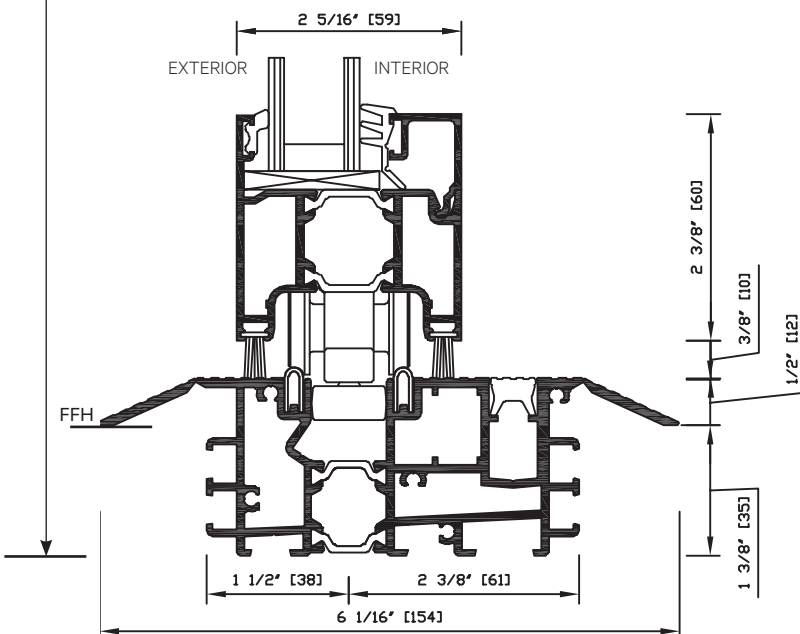
**Note:** For ADA compliance, a gasket to cover the channel in the sill at swing panels is provided for the saddle sill.

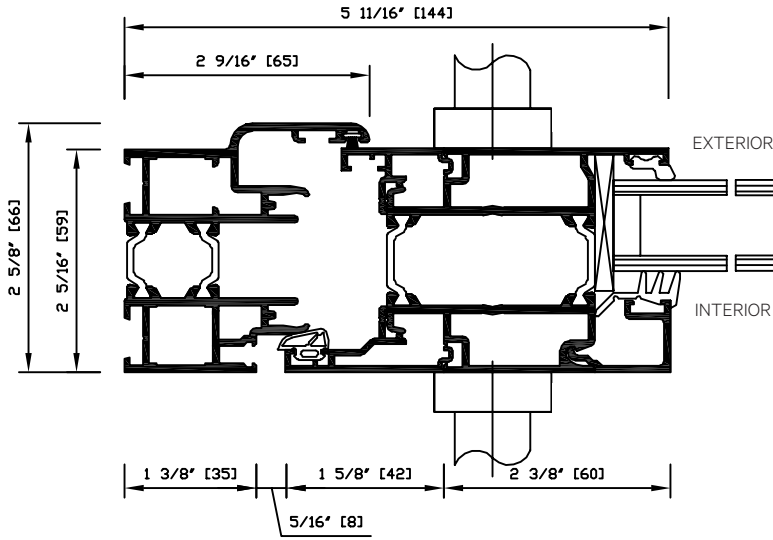
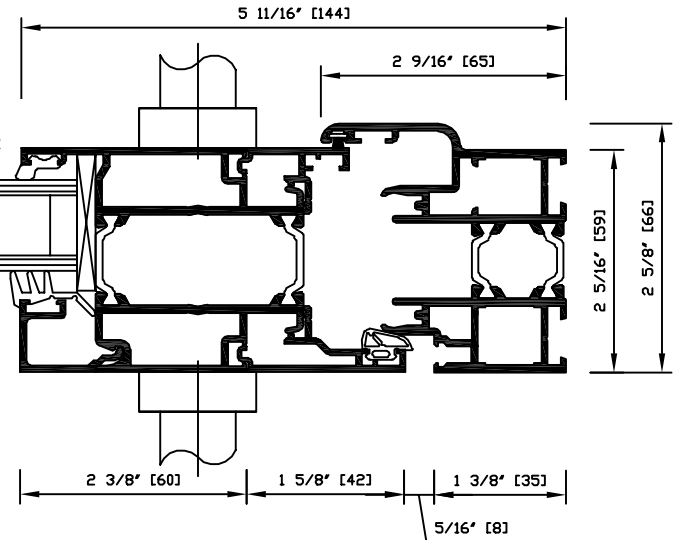
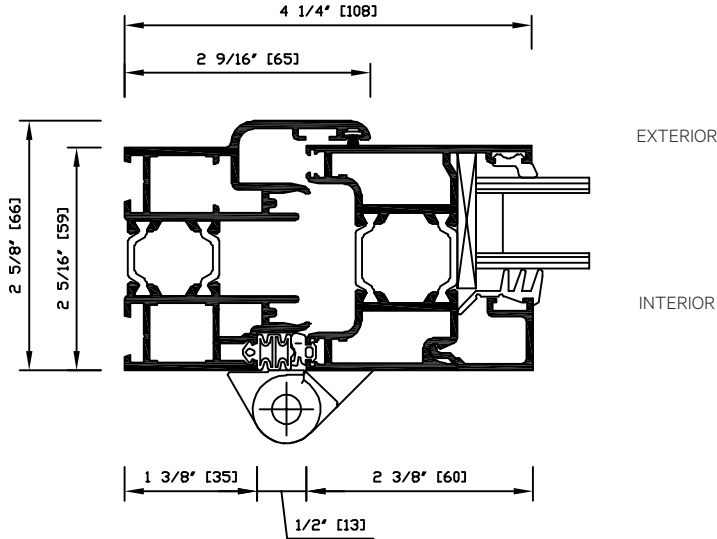
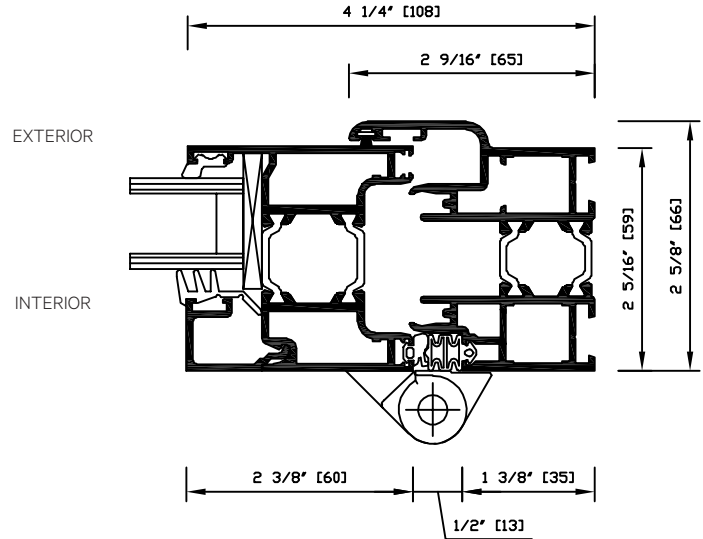
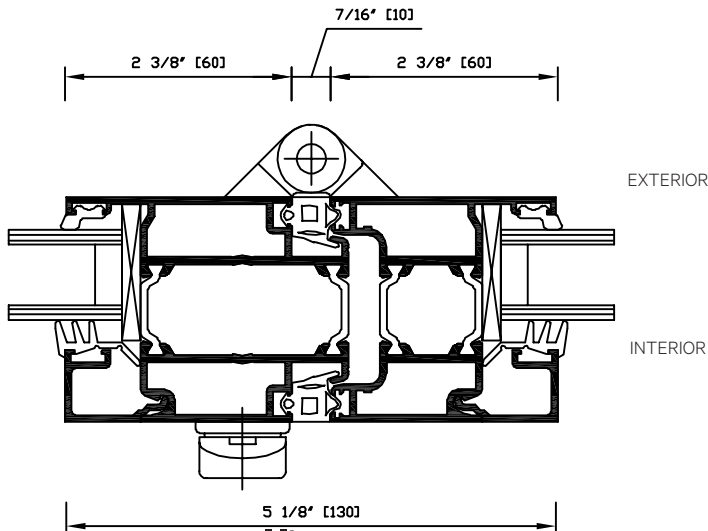
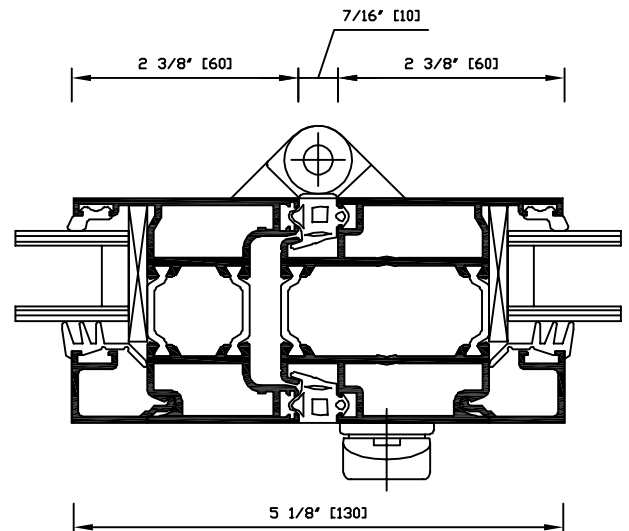
**Detail 29.0**  
Low Profile Saddle Sill (SL60/u)

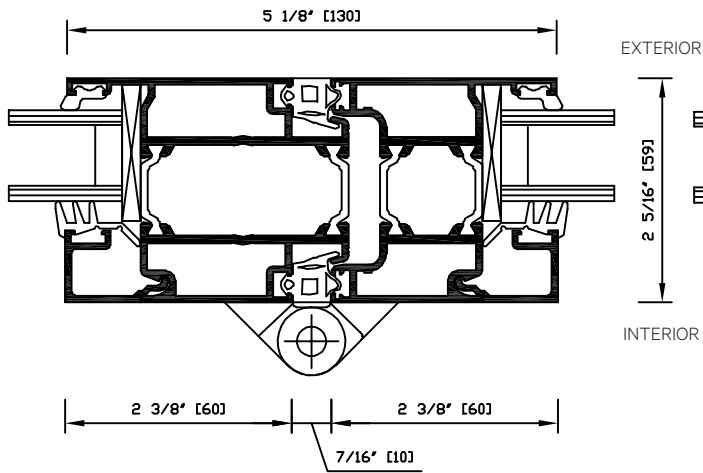
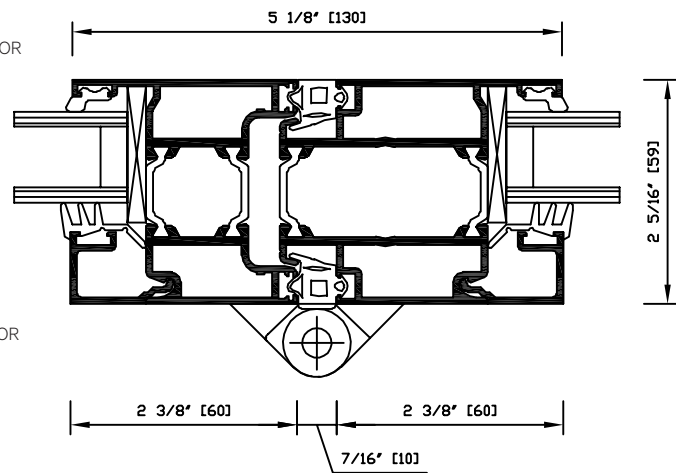
(Weep holes and drainage by others necessary for water rating. This sill is not centered with the other frame components)

**Detail 16.0**  
Hybrid Sill (SL60/u)

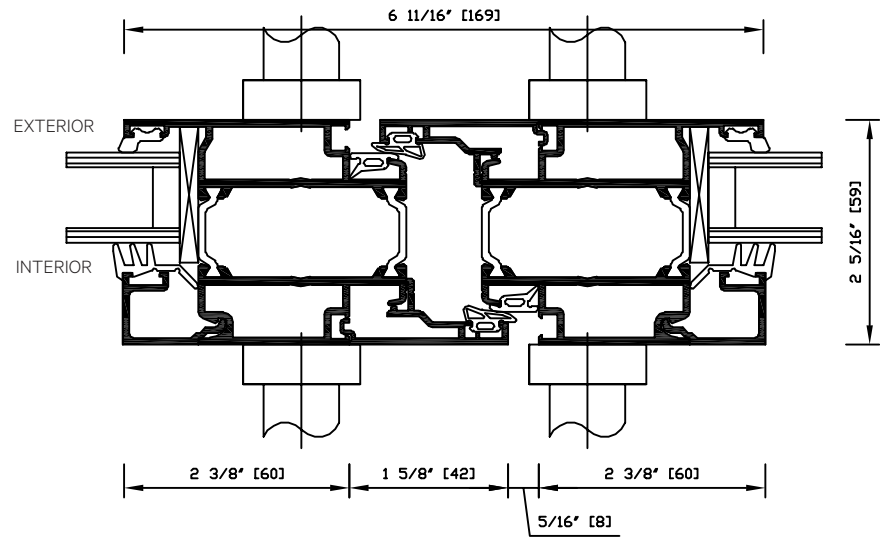
(For resistance against wind driven rain, drain connections by others necessary.)



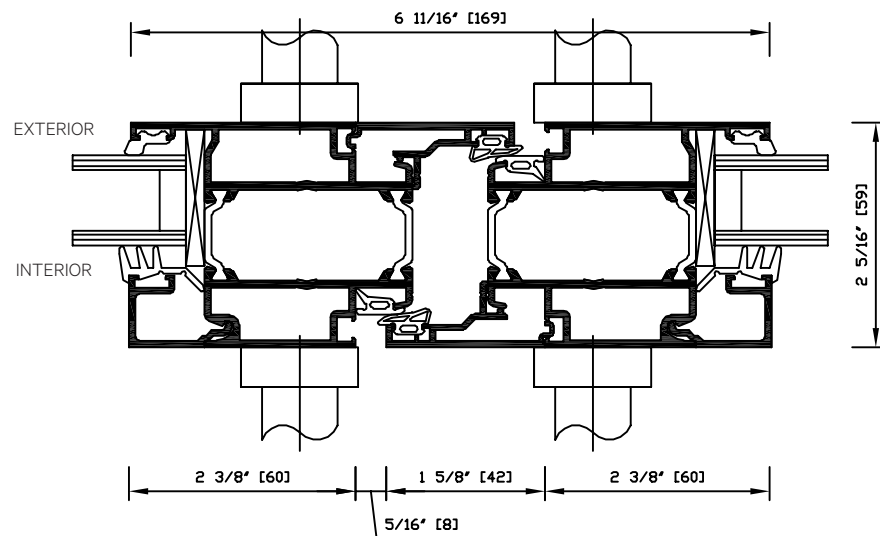
**Detail 4.0** Swing panel with locking at left side jamb**Detail 4R.0** Swing panel with locking at right side jamb**Detail 3R.0** Panel hinged at left side jamb**Detail 3.0** Panel hinged at right side jamb**Detail 7R.0** Left folding panel with locking**Detail 7.0** Right folding panel with locking

**Detail 7RC.0** Left folding panels with running carriage set**Detail 7C.0** Right folding panel with running carriage set**Detail 8.0**

Two swing panels with locking: left panel opening first

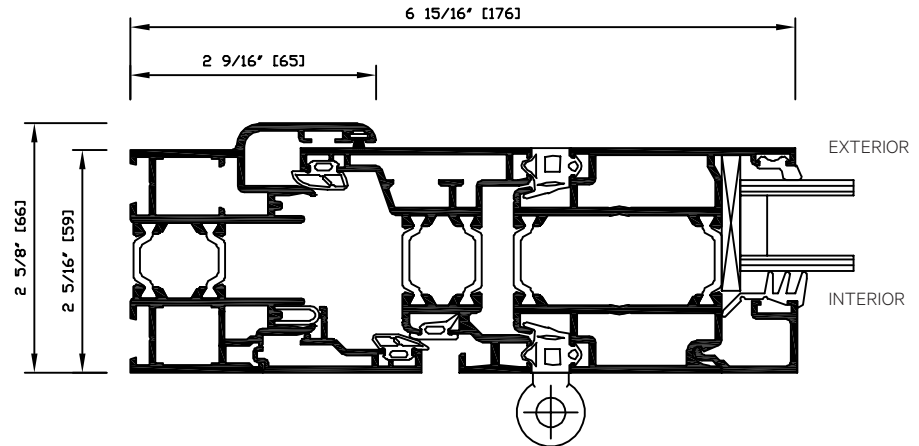
**Detail 8R.0**

Two swing panels with locking: right panel opening first

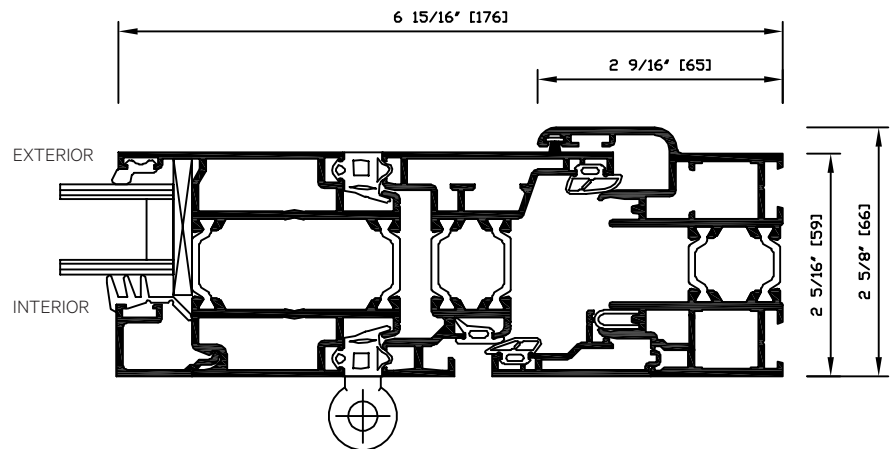


**Detail 5.0**

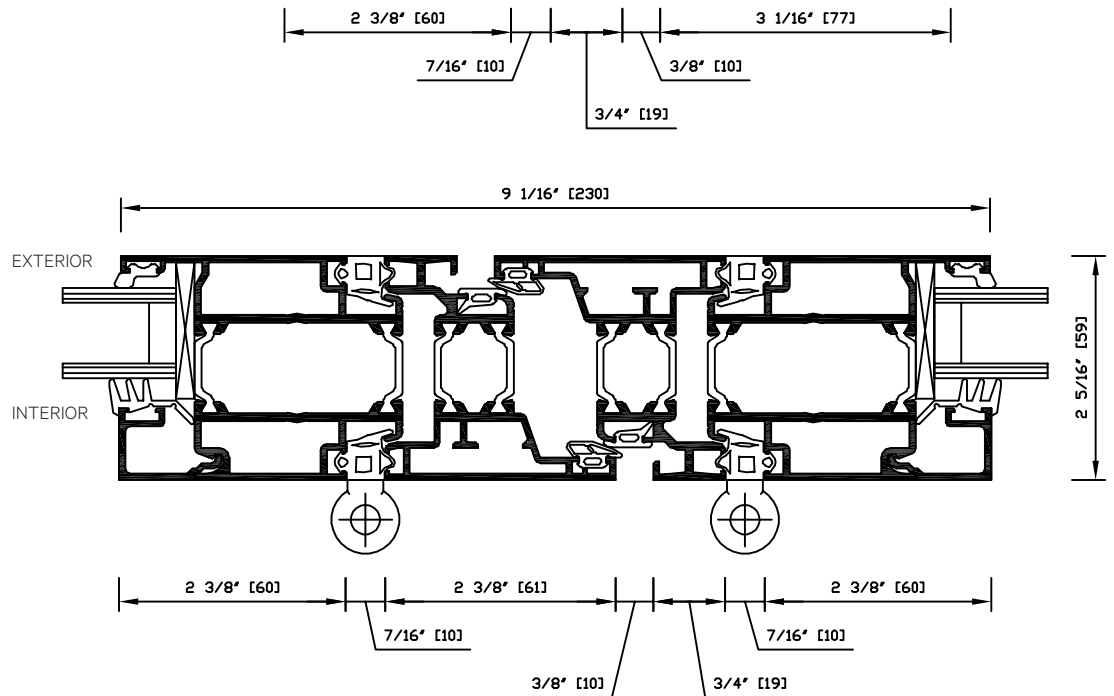
Panel with running carriage set meeting left side jamb

**Detail 5R.0**

Panel with running carriage set meeting right side jamb

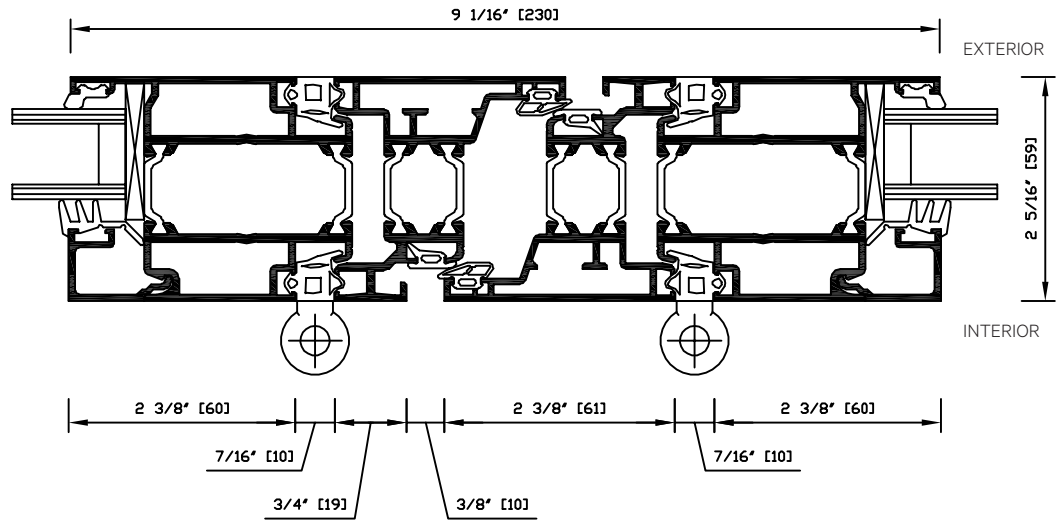
**Detail 9.0**

Meeting of panels folding to opposite sides (no swing panel) running carriage sets on both panels

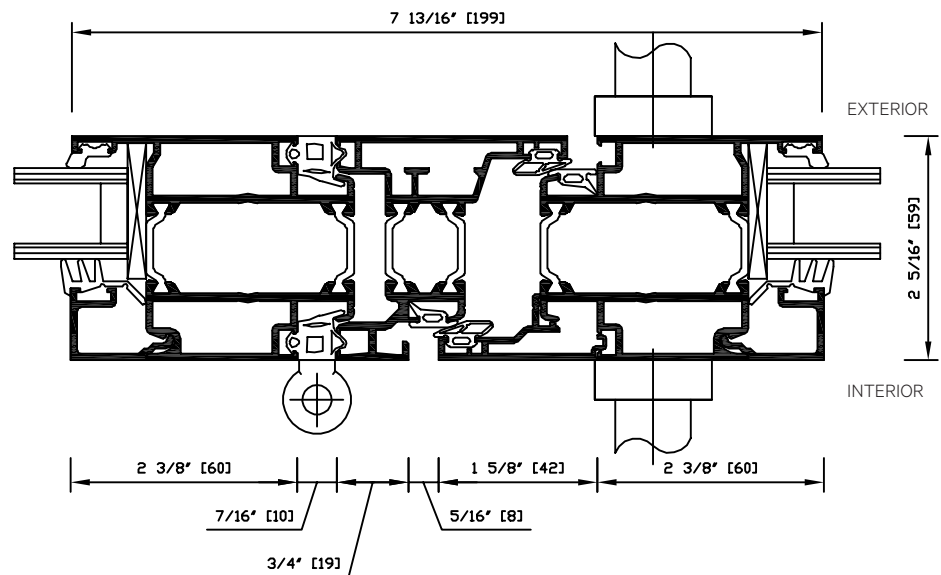


**Detail 9R.0**

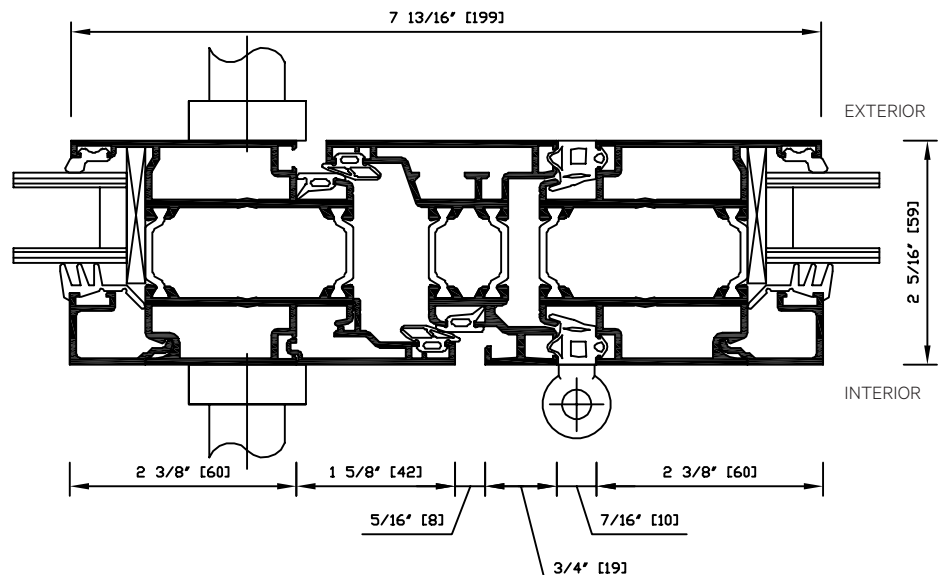
Meeting of panels  
folding to opposite  
sides (no swing panel)  
running carriage sets on  
both panels

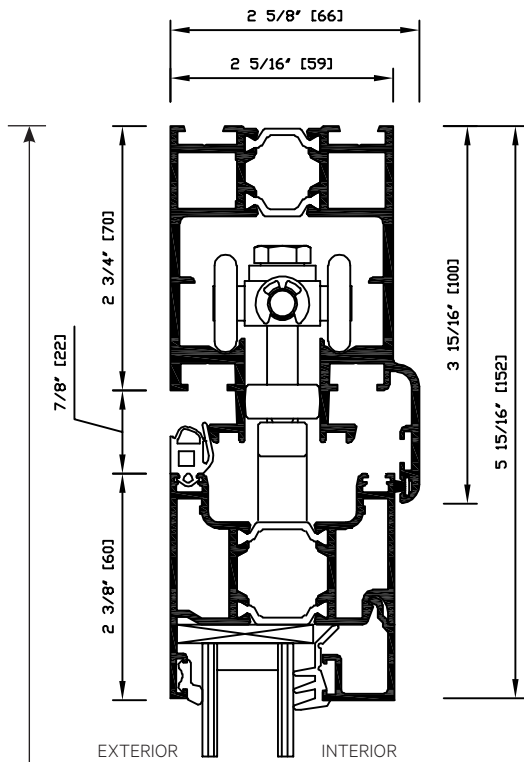
**Detail 10R.0**

Meeting of swing panel  
with locking on right and  
folding panel with running  
carriage set on left

**Detail 10.0**

Meeting of swing panel  
with locking on left and  
folding panel with running  
carriage set on right

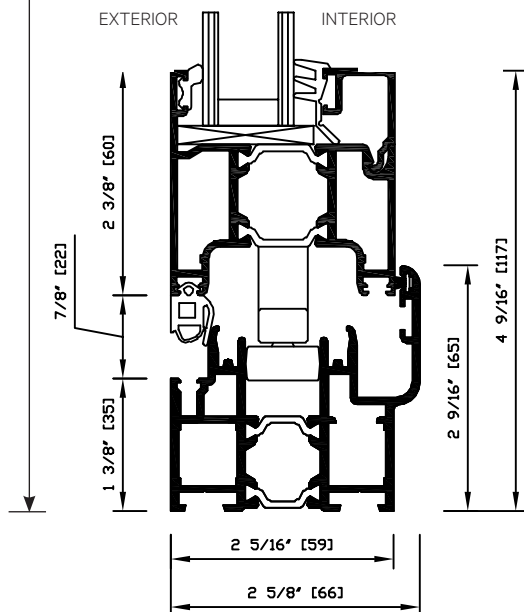


**Detail 12.1**

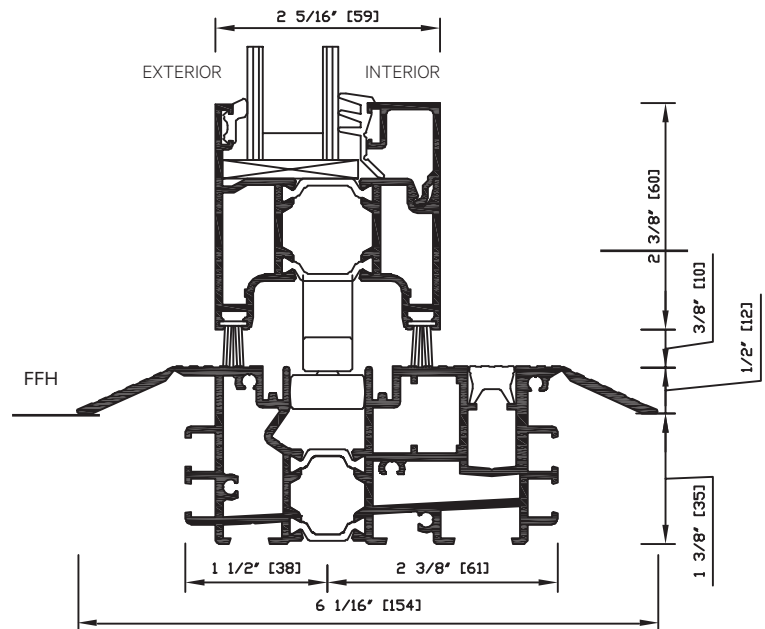
Top Hung Head Jamb  
(SL60/o)

**Detail 2.1**

Raised Sill (Higher weather  
performance sill) (SL60/o)



**Note:** For ADA compliance, a gasket  
to cover the channel in the sill  
at swing panels is provided for the  
saddle sill.

**Detail 22.1**

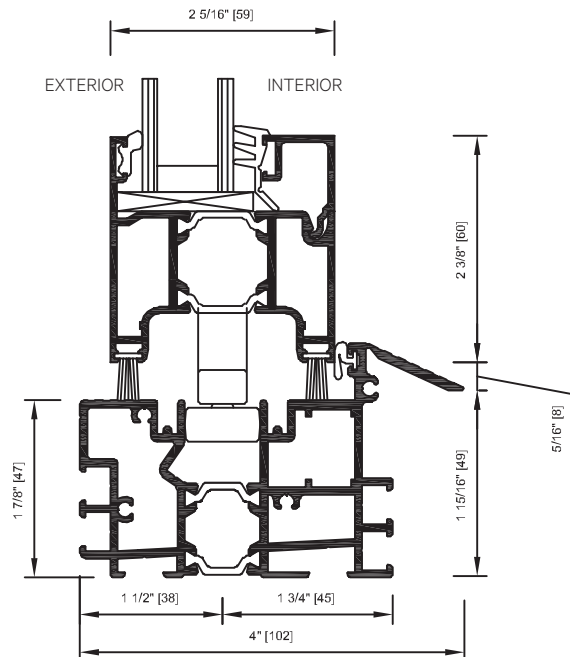
Low Profile Saddle Sill (SL60/o)

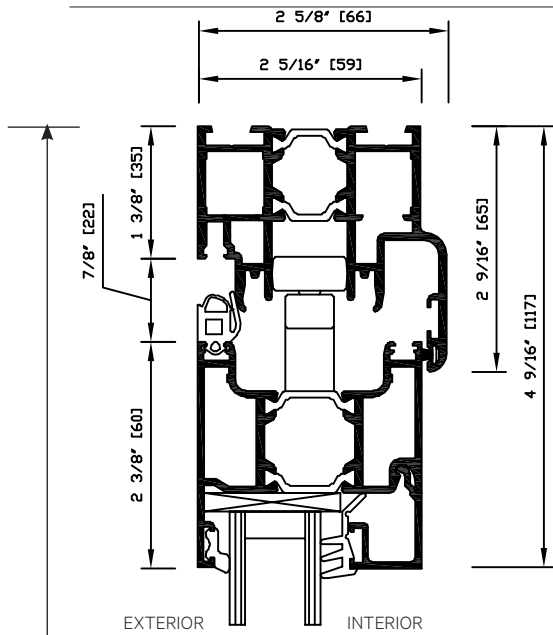
(Weep holes and drainage by others necessary for water  
rating. This sill is not centered with the other frame  
components.)

**Detail 15.1**

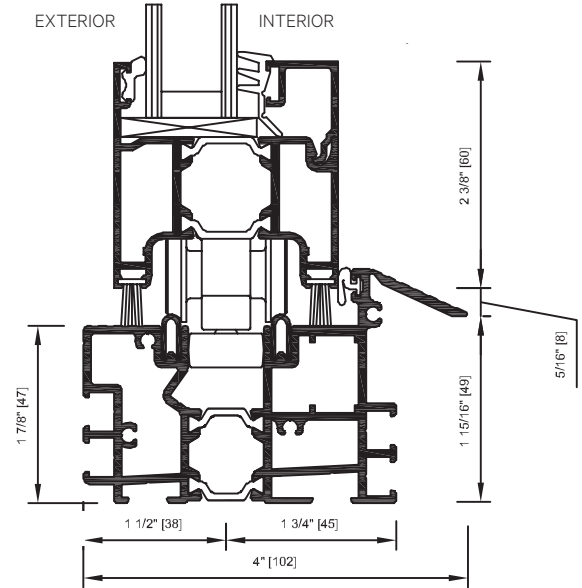
Hybrid Sill (SL60/o)

(For resistance against wind driven rain, drain connections  
by others necessary.)





**Detail 1.1**  
Floor Supported Head  
Jamb (SL60/u)

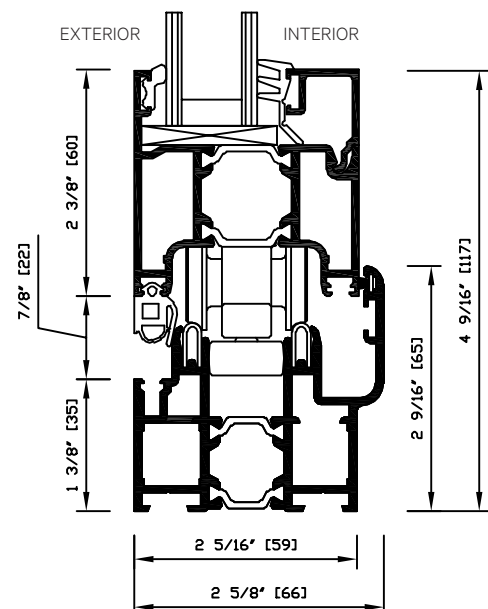
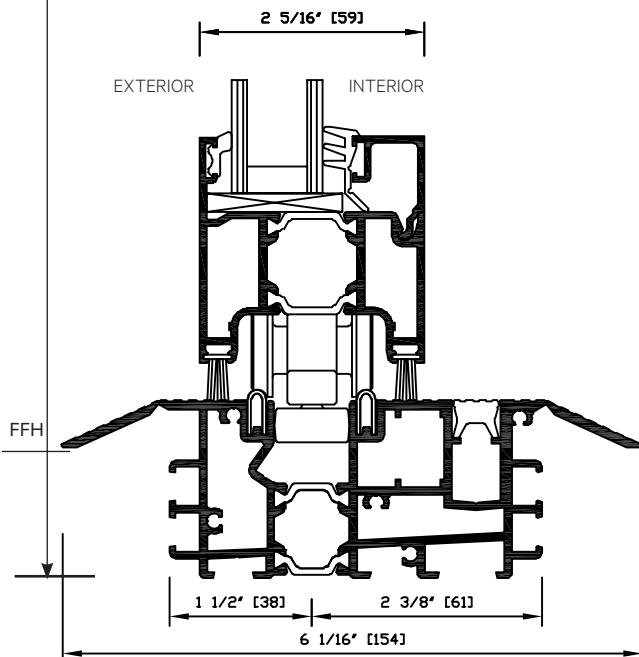


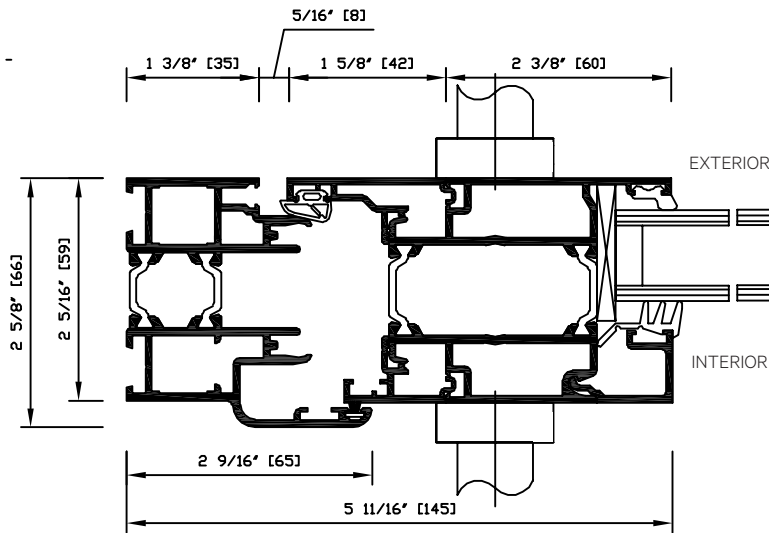
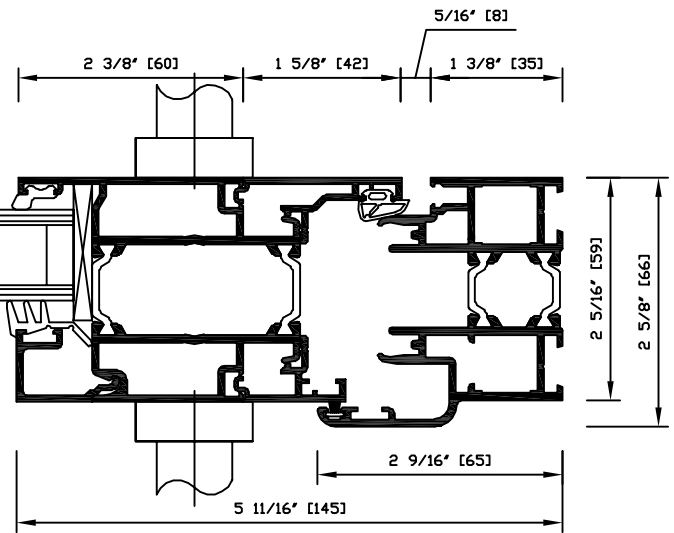
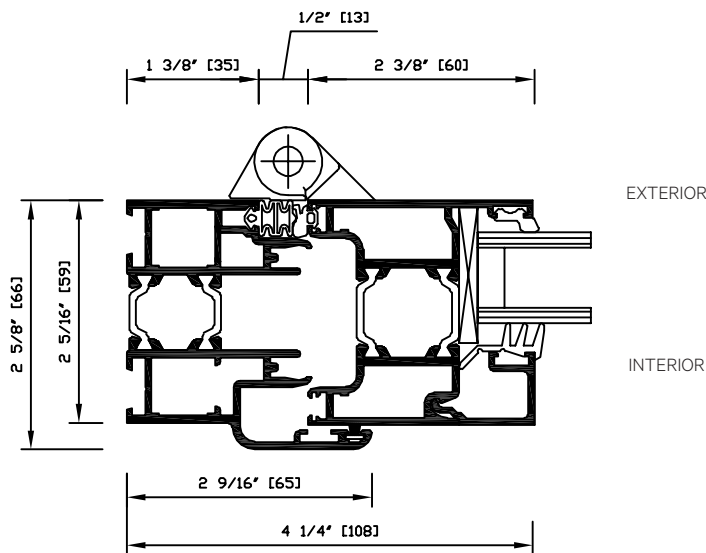
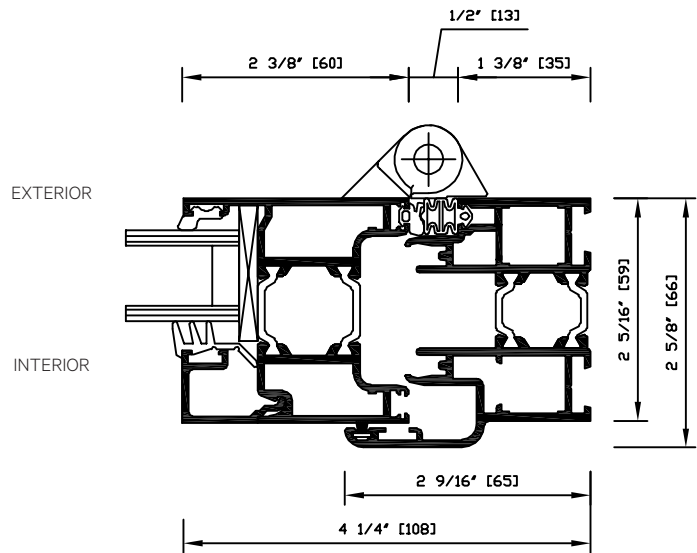
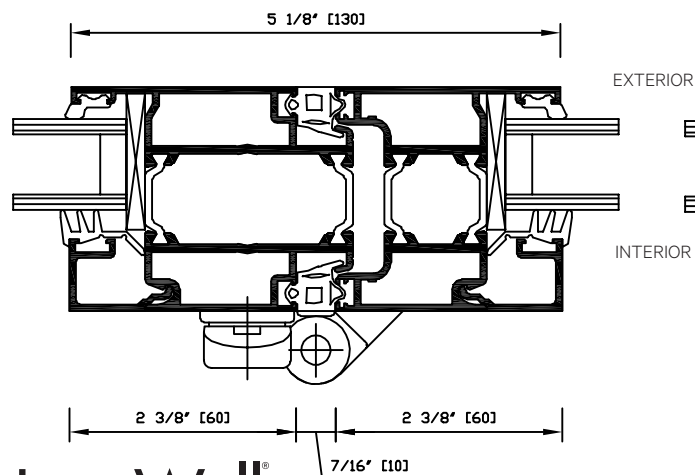
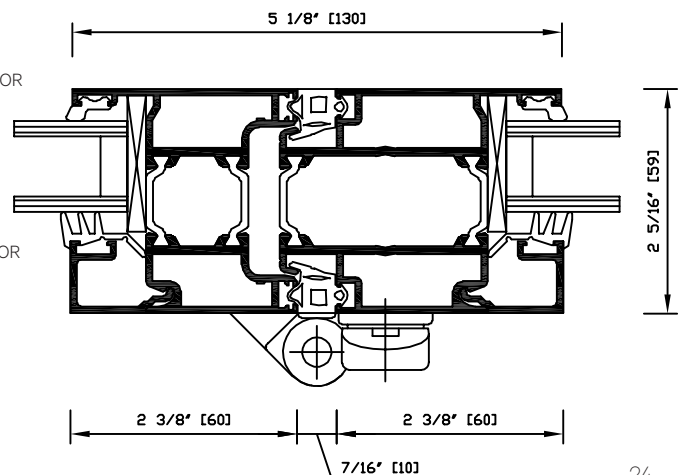
**Detail 16.1**  
Hybrid Sill (SL60/u)  
*(For resistance against wind driven rain,  
drain connections by others necessary.)*

**Note:** For ADA compliance, a gasket to cover the channel in the sill at swing panels is provided for the saddle sill.

**Detail 29.1**  
Floor Supported Low Profile Sill  
(SL60/u)  
*(Weep holes and drainage by others  
necessary for water rating. This sill is not  
centered with the other frame components.)*

**Detail 21.1**  
Raised Sill (Higher weather  
performance sill) (SL60/u)

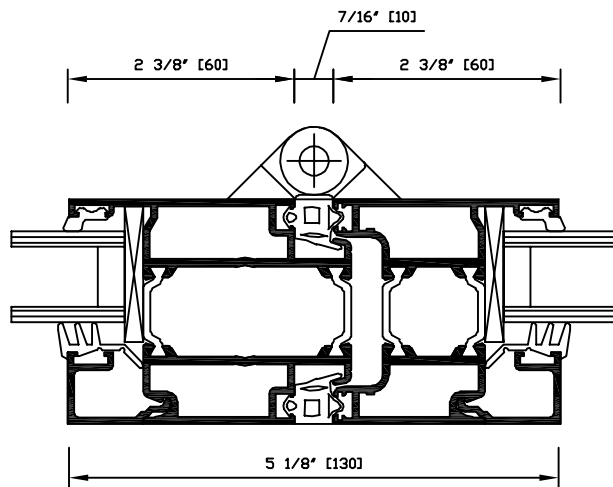


**Detail 4.1** Swing panel with locking at left side jamb**Detail 4R.1** Swing panel with locking at right side jamb**Detail 3R.1** Panel hinged at left side jamb**Detail 3.1** Panel hinged at right side jamb**Detail 7R.1** Left folding panels with locking**Detail 7.1** Right folding panels with locking

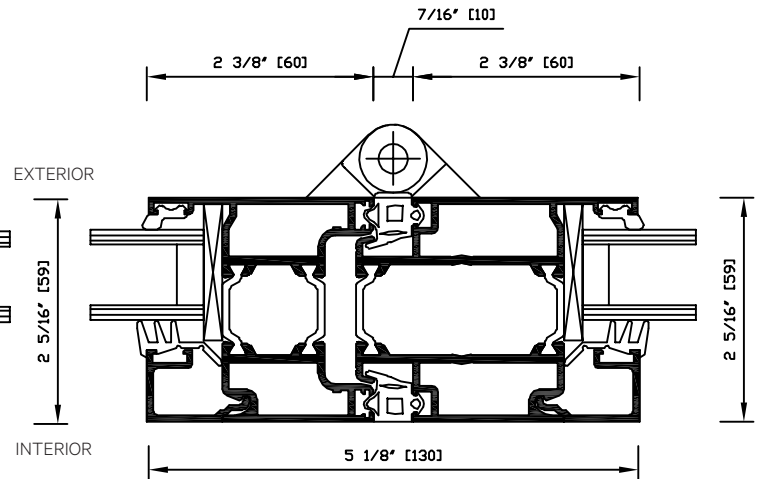


**Detail 7RC.1**

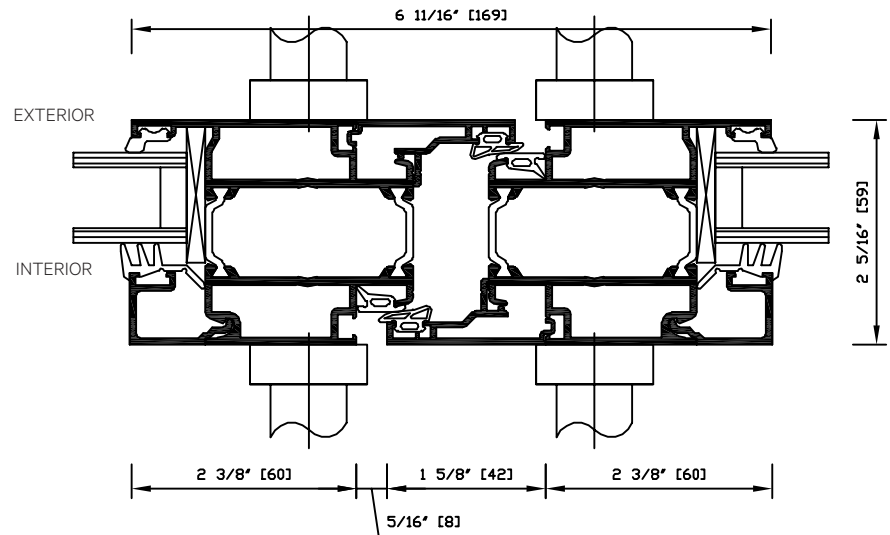
Left folding panels with running carriage set

**Detail 7C.1**

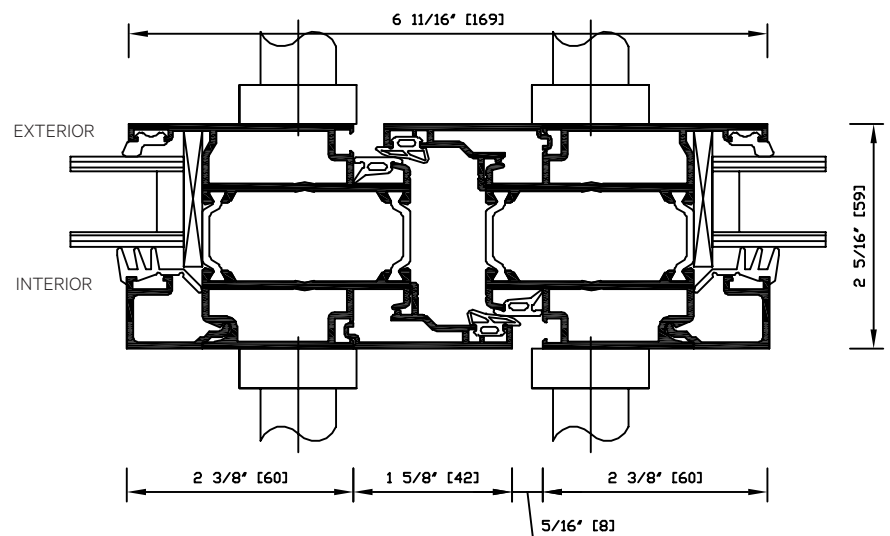
Right folding panels with running carriage set

**Detail 8.1**

Two swing panels with locking: left panel opening first

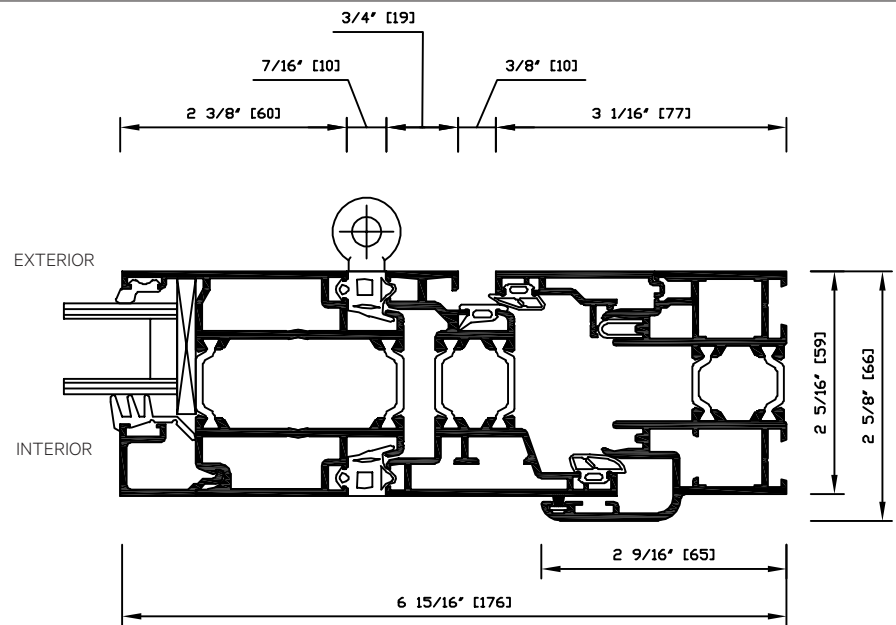
**Detail 8R.1**

Two swing panels with locking: right panel opening first

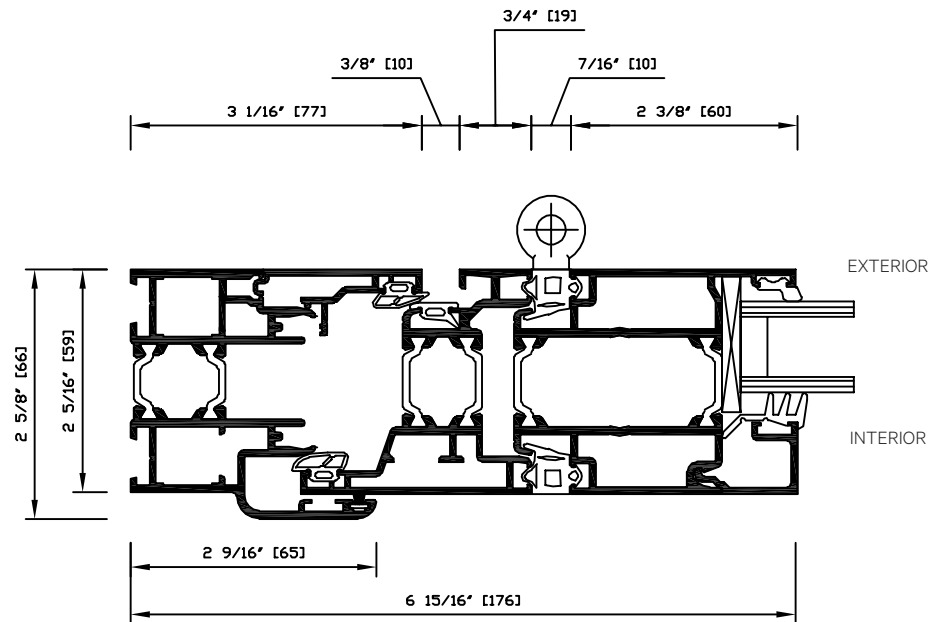


**Detail 5R.1**

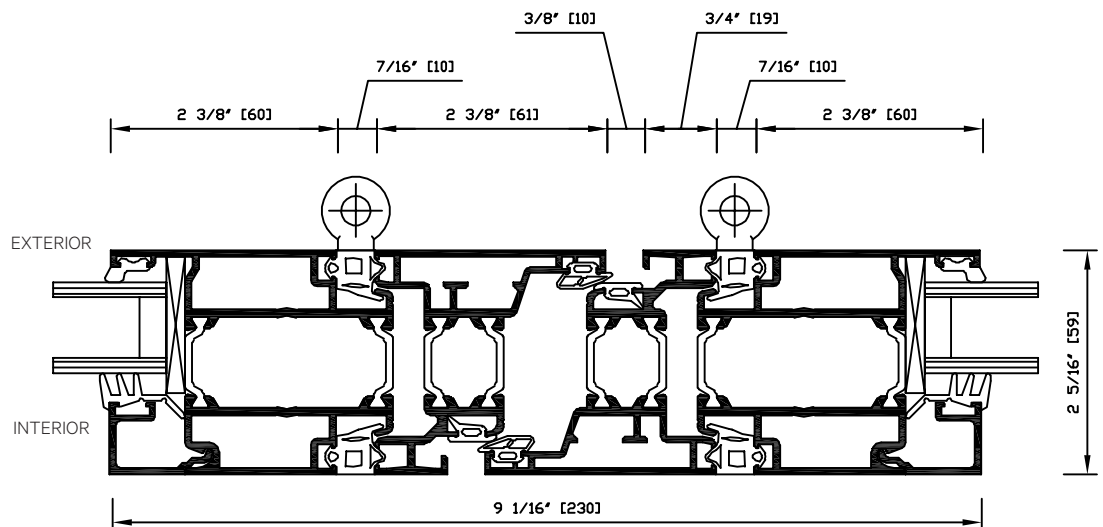
Panel with running carriage set  
meeting right side jamb

**Detail 5.1**

Panel with running carriage set  
meeting left side jamb

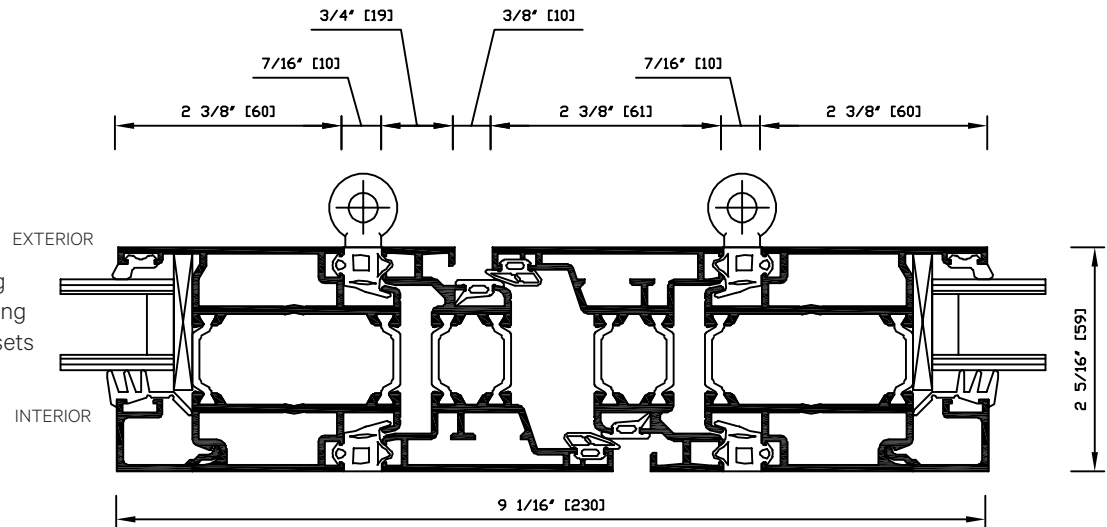
**Detail 9.1**

Meeting of panels  
folding to opposite  
sides (no swing panel)  
running carriage sets  
on both panels

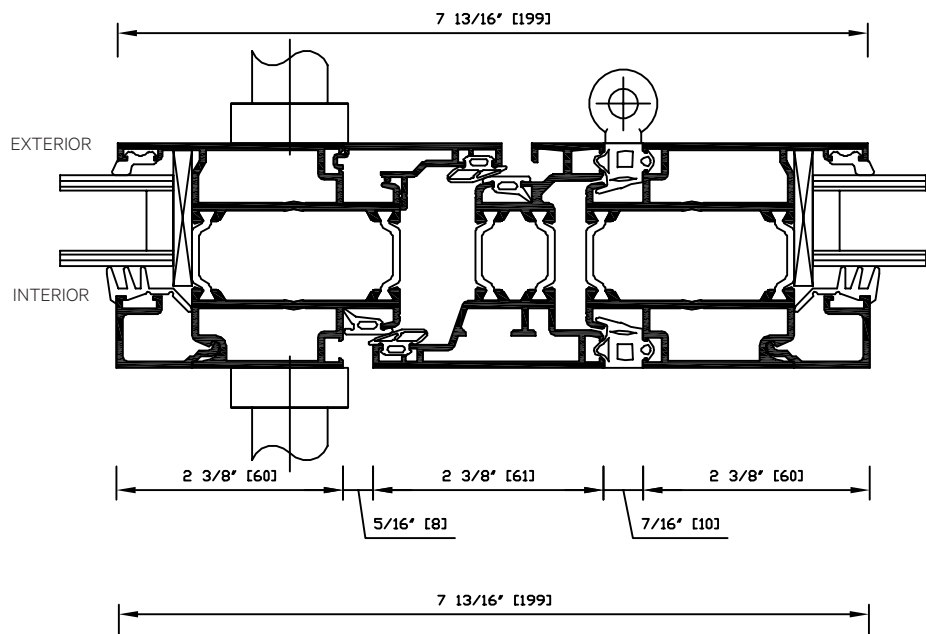


**Detail 9R.1**

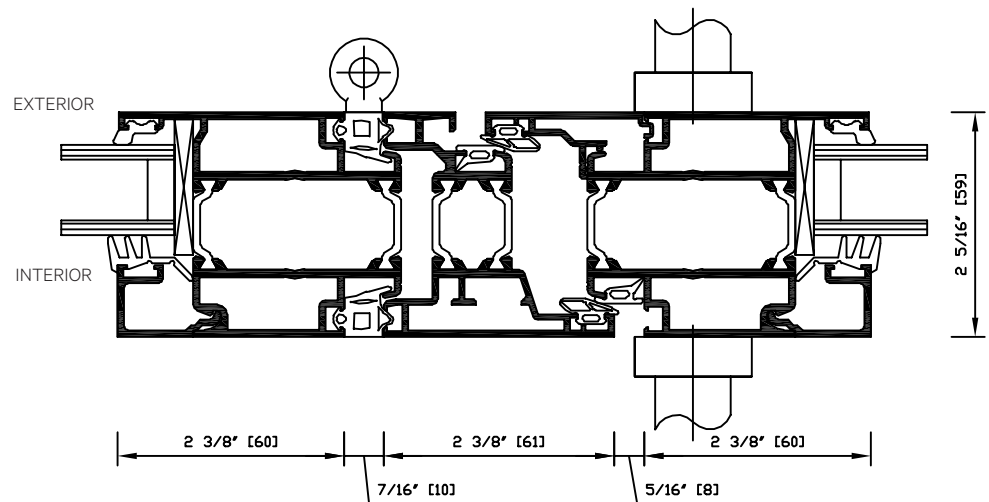
Meeting of panels folding to opposite sides (no swing panel) running carriage sets on both panels

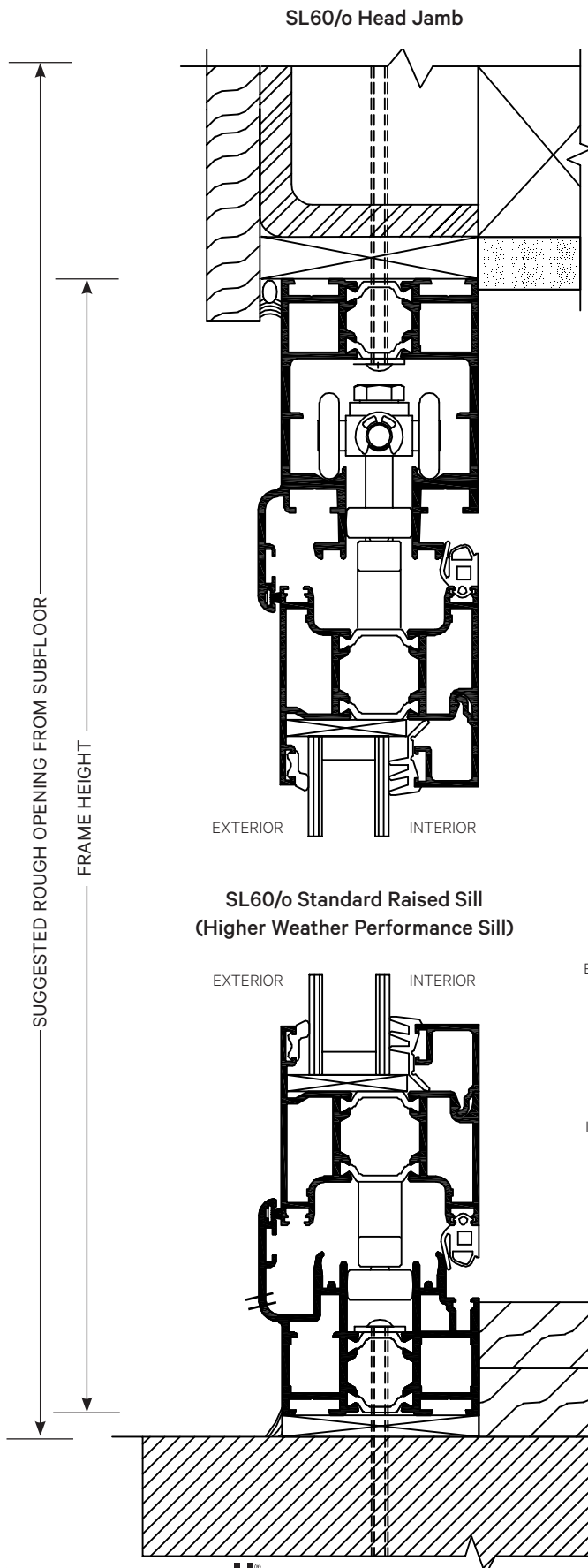
**Detail 10.1**

Meeting of swing panel with locking on left and folding panel with running carriage set on right

**Detail 10R.1**

Meeting of swing panel with locking on right and folding panel with running carriage set on left



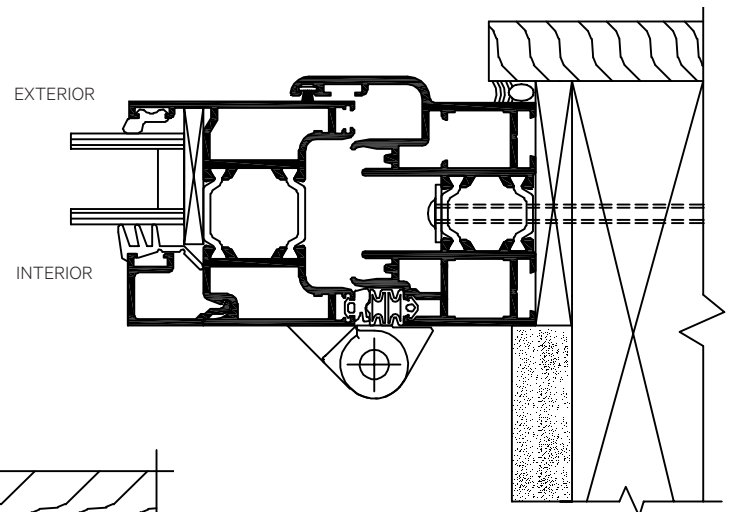
**INSTALLATION NOTES**

Suggested Typical Installation drawings shown are very general and may not be suitable for any particular installation. Product placement, fasteners, flashing, waterproofing, sealant, trim, and other details for specific surrounding conditions must be properly designed and provided by others.

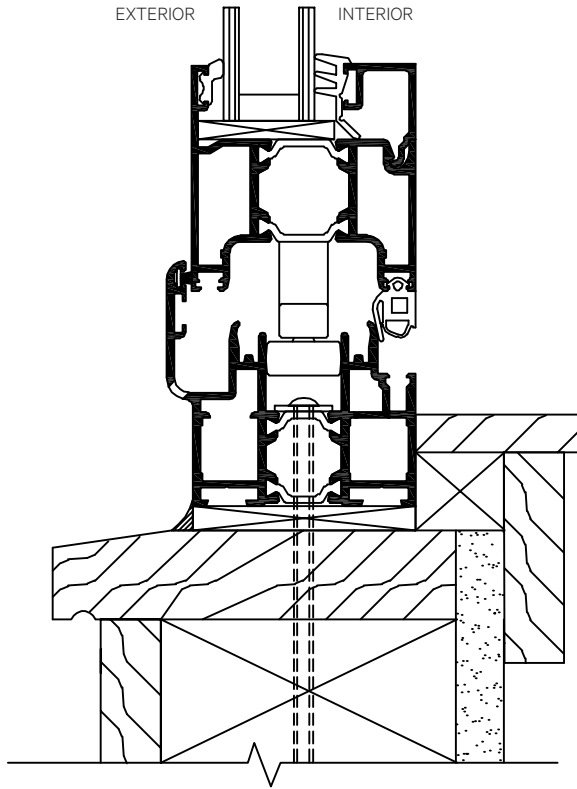
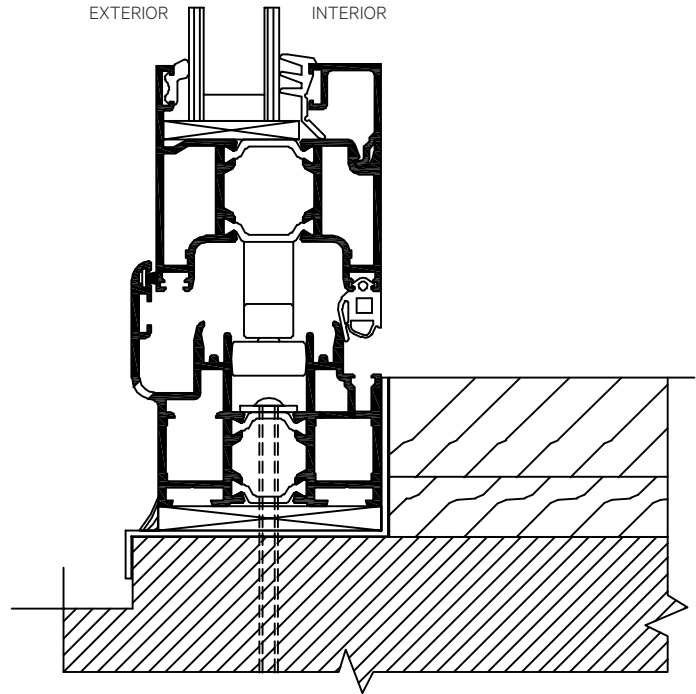
**INSTALLATION CONSIDERATIONS**

The approximate weight of a panel with double glazing is 5.5 lbs/ft<sup>2</sup> (27 kg/m<sup>2</sup>), and with triple glazing is 6 lbs/ft<sup>2</sup> (29 kg/m<sup>2</sup>) - 8 lbs/ft<sup>2</sup> (39 kg/m<sup>2</sup>). The vertical structural deflection of the header should be ¼" (6 mm) under full loads. Although for Floor Supported systems, there is no vertical load on the header from the panels, structural support for lateral loads (both windload and when the panels are stacked open) must be provided. See Pre-Installation Preparation and Installation Guidelines in the General Introduction. An owner's manual with installation instructions is available upon request.

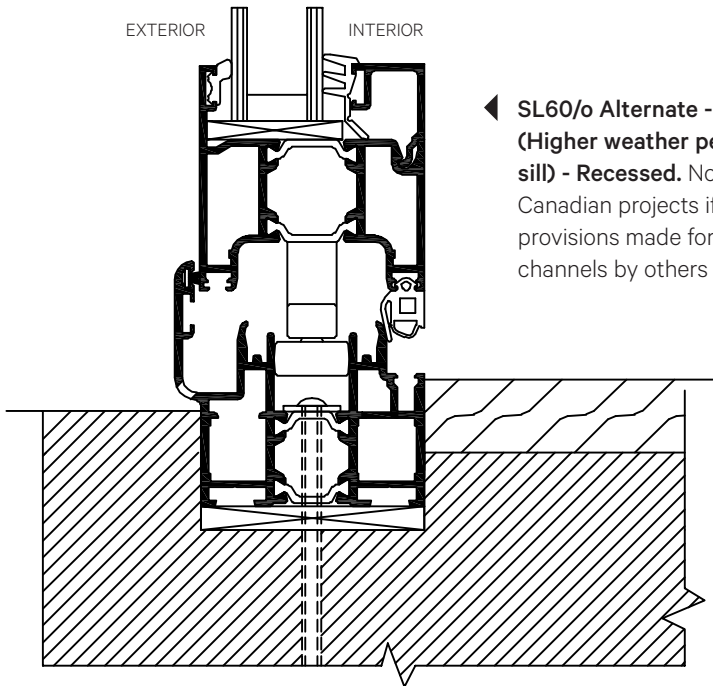
It is recommended that all building dead loads be applied to the header prior to installing the NanaWall. If so and if a reasonable amount of time has been allowed for the effect of this dead load on the header, then only the building's live load can be used to meet the above requirement of ¼" (6 mm). If not, both the dead and live loads need to be considered. For the Floor Supported SL60u, please note that there is no vertical load on the header.

**Panel Hinged At Right Side Jamb**

SL60/o Standard Window Sill

SL60/o Alternate - Raised Sill  
(Higher weather performance sill) with Sub Sill

EXTERIOR INTERIOR

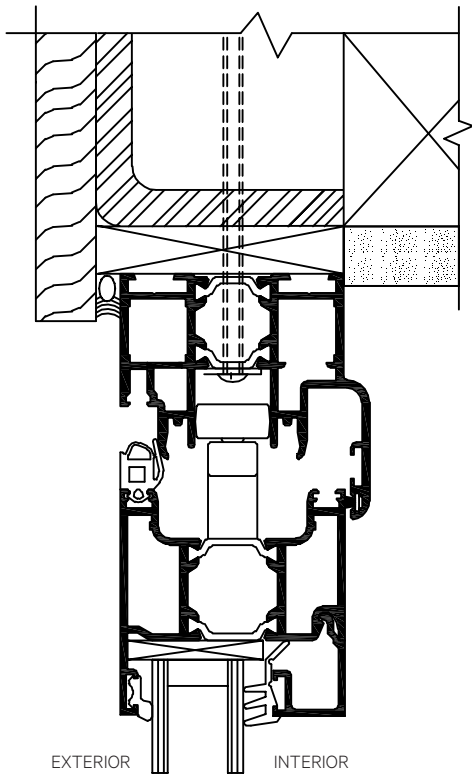


◀ **SL60/o Alternate - Raised Sill (Higher weather performance sill) - Recessed.** Not suitable for Canadian projects if there are no provisions made for weepholes in channels by others to drain.

#### INSTALLATION NOTES

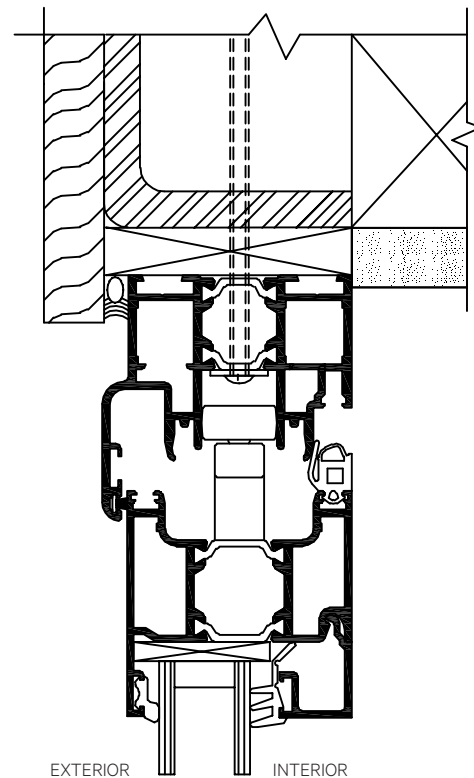
Suggested Typical Installation drawings shown are very general and may not be suitable for any particular installation. Product placement, fasteners, flashing, waterproofing, sealant, trim, and other details for specific surrounding conditions must be properly designed and provided by others.

See Installation Considerations on Page 28.

**Outward Opening Standard SL60/u Head Jamb****INSTALLATION NOTES**

Suggested Typical Installation drawings shown are very general and may not be suitable for any particular installation. Product placement, fasteners, flashing, waterproofing, sealant, trim, and other details for specific surrounding conditions must be properly designed and provided by others.

See Installation Considerations on Page 28.

**Inward Opening SL60/u Head Jamb**

## INSTALLATION NOTES

Suggested Typical Installation drawings shown are very general and may not be suitable for any particular installation. Product placement, fasteners, flashing, waterproofing, sealant, trim, and other details for specific surrounding conditions must be properly designed and provided by others.

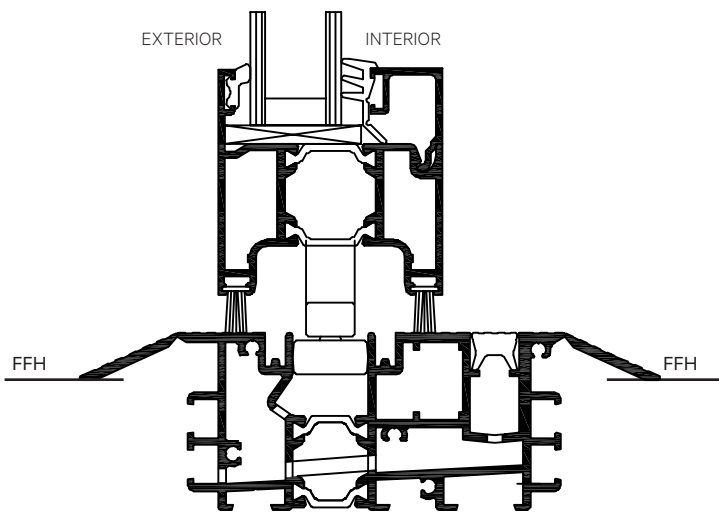
### \*Low Profile Saddle Sill for Inward or Outward Opening

For resistance against wind driven rain, the following is recommended by others:

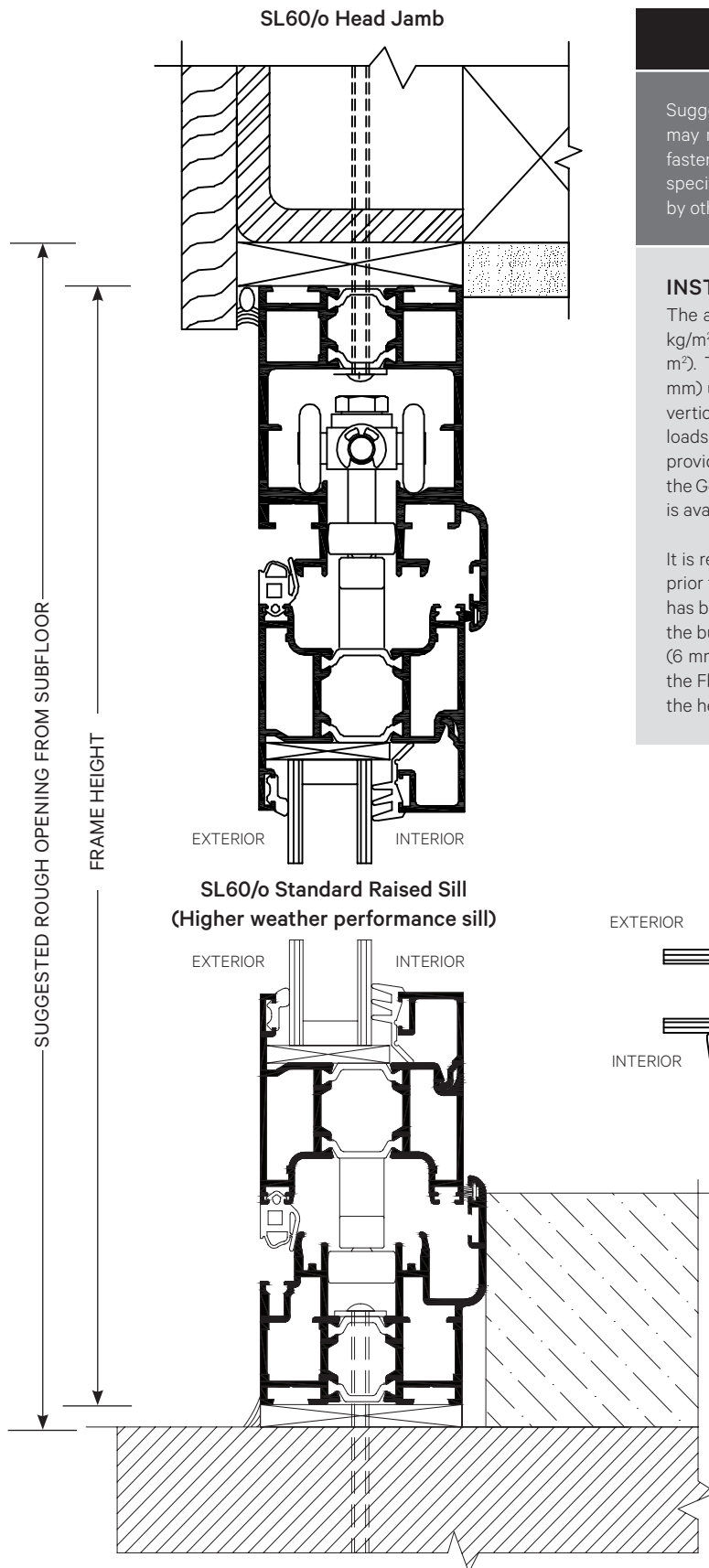
1. Remove the gasket covering the inner channel.
  2. Provide necessary weepholes at the bottom of channels and on the outside face of the sill.
  3. Make necessary drain connections.
- Contact NanaWall for a detailed drawing.  
See Installation Considerations on Page 28.

### Low Profile Saddle Sill\* (SL60/o)

(This sill is not centered with the other frame components.)



**Note:** For ADA compliance, a gasket to cover the channel in the sill at swing panels is provided for the saddle sill.

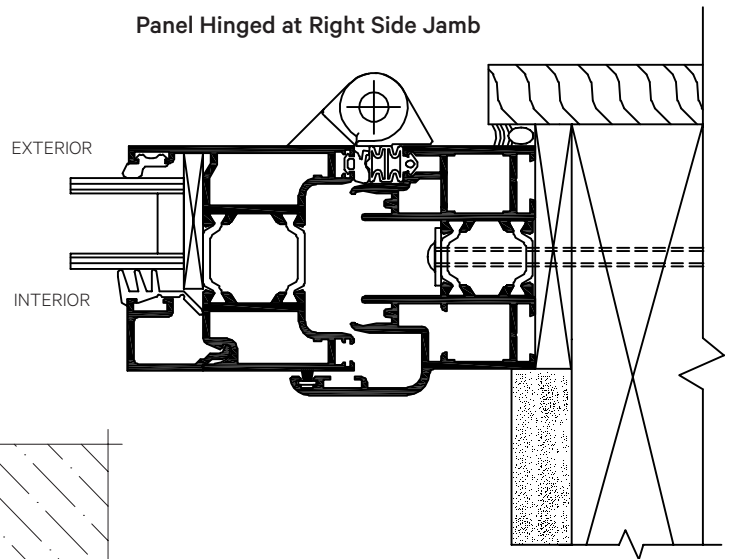
**INSTALLATION NOTES**

Suggested Typical Installation drawings shown are very general and may not be suitable for any particular installation. Product placement, fasteners, flashing, waterproofing, sealant, trim, and other details for specific surrounding conditions must be properly designed and provided by others.

**INSTALLATION CONSIDERATIONS**

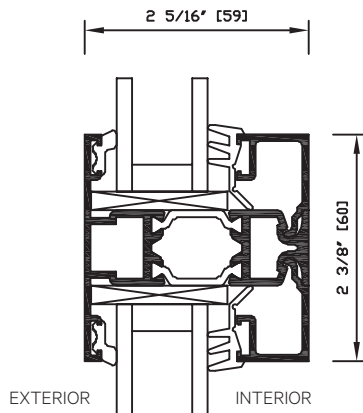
The approximate weight of a panel with double glazing is 5.5 lbs/ft<sup>2</sup> (27 kg/m<sup>2</sup>), and with triple glazing is 6 lbs/ft<sup>2</sup> (29 kg/m<sup>2</sup>) - 8 lbs/ft<sup>2</sup> (39 kg/m<sup>2</sup>) under full loads. Although for Floor Supported systems, there is no vertical load on the header from the panels, structural support for lateral loads (both windload and when the panels are stacked open) must be provided. See Pre-Installation Preparation and Installation Guidelines in the General Introduction. An owner's manual with installation instructions is available upon request.

It is recommended that all building dead loads be applied to the header prior to installing the NanaWall. If so and if a reasonable amount of time has been allowed for the effect of this dead load on the header, then only the building's live load can be used to meet the above requirement of 1/4" (6 mm). If not, both the dead and live loads need to be considered. For the Floor Supported SL60u, please note that there is no vertical load on the header.

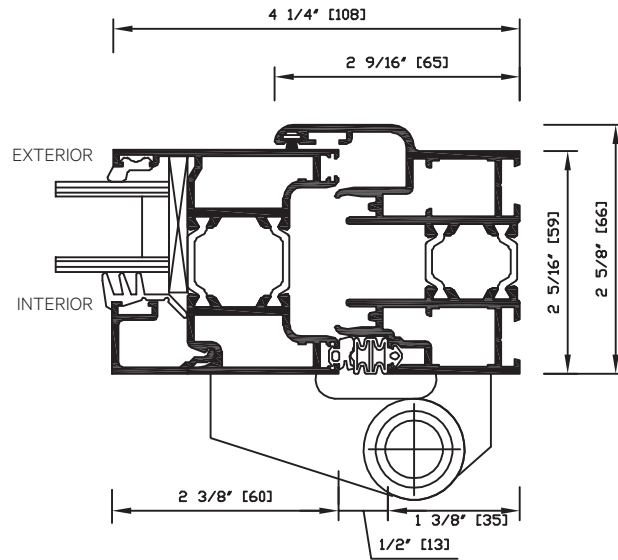
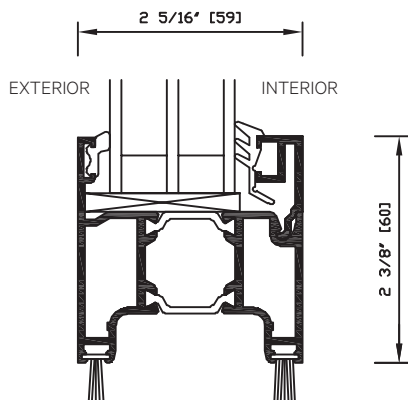
**Panel Hinged at Right Side Jamb**

**Note:** For ADA compliance, a gasket to cover the channel in the sill at swing panels is provided for the saddle sill.



**Typical Mullion Profile****Detail 3C.0**

Panel hinged at Right Side Jamb with Surface Mounted Hinges (to be used on a swing panel attached to the side jamb).

**Typical Glass Stop Profile with Triple Glazing****Typical Simulated Divided Lites Muntins with Spacer Between Insulated Glass (SDL)**