

# NEW Z-ARTICULATING CAP SILL™ FAQ SHOP GUIDE

The Z-Articulating Cap Sill™ (Z-AC) has been completely redesigned to address the “Real World” of shop assembly and installation. With the new design, Z-AC has been tested and proven to outperform every other sill product on the market in both perfect and imperfect conditions, significantly reducing the likelihood of door unit failure and eliminating the need for costly service calls, adjustment and door unit repair. To support proper installation and assembly of the redesigned Z-AC, please reflect on the following tips for best practices.

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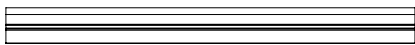
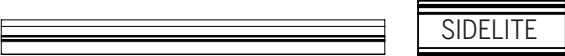
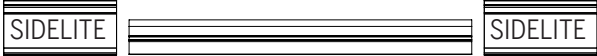
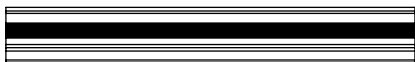
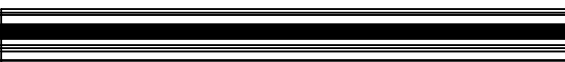
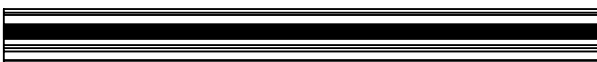
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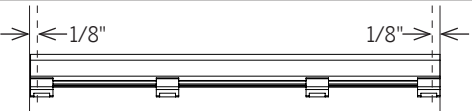
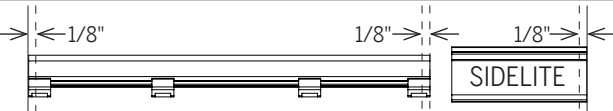
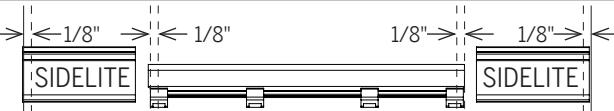

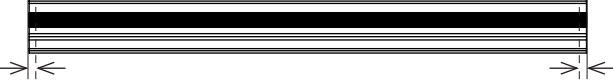

## 1. CUTTING THE NEW Z-AC CAP AND SILL TO SPEC

The following information provides a guide for properly cutting Z-AC to spec, as compared to ZAI. Due to the new Z-End Base design, which provides a seal between the frame and sill without the need for caulk, Z-AC caps and sills must be cut shorter to accommodate for the size and placement of the Z-End Base within the Z-AC system.

### ZAI Sills

	Single/French Application	Center Hinge Patio/ Single Sidelite Applications	Double Sidelite/ Triples Applications
<b>Sill Size</b>	ZAI Net Active Length Without Gaskets [Current Active Spec]	ZAI Net Active Length Without Gaskets [Current Active Spec + Sidelite + Mull Spacing]	ZAI Net Active Length Without Gaskets [Current Active Spec + 2x Sidelite + 2x Mull Spacing]
<b>Cap Size</b>	Same as sill	Active cap same as ZAI Net Length as single [Sill+ Sidelite+ Mull Space]	Active Cap Same ZAI Net Length as single [Sill+ 2x Sidelite+ 2x Mull]
<b>CAP</b>			
<b>SILL</b>			
<b>Note</b>	If Gaskets are used, deduct 1/32" from both sill and cap to allow for gasket thickness. [Active Spec w/ Gaskets]	If Gaskets are used, deduct 1/32" from both sill and cap to allow for gasket thickness. [Active Spec w/ Gaskets]	If Gaskets are used, deduct 1/32" from both sill and cap to allow for gasket thickness. [Active Spec w/ Gaskets]

### Z-AC Sills

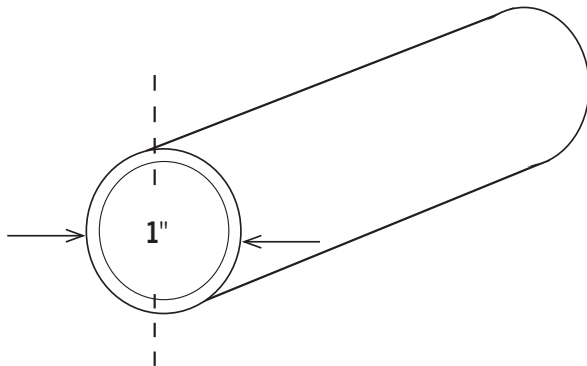
<b>Sill Size</b>	[ZAI Net Active Length- 1/4"]	[Single Sidelite ZAI Net Active Length - 1/4"]	[Double Sidelite ZAI Net Active Length - 1/4"]
<b>Cap Size</b>	[Current Active Spec- 1/4"]	[Current Active Spec- 1/4"] [Inactive 60 or 90 Series SideLite Seat- 1/8"]	[Current Active Spec- 1/4"] [Inactive 60 or 90 Series SideLite Seat- 1/8"]
<b>CAP</b>			
<b>SILL</b>			
<b>Note</b>	<ul style="list-style-type: none"> <li>Z-AC Sill always 1/4" Shorter than ZAI Sill</li> <li>Sidelite Cap Z-AC Application always 1/8" Shorter than Sidelite Cap in ZAI Application</li> <li>Z-AC active cap is always 1/4" shorter than ZAI Cap</li> </ul>		

## 2. APPLYING THE NEW Z-AC DOOR BOTTOM

Application of the New Z-AC Door Bottom has changed, utilizing a Door Bottom Insertion Tool. Please see the information below to understand how to make the Door Bottom Insertion Tool and how to properly utilize the tool to correctly install the new Z-AC Door Bottom.

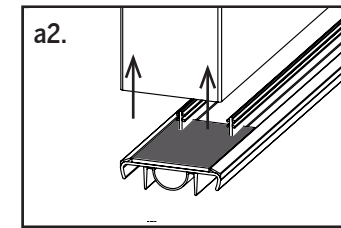
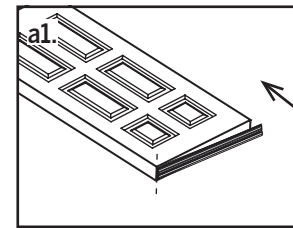
### HOW TO MAKE THE DOOR BOTTOM INSERTION TOOL:

The Door Bottom Insertion tool is to be constructed out of a 1" PVC Pipe Schedule 40 cut in half, as illustrated below.

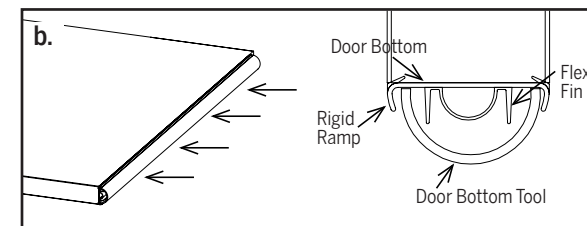


### HOW TO ATTACH THE NEW Z-AC DOOR BOTTOM WITH TOOL:

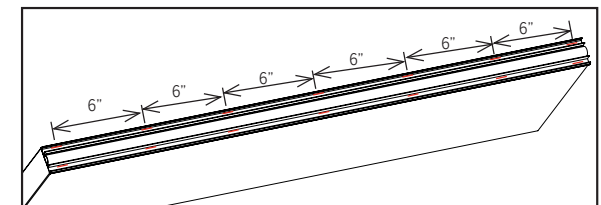
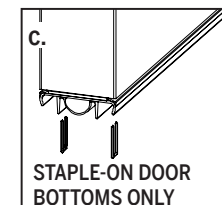
- A1.** Align door bottom flush with the **lock side** of the panel and  
**A2.** Insert kerfs into slots on door. **DO NOT USE ANY CAULK.**



- B.** Insert the Door Bottom Insertion Tool between the rigid ramp and flex fins, and using a rubber mallet, tap the door bottom in place.



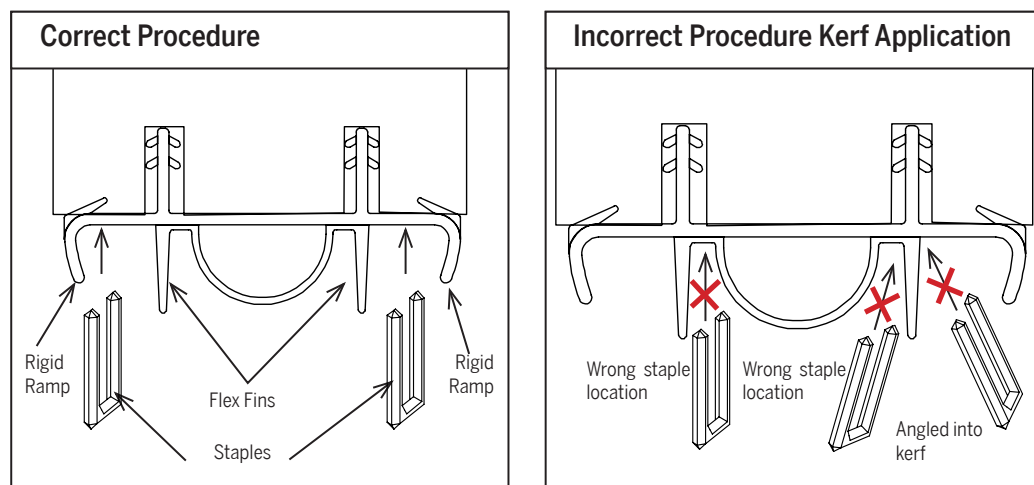
- C. FOR STAPLE-ON DOOR SWEEPS,** staple along entire length of sweep between the rigid ramp and flex fins as shown.



### 3. APPLYING STAPLES TO THE STAPLE-ON Z-AC DOOR BOTTOM (Stapling Kerf Applications is not Recommended)

The following information provides helpful tips and instructions for correctly applying staples to the new Z-AC Door Bottom for Kerfed and Staple-On applications. It is very important that these instructions are followed, as incorrectly inserting staples will damage the door bottom and compromise performance and functionality.

#### Kerfed Applications



When stapling the Z-AC Door bottom to the panel, staples should be inserted between the **Rigid Ramp** and **Flex Fins**. Staples should be aimed away from the kerf slots in the bottom of the panel to prevent cracking of the door bottom, or damage to the kerfs.

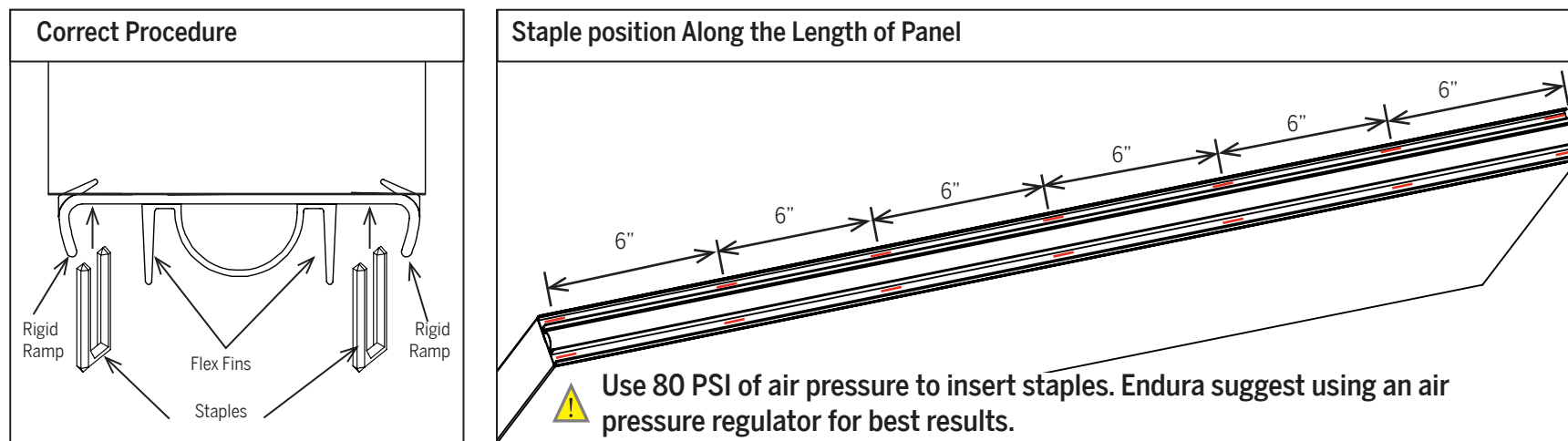
⚠ Use 1/2" crown staples to avoid cracking

⚠ Use 80 PSI of air pressure to insert staples. Endura suggest using an air pressure regulator for best results.

⚠ The insertion of staples at an angle or in the wrong location will result in damage to the door bottom

#### Staple-On Applications

If using a staple-on door sweep, staple on both sides approximately every 6" along the length of the door.



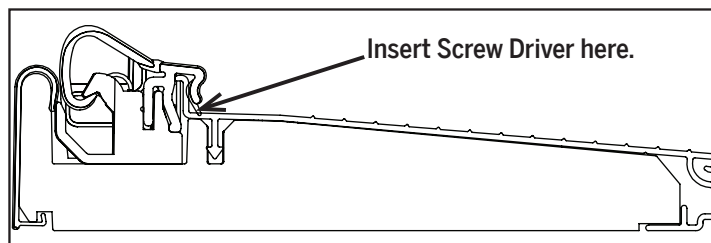
⚠ Use 80 PSI of air pressure to insert staples. Endura suggest using an air pressure regulator for best results.

## 4. REMOVING THE NEW Z-AC

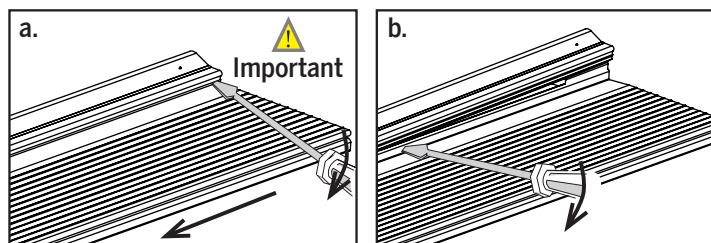
The following information outlines how to properly remove the Z-Articulating Cap after it has already been installed. Please follow the instructions below to ensure quick and easy removal.

### HOW TO REMOVE THE NEW Z-AC:

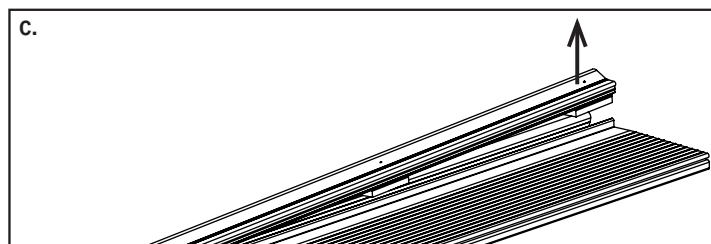
- a. Starting **at the end of the sill**, using a flat head screw driver, insert screw driver head between the front leg of the cap and the sill deck.



- b. Pry the cap up and out of the sill channel along the length of the sill.



- c. Once the end of the cap is no longer attached to the sill, pull the cap up and out of the sill.



Starting in the center of the sill will counteract the process, making the cap difficult to remove.

## 5. CHOOSING THE RIGHT SIZE Z-END BASE™

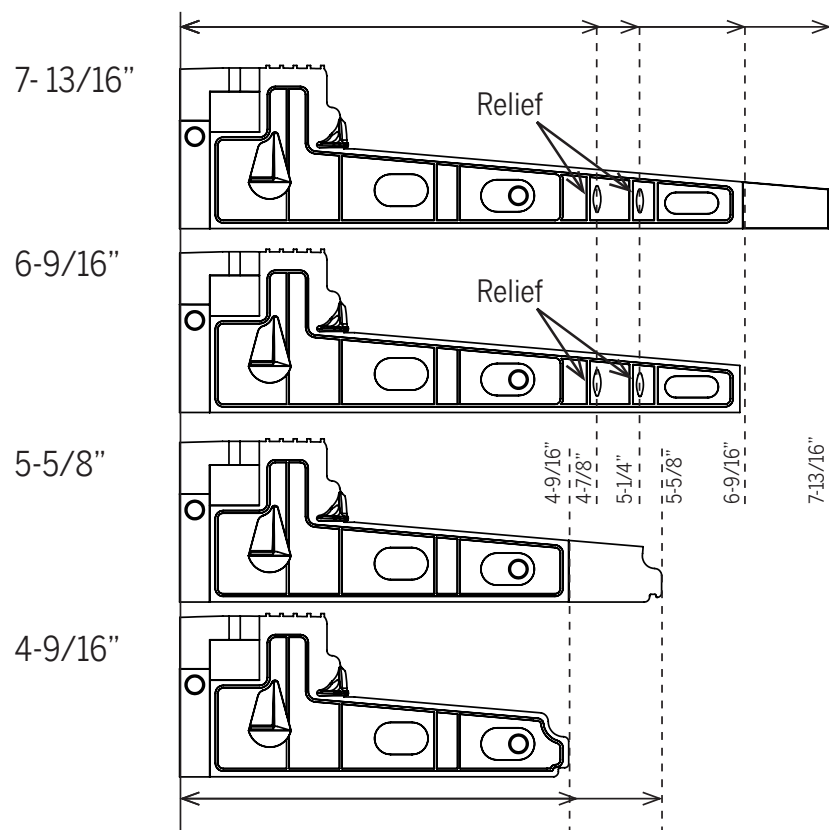
Diagram for Choosing the Right Size Stiffener			
Jamb Size	Brickmould	Sill width	Stiffener Size
4-9/16"	--	4-9/16"	4-9/16"
4-9/16"	Yes	5-5/8"	5-5/8"
4-9/16"	Yes	5-13/16" with 2" Horns	4-9/16"
6-9/16"	--	6-9/16" (4-9/16" Sill + 2" Extender)	4-9/16"
6-9/16"	Yes	7-13/16"	7-5/8"
6-9/16"	Yes	7-13/16 with 2" Horns	6-9/16"

## 6. RESIZING THE NEW Z-END BASE

The following information will explain how to resize the new Z-AC Z-End Base™ and Sidelite Stiffeners. Each component has been designed to work with multiple sill widths. Please follow the instructions below, as failing to do so can result in damage to the component and inadequate performance.

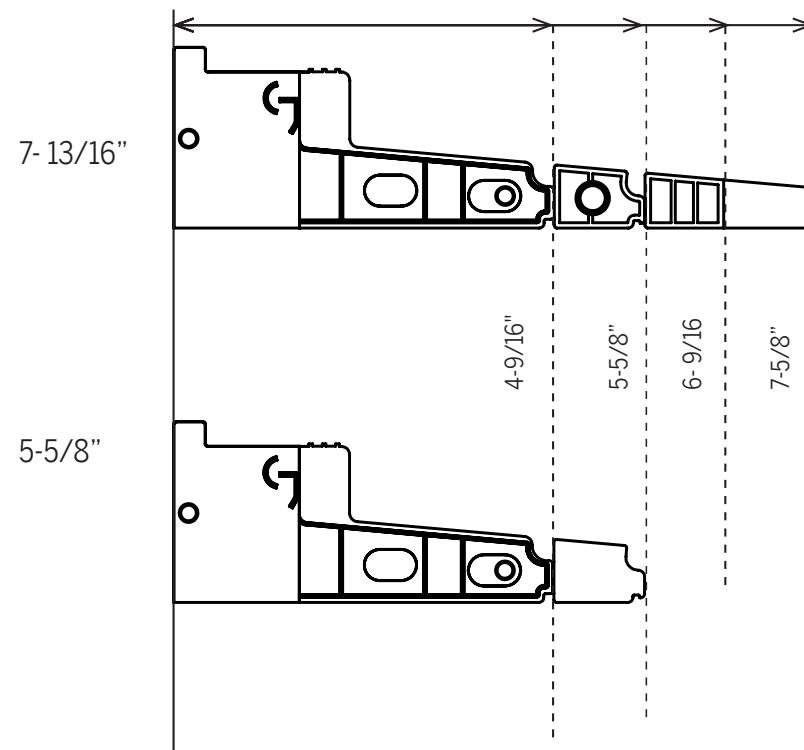
### HOW TO RESIZE THE NEW Z-END BASE:

Z-End Bases can be easily resized to accommodate several widths of sills with the use of the integrated reliefs notches and extenders. Simply bend at the proper relief notch for ideal sizing, and snap off the excess. The Z-End Base can be resized for the following sill widths:



### HOW TO RESIZE THE SIDELITE STIFFENER:

The Sidelite Stiffener can be easily resized to accommodate several widths of sills with the use of the integrated extenders. Simply bend at the proper relief notch for ideal sizing, and snap off the excess. The Z-End Base can be resized for the following sill widths:





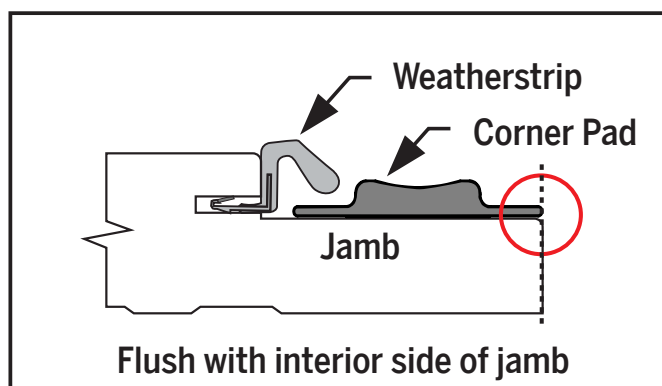
## 7. INSTALLING THE NEW CORNER PAD FOR BEST PERFORMANCE

The following information provides tips and instructions for installing the new Simple Solution® Corner Pad and ensuring its highest performance levels.

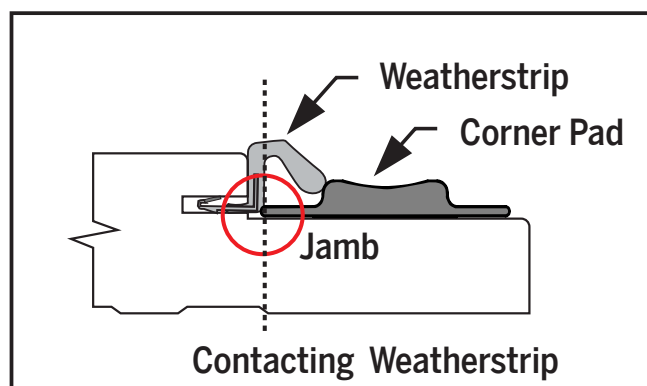
### HOW TO INSTALL THE NEW SIMPLE SOLUTION CORNER PAD:

For best performance when the Simple Solution Corner Pads are installed in the shop, align Locator Edge of the corner pads with the interior edge of the jamb. The Weatherstrip Clearance Area should be placed beneath the weatherstrip, but the edge of the corner pad should not touch the interior edge of the weatherstrip. See below illustrations for more information.

**Best Performance**

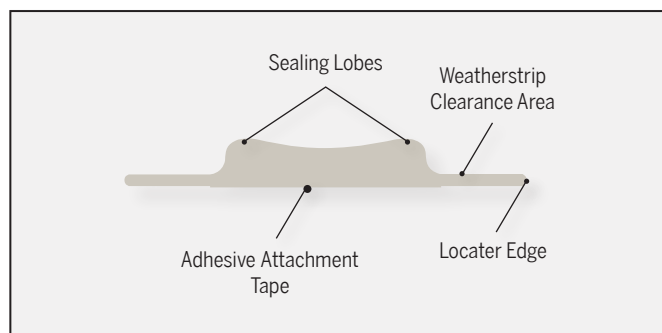


**Good Performance**



**Suggested for strike margins of 1/8" or less**

### OVERVIEW OF THE NEW SIMPLE SOLUTION CORNER PAD:



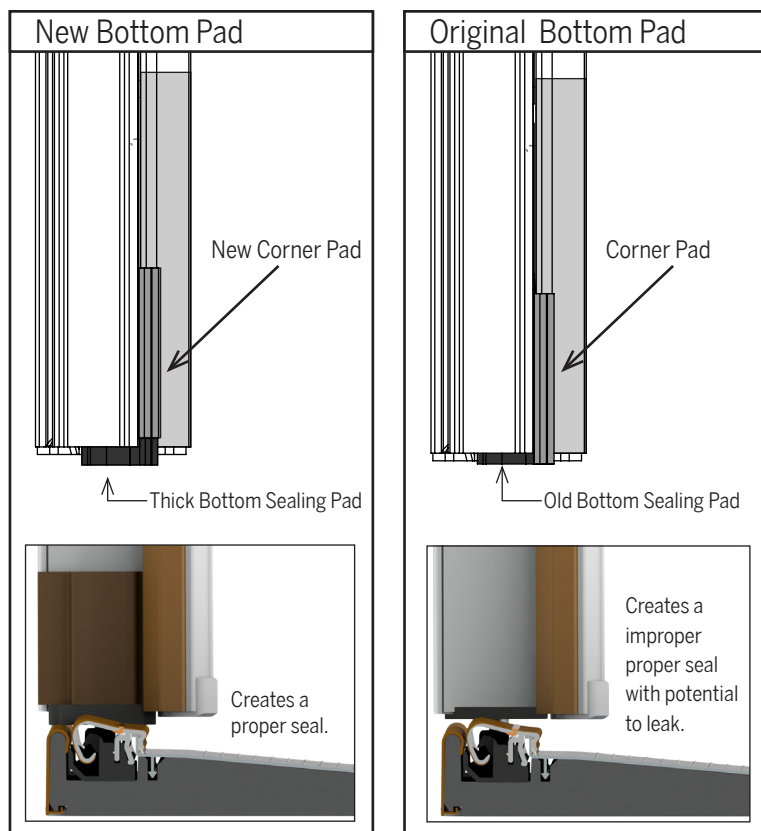
## 8. Z-AC COMPATIBILITY WITH ASTRAGALS

The following information will explain how the new Z-AC works with Endura astragals. Also included below are instructions for updating older Ultimate Astragals to ensure compatibility and improve performance.

### Z-AC ASTRAGAL COMPATIBILITY OVERVIEW:

Only the Ultimate Astragal Family line of astragals with the thick Bottom Sealing Pad are compatible with the new Z-AC.

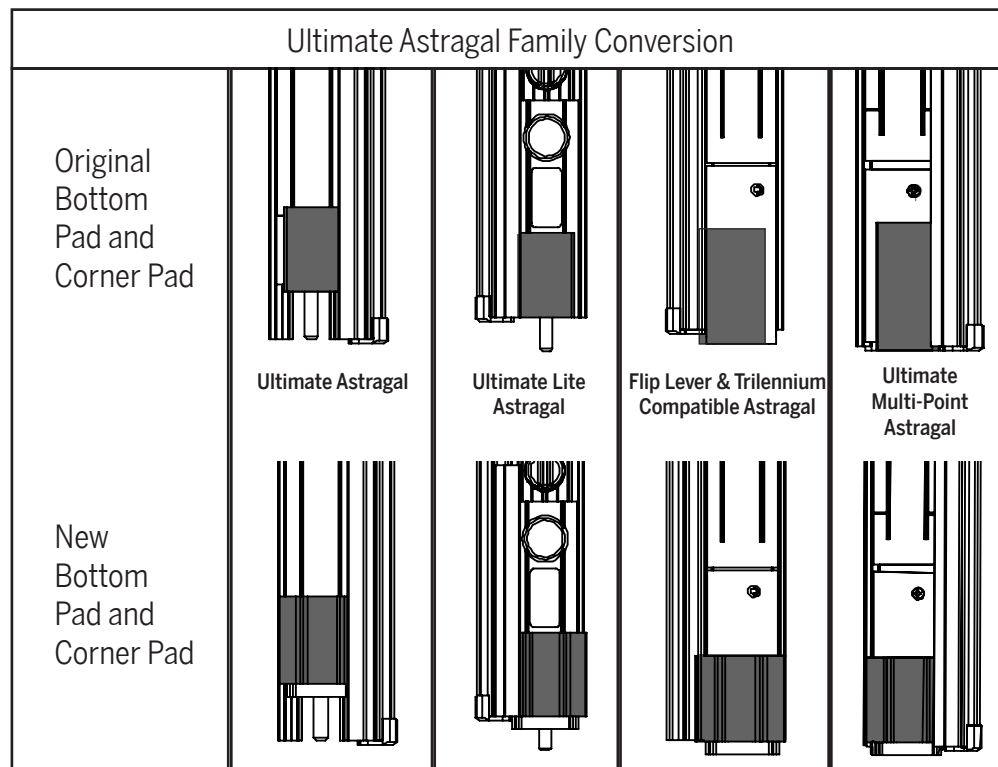
Older Ultimate Astragals with the slim bottom sealing pad and astragals from other manufacturers are not compatible.



**Z-AC works exclusively with Ultimate Astragals manufactured after 8/1/2015. Older Endura Astragals can be updated to work with Z-AC by replacing the Bottom Sealing Pads (Corner Pad and end Cap replacement is optional).**



**The Z-AC System does not work with astragals from other manufacturers.**

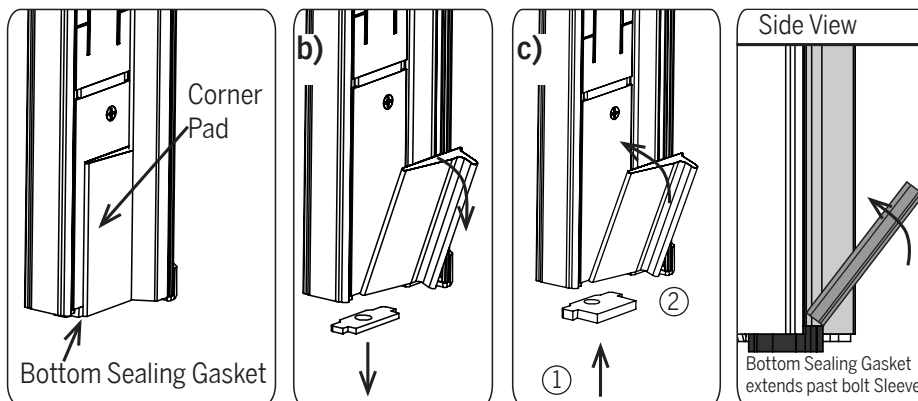


## 9a. UPDATING OLDER ASTRAGAL MODELS FOR Z-AC COMPATIBILITY AND REUSING OLD CORNER PAD

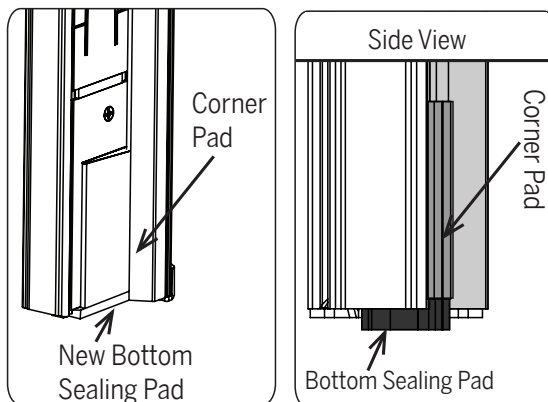
Older Ultimate Astragals with the slim bottom sealing pad are not compatible, but can be updated for compatibility by replacing the astragal bottom sealing pad and corner pad. Please refer to the below instructions.

### Replacing Astragal Bottom Sealing Pad and reusing original Corner Pad

- Remove inactive door panel off its hinges to gain access to the bolt sleeve with corner pad and bottom sealing gasket.
- Remove corner pad and bottom sealing gasket by peeling down and away from the astragal.
- Install new Z-AC Astragal Bottom Sealing Gasket by aligning the flush bolt with the hole in the pad then install Simple Solution Corner Pad by tipping into place.



The lip of the Bottom Sealing Gasket should extend out in front of the astragal, and the Simple Solution Corner Pad should be flush with the top of the gasket.



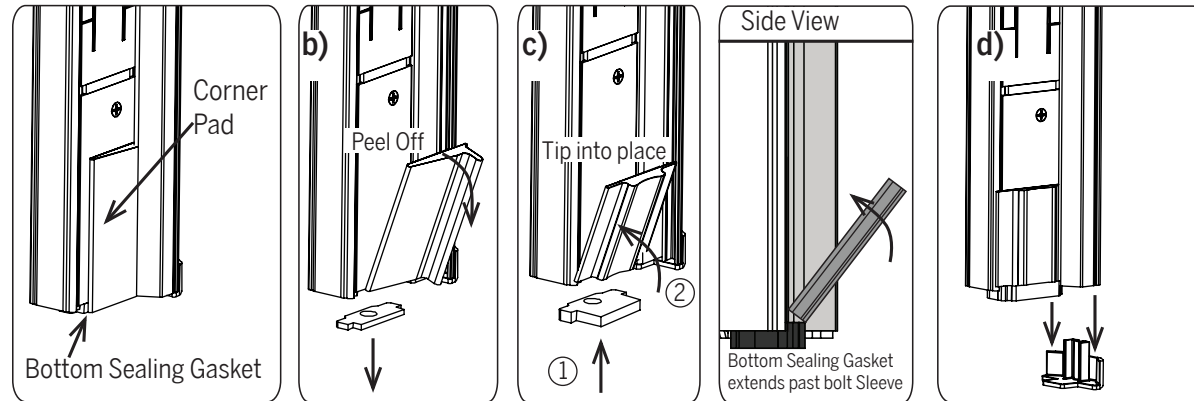
Corner Pad should contact the top of the Bottom Sealing Pad

## 9b. UPDATING OLDER ASTRAGAL MODELS FOR Z-AC COMPATIBILITY

Older Ultimate Astragals with the slim bottom sealing pad are not compatible, but can be updated for compatibility by replacing the astragal bottom sealing pad and corner pad. Please refer to the below instructions.

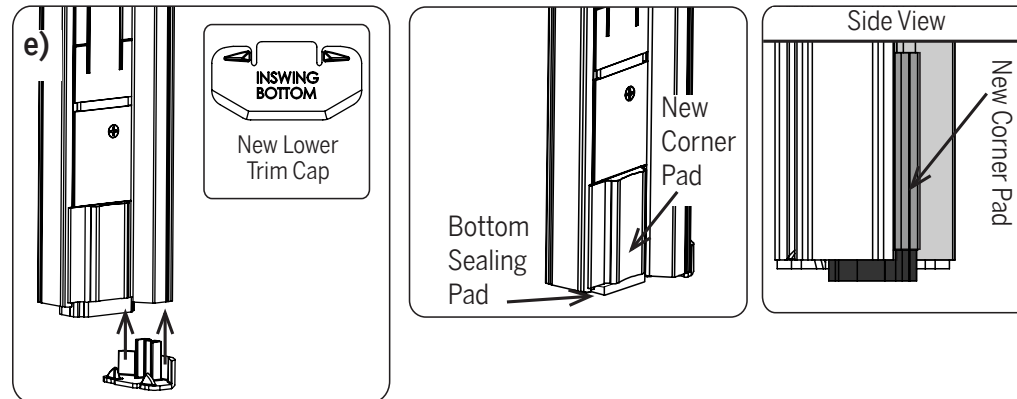
### Replacing Astragal Bottom Sealing Pad and Corner Pad

- Remove inactive door panel off its hinges to gain access to the bolt sleeve with corner pad and bottom sealing gasket.
- Remove corner pad and bottom sealing gasket by peeling down and away from the astragal.
- Install new Z-AC Astragal Bottom Sealing Gasket by aligning the flush bolt with the hole in the pad then install Simple Solution Corner Pad by tipping into place.



The lip of the Bottom Sealing Gasket should extend out in front of the astragal, and the Simple Solution Corner Pad should be flush with the top of the gasket.

- Remove original Lower Trim Cap by prying it off of the bottom of the astragal.
- Insert the new Lower Trim cap into the astragal body.



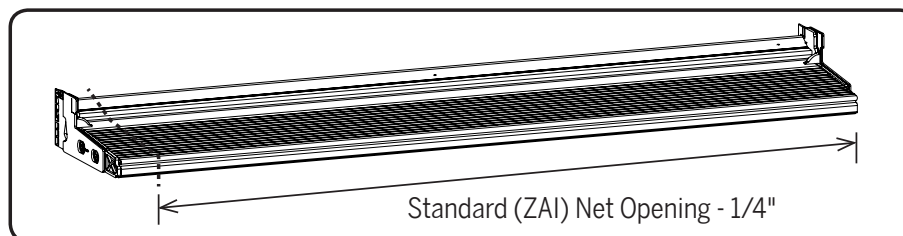
Corner Pad should contact the top of the Bottom Sealing Pad

## 10a. CUTTING DOWN THE NEW Z-AC SILL FOR SINGLE APPLICATIONS

To ensure correct sizing and prevent over-cutting, please refer to the below instructions for cutting down the new Z-AC Sill. Please follow each step carefully. Failure to follow these steps may result in incorrect sill sizing and off-centered placement of the astragal bolt hole.

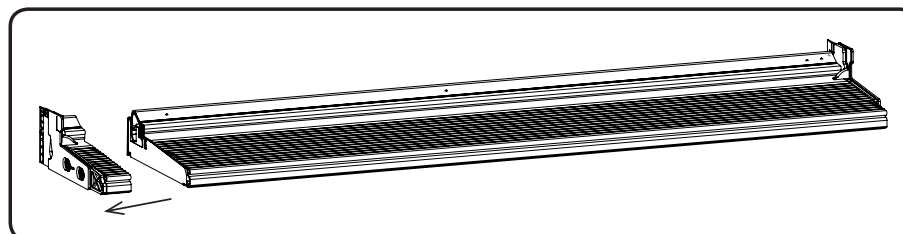
### HOW TO CUT DOWN THE NEW SILL:

- a) Measure and mark Z-AC Sill to the 1/4" less than the ZAI Net Opening to be cut down to.

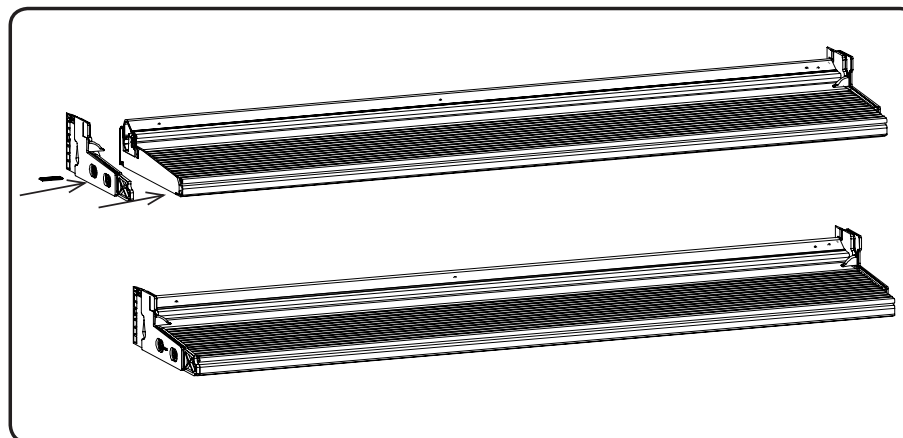


- b) Cut the cap and sill along the mark made in the previous step and discard removed section

**CAUTION:** Measure carefully and cut precisely within 1/32" to ensure proper operation. A cap cut too short will not seal correctly.



- c) Attach new Z-End Base to the cut sill and secure with staple



## 10b. CUTTING DOWN THE NEW Z-AC SILL FOR FRENCH APPLICATIONS

To ensure correct sizing and prevent over-cutting, please refer to the below instructions for cutting down the new Z-AC Sill. Please follow each step carefully. Failure to follow these steps may result in incorrect sill sizing and off-centered placement of the astragal bolt hole.

### HOW TO CUT DOWN THE NEW SILL:

- a. Determine the desired cut down length (1/4" shorter than standard sill length).

Desired length = Y  
Original Sill length = X

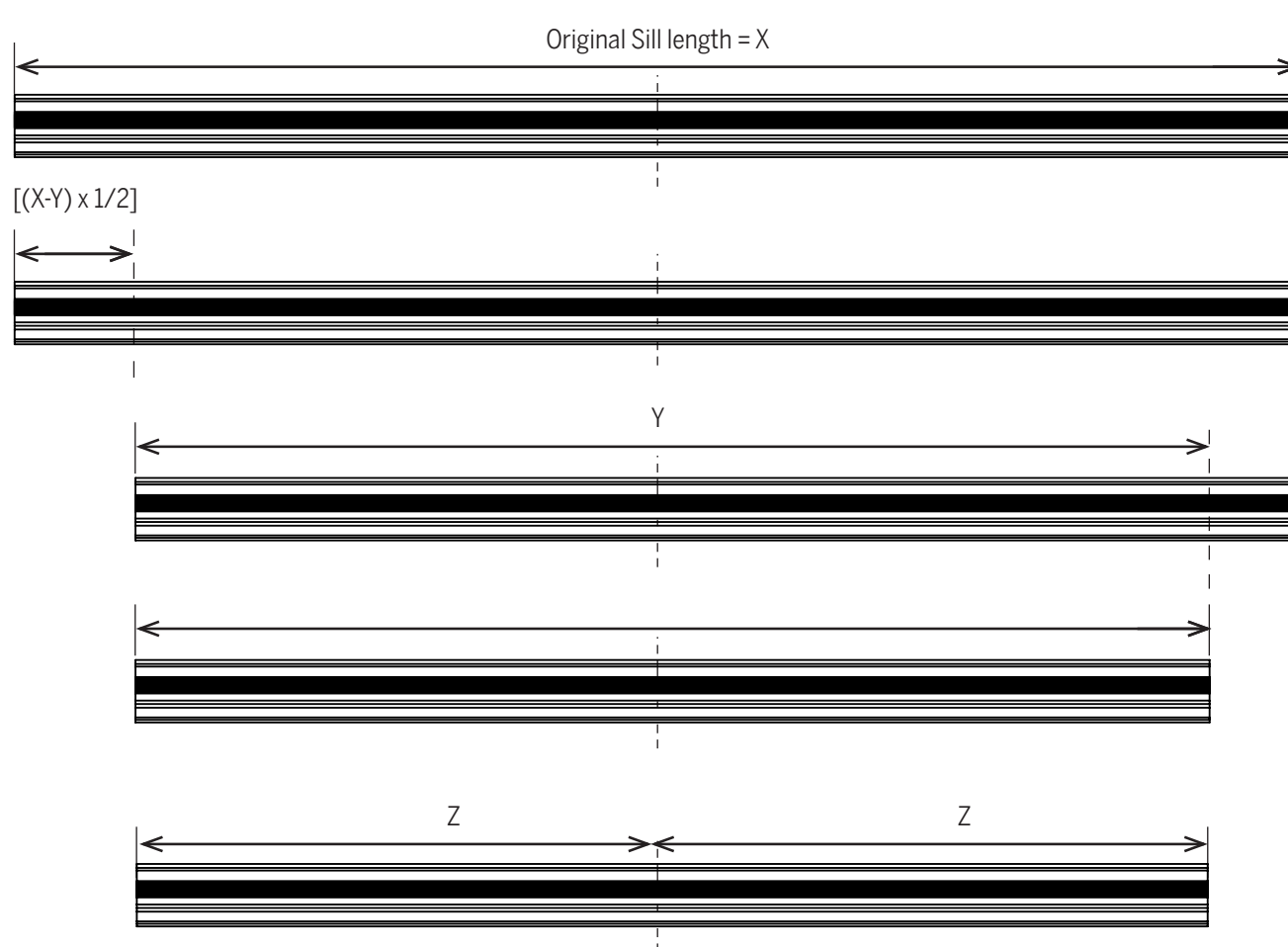
- b. Subtract new desired length from the length of the sill and divide it in half

$(\text{Original Sill length} - \text{Desired length}) \times 1/2$

- c. Using the measurement from the previous step, cut down one end of the sill. **DO NOT repeat this step on the other side of the sill.** Proceed to step D, which accounts for tolerances in cutting and prevents errors.

- d. Measure from cut down end, and mark sill at the desired length found in step A. Cut down other end of the sill to the desired length.

- e. Confirm that the cap notch and bolt hole are still in the center of the cap. The sill should be equal in length on either side.

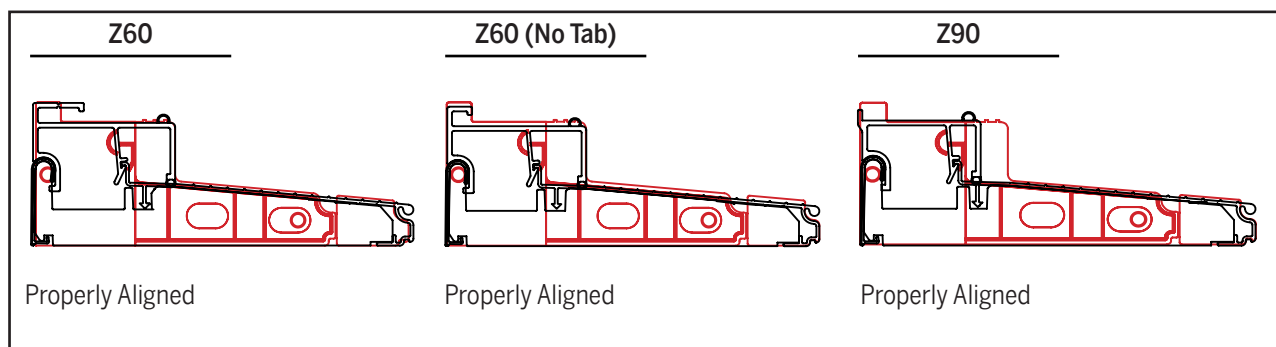


## 11. SIDELITE STIFFENER COMPATIBILITY WITH SIDELITE CAPS

The Sidelite Stiffener works with some but not all Sidelite Caps. The following information and illustrations provide further detail on Sidelite Cap compatibility.

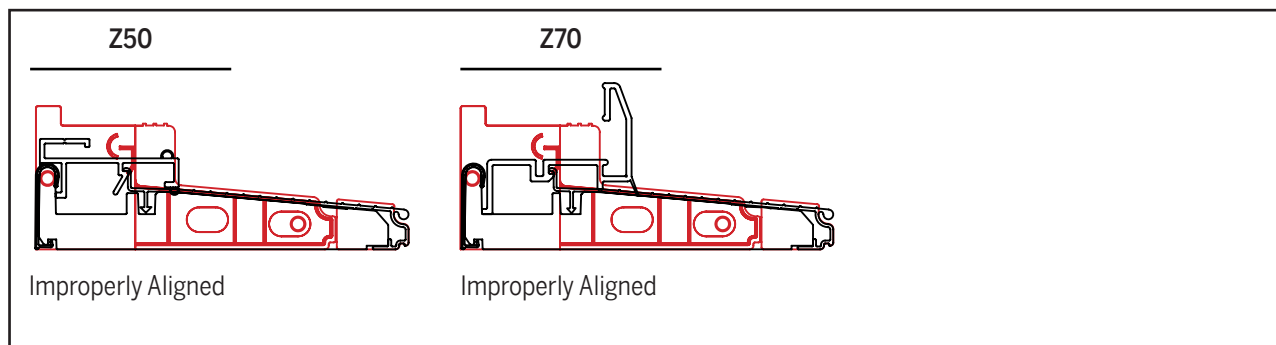
### SIDELITE STIFFENER COMPATIBLE WITH:

The Sidelite Stiffener only is compatible with the 60 Series with tab, 60 Series without tab and 90 Series Sidelite Caps.



### SIDELITE STIFFENER NOT COMPATIBLE WITH:

The Sidelite Stiffener is not compatible with the 50 Series and 70 Series Sidelite Caps.



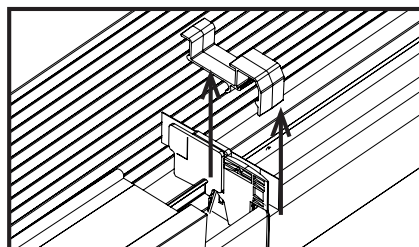
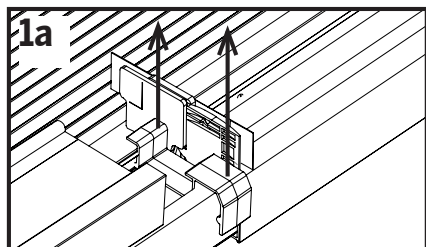
**Note:** For Z50 and Z70 use Caulk or standard sidelite end gasket.

## 12. CAULKING IN SIDELITE APPLICATIONS

While Z-AC is a caulk-free system for sealing the sill to the frame and the panel to the door bottom, caulking must still be done to install and seal sidelite panels in place. Please refer to the following instructions to ensure correct installation and best performance.

### HOW TO APPLY:

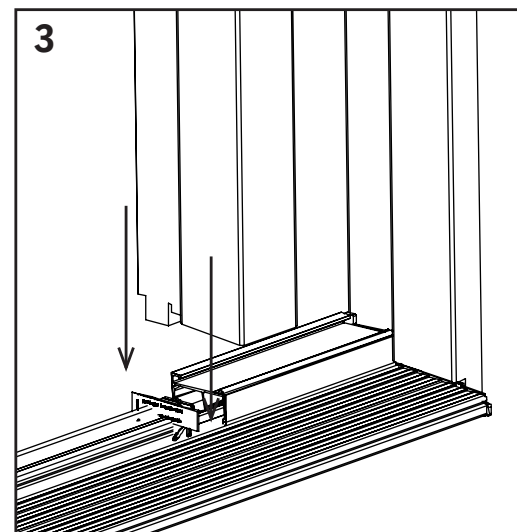
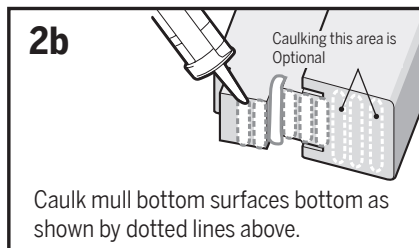
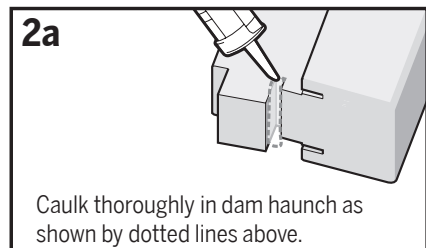
1. Remove the protective shipping clip securing the mull stiffener in place.
2. Properly Caulk Mull Haunch (a) and the bottom surface of the mull (b) to ensure a proper seal is created.



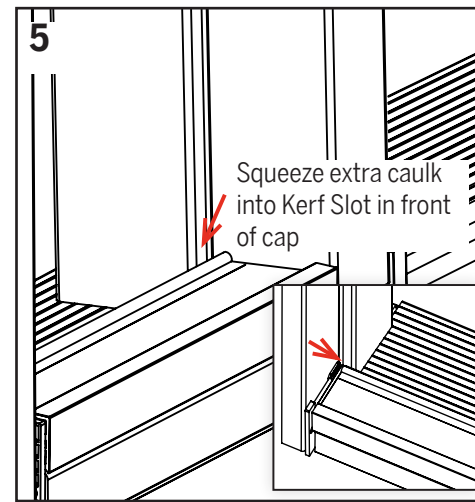
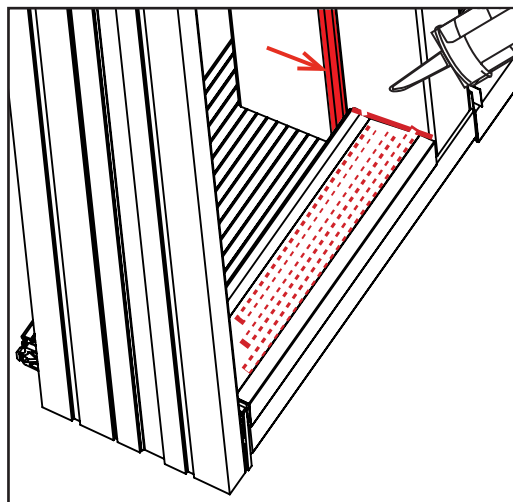
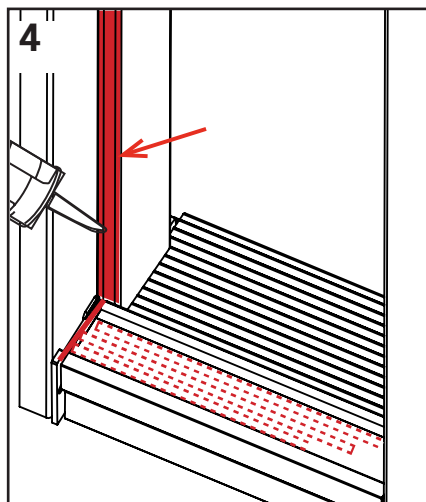
3. Insert caulked mull into place in the sill.

**⚠ Avoid caulk squeeze on the gasket contacting the active panel.**

4. Caulk the top of the sidelite seat, rabbet drop of the jamb and along the corner where the Sill and jamb meet.



5. Squeeze additional caulk into kerf slot in front of sidelite cap.





### 13a. PROPER Z-AC PACKAGING HANDLING- Bulk Pack

The Packaging of the Z-AC Sill has been changed to protect the sills during transit. Each new method of shipping has been tested and will prevent damage to all sills. This new packaging requires a modification in the handling and removal of the sills. While previous packaging required that the sills be slid out from the side, the new design requires that the sills be pulled up and out from the top of each box. **Please note that failing to properly remove the sills can result in damage to the product.**

The following information outlines how to properly remove the Z-Articulating Cap Sill for the Bulk Pack packaging. Please follow the instructions below to ensure easy and safe removal.



1) Open new packaging from the top, as shown.



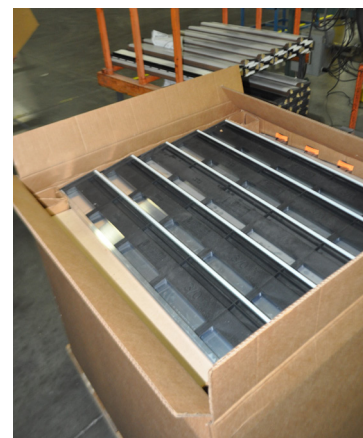
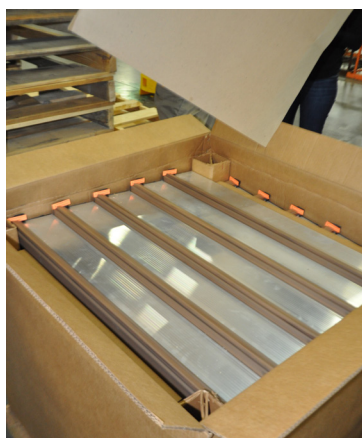
2) Remove protective card board layer to expose Z-AC sills.



3) Lift each sill out of box



4) After the initial layer of sills has been removed from the box, remove protective packing layer to expose next layer of sills.

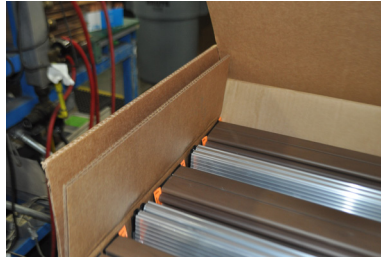


5) Lift each sill out of box.

6) Repeat steps (4) & (5) for each layer of sills until box is empty.

### 13b. PROPER Z-AC PACKAGING HANDLING - Long Pack

The following information outlines how to properly remove the Z-Articulating Cap Sill for the Long Pack packaging. Please follow the instructions below to ensure easy and safe removal.



**1)** Open new packaging from the top, as shown.

**2)** Pull up protective flaps on each side.



**3)** Once the packaging is open, remove protective inserts (2).

**4)** Once area is clear, pull sills as packaged (organized in pairs) up and out of the box.

### 13c. PROPER Z-AC PACKAGING HANDLING - Short Pack

The following information outlines how to properly remove the Z-Articulating Cap Sill for the Short Pack packaging. Please follow the instructions below to ensure easy and safe removal.



**1)** Open new packaging from the top, as shown.

**2)** Once the packaging is open, remove protective inserts.

**3)** Pull up protective flaps on each side.

**4)** Once area is clear, pull sills as packaged (organized in pairs) up and out of the box.



# Assembly



# Endura

PERFORMANCE STANDARD

## Door System Assembly Instructions

**These instructions apply to the following door systems:**



**Single Doors**



**Single & Double  
Continuous Sidelite Units**



**French &  
Patio Units**

### Notes:

1. This instruction applies to both inswing and outswing doors, except where noted inswing is shown.
2. For caulking requirements Endura recommends polyurethane, polymer based or 100% silicon sealant.

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US Patents: 6,789,358; 7,350,336; 8,522,483; 8,991,100; 8,991,101; D722,388; D638,958; D722,387; D722,388; D713,976 and Patents Pending.

Canadian Patents: 2,771,705; D139,250 and Canadian Patents Pending.

## Required Components

Required components for Endura Force5 Door unit include the following:

### For single doors:

- Composite Z-Series sill
- Hinge jamb
- Strike Jamb
- Header
- Force5 Weatherstrip
- Hinges
- A door frame alignment bracket
- Force5 door bottom (inswing units only)
- Force5 door top (out swing units only)

### For sidelite and patio doors, in addition to components mention in single doors:

- One-piece mullion(s)
- Continuous header
- Continuous sill
- Fixed or sidelite panel(s)
- Force5 tested composite sidelite seat(s)

### For French doors, in addition to components mention in single doors:

- Ultimate Astragal
- Passive panel
- Header plate- Standard or hurricane
- Sill cup- inswing or outswing
- Sill palte (outswing hurricane only)



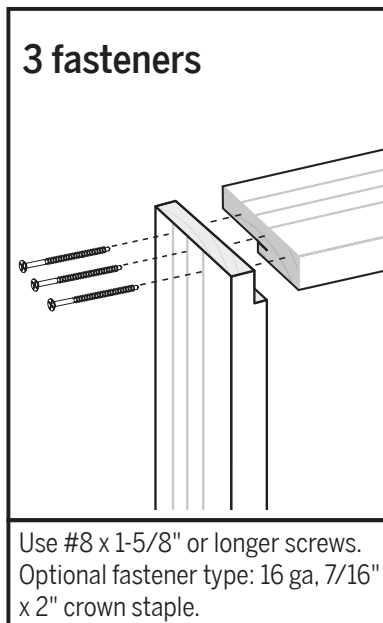
PERFORMANCE STANDARD

8817 W. Market St., Colfax, NC 27235

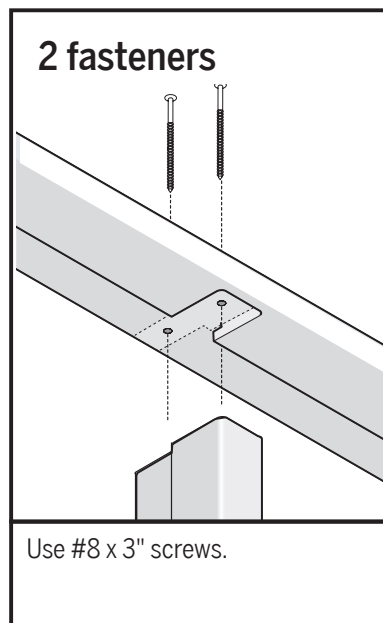
**1.800.334.2006** [www.enduraproducts.com](http://www.enduraproducts.com)

## Step 1: Assemble the Frame and Mull at the Header

Jamb/header

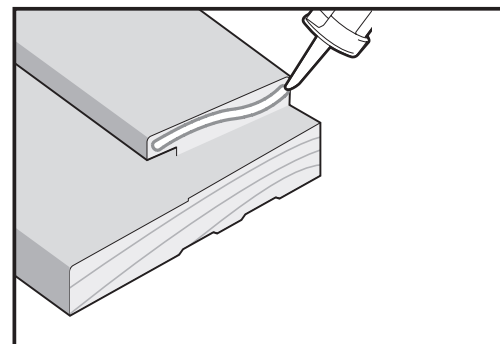


Sidelite/ Patio Only  
Mullion/Header

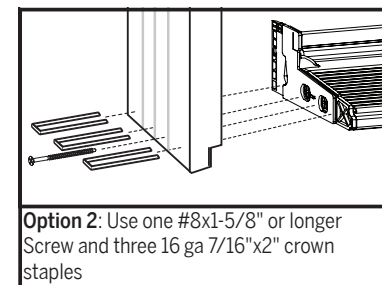
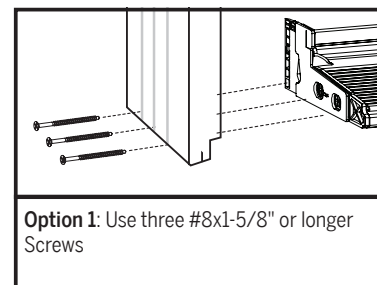


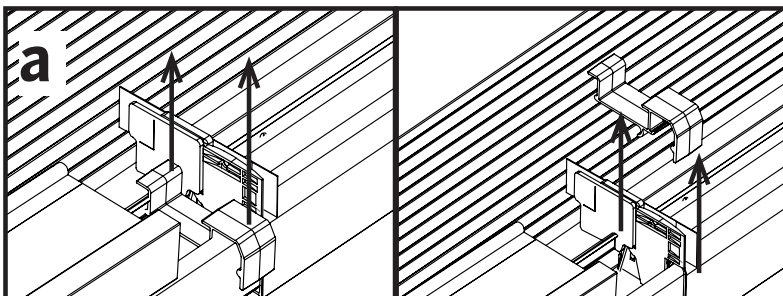
**Note:** 3 fasteners are required in mullion for high wind zone applications.

## Step 2: Assembling the Frame at the Sill

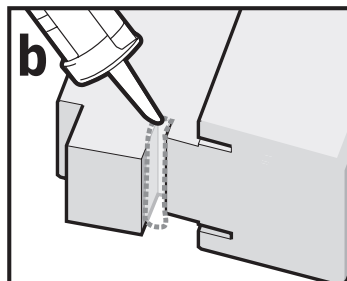


**!** Caulking under the tennon is optional

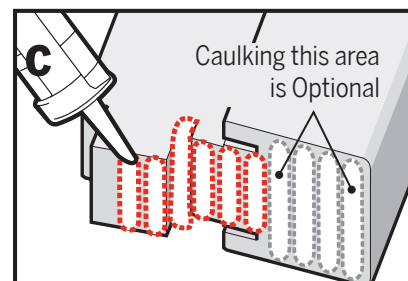


**Step 3: Mull Assembly at the Sill**

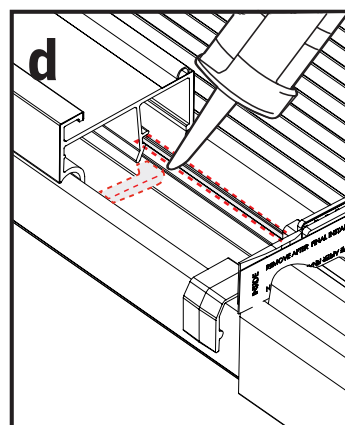
Remove the protective shipping clip securing the mull stiffener in place.



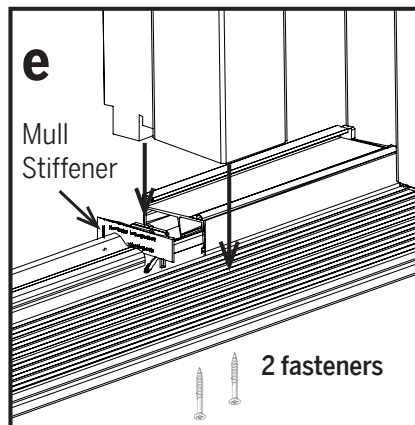
Caulk thoroughly in dam haunch as shown by dotted lines above.



Caulk mull bottom surfaces bottom as shown by dotted lines above.



Caulk inside edge of sill dam. Caulk substrate joint if present.



Apply caulked mull to sill as shown. Use #8 x 3 screws to mount mull to sill.



**Note:** FrameSaver mullions can be pre-drilled for easier screw attachment.



**Note:** 3 fasteners are required in mullion for high wind zone applications.



**Note:** Carefully insert mullion in place to avoid damaging Mull Stiffener.



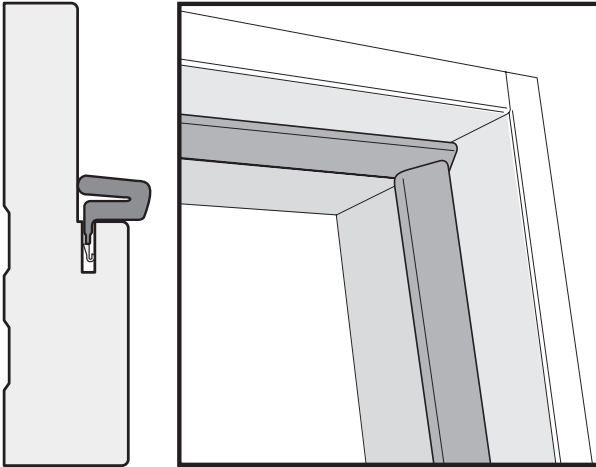
**Note:** Avoid caulk squeeze out on the Z-End Base Gasket

**If a Mull Boot is used, follow separately issued Mull Boot Instructions**

## Step 4: Weatherstrip Insertion

Insert weatherstrip leg fully into frame kerf slot.

- Ends should lightly touch frame face or mating weatherstrip.



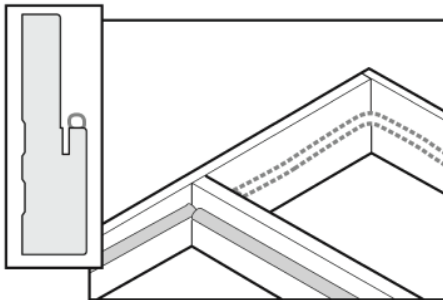
**Note:** Do not use weather strip that is too short or too long.



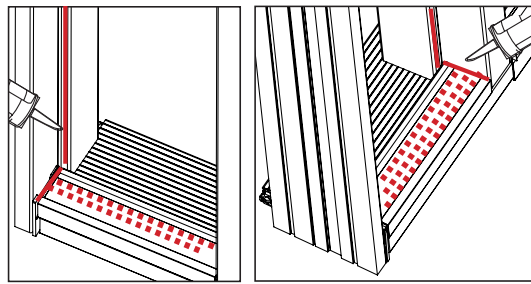
**Note:** Do not fold or wrinkle weatherstrip.

## Step 5: Fixed Panel Assembly

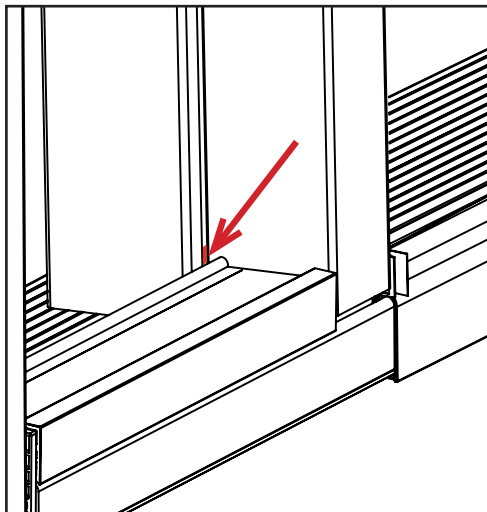
### Caulking for the Fixed Panel



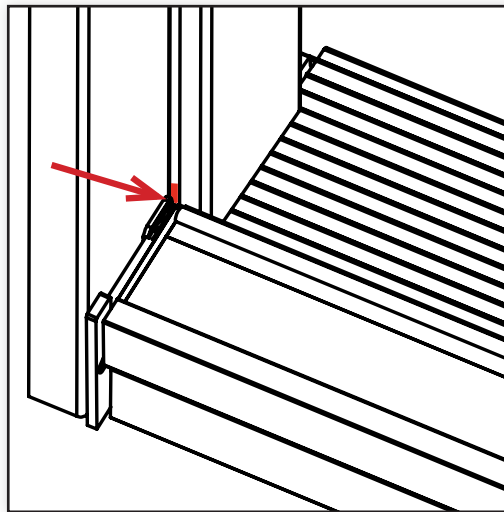
a. Apply a continuous bead of caulk to the stop of the jamb, mull and head where the sidelite will rest.



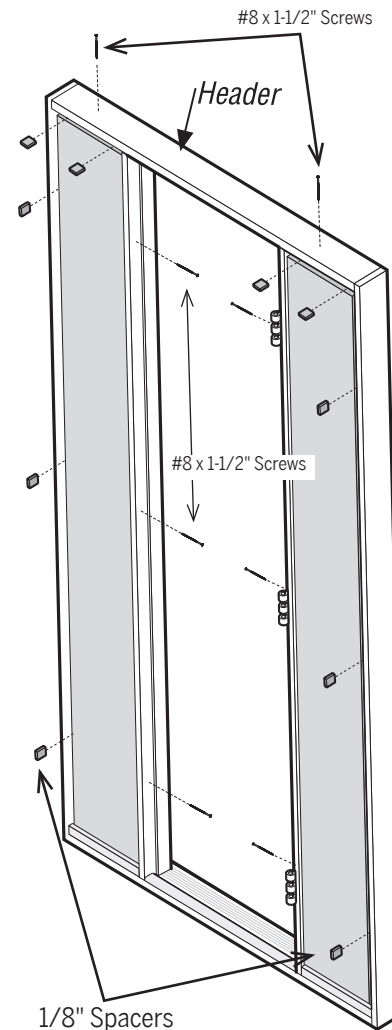
b. Apply caulk to the inactive cap as shown. Caulk thoroughly in both corners



c. Squeeze extra caulk into the kerf slot in front of sidelite cap to ensure that a proper seal is created.



### Installing Fixed Panels



- Place panel into frame opening.
- Set tight sidelite seat & mullion
- Apply 1/8" spacers

-Two at the header  
-One at the jamb at each hinge position

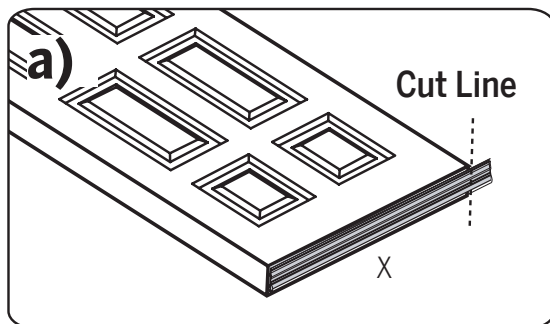
- Secure to frame with #8 x 2- 1/2" screws.

-First through the mullion at each hinge position.  
-Next through the jamb at each hinge position  
-Finally through the header at the center.

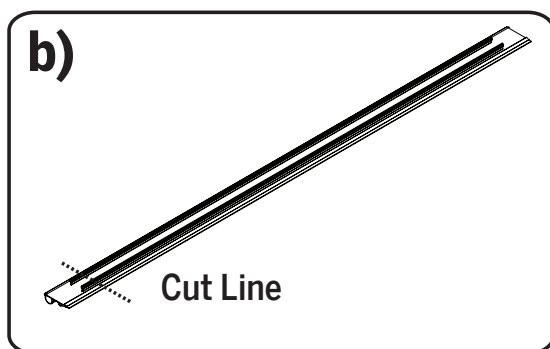
**Note:** For high wind zone applications, apply #8 x 3" screw through the bottom of the sill into the panel.

- 1 at the center of the sidelite panels
- 2 evenly spaced for full sized panels.



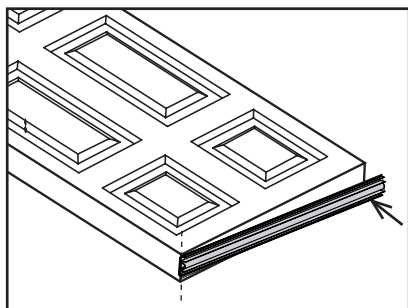
**Step 6: Cut Door Bottom to Length** (If needed)

- a) Align the sweep with the panel and mark cut line.
- b) Cut down the door bottom to match the length of the panel within 1/32".



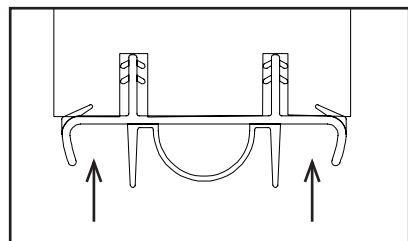
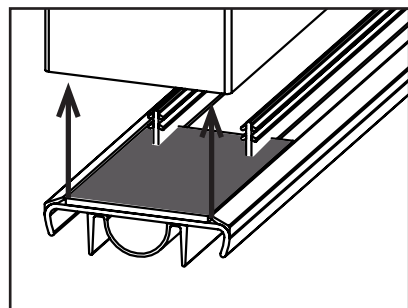
## Step 7: Attaching the Door Bottom

### Kerfed Door Bottoms

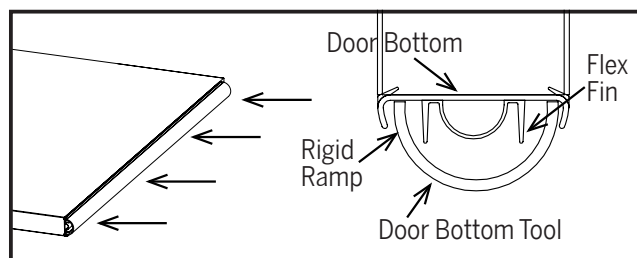


Align door bottom flush with the **lock side** of the panel and insert kerfs into slots on door.

**! DO NOT USE ANY CAULK, OR STAPLES**

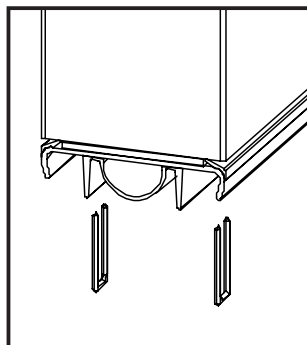


### Securing Door Bottom to Panel

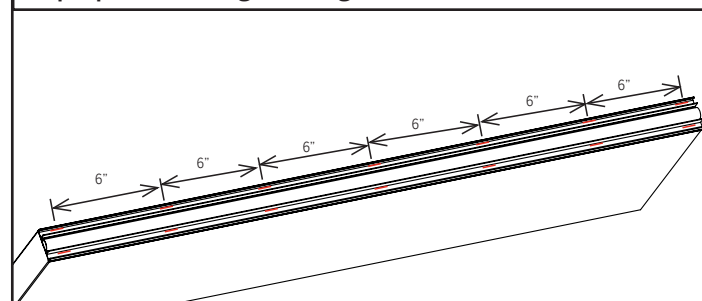


Insert the Door Bottom insertion tool between the rigid ramp and flex fins, and using a rubber mallet, tap the door bottom in place.

### Staple-On Door Bottoms



#### Staple position Along the Length of Panel



When stapling the Z-AC Door bottom to the panel, staples should be inserted between the **Rigid Ramp** and **Flex Fins**. Each Staple should be spaced approximately 6" apart, along the length of the panel.

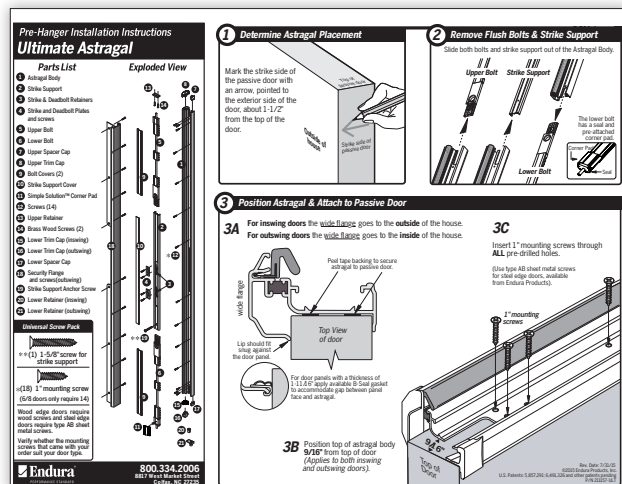
**! NOTE: DO NOT USE ANY STAPLES ON KERFED DOOR BOTTOMS**

**! Use 80 PSI of air pressure to insert staples. Endura suggest using an air pressure regulator for best results.**

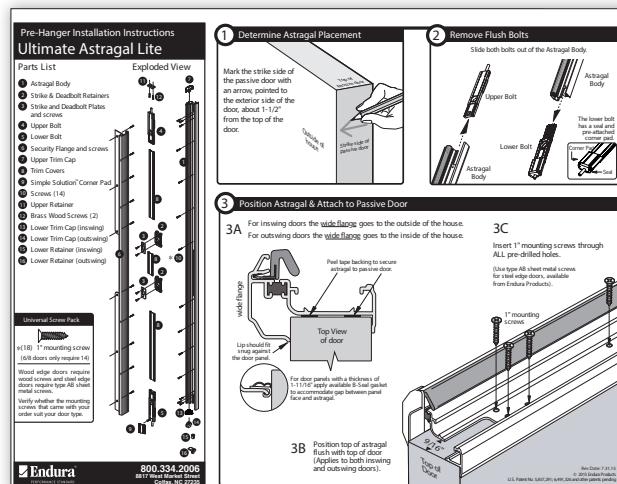
## Step 8: Attaching Astragals to the Inactive Panel. (French Units Only)

Attach an Endura Ultimate Astragal according to separately issued “Prehanger Installation Instructions”.

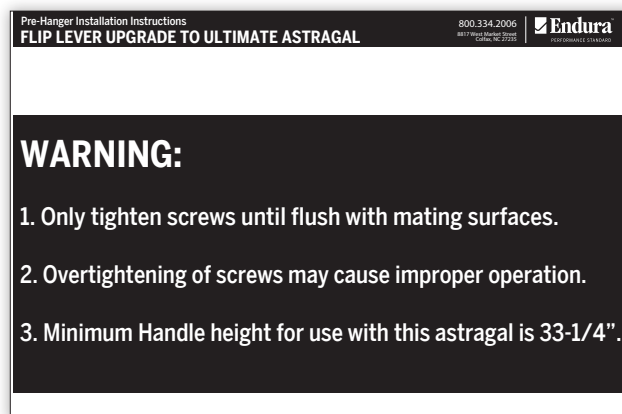
### Ultimate Astragal



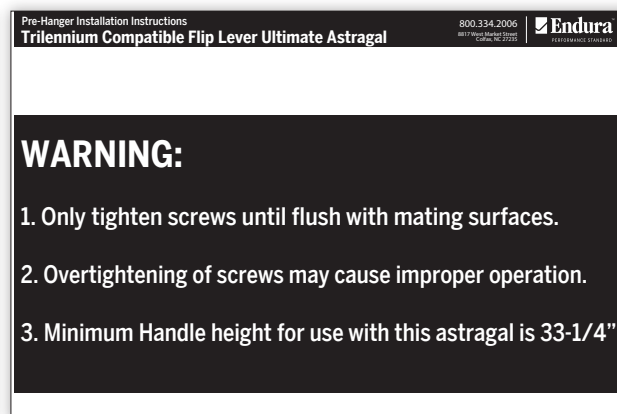
### Ultimate Astragal Lite



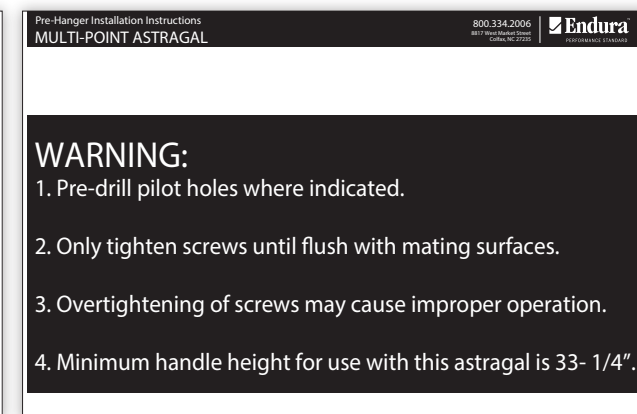
### Ultimate Flip Lever Astragal



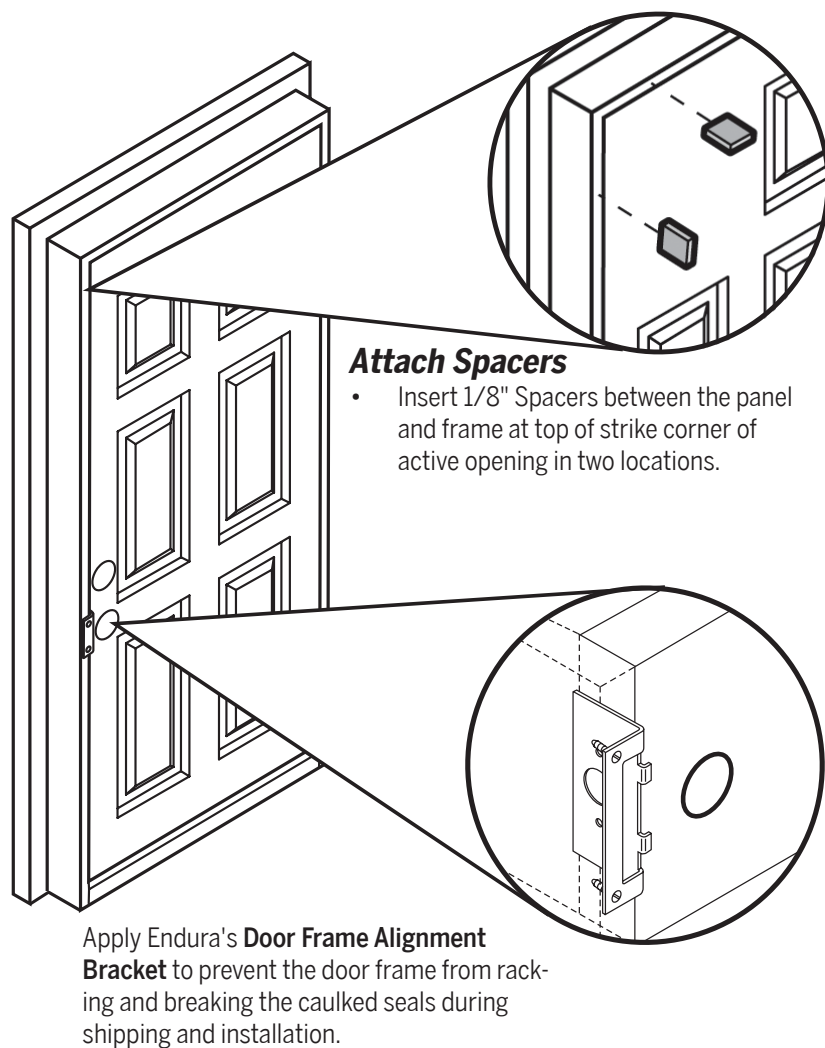
### Ultimate Trilennium Compatible Flip Lever Astragal



### Ultimate Multi-Point Astragal



### Step 9: Frame/Mull Assembly- Header

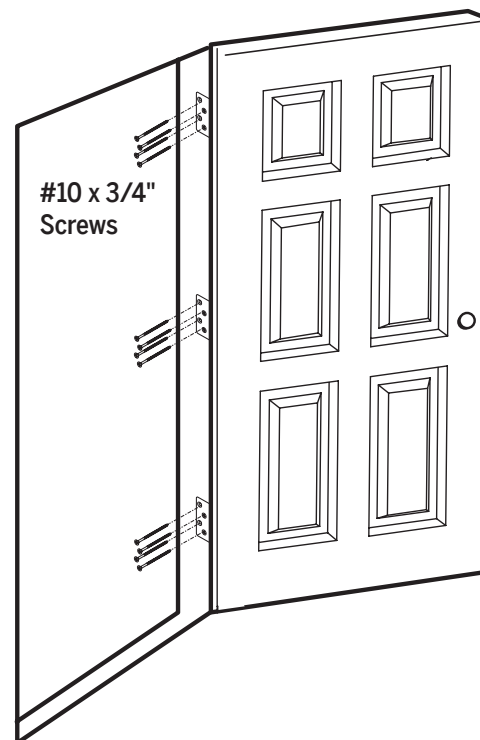


### Step 10: Hinged Panel Assembly

#### Attach Hinges

- Secure to panel with #10 x 1" screws
- Secure to jamb or mull with #10 x 3/4" screws
- For hinge on mull use # 8 x 2- 1/2 screws at
  - Top two holes closest to the weather strip
  - Other hinges on top hole closest to the weatherstrip

#### Attaching Hinge on Jamb



#### Attaching Hinge on Mull

