

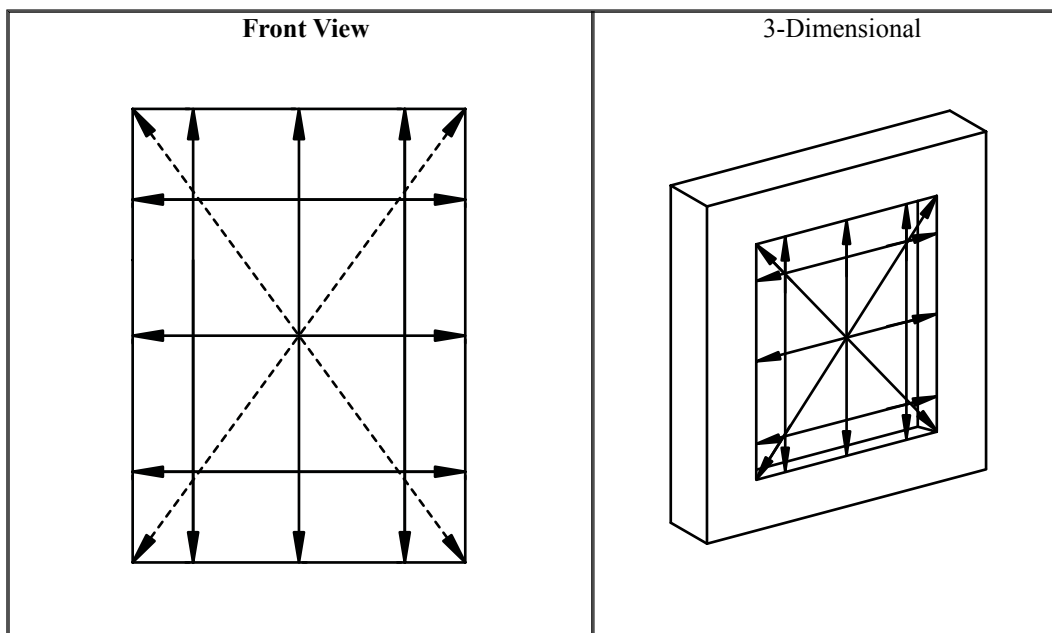
Measuring Instructions

Always take care when measuring plantation shutters and be sure to look for any obstruction that may interfere with the operation of the panels or louvers. Please refer to our louver clearance diagrams for further clarification (pages 30-31).

Measurement for shutters can be taken in two distinct ways. The first and most common is referred to as “opening size”. Opening size dimensions are literally the measurements (width and height) of the window opening. Because of variations in window construction, when measuring for width and height always measure in three places. The width should be measured along the top, middle, and bottom. The height should be measured on the left, center, and right. When ordering a shutter with an inside or semi-inside mount, please use the smallest of the measurements. For outside mount shutters, use the largest.

When an order with opening size dimensions is processed the factory will automatically take the necessary deductions. These deductions may be found on our reference chart for the various frames that are available. This chart is also found on our web site (www.sunlandshutters.com). **Inside mount applications require diagonal measurements to check if the opening is square.** If the two diagonal measurements differ by 1/2” or more, we recommend an outside mount.

Opening Size Measurements

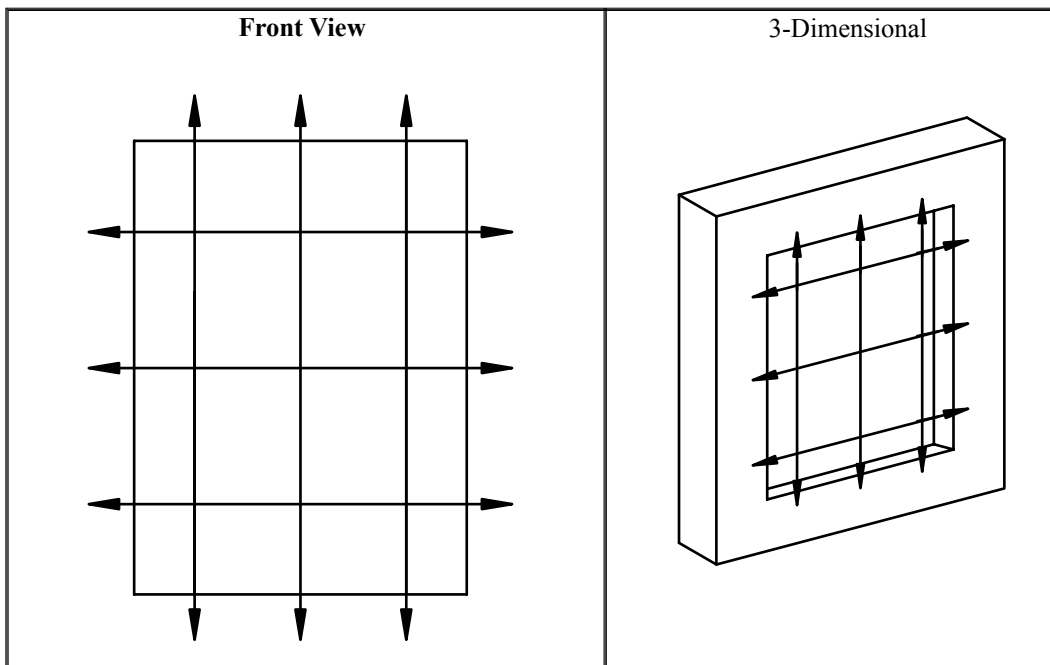


Measuring Instructions

The other way to take measurements is “net with frame” (NWF), also known as finished size. When ordering a shutter with NWF dimensions the factory will build the shutter unit (panels and frames) to your exact width and height specifications to the outside edge of the frame. NWF dimensions are normally reserved for individuals with fairly advanced knowledge, as the face of the frame will need to be added to the opening size measurement. For frame dimensions, please see Frame Specification section in this manual (pages 3-5).

It is important that exact measurements are taken before ordering. Once the order is confirmed, the order may not be cancelled. Orders are only accepted on the Sunland Shutters order form or through our online order system, both can be found on our web site at www.sunlandshutters.com.

Net With Frame (NWF) Measurements



Divider Rails

Divider rails are an integral part of shutter design. Divider rails provide structural integrity to a shutter and also divide the top louvers from bottom louvers. Sunland shutters can build Polycore, Lexwood Premium, Lexwood Advantage and Lexwood Plus shutters up to 96" in height without a divider rail, but we recommend a divider rail for shutters over 72" in height.

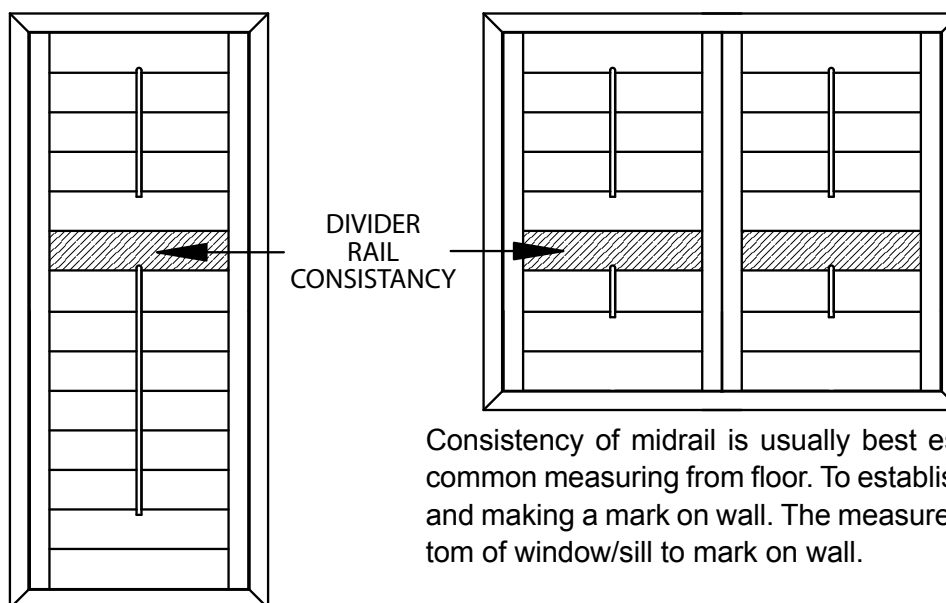
We require a waiver against sagging for shutter panels that are both over 32" in width and 72" in height or larger. Split rods are not considered as a divider rail.

Divider rails are measured from the bottom up. Measure from the bottom of the opening/sill when ordering with opening size, or bottom of the shutter frame when ordering with NWF size to the center line of the desired divider rail location.

Divider rail locations will vary depending on louver size, and opening height. Therefore divider rails may vary up or down by 1" for 2.5" louver, 1.5" for 3.5" louver, and 2" for 4.5" louver. If you would like to lock the divider rail location, please apply uneven rail and accept the fact the top and bottom rail heights will be different. We highly recommend you to review all shutter diagram before you confirm a job to ensure the louver count and divider rail locations are to your satisfaction.

To achieve a uniform appearance (divider rails and louver numbers) on adjacent shutters, you must specify that all adjacent shutters and their divider rails be built exactly the same height. If the height measurements of the shutters differ slightly, apply one of the three options (keeping in mind that adjacent shutter and their divider rails must always be ordered exactly the same height):

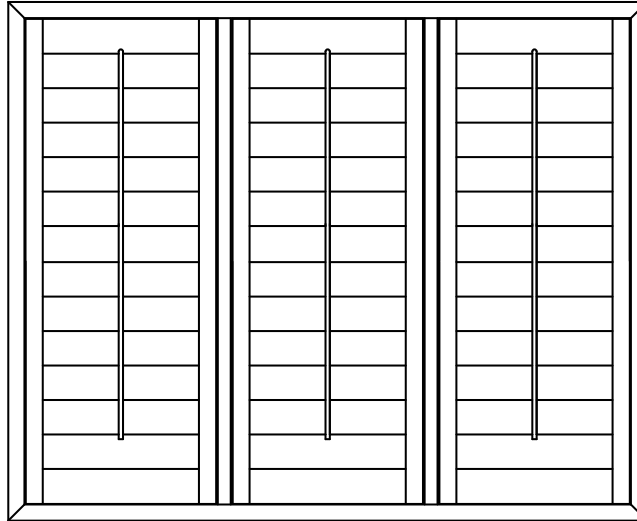
1. For outside mounts, increase the ordered height of the smaller shutter to equal the taller shutters.
2. For inside mounts with Z frames, reduce the ordered height of the taller shutter to equal the smaller shutter.
3. For inside mounts with height differences of 1/2" or more, change to outside mount.



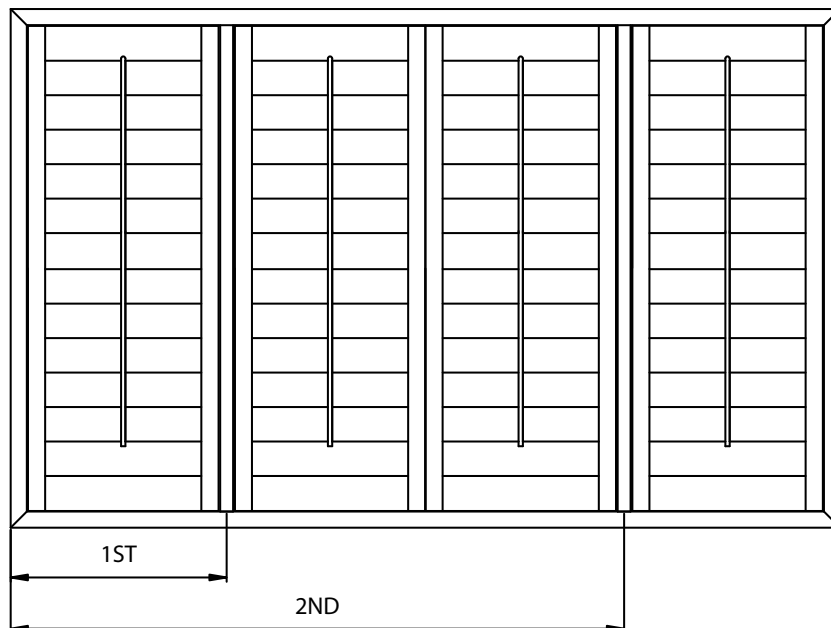
Consistency of midrail is usually best established with a common measuring from floor. To established midrail point and making a mark on wall. The measurement is from bottom of window/sill to mark on wall.

T-Post

T-posts are 1" vertical frame components. T-posts give added strength to wider openings. They are inserted vertically into shutter frames to separate shutter sections. This allows for placement of additional panels within the same opening. The large T-posts (1 3/4" face) are used when panels exceed 24" in width or 60" in height. T-post placement is usually evenly placed within the frame. When ordering a shutter with a T-post, if not indicated, it will be placed so that all sections are the same width.



To order unequal T-post placement when ordering with opening size, always measure from the left point of your overall width to the center of the first vertical mullion. Then measure from the left point of your overall width to the center of the second vertical mullion. (Same logic applies to order with NWF size. First T-Post is always from the left edge of the frame to the center of the desired T-Post location) Repeat for any additional T-posts needed.

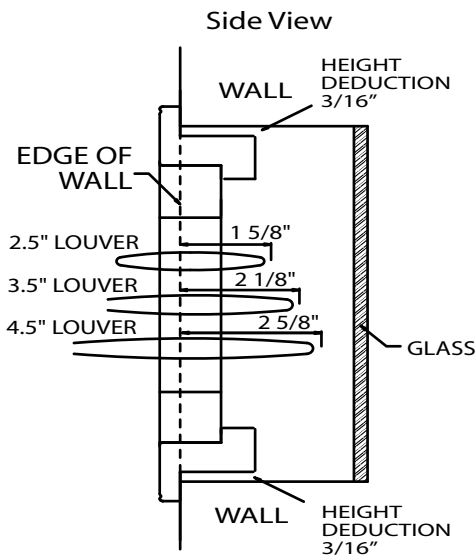


Polycore and Lexwood Louver Clearance Diagrams

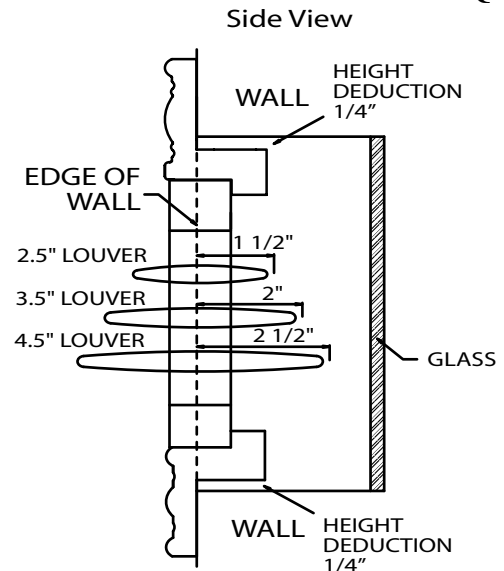
The following diagrams outline the amount of clearance needed so that the louvers will be able to function without coming into contact with the window pane. If there is not enough clearance available you will need to either change the louver size or order the shutter with a build out. Please take these into account when measuring your opening. These dimensions apply to both Polycore and Lexwood frames.

The following diagrams are referring to the minimum clearance numbers.

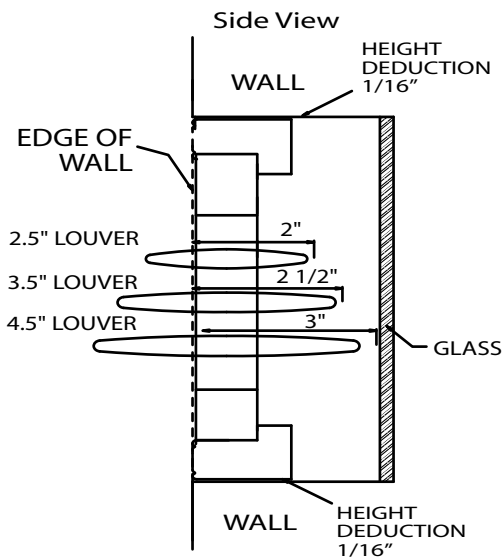
Small Z-frame / Single Beaded Z-frame (Frame Code: SMZ / Code: SBZ)



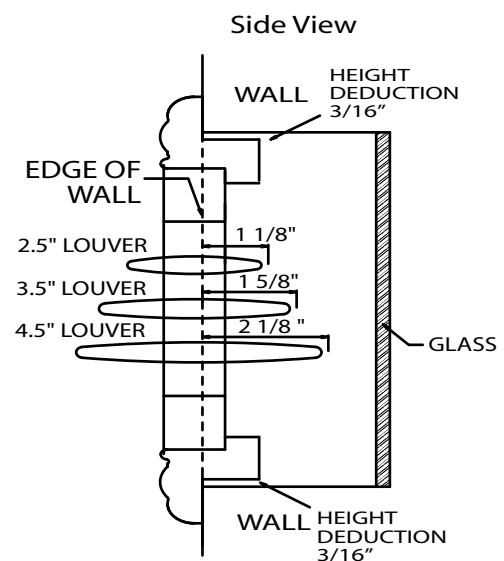
Large Z-frame / Medium Z-frame / 2" Bullnose Flat (Frame Code: LGZ / MDZ / 2FZ / SQZ)



L-frame Inside Mount (Frame Code: LFI)



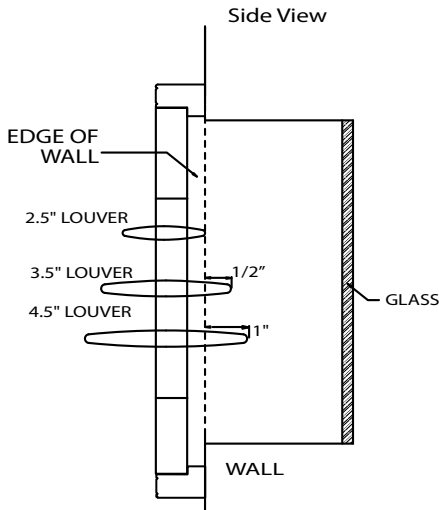
Malibu Z-frame (Frame Code: MAZ)



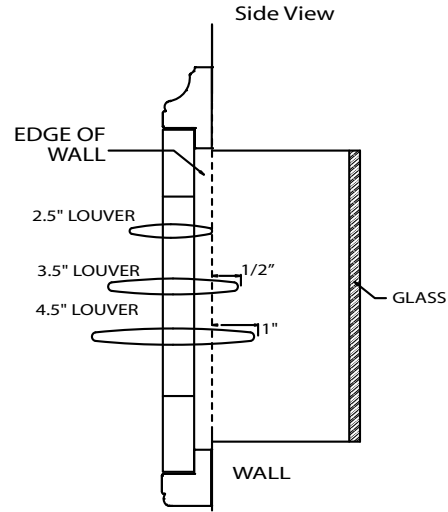
* For "Hidden Tilt" add an additional 1/2" to louver clearance Installation – Standard Opening

Measuring Information

L-frame O.M (Frame Code: LFO)



Deco frame / Deco sill frame O.M. /2" Deco frame (Frame Code: DFO / DSO / D2O)



Please refer to the chart below to determine the louver clearance needed.

To check to see if buildout is needed lookup the required minimum window depth in the chart. Subtract your actual measured window depth. If the answer is larger than zero, then you need that thickness of buildout.

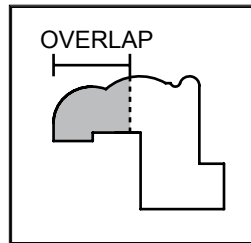
For example: A LFO shutter with 4.5" louvers with an actual window depth of 1/2". $1" - 1/2" = 1/2"$.

Frame Type		Min. Window Depth for all 3 Louver Sizes (hidden tilt add an addition 1/2")		
		2.5 Louver	3.5 Louver	4.5 Louver
Semi-I.M.	LGZ	1 1/2	2	2 1/2
	MDZ	1 1/2	2	2 1/2
	MAZ	1 1/8	1 5/8	2 1/8
	SMZ	1 5/8	2 1/8	2 5/8
	SBZ	1 5/8	2 1/8	2 5/8
	2FZ	1 1/2	2	2 1/2
	SQZ	1 1/2	2	2 1/2
I.M.	LFI	2	2 1/2	3
O.M.	LFO	0	1/2	1
	DFO	0	1/2	1
	DSO	0	1/2	1
	D2O	0	1/2	1
	MFO	0	1/2	1
	LLO	-1 1/2	-1	- 1/2

Frame Overlap Table

This table shows how much frame will overlap the drywall. Please see the drawing below for an example.

Overlap for Malibu Z-frame (MAZ)



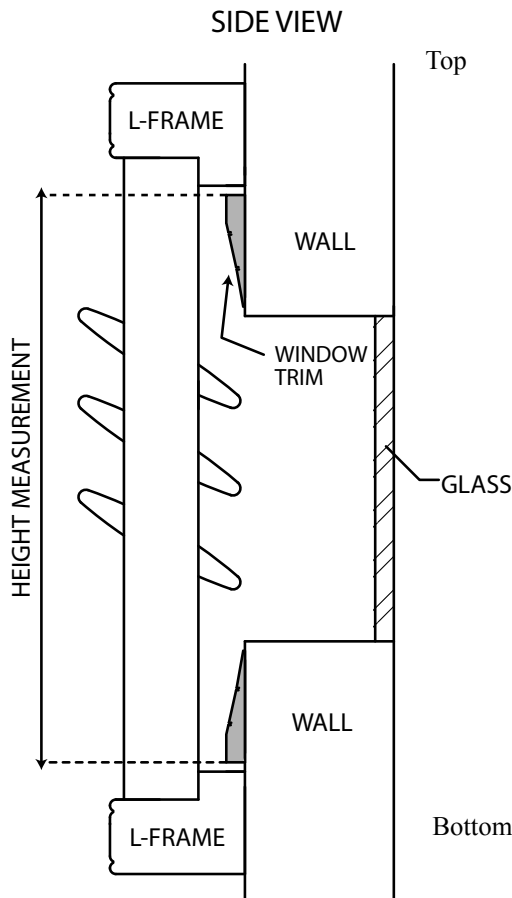
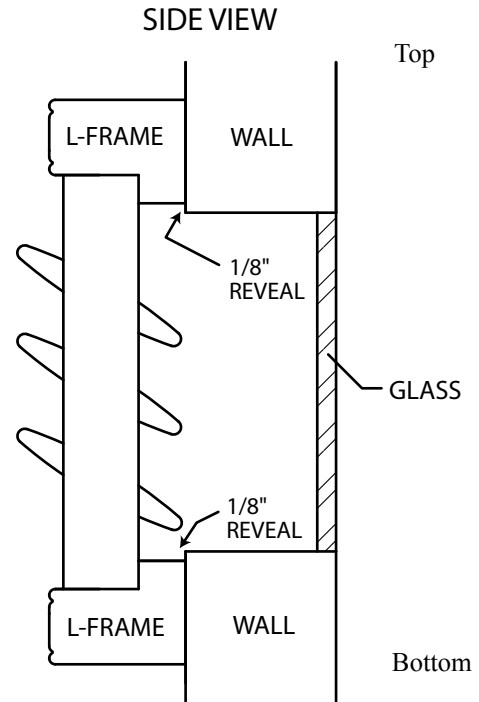
	Frame Type	Amount of Overlap on the Wall (Each Side)
Polycore	LGZ	1 3/4"
	MDZ	1 1/2"
	MAZ	1"
	2FZ	1 1/2"
	SQZ	1 1/2"
	LFO	1 1/2"
	FFO	1 1/2"
	DFO	3 1/4"
	DSO	2"
	D2O	2 1/8"
Lexwood	LGZ	2"
	MDZ	1 1/2"
	SBZ	9/16"
	MAZ	1"
	2FZ	1 1/2"
	LFO	1 1/2"
	DFO	3 1/4"
	DSO	2"
	D2O	2 1/8"

Measuring Instructions - Outside Mount

This section gives a brief walkthrough for the most common mounting and application types.

L-frame Outside Mount

1. Measure the inside width and height in three places, record the largest measurements.
2. Check for louver clearance.
3. Specify L-frame Outside Mount (Frame Code: LFO) for frame type.
4. Factory will make appropriate additions.

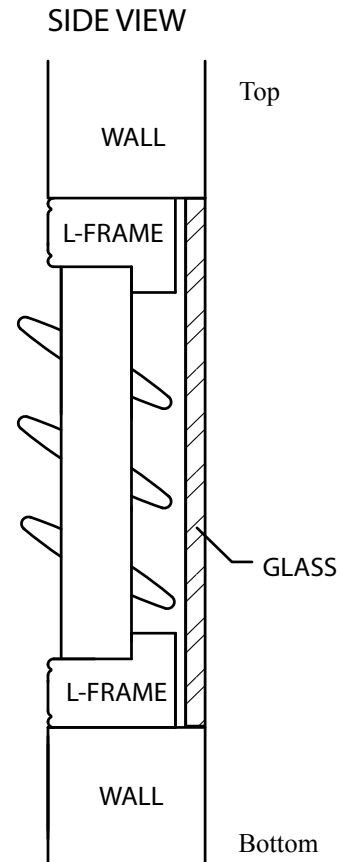
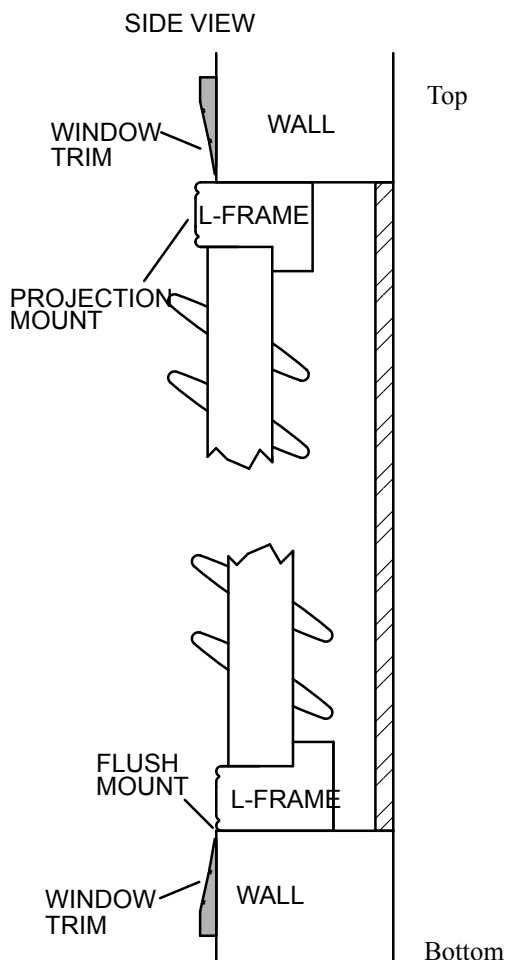


L-frame Outside Mount Around Trim or Moulding

1. Measure the outside width and height to the edge of the trim in three places, record the largest measurements.
2. Check for louver clearance.
3. Specify L-frame Outside Mount (Frame Code: LFO) for frame type.
4. Factory will make appropriate additions.

L-frame Inside Mount

1. Measure the inside width and height in three places, record the smallest measurements.
2. Check for frame.
3. Specify L-frame Inside Mount (Frame Code: LFI) for frame type.
4. Verify depth amount of window box for louver clearance.



L-frame Inside Mount with Trim or Moulding

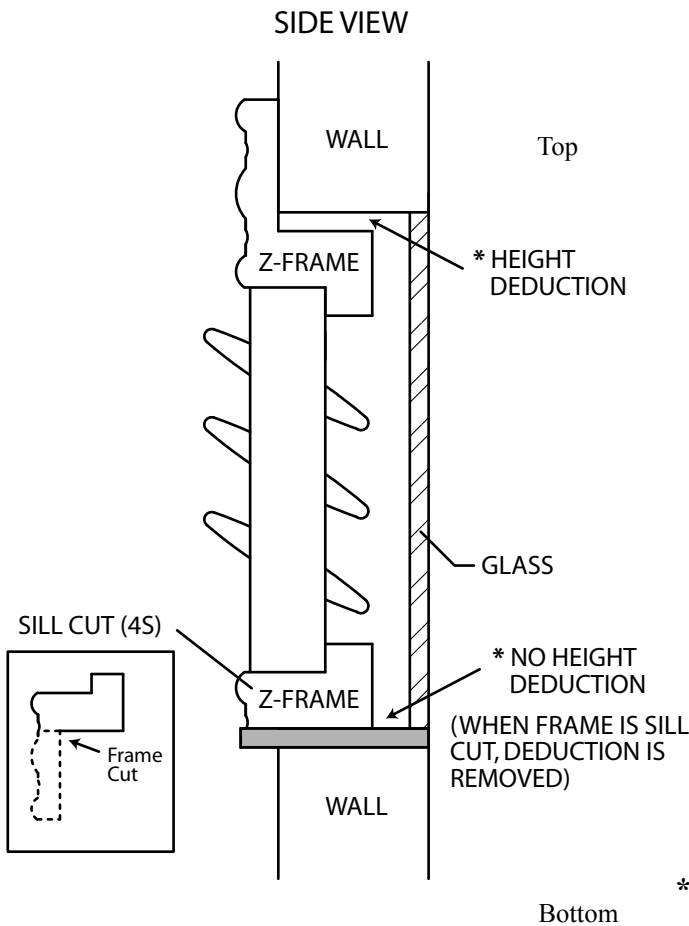
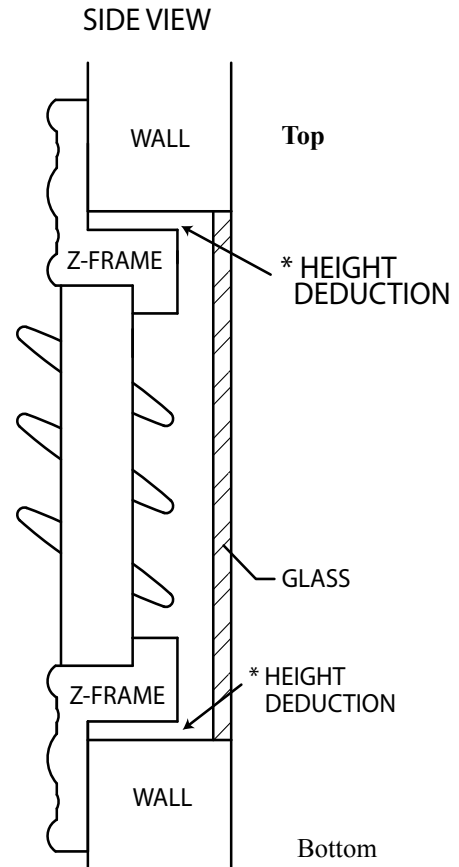
1. Measure inside width and height in three places, use the smallest measurement.
2. Check for frame and louver clearance .
3. Specify L-frame Inside Mount (Frame Code: LFI) for frame type.

* Depending on the height and style of the trim or moulding the shutter can be installed with a **projection mount** (the frame flush with the trim) or a **flush mount** (the frame flush with the wall) as shown.

Measuring Instructions - Semi Inside Mount

Z-frame Semi Inside Mount

1. Measure the inside width and height in three places, record the smallest measurement.
2. Check for louver clearance.
3. Specify the appropriate size Z-frame (Frame Code: LGZ for Large Z-frame, MDZ for Medium Z-frame, SMZ for Small Z-frame, SBZ for Single Beaded Z-frame, MAZ for Malibu Z-frame, SQZ for Medium Square Flat Z-frame).



Z-frame inside mount on sill

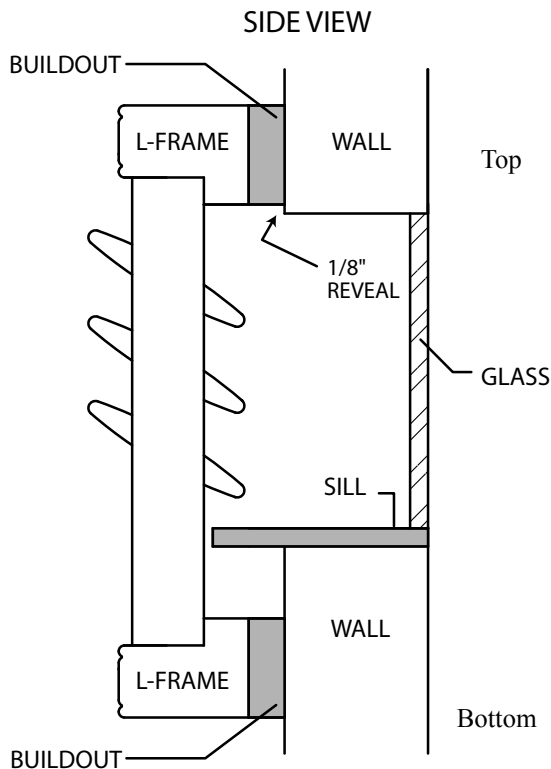
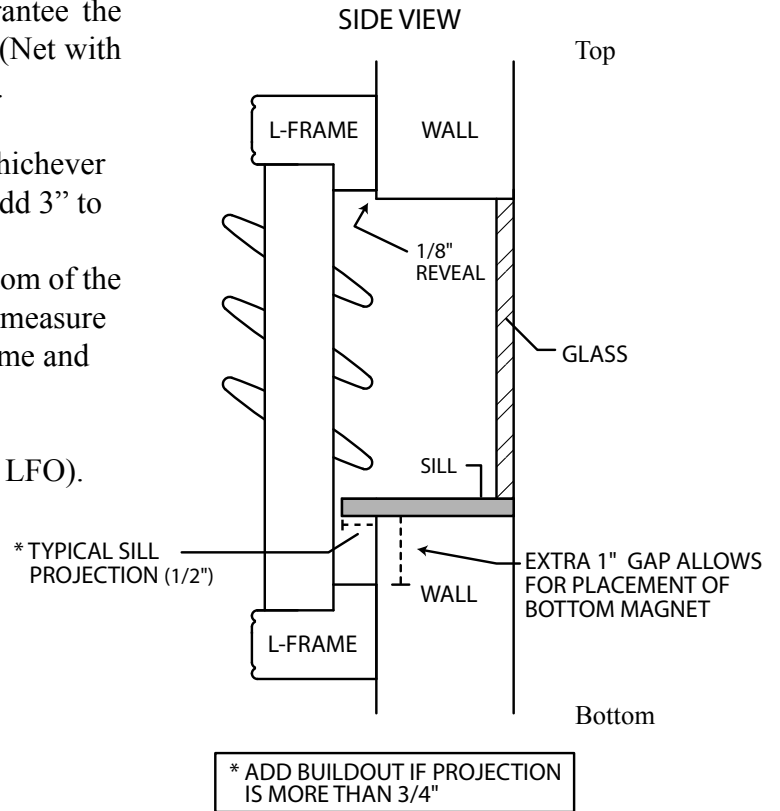
1. Measure the inside width and height in three places, record the smallest measurement.
2. Check for louver clearance.
3. Specify the appropriate size Z-frame (Frame Code: LGZ for Large Z-frame, MDZ for Medium Z-frame, SMZ for Small Z-frame, SBZ for Single Beaded Z-frame, MAZ for Malibu Z-frame, SQZ for Medium Square Flat Z-frame.)
4. Record 4S (4 sided frame with a sill cut) for frame sides. Please see the order reference chart for more frame side options.

*** Height Deduction: 1/4" for Large and Medium Z-frames
3/16" for Small, Single Beaded, and Malibu Z-frames**

L-Frame Outside Mount Around a Sill

With this mounting application the shutter will need to be ordered larger than the window opening to guarantee the shutter will clear the window sill, therefore NWF (Net with Frame) dimensions are needed to ensure proper fit.

1. Measure the width of the sill or the opening (whichever is wider), record the largest measurement and add 3" to the width to account for the width of the frame.
2. Measure the height in three places from the bottom of the sill to the top of the opening, record the largest measurement and add 4" to account for width of the frame and allow room for the bottom magnet.
3. Check for louver clearance.
4. Specify L-Frame Outside Mount (Frame Code: LFO).
5. If sill projects more than 3/4", order build out.



Adding build out to L-Frame

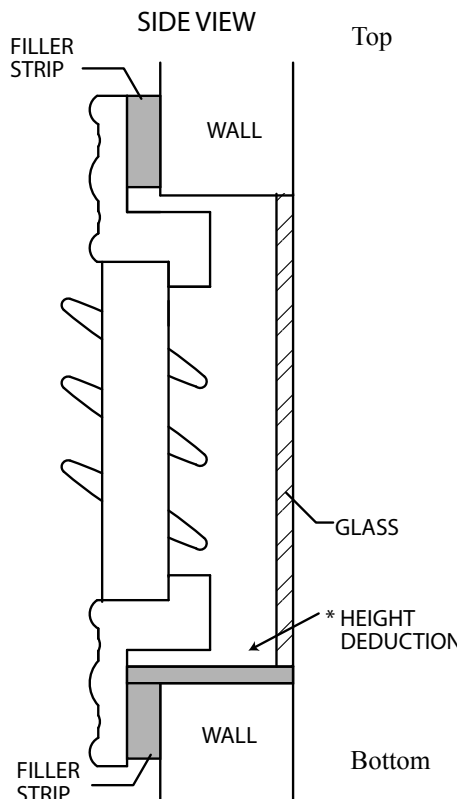
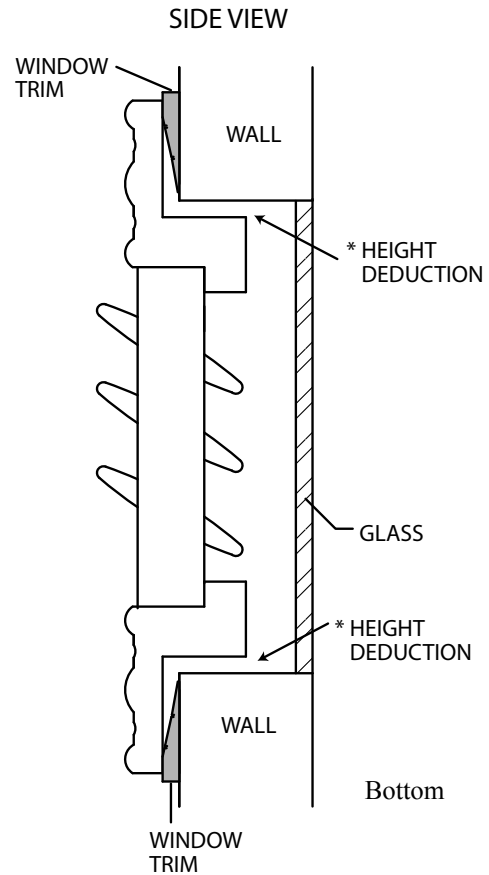
When a window sill protrudes into a room more than 3/4", a build out will be necessary so that the shutter panel can clear the window sill.

There is a surcharge to have the build out attached to the frame.

Measuring Instructions - Special Cases

Z-frame semi inside mount with trimmed opening

1. Measure inside width and height in three places, use the smallest measurement.
2. Check for louver clearance.
3. Specify the appropriate size Z-frame (Frame Code: LGZ for Large Z-frame, MDZ for Medium Z-frame, SMZ for Small Z-frame, SBZ for Single Beaded Z-frame, MAZ for Malibu Z-frame, SQZ for Medium Square Flat Z-frame). Some Z-frames will blend nicely with existing trims.



Z-frame semi inside mount with sill and filler strip

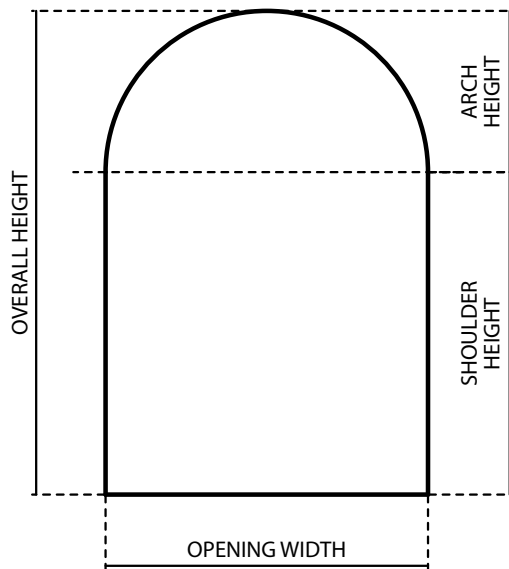
Although somewhat unusual, a filler strip can be used so that a Z-frame can be mounted on a window opening with a protruding sill without the need for a sill cut. A filler strip is used to return a Z frame to the wall on both sides and the top to hide the protruding frame.

There is a surcharge for the filler strips.

*** Height Deduction: 1/4" for Large and Medium Z-frames, Medium Square Flat Z-frame
3/16" for Small, Single Beaded, and Malibu Z-frames**

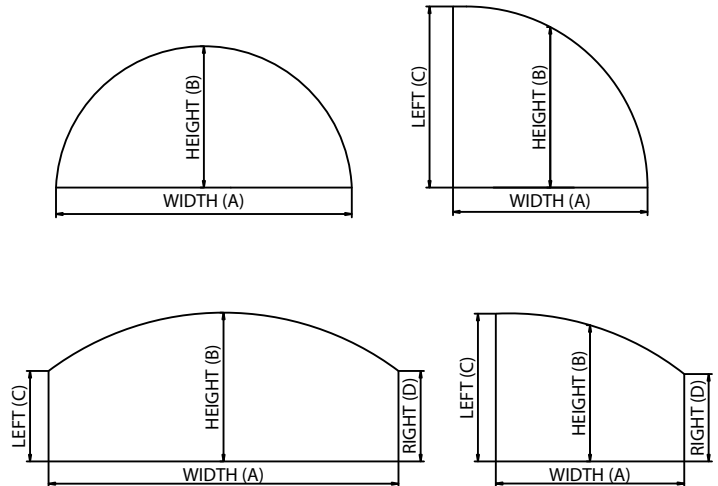
Arch Top Panels

Measuring for arch top panels requires determining the shoulder height on each side of the opening. The shoulder height measurement is the highest point on each side that is not part of the radius. These measurements vary from side to side, if they vary more than 1/8", establish a medium with level, mark these points, and make a template of the arched opening.



Fan Top Shutters

For 1/2 circle fan top shutters please provide the width at the bottom of the opening along with the height in the center. For eyebrow fan top shutters, you must also provide the shoulder height (C/D) on each side.



Height (B) is measured from the midpoint of width (A).

Arch Shutter Template Requirement

All arch top shutter order without template will be manufactured as half circle or continuous slope.

If the arch shutter ordered is not a half circle or continuous slope, **Cutout** template is required for manufacturing purpose. Two templates are recommended, one for Sunland Shutters and one for the dealer's records. Marked lines on templates are not acceptable to avoid mis-line determination only cutout templates should be sent.

All orders that require a template must MAILED IN with the order form (via USPS or UPS or Fed Ex) for that opening with the template attached. Sunland Shutters will not accept any order for openings requiring a template via online order or fax order.

Orders that have openings requiring templates—that ENTIRE order should be submitted via PHYSICAL MAIL along with the associated templates. Order where only 1 or 2 openings require templates—the openings that DO NOT require templates should be submitted online or via fax. The 1 or 2 openings requiring templates should be submitted via PHYSICAL MAIL. Please make sure the side mark is the same on both submissions.

Mail Instruction: Sunland Shutters 5855 Obispo Ave. Long Beach, CA 90805 Attention: Design – Template

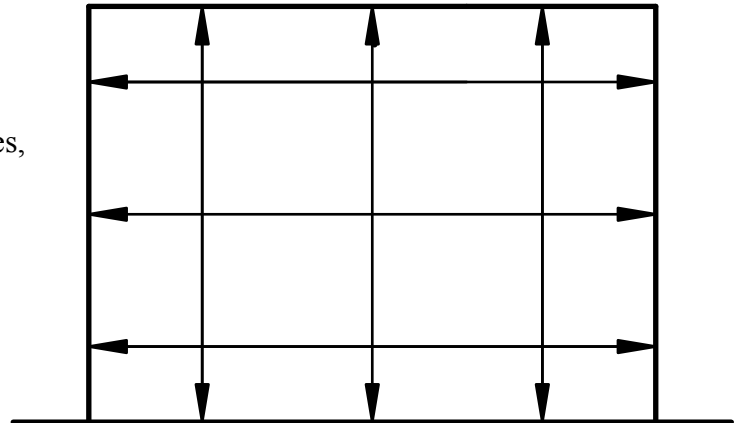
Track System Measuring Instructions

By-pass and Bi-fold track systems

Inside Mount

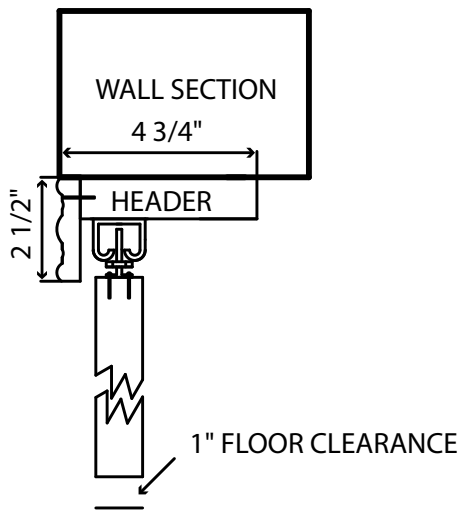
1. Measure inside width and height in three places, use the smallest measurement
2. Check for louver clearance
3. Specify by-pass or bi-fold
4. Specify panel configuration
5. Specify IM on order form

Front View

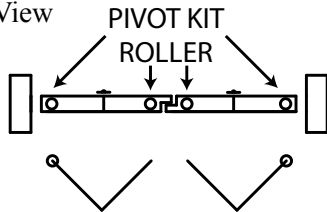


Bi-fold

Side View

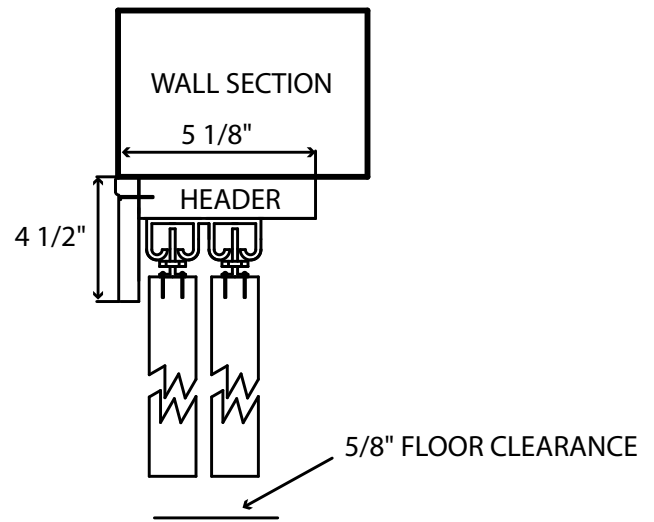


Top View

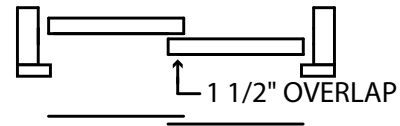


By-pass

Side View



Top View



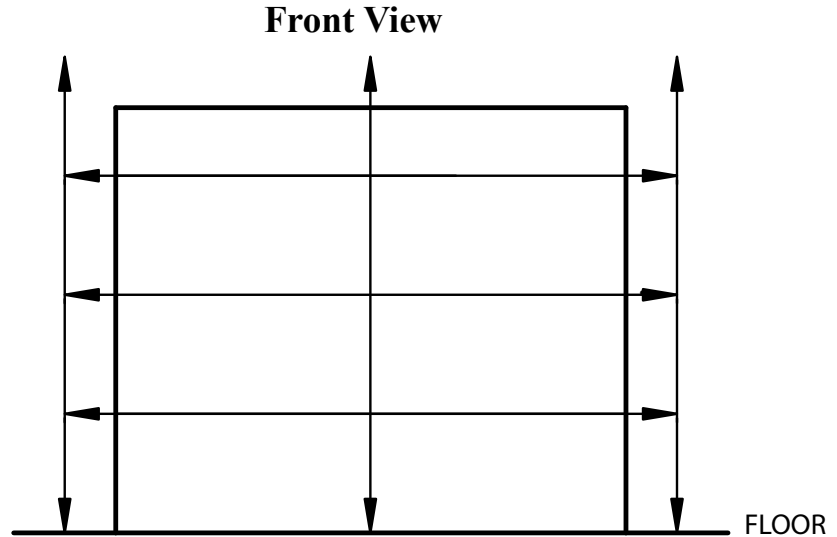
All fascia over 8' (= 96") are provided in two pieces with 45 degree miter joint for both Polycore and Lexwood.

Track System Measuring Instructions

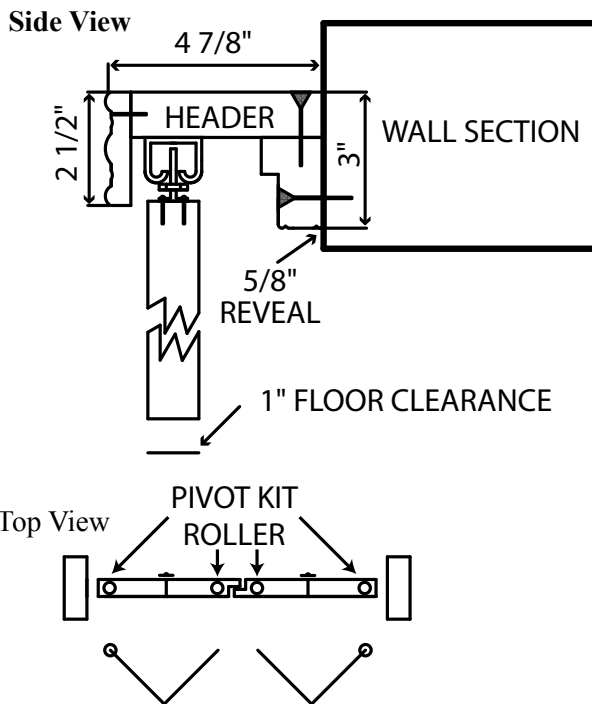
Revised: July, 2023

Outside Mounts

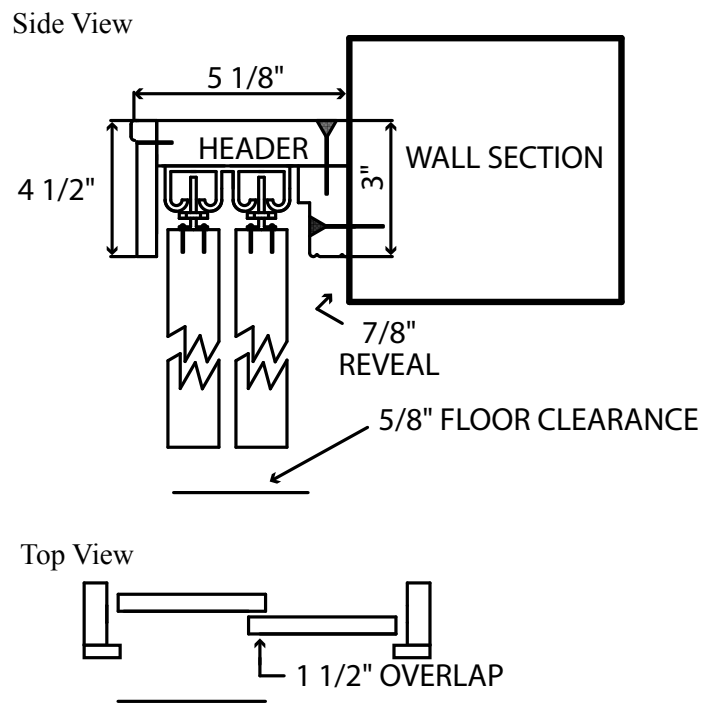
1. Measure inside width in three places, record the largest measurement.
2. Measure inside height in three places, record the largest measurement
3. Check for louver clearance
4. Specify by-pass or bi-fold
5. Specify OM, factory will make necessary additions



Bi-fold



By-pass



All track systems are three-sided frames

Floor clearance on by-pass system is 5/8", unless specified otherwise.

Floor clearance on bi-fold systems is 1" and cannot be changed.

All fascia over 8' (= 96") are provided in two pieces with 45 degree miter joint for both Polycore and Lexwood.

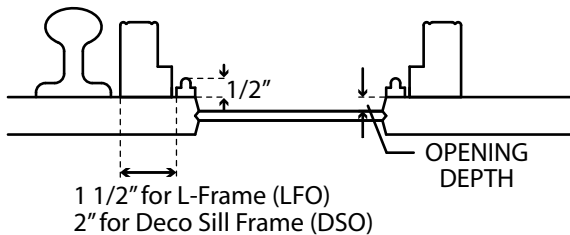
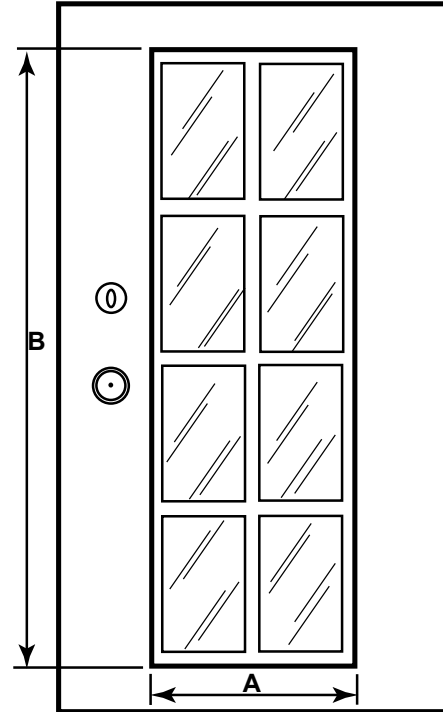
To ensure louver clearance, we recommend additional 1/2" build out to the bypass header and side legs for 4.5" louver, 1" build out to bypass header and side legs for hidden tilt 4.5" louver. Dealer can make the request depends on the window condition when needed.

French Door Measuring Instructions

When measuring for French doors, the trim strips used to hold the glass panels in place are considered part of the opening.

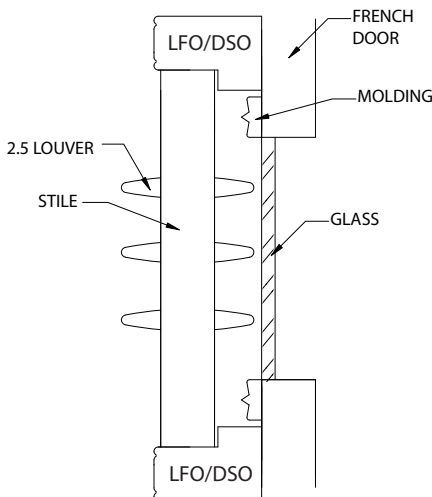
1. Measure the width in three places, use the largest measurement and add 3" to the width if you use L-frame, or add 4" if you use Deco Sill frame.
2. Measure the height in three places, use the largest measurement and add 3" to the height if you use L-frame, or add 4" for Deco Sill frame.
3. Check for louver clearance, build out is generally required
4. Specify 4 sided frame, NWF.

Ideally there is 1-1/2" of mounting surface between the opening and the base of the handle for L-frame, or at least 2" of mounting surface for Deco Sill frame. The trim normally does not project more than 1/2". Also consider the opening depth when selecting a louver size (refer to Clearance Diagrams).

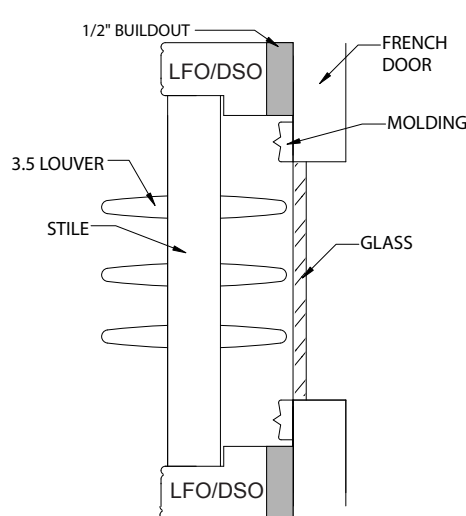


Always remember to check for louver clearance

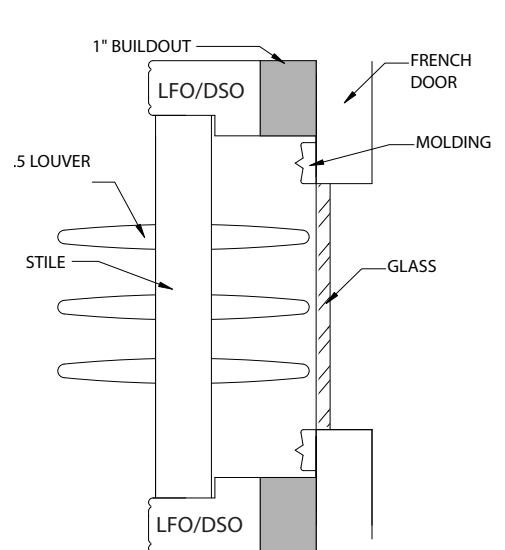
*** SIDE VIEW**



SIDE VIEW



SIDE VIEW

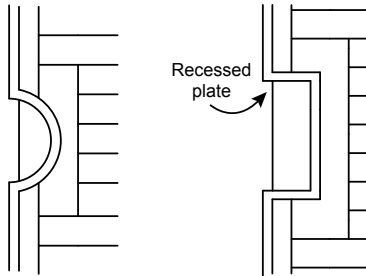


***WARNING:**
In this type of application, the magnets will hit molding/casing using standard L-frame and/or Deco Sill frame.

French Door Measuring Instructions

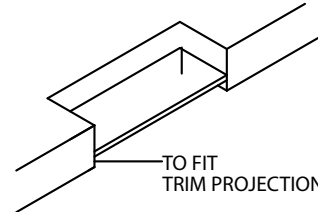
Revised: July, 2023

In the event there is not enough mounting space, using a cut out is the best solution. The cut out plate can be recessed when the mounting surface is less than 1-1/2" and the plate can be raised to avoid the trim projection.



HALF CIRCLE CUT OUT WITH STANDARD
4 1/4", 5 1/4", OR 6 1/4" RADIUS

TRIM PROJECTION
PLATE INSIDE OF THE CUT OUT WILL BE RAISED TO AVOID TRIM

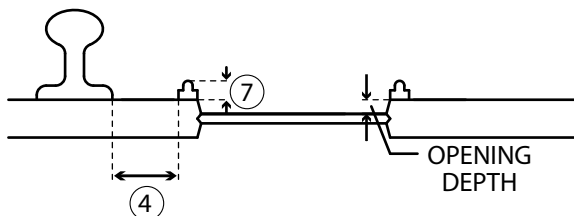
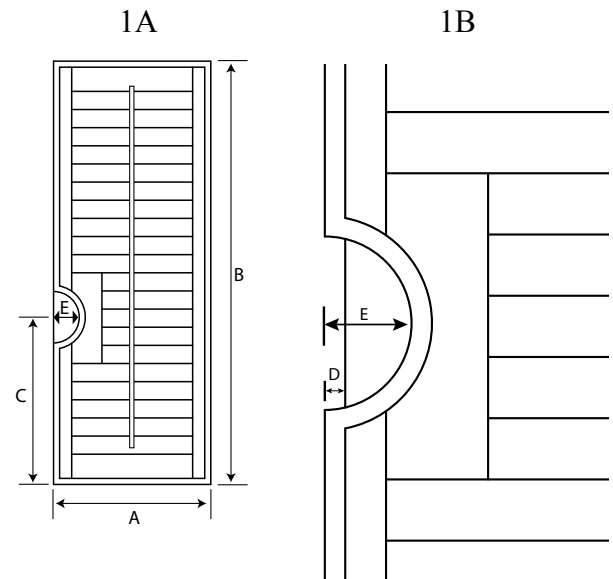


French Doors with Knob or Lever handle only, (Half Circle Cut Out) using L-frame/Deco Sill frame

When measuring for French doors, the trim strips used to hold the glass panels in place are considered part of the opening.

1. Measure the width of the opening in three places, use the largest measurement and add 3" to width if you use L-frame, or add 4" if you use Deco Sill frame. This will be (A).
2. Measure the height in three places, use the largest measurement and add 3" to height if you use L-frame, or add 4" for Deco Sill frame. This will be (B).
3. Measure from the center of the lever handle to the bottom of the opening and add 1 1/2" for LFO or add 2" for DSO. This will be (C).
4. Measure from the opening to the base of the handle and subtract this amount from 1 1/2" for LFO or 2" for DSO. This will be (D).
5. Measure the length of the lever handle (E), and select the proper radius for the half circle cut out.
6. Check the louver clearance, build out is generally required, specify build out.
7. Measure trim projection and specify on order form.

* Please note this instruction is for an NWF form.



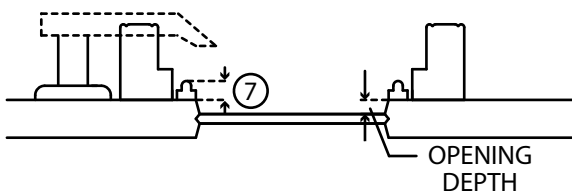
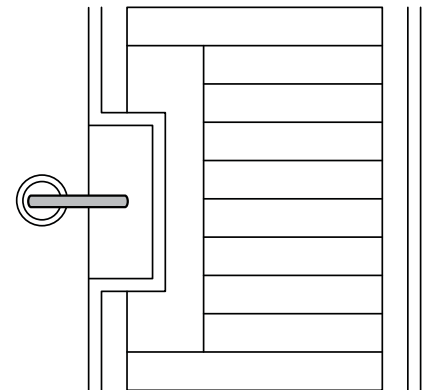
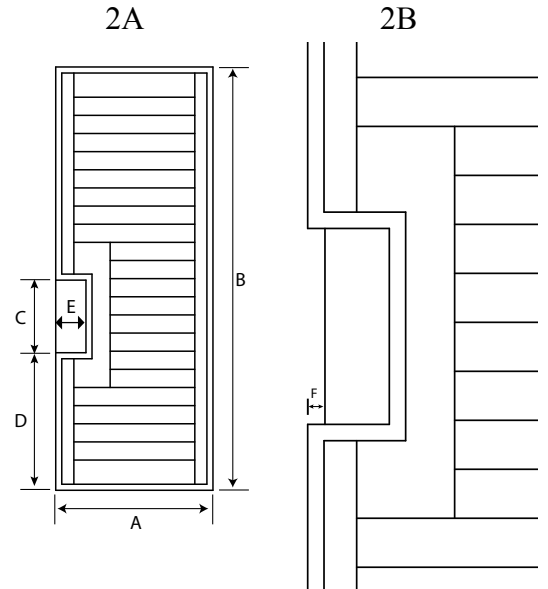
French Door Measuring Instructions

French Doors with Knob or Lever handle and dead bolt lock, (Rectangular Cut Out) using L frame/Deco Sill frame

When measuring for French doors, the trim strips used to hold the glass panels in place are considered part of the opening.

* Please note this instruction is for an NWF form.

1. Measure the width of the opening in three places, use the largest measurement and add 3" to width if you use L-frame, or add 4" if you use Deco Sill frame. This will be (A).
2. Measure the height of the opening in three places, use the largest measurement and add 3" to height if you use L-frame, or add 4" if you use Deco Sill frame. This will be (B).
3. Measure about 1" up from the top of the dead bolt base to the bottom of the handle base and add handle length or add 2" if it's a door knob, and this will be (C). Always round up (C) to the nearest 1/2".
4. Measure from the bottom of opening to the bottom of the handle base and deduct handle length then add 1 1/2" for LFO or add 2" for DSO. This will be (D). For door knob doors, measure from the bottom of the opening to the bottom of the door knob base and deduct 2" then add 1 1/2" for LFO or 2" for DSO. This will be (D).
5. Measure the length of the lever handle and determine the cut out width. This will be (E).
Note: (E) must always be a whole number.
6. Measure from the opening to the base of the handle and subtract this amount from 1 1/2" for LFO or 2" for DSO. This will be (F).
7. Check for louver clearance (build out is generally required) and specify build out.
8. Measure trim projection and specify on order form.

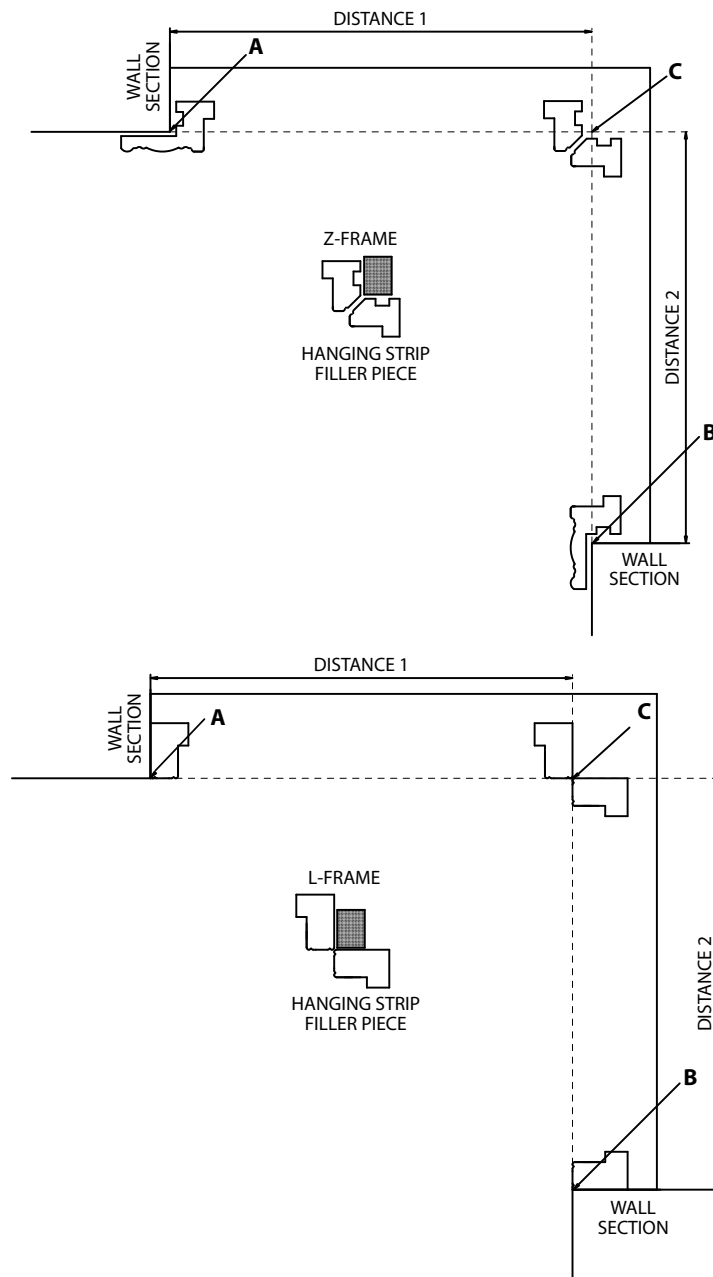


Corner Windows

Inside Mounts – using Z frame

1. Establish point C by using a straight edge
2. Measure inside width of distance 1 (A to C), and inside distance 2 (B to C)
3. Measure the height of three places, use the smallest height measurement
4. If frame is to be mounted on the sill, ask for sill cut (4S), order opening size
5. Ask for one piece of hanging strip for center, the length of opening

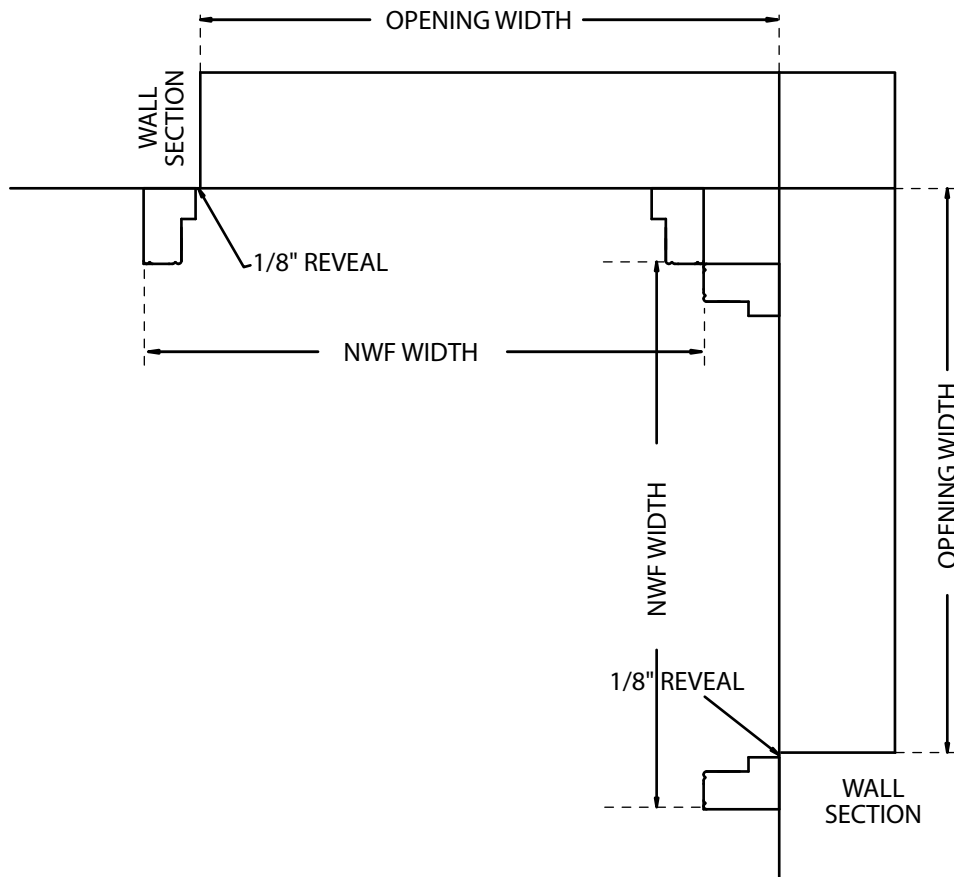
***Note - This configuration is not recommended with a Malibu Z-frame.**



Corner Window Measuring Instructions

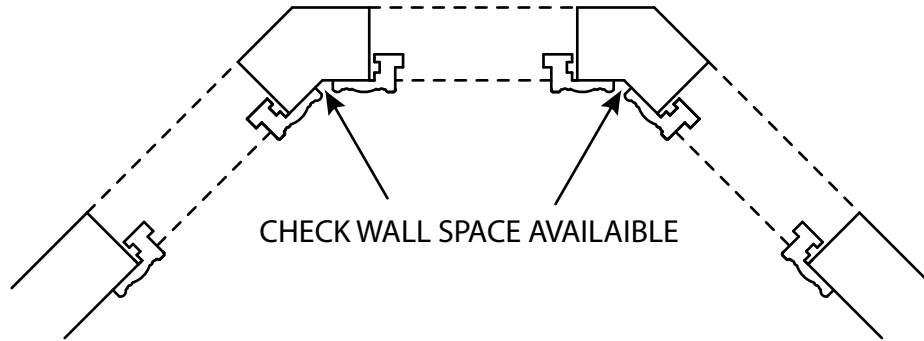
Outside Mounts

1. NWF width measurements for each opening that meet at the corner will require both a deduction for the L frame projection, as well as an additional 1/8" reveal for the area will cover on the wall.
2. Make additions or deductions to the width for the L frame selected
3. Measure the height in three places, use the largest measurement
4. Check for louver clearance
5. Specify LFO with 3 or 4 sides, order NWF



Semi-Inside Mounts – using Z-frame

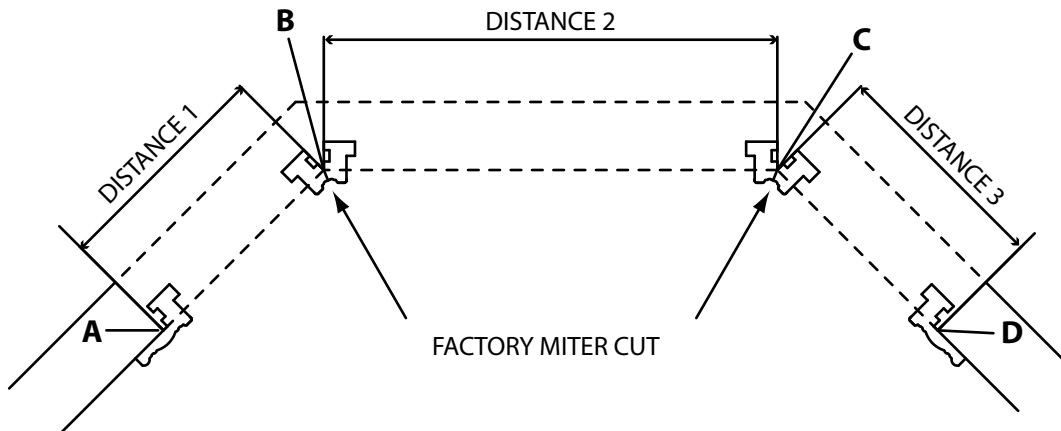
If there are intermediate wall sections, simply measure each opening as you would for semi-inside mount Z-frames, making sure there is enough room for the Z-frame selected to overlap the walls.



When there are open corners:

1. Establish points B and C by using a straight edge
2. Measure inside width of distant 1 (A to B), distant 2 (B to C), and distant 3 (C to D)
3. Measure the height in three places, use the smallest height measurement
4. Check for louver clearance
5. If the frame is to be mounted on the sill, ask for sill cut (4S), order as opening size
6. The factory will miter-cut each inside frame to 135 angle, unless you supply a template with actual angle. Templates are more accurate.

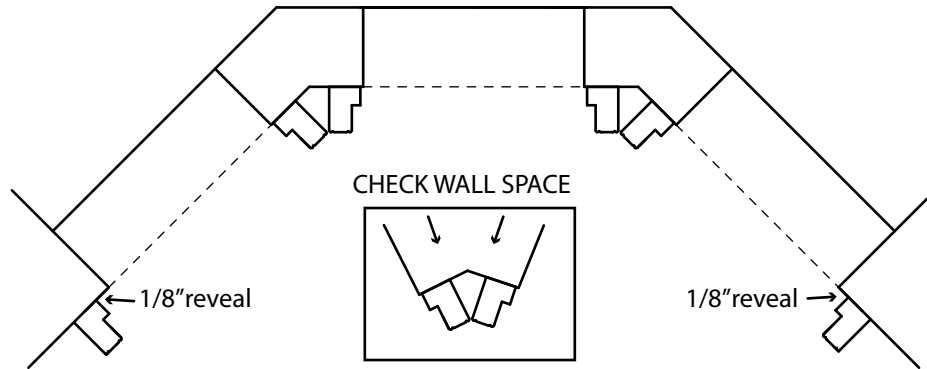
There is an additional charge for miter-cuts.



Bay Window Measuring Instructions

Outside Mounts using L-frame

Once again if there are intermediate wall sections, simply measure each opening as you would for an outside mounted frame, making sure there is enough wall space for your angle butted L-frames.



When there are open corners, start by measuring the center opening. Use a piece for frame and mark the outside of each side frame. This is your center window width. Butt a second piece of frame to each side frame. Mark the outside of each frame. Then mark outside frame (far left and far right) allowing a 1/4" reveal. If you only have one piece of frame, be careful to allow for the frame projection, which effectively makes each width smaller. A custom beveled filler piece will be provided with surcharge.

1. Record distance A as width of opening # 1
2. Record distance B as width of opening # 2
3. Record distance C as width of opening # 3
4. Measure height of opening in three places, use largest measurement and add 3" to height. If there is a sill, and you wish to go around it, measure from bottom of sill and add 4" to the height.
5. Check for louver clearance.
6. Specify LFO with 4 sided frame, order NWF.

