

# Besam ICU/CCU - Equal or Unequal Panel Installation, Adjustment and Troubleshooting Manual



Complies with NFPA 101 Life Safety Code for Manually Operated Pedestrian Doors.



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# CAUTION

AAE407

**Improperly adjusted doors** can cause injury and equipment damage.

Adjust doors for proper operation in accordance with manufacturer's instruction and adherence to NFPA 101 Life Safety Code and/or AHJ "Authority Having Jurisdiction".

In the following manual, the word:

**Caution** means that injury or property damage can result from failure to follow instructions;

**Note** indicates important steps to be followed or important differences in equipment.

Caution	2
Contents	3
Introduction	4
Models	4
Part Identification & Options	5-6
Sidelite, fixed	7
Active Leaf, fixed	8
Sidelite, breakout	9
Active Leaf, breakout	10
Space Required	11
Installation Examples	12
Installation Requirements	13
Opening/Closing and Locking of the cover	14
Site Inspection	15
Mechanical Installation	16-26
Checking - Marking out - Fastening	16
Leveling Header and Jambs	16
Fitting the Floor Guide Track	17
Fixed Sidelite Installation Procedure	18
Fixed Sidelite Active Leaf Installation Procedure	19
Full Breakout Sidelite Installation Procedure	20-21
Full Breakout Active Leaf Installation Procedure	22-25
Ball Catches and Ball Detent Adjustments	26
Sliding Full Open Dampener Adjustment	26
Glazing and Blocking	27

This manual contains the necessary details and instructions for the installation, maintenance and service of the manual sliding door package, Besam ICU/CCU.

The Besam ICU/CCU is designed for an overhead concealed installation between two vertical jambs. The header supports the sliding doors and sidelites.

## Models

Equal panel door packages can be bi-parting (4-panel) or single slide (2-panel) (left or right handed), and sidelites may be installed fixed or hinged to break out. Equal panel door packages utilize recessed or surface applied track systems. Equal panel packages can not be ordered as trackless systems.

Unequal panel door packages can be bi-parting (4-panel) or single slide (2-panel) (left or right handed), and sidelites may be installed fixed or hinged to break out. Unequal panel door packages utilize trackless, recessed or surface applied track systems.

### Naming Convention Explanation

ICU-S-2FBO-X	Standard, Single Slide Full Breakout, OFW
ICU-S-4FBO-X	Standard, Bi-Parting Full Breakout, OFW
ICU-S-2FSL-X	Standard, Single Slide Fixed Sidelite, OFW
ICU-S-4FSL-X	Standard, Bi-Parting Fixed Sidelite, OFW

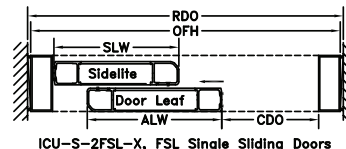
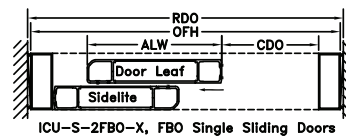
Finish is specified by the following list:  
 CL=Clear Anodize; DB=Dark Bronze Anodize; SP=Special (May Consist of Wet Process or Powder Coat)

#### UNEQUAL PANELS

MODEL No.	CLEAR DOOR OPENING A	OVERALL FRAME WIDTH B	MASONRY OPENING WIDTH C	SIDELITE LEAF WIDTH D	ACTIVE LEAF WIDTH E
ICU-S-2FBO-7	33" (838.2)	84" (2133.6)	84 1/2" (2146.3)	38 5/16" (984.5)	44 1/4" (1124)
ICU-S-2FBO-8	38" (990.6)	96" (2438.4)	96 1/2" (2451.1)	44 3/4" (1136.7)	50 1/4" (1276.4)
ICU-S-2FBO-9	45" (1143)	108" (2743.2)	108 1/2" (2755.9)	50 3/4" (1289.1)	56 1/4" (1428.6)
KEY	B/2-9" (228.6)	C - 1/2" (12.7)	B + 1/2" (12.7)	B/2-3 1/4" (82.6)	B/2+2 1/4" (57.2)

MODEL No.	CLEAR DOOR OPENING A	OVERALL FRAME WIDTH B	MASONRY OPENING WIDTH C	SIDELITE LEAF WIDTH D	ACTIVE LEAF WIDTH E
ICU-S-4FBO-10	43 3/4" (1111.3)	120" (3048)	120 1/2" (3060.7)	27 5/8" (701.7)	33 1/8" (841.4)
ICU-S-4FBO-12	55 3/4" (1416.1)	144" (3657.6)	144 1/2" (3670.3)	33 5/8" (854.1)	39 1/8" (993.8)
ICU-S-4FBO-14	67 3/4" (1720.9)	168" (4267.2)	168 1/2" (4279.9)	39 5/8" (1006.5)	45 7/8" (1148.2)
ICU-S-4FBO-16	79 3/4" (2025.7)	192" (4876.8)	192 1/2" (4889.5)	45 5/8" (1158.9)	51 1/8" (1298.6)
KEY	B/2-16 1/4" (412.8)	C - 1/2" (12.7)	B + 1/2" (12.7)	B/4-2 3/8" (60.3)	B/4+3 1/8" (79.4)

OFW= Frame Width      CDO= Clear Door Opening  
 SLW= Sidelite Width      RDO= Rough Door Opening  
 ALW= Active Leaf Width



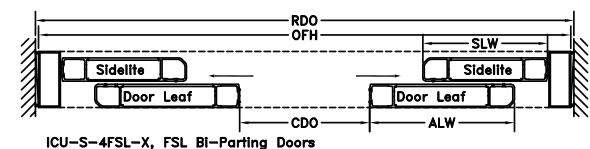
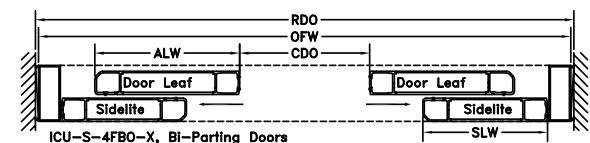
#### EQUAL PANELS

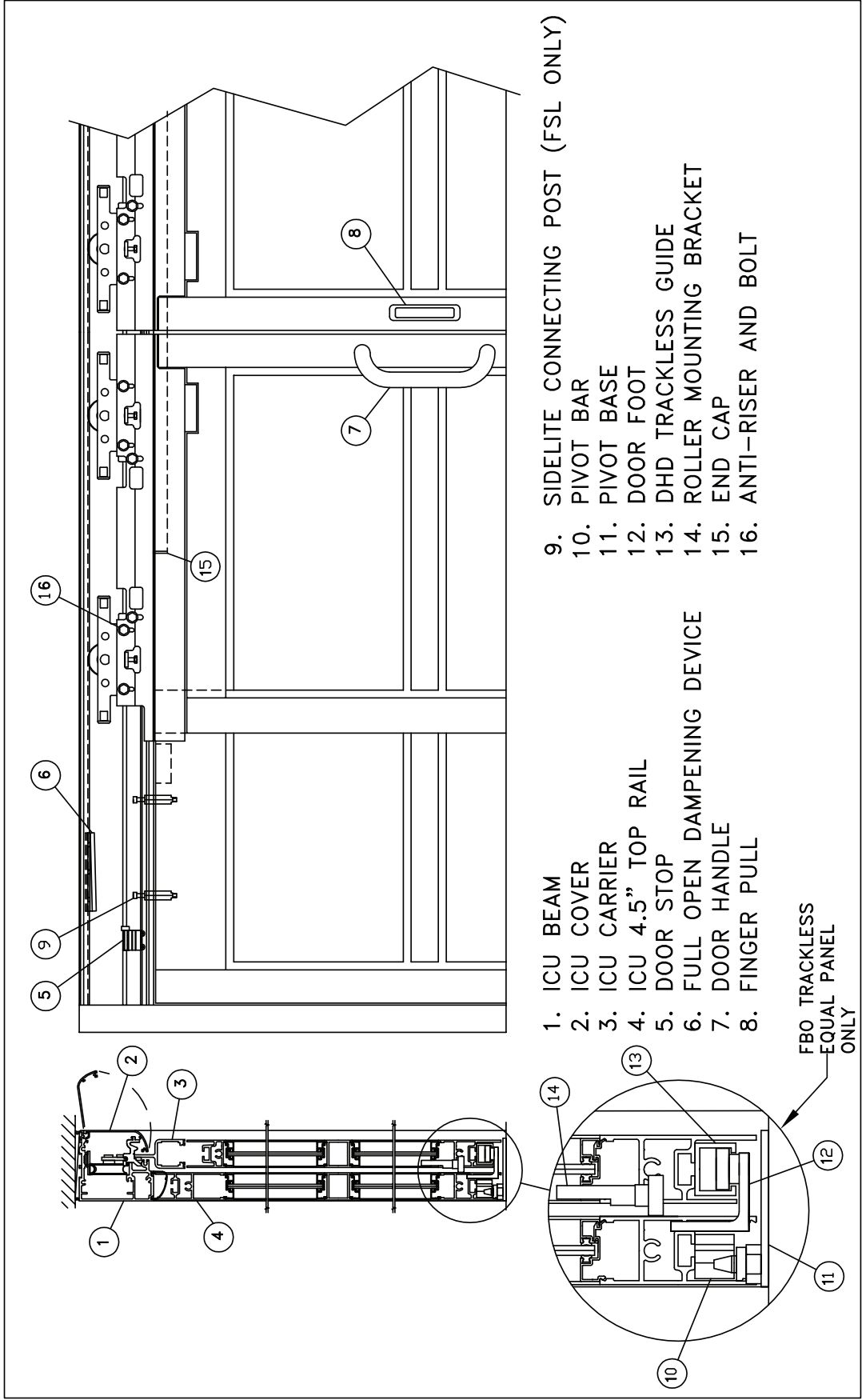
MODEL No.	CLEAR DOOR OPENING A	OVERALL FRAME WIDTH B	MASONRY OPENING WIDTH C	ACTIVE & SIDELITE LEAF WIDTH D
ICU-S-2FBO-6-6	32 1/4" (819.2)	78" (1981.2)	78 1/2" (1993.9)	38 1/2" (977.9)
ICU-S-2FBO-7	35 1/4" (895.4)	84" (2133.6)	84 1/2" (2146.3)	41 1/2" (1054.1)
ICU-S-2FBO-8	41 1/4" (1047.8)	96" (2438.4)	96 1/2" (2451.1)	47 1/2" (1206.5)
ICU-S-2FBO-8-6	44 1/4" (1124)	102" (2590.8)	102 1/2" (2603.5)	50 1/2" (1282.5)
ICU-S-2FBO-9	47 1/4" (1200.2)	108" (2743.2)	108 1/2" (2755.9)	53 1/2" (1358.9)
KEY	(B/2)-6 3/4" (B/2)-(171.5)	(C)-1/2" (C-12.7)	(B+1/2) (B+12.7)	(B/2)-1/2" (B/2)-(12.7)

#### GLASS SIZE TABLE

	PACKAGE	KEY
WIDTH	EQUAL PANEL	LEAF WIDTH-4 7/8" (22.2)
	UNEQUAL PANEL	
HEIGHT	FSL TRACKLESS	OFH-14 (355.6)
	FBO w/TRACK	OFH-14.125 (358.8)
	FBO TRACKLESS	OFH-14.1875 (360.4)

Note: Charts are for narrow stile doors with 1/4" glazing. Wider stiles will reduce the CDO dimension accordingly.



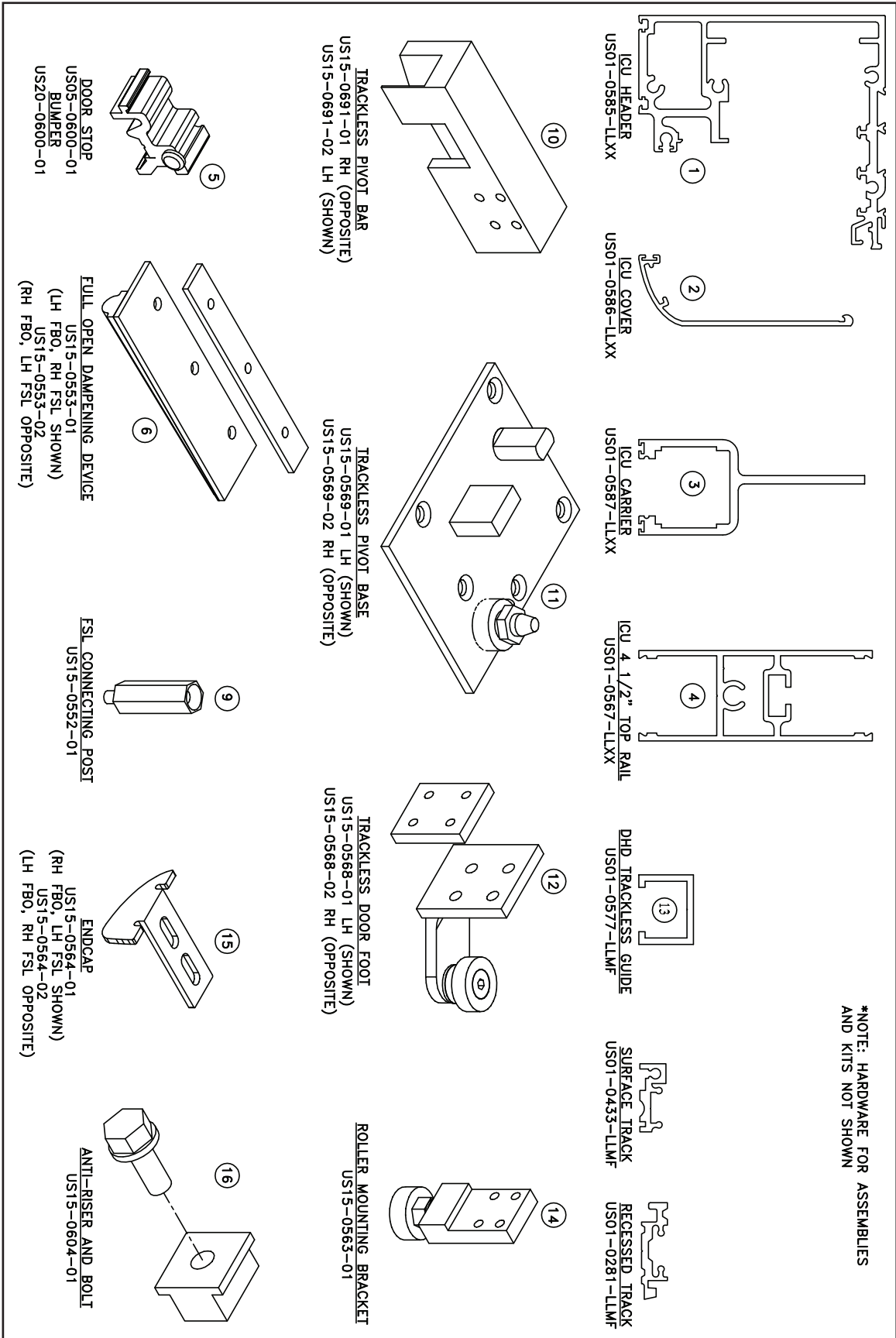


- 1. ICU BEAM
- 2. ICU COVER
- 3. ICU CARRIER
- 4. ICU 4.5" TOP RAIL
- 5. DOOR STOP
- 6. FULL OPEN DAMPENING DEVICE
- 7. DOOR HANDLE
- 8. FINGER PULL

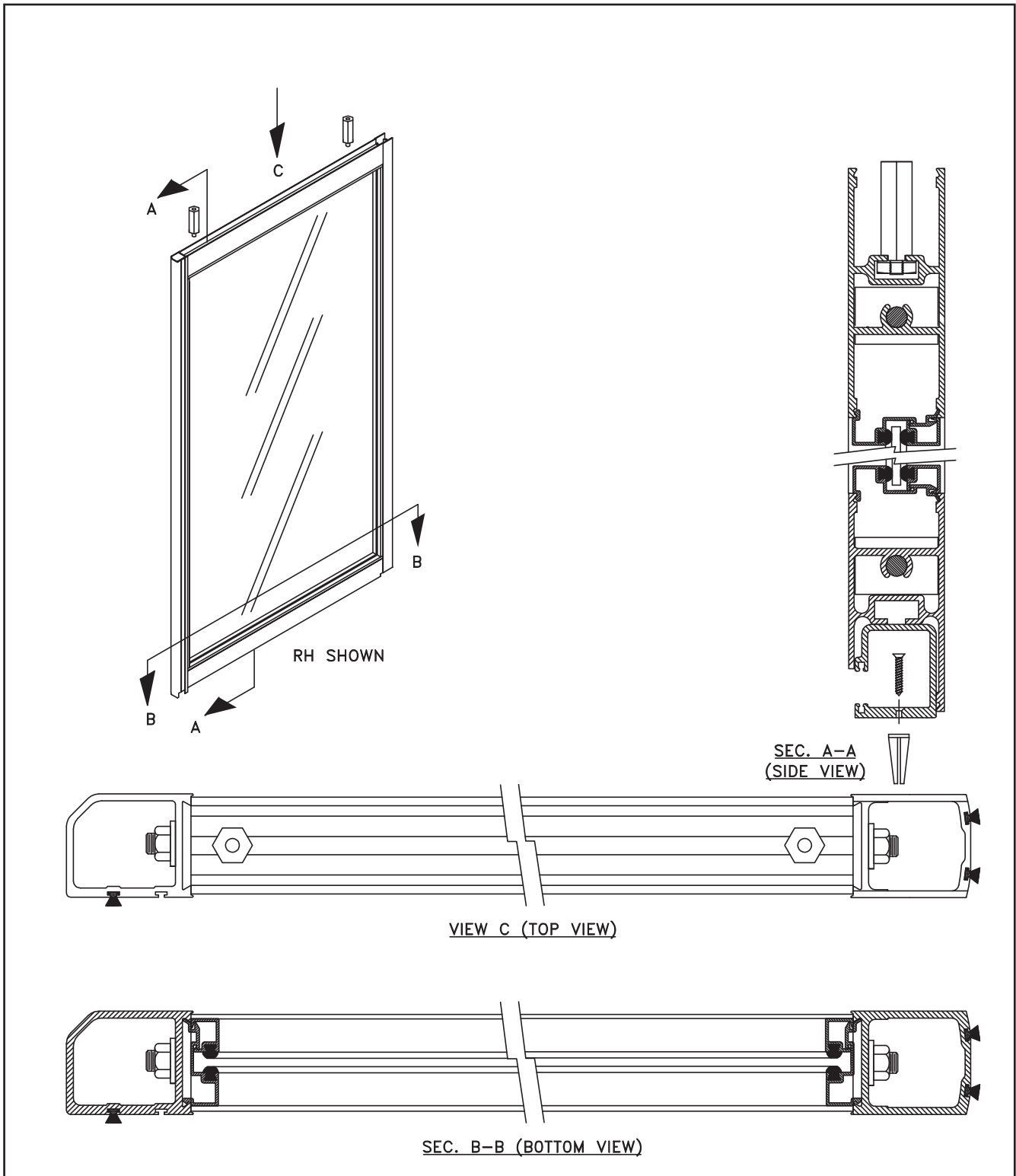
- 9. SIDELITE CONNECTING POST (FSL ONLY)
- 10. PIVOT BAR
- 11. PIVOT BASE
- 12. DOOR FOOT
- 13. DHD TRACKLESS GUIDE
- 14. ROLLER MOUNTING BRACKET
- 15. END CAP
- 16. ANTI-RISER AND BOLT

FBO TRACKLESS  
EQUAL PANEL  
ONLY

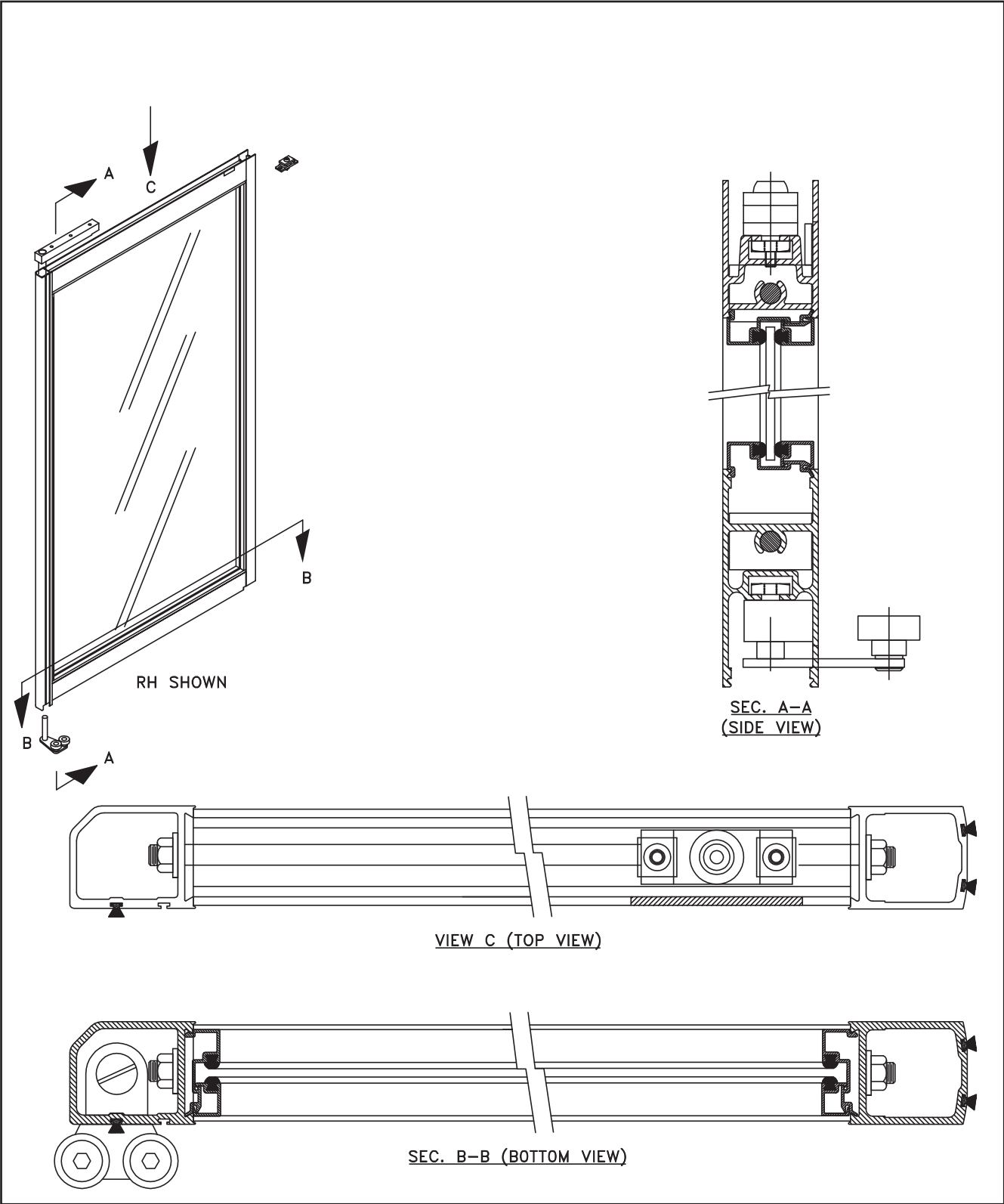
# Part Identification & Options



## Sidelite, FSL - Unequal Panel ONLY



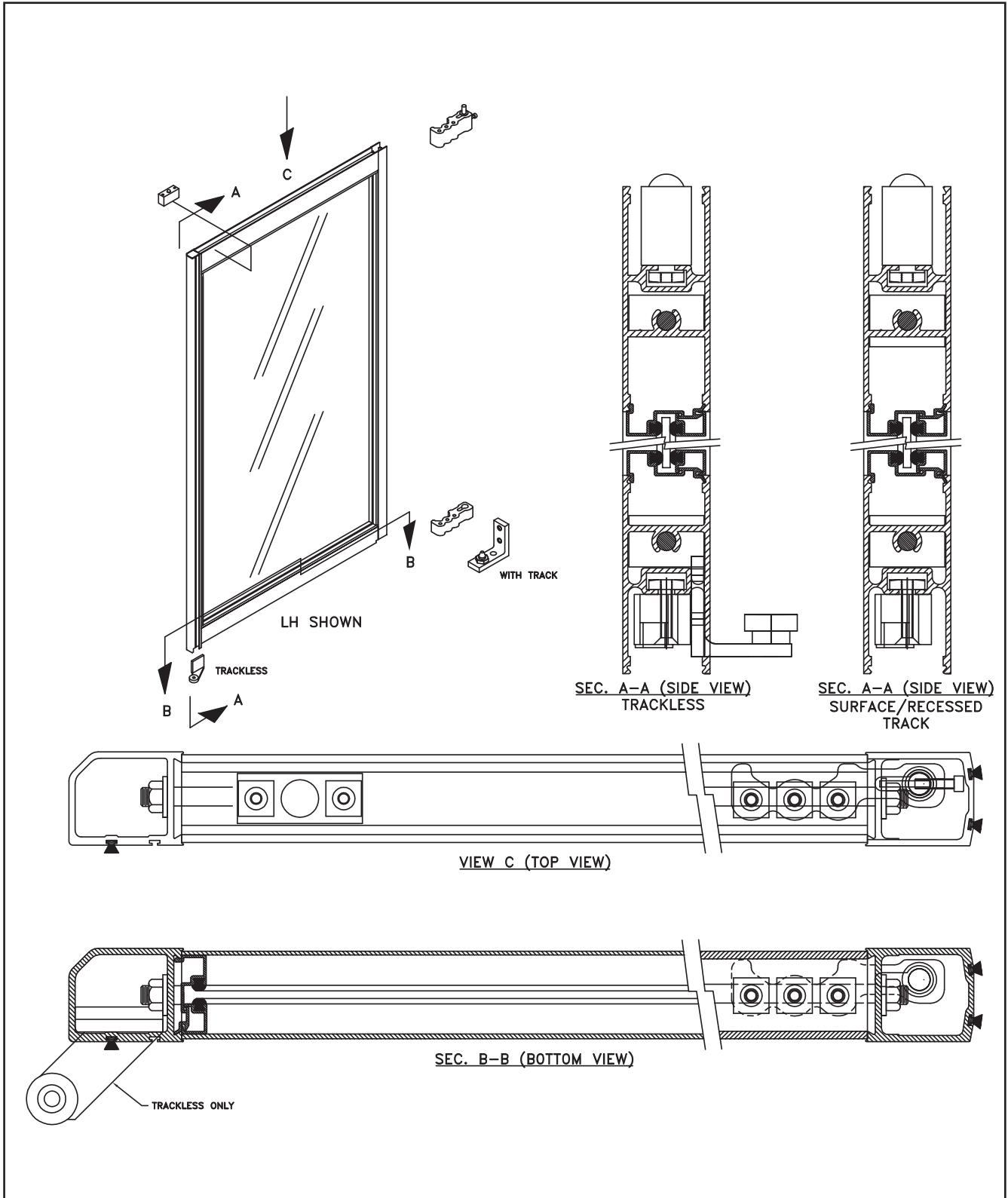
## Active Leaf, FSL - Unequal Panel ONLY



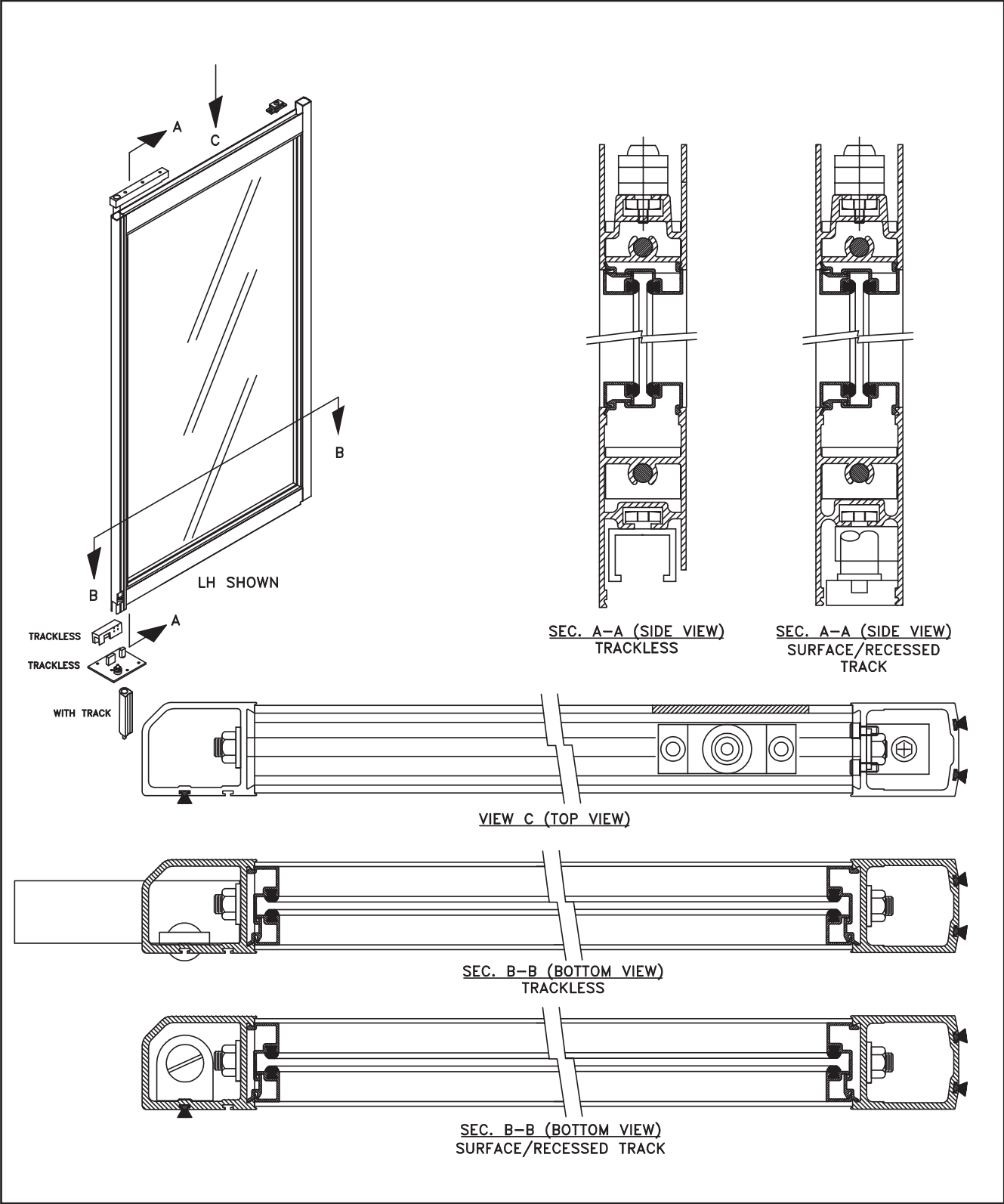


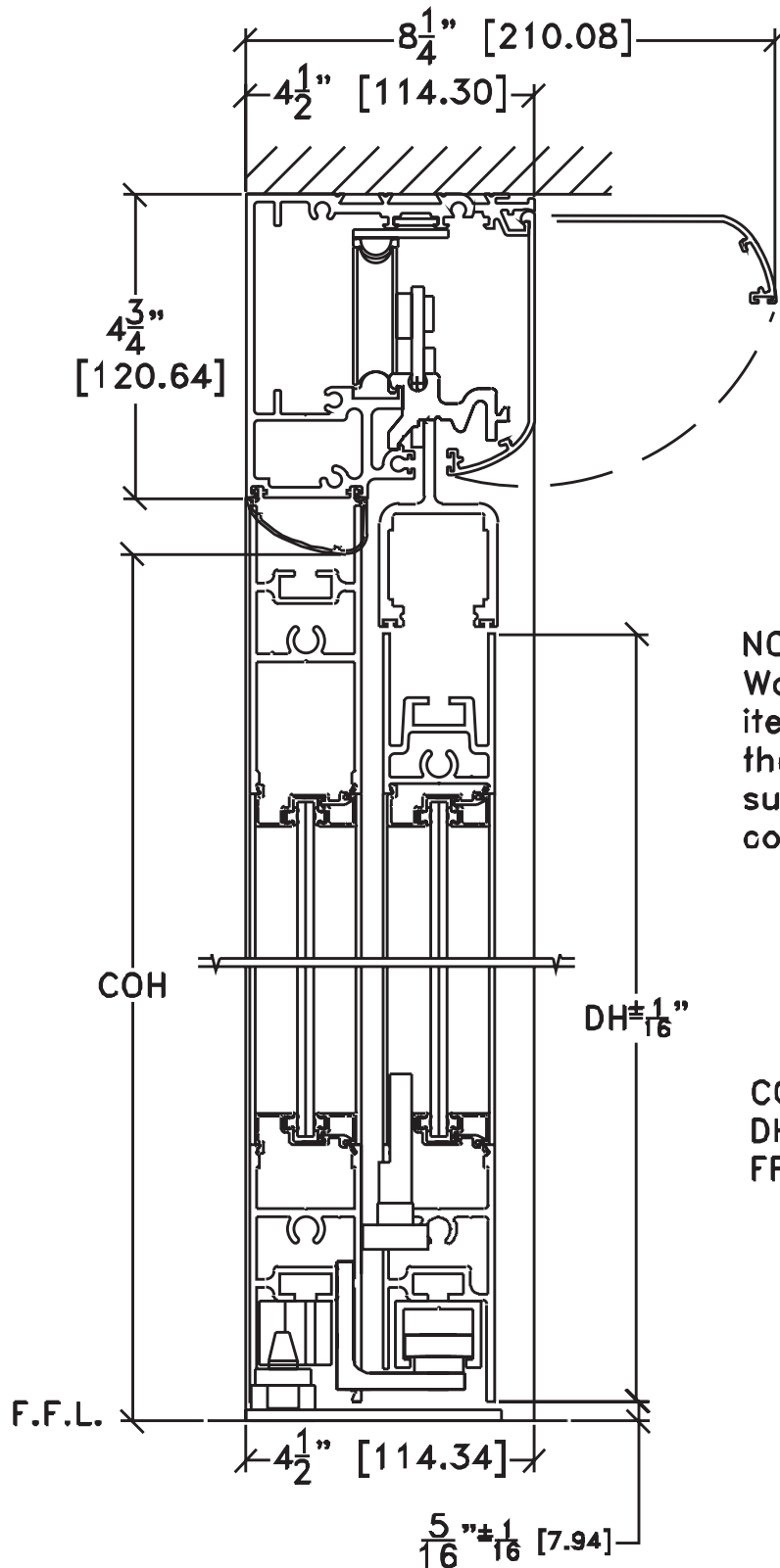
# Part Identification & Options

## Sidelite, FBO



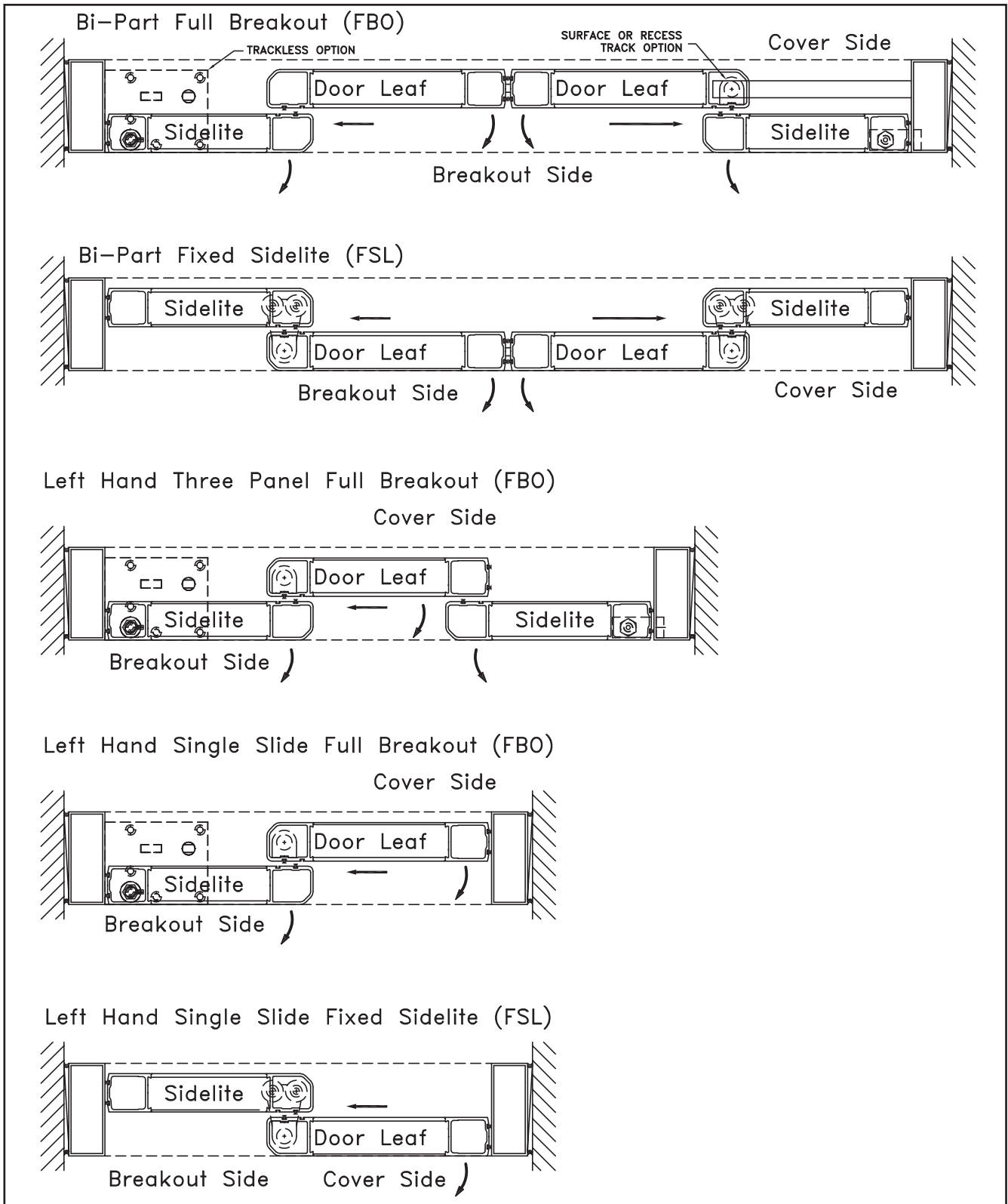
## Active Leaf, FBO





**NOTE:**  
 Watch for low hanging items that could obstruct the opening of the cover, such as exit signs and wall conditions.

COH= Clear Opening Height  
 DH= Door Height  
 FFL= Finished Floor Level



## Fastening Requirements

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Base door / wall material	Minimum anchor / bolt requirement*
Steel	3/16" (5 mm)*
Aluminium	1/4" (6 mm)*
Reinforced concrete	min. 2" (50 mm) from the underside
Wood	2" (50 mm)
Brick wall	Expansion-shell bolt, min. (1/4" x 3 1/2"), min. 2" (50 mm) from the underside

\* Besam minimum recommended requirements. Building Codes may give different specifications.

\* Thinner wall profiles must be reinforced with rivnuts.

## Tools required

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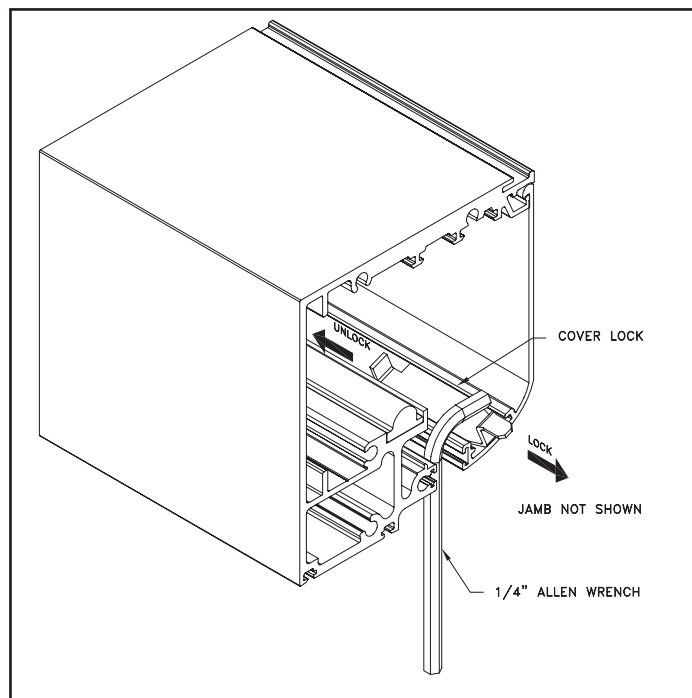
Carpenter's level  
Tape rule  
Straight edge  
Power drill and set of drill bits, Unibit, Hammer drill  
Metric hex key set 6, 5, 4 mm and 2.5 mm  
Screw driver Torx T10, T20  
Flat blade screw driver (small/medium/large)  
Screw driver  
Chalk line  
#2 Phillips screw driver  
Center punch  
String  
Plumb bob  
Silicone sealant  
Pencil  
10mm Nut Driver and wrench  
Additional mounting hardware (not supplied - see fastening requirements above)

## Opening/Closing and Locking of Cover

The cover has to be unlocked in order to gain access into header. The locks are located at each end of the cover, next to the jambs.

1. To unlock, insert the short leg of a 1/4" Allen wrench between the header and cover, just above the weather-stripping. Rotate the wrench 90° toward the cover. Feel for lip on the lock and slide about a 1/2" away from the jamb. Gently pull up on the cover to ensure the lock has completely disengaged from the jamb. Repeat for the other side.
2. To lock, reverse the order of Step 1.

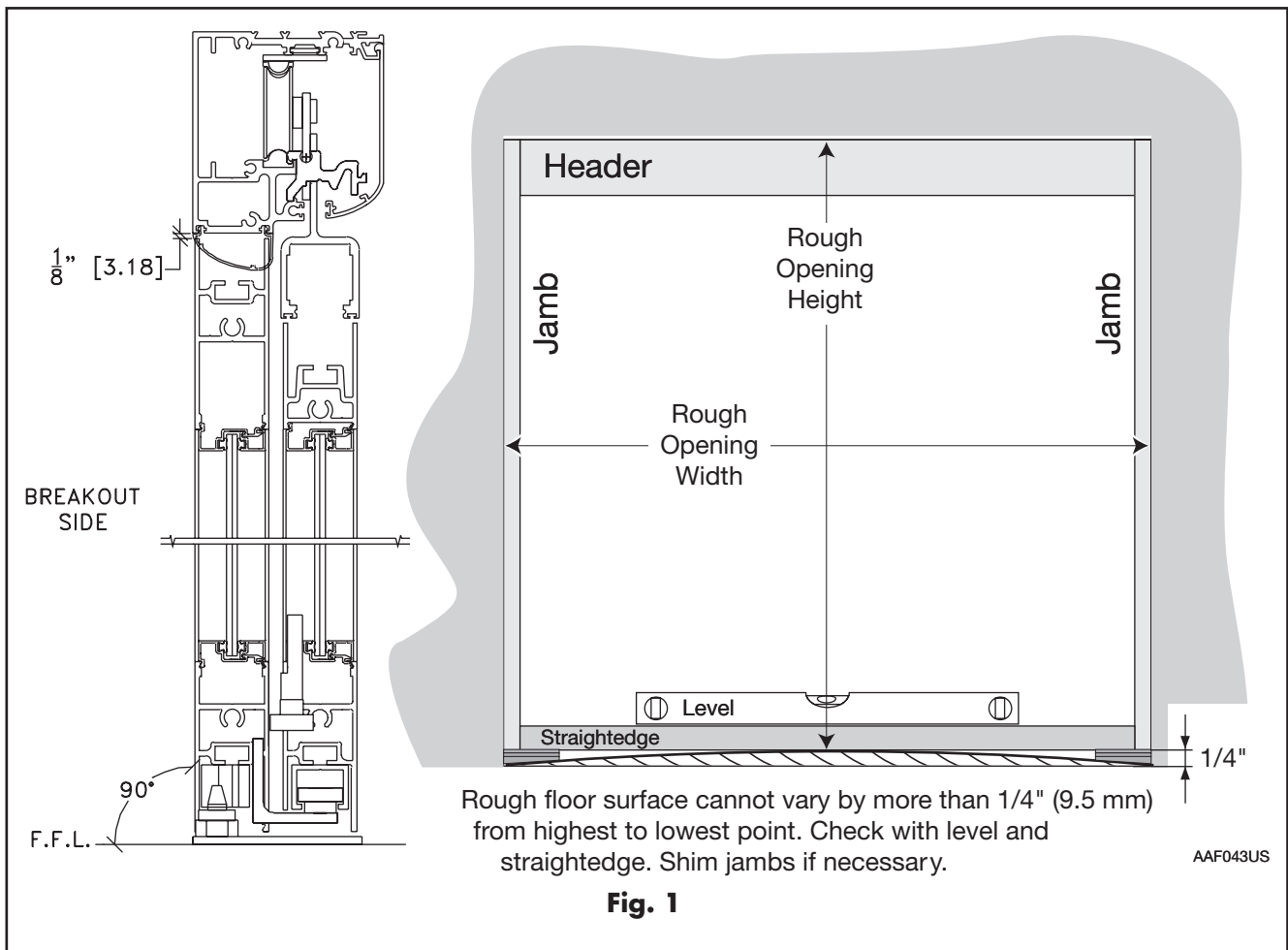
The cover is designed to be self-supporting in the open position. To open, stand at the center of the cover, rotate the cover 90°, and then push inward toward the header. This will engage the cover into the header, preventing it from closing. To close, pull the cover away from the header until it disengages and swings freely.



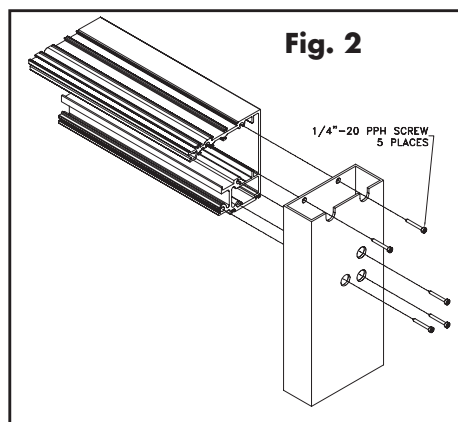
The rough opening must be plumb and square and the finished floor must not vary by more than 1/4" from the highest to the lowest point. If necessary, have the floor leveled before attempting to install the sliding door system. See Fig. 2.

It is important to check the floor level within the path of the doors in break out mode. The doors must not encounter any obstruction when broken out. The grade of the floor in the direction of break out should ideally be 90° or greater, measuring from the highest point of the floor (see below). See Fig. 1.

The rough opening width should be 1/2" wider than the overall frame width of the sliding door system, and the rough opening height should be 1/4" higher than the overall frame height. For standard installations, the overall frame height will be 89-3/4", requiring an ROH of 90" from the highest point of the floor.



## Checking – Marking out – Fastening



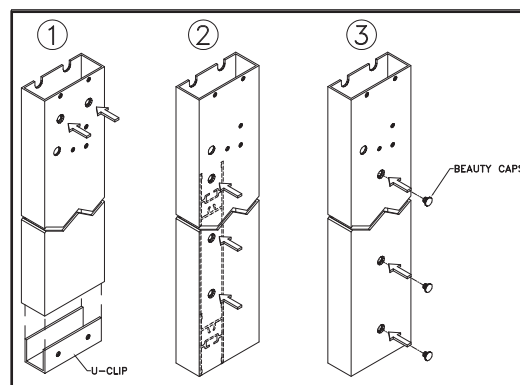
Besam jambs are factory prepared for header installation. Mount jambs to header using five screws per jamb. See Fig. 2.

- Drill holes at the top, middle and bottom of the jambs for securing to the door opening, adjusting for site conditions that may require the holes to be at a certain height.
- Drill 1/2" holes through the face of the jamb and then drill the back holes to a maximum of 1/4".

Suggested methods for attaching the jambs in which the screw holes are not exposed are as follows:

1. Install "U" shaped clips to the floor in which the jambs will slide over the top. Drill a hole through the jamb and clip to attach the bottom of the door. Drill a hole through the jamb inside of the header to attach the top of the jamb.
2. Countersink the holes on the exterior jamb walls in line with the sidelite such that the sidelite covers the holes when installed.
3. Drill holes through both the interior and exterior jamb wall and install beauty caps on the exterior holes.

### SUGGESTED ATTACHMENT METHODS



## Leveling header and jambs

**Note! The header and jambs must be square and level to ensure a proper installation!**

1. Inspect the rough door opening, measuring from side to side and using a level, to find areas where shims may be needed. Look for high spots in the floor (see Fig. 1 page 15); if there is a slight rise in the floor at any point then the bottom of the jambs should be set level with the highest point of the floor, with the header leveled across the opening.
2. Tilt header/jamb assembly up into rough opening in wall.
3. Start with one jamb. Loosely install the middle fastener, using a level on the outside of the frame to plumb the jamb. Confirm that the header is level across the opening. Repeat for the opposing jamb, loosely installing first the middle fastener, then the top and bottom. Return to the first jamb and install the remaining top and bottom fasteners loosely.
4. Starting with the top screws on both jambs, equally shim behind both jambs, leaving equal gaps and centering the package in the door opening. Tighten the top fasteners. Use your level on the inside of one jamb to determine shim requirements for the middle fastener, then shim and tighten. Repeat for the bottom fastener. Shim and tighten the middle and bottom fasteners on the other jamb in the same way. Check for jamb bowing with a straightedge and correct if present.
5. Recheck the jambs, using a level on the outside and inside of each jamb, and the header. If the header and jambs are truly square, the top jamb to jamb and bottom jamb to jamb measurement should be identical. If necessary, strings can be taped from corner to corner on the outside of the jambs. The strings should cross in the center of the door opening, slightly touching each other. If there is a gap between the strings or the strings are pushing against each other, than the package is twisted and needs adjustment before proceeding.



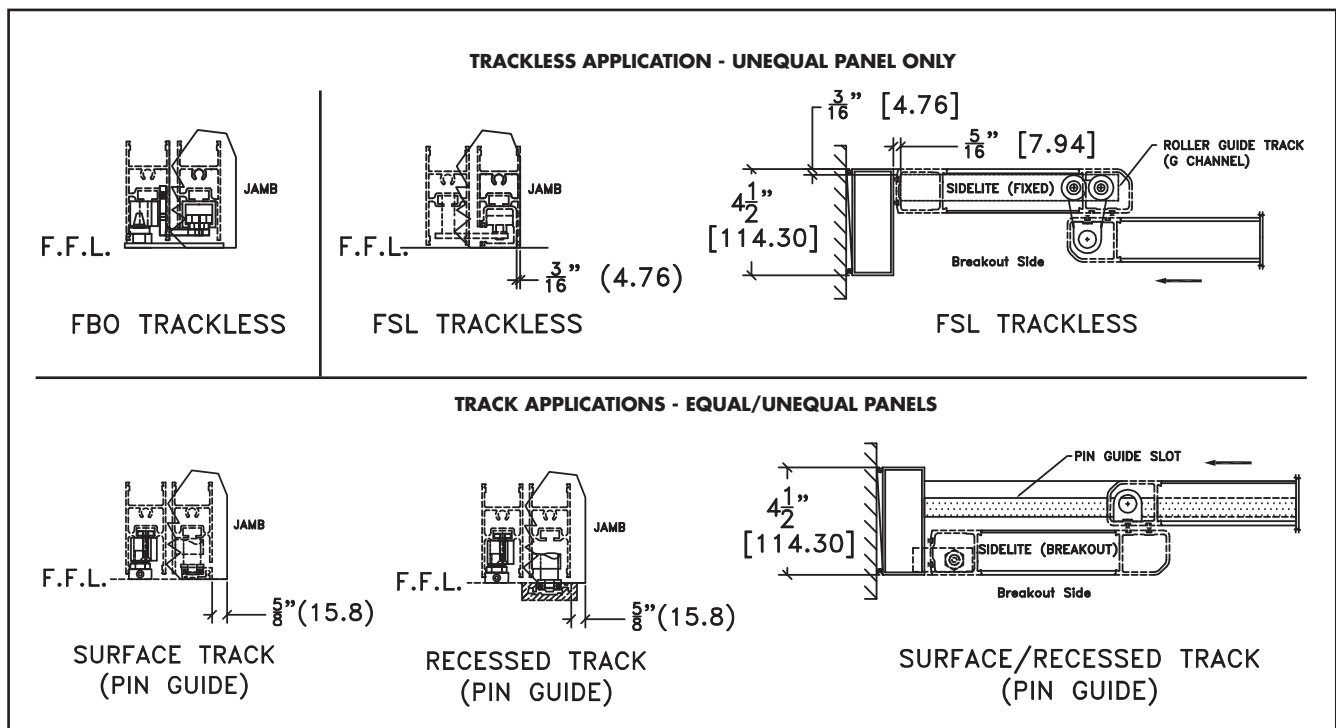
## Fitting the floor guide track

**Note!** It is important that the floor guide track is fixed absolutely level to prevent derailment of the floor guide foot when the door is swung out.

Installation steps for floor mounted guide tracks, recess and surfaced mounted pin guide tracks and G channel tracks for fixed sidelite applications:

1. Inspect the floor for conditions such as high and low spots that can cause the track to twist and rock. High spots (such as small rocks) should be removed; shim the track assembly at the low spots.
2. Using a chalk line, snap a reference line from jamb to jamb on the side where the track is being installed.
3. Using the measurements provided (see Fig. 3, below), lay the track in place. While standing on the track and keeping it in line with the chalk line, mark the holes to be drilled. **The G track is not to be mounted and leveled any lower than the bottom of the jamb and it must have an equal measurement from the top of the G track to the bottom of the header across its entire length.**
4. Secure the track to the floor with concrete anchors and screws, leveling it with shims from end to end. If possible, a sealant should be used under the track assembly. To check for proper leveling, measure from the top of the track to the bottom of the header, checking for the same result at each fastener.

**Note:** All screws must be countersunk and fully tightened to avoid interference with pivot travel.



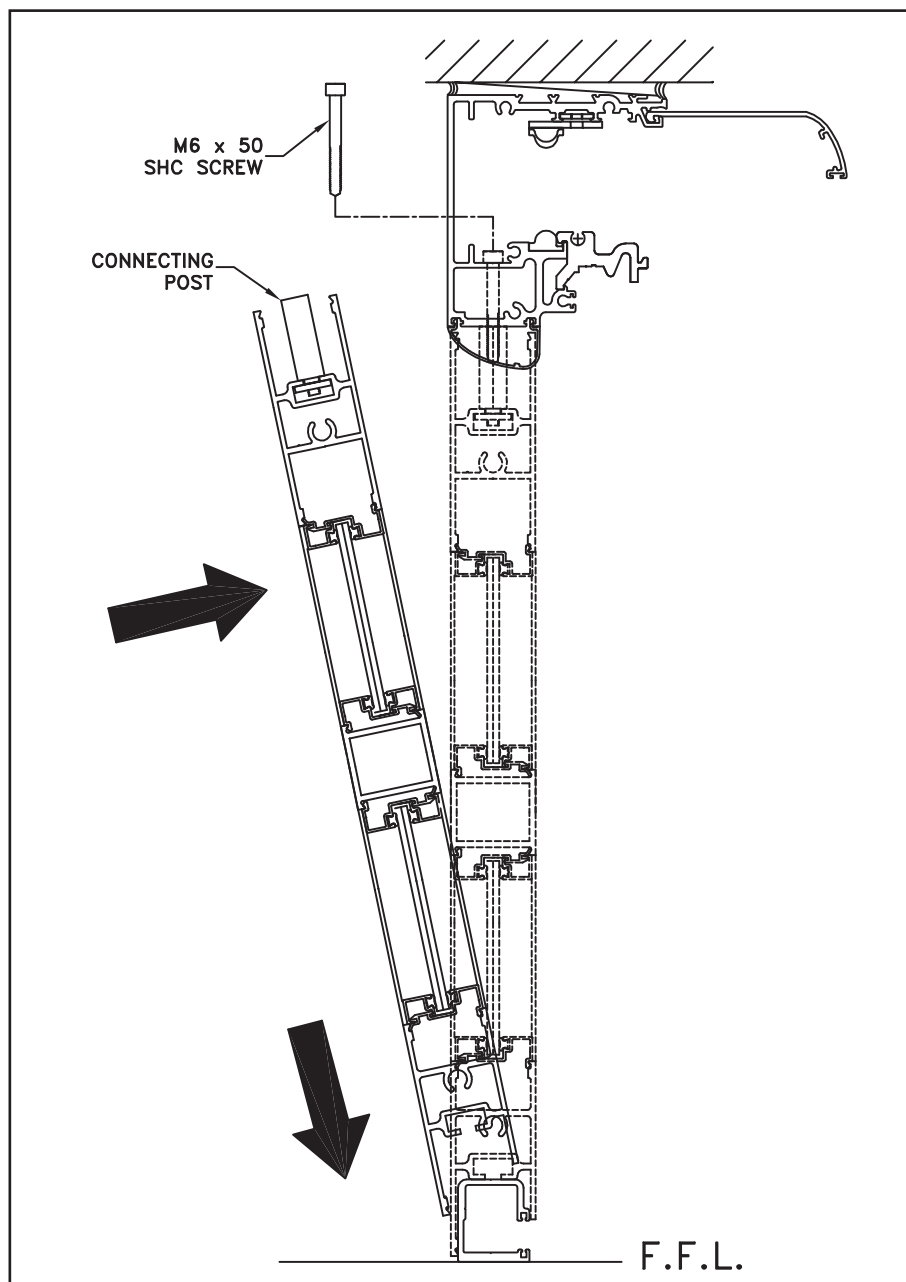
**Fig. 3**

## Fixed Sidelite Installation Procedure - Unequal Panel ONLY

**Note:** Remove any glass stops or packing material from the sidelite before installation.

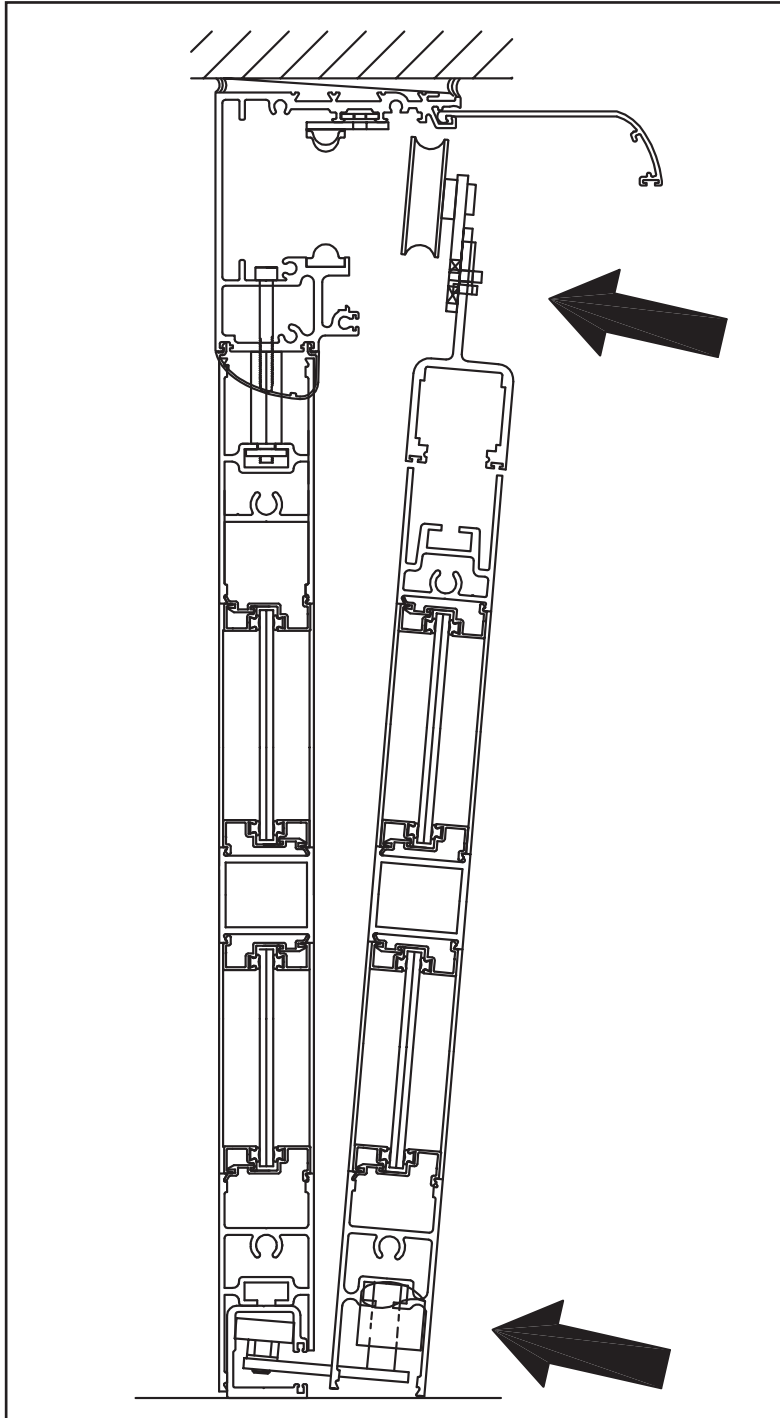
1. Place sidelite on "G" track. Line up the (2) connecting posts, located approximately 6" from each end of the top horizontal, with the (2) holes in the bottom of the header. Tilt sidelite into place. Lock the sidelite to the header by inserting the M6 screw through the header into the connecting post.

**Note:** Adjust FSL post position if out of alignment with header pre-drilled holes.



**Fig. 4**

## Fixed Sidelite Active Leaf Installation Procedure - Unequal Panel ONLY



**Fig. 10**

1. Position the door panel in the open position. Rotate the bottom roller foot guide perpendicular to the door.
  2. Place the door under the cover, being careful not to damage the cover, and insert the roller foot guide into the cut-out in the bottom corner of the sidelite. See Fig. 10.
  3. Then tilt and lift the wheel brackets on top of the door onto the track inside the header.
  4. Install the anti-risers by sliding the door past the anti-riser block and lining up the carrier and block. Insert anti-riser bolt and secure. See Fig. 11, Pg. 25.
  5. Adjust the vertical adjustment screw on the PSA arm to lift the lead edge of the door and ball catch into alignment with the ball catch receiver. See Fig. 12, Pg. 25.
- Note:** if the glass has not been previously installed, you will need to recheck alignment once the glass is in place and readjust as necessary.
6. Loosen wheel brackets and adjust door to proper height using the adjustment screw on the wheel brackets, taking into account the floor conditions for the full travel of the doors. Tighten wheel brackets.

## Full Breakout Sidelite Installation Procedure

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### Surface and Recessed Track Applications - Equal/Unequal Panel

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**Note:** Remove any glass stops or packing material from the sidelite before installation.

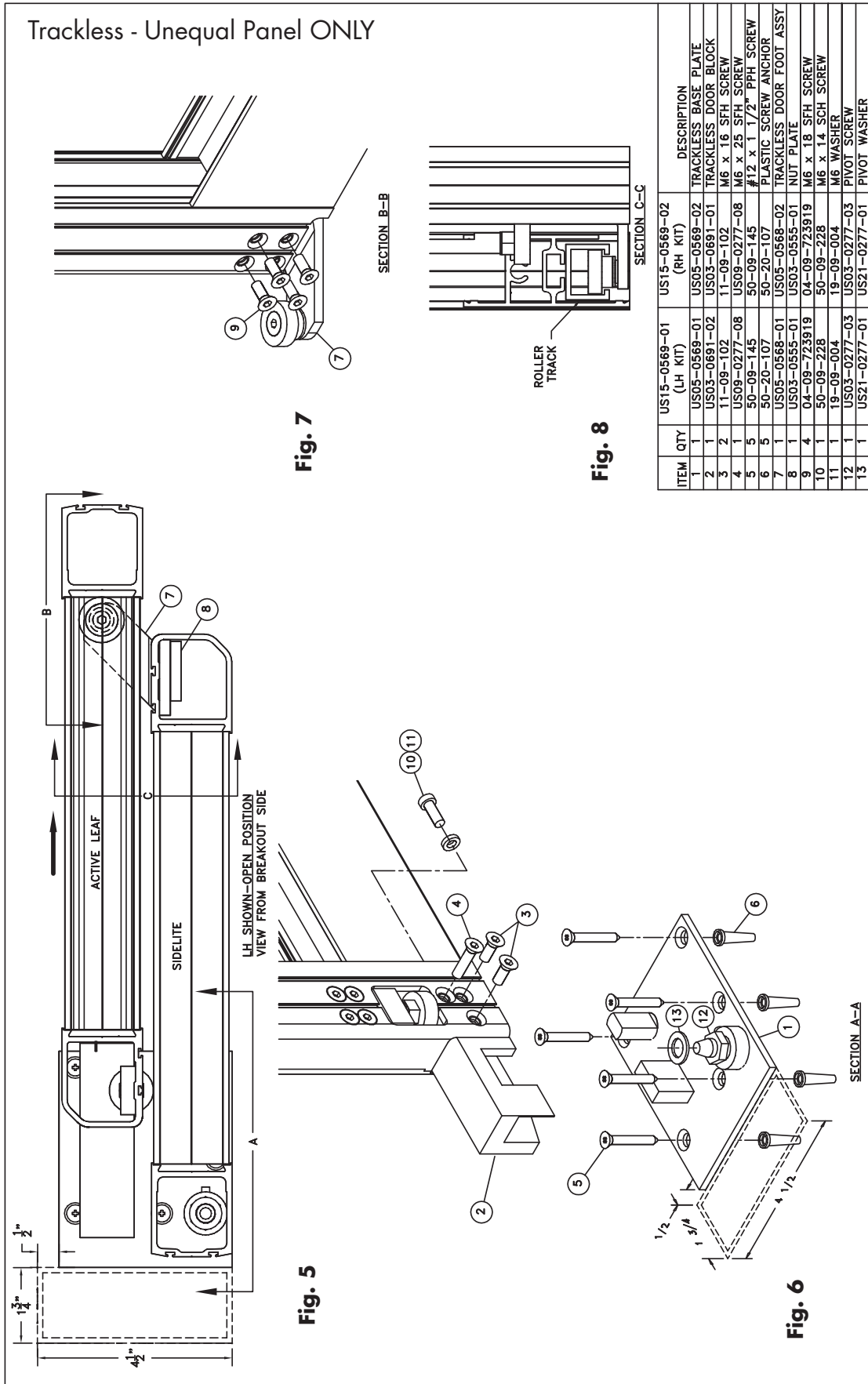
1. Install and level any thresholds (surface or recessed) before installing any of the door panels.
2. Check that jamb mounted bottom pivot is installed and tight.
3. If the pivot base does not rest fully on the floor, support the pivot base with shims.
4. Loosen the setscrew in the top pivot.
5. Place the bearing washer on the pivot base. Check that bottom and top pivots are tight in the door. Set the sidelite on the pivot and tilt it into place. There should be no more than 1/8" between the bottom of the header and the top of the sidelite. To adjust, remove the sidelite, raise or lower the bottom pivot by loosening the set screw at the side of the floor portion of the pivot and turn the shaft clockwise to lower the sidelite and counter clockwise to raise the sidelite; then retighten the set screw. With the sidelite on the bottom pivot, carefully push down the top spring-loaded pivot pin and line it up with its receiving hole in the header until the shaft pops into place (See Fig. 9, pg. 21).
6. Check all clearances and make adjustments to the break out ball catch.
7. When all sidelite panels are installed, tighten top pivot security set screw to prevent depressing pivot pin.
8. Install glass using proper glass blocking techniques to ensure proper operation of door package. See page 27.

### Trackless Applications - Unequal Panel ONLY

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**Note:** Remove any glass stop or packing material from the sidelite before installation.

1. Install pivot plate flush to jamb on non-cover side. See Fig. 5 & 6, Pg. 21 (Sec A-A).
2. Install DHD foot assembly to the bottom of the sidelite. See Fig. 5 & 7, Pg. 21 (Sec. B-B).
3. Loosen the setscrew in the top pivot.
4. Place the bearing washer on the pivot base. Check that bottom and top pivots are tight in the door. Set the sidelite on the pivot and tilt it into place. There should be no more than 1/8" between the bottom of the header and the top of the sidelite. To adjust, remove the sidelite, raise or lower the bottom pivot by loosening the set screw at the side of the floor portion of the pivot and turn the shaft clockwise to lower the sidelite and counter clockwise to raise the sidelite; then retighten the set screw. With the sidelite on the bottom pivot, carefully push down the top spring-loaded pivot pin and line it up with its receiving hole in the header until the shaft pops into place (See Fig. 9, pg. 21).
5. Check all clearances and make adjustments to the break out ball catch.
6. When all sidelite panels are installed, tighten top pivot security set screw to prevent depressing pivot pin.
7. Install glass using proper glass blocking techniques to ensure proper operation of door package. See page 27.



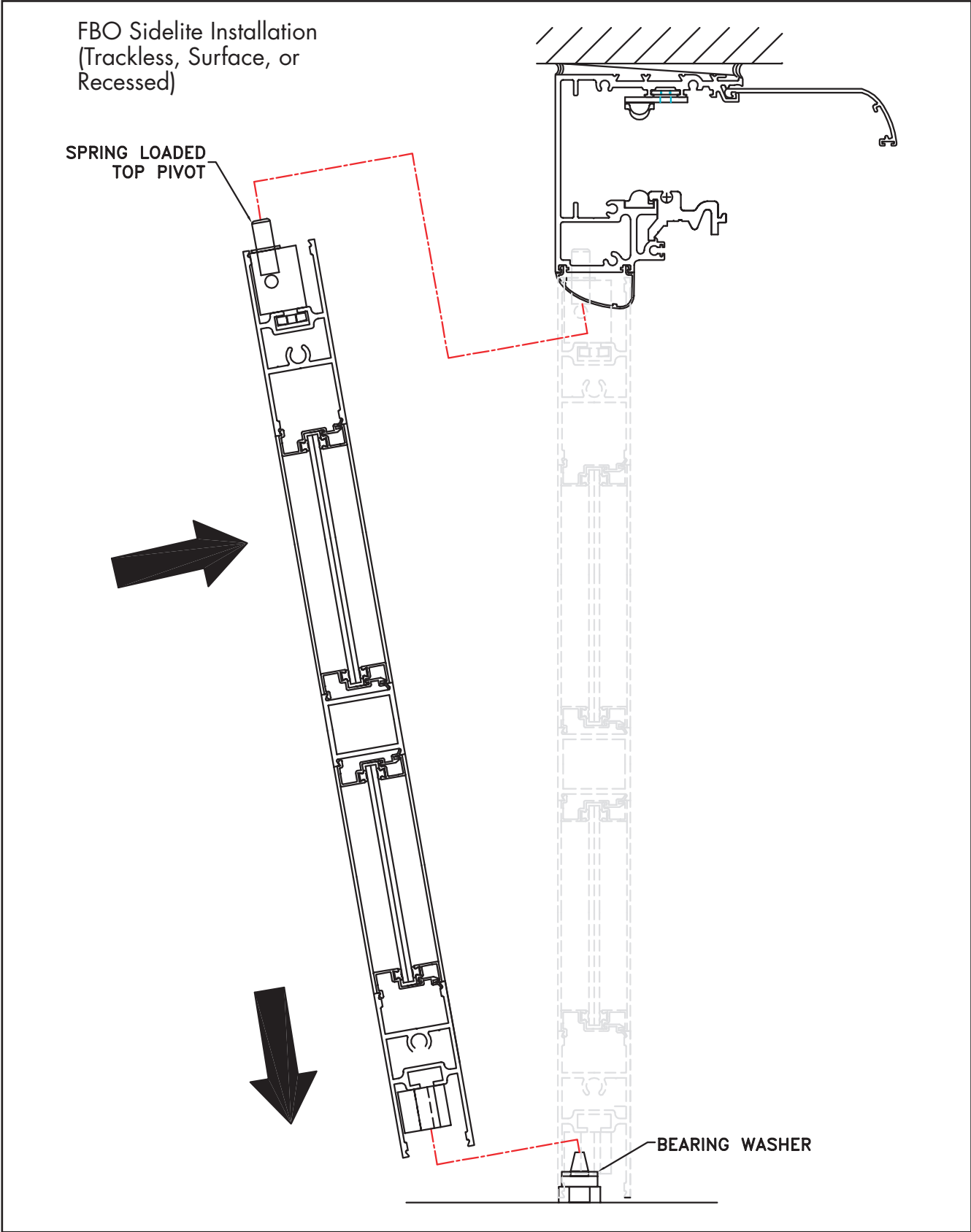
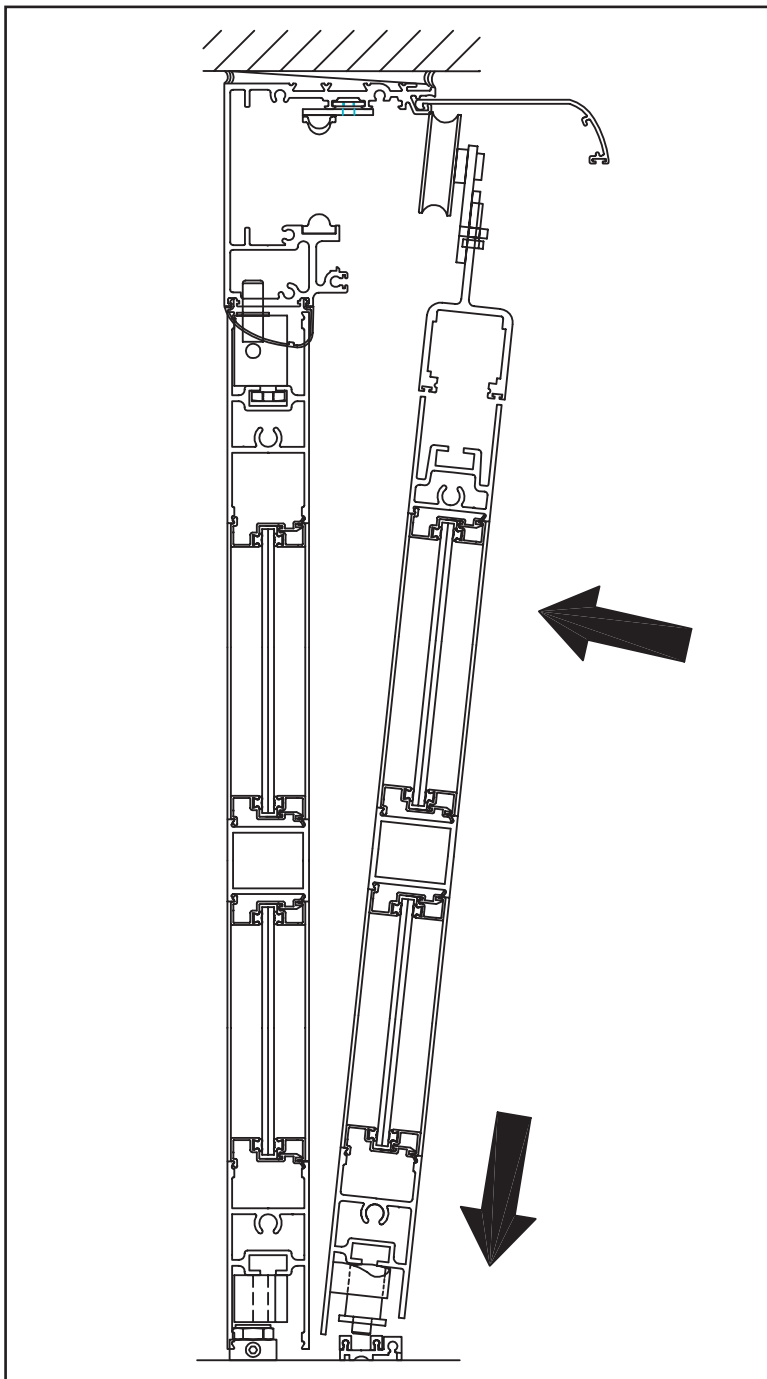


Fig. 9

## Full Breakout Active Leaf Installation Procedure

### Surface and Recessed Track Applications

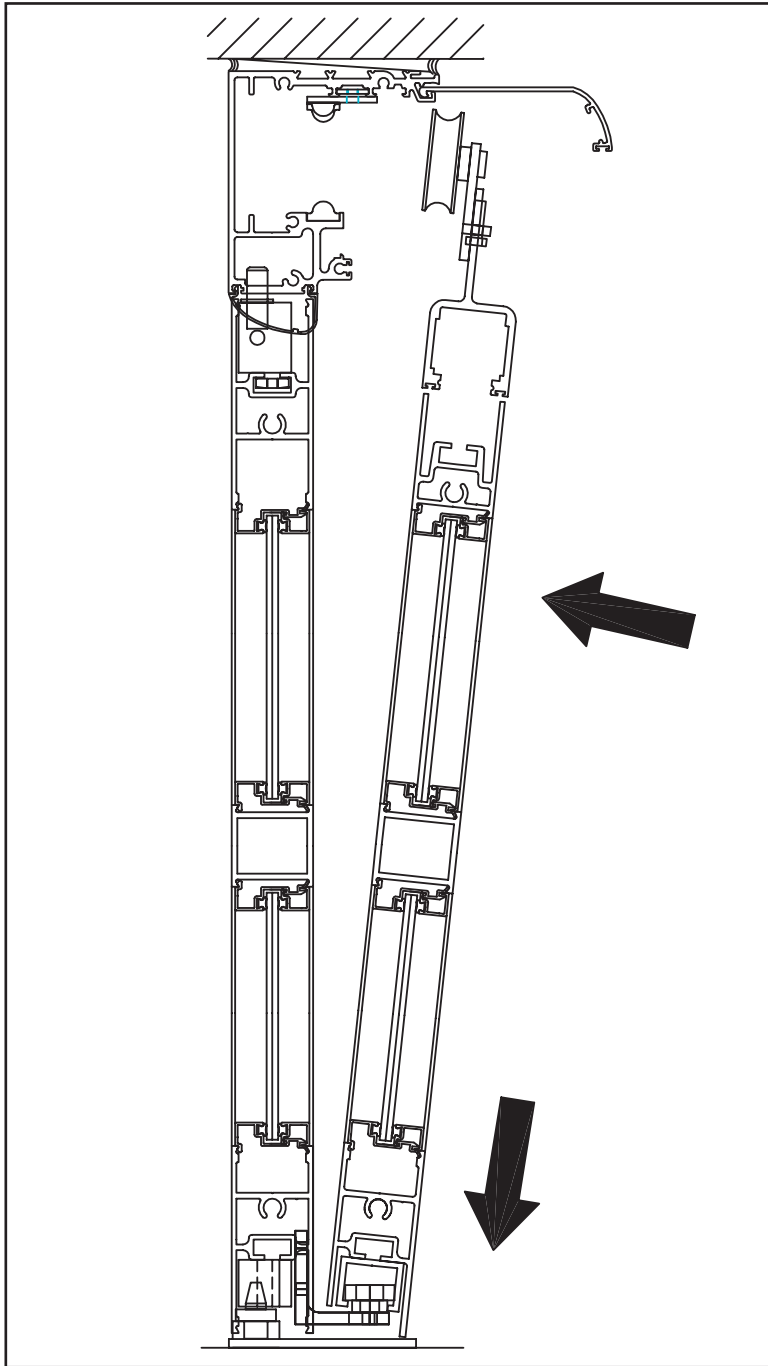


**Fig. 13**

1. Place the door under the cover being careful not to damage the cover. Then lift and tilt the wheel brackets on top of the door onto the track inside the header. See Fig. 13.
  2. Loosen the setscrew at the pin guide and align so that the pin guide falls into the track.
  3. Install the anti-risers by sliding the door past the anti-riser block and lining up the carrier and block. Insert anti-riser bolt and secure. See Fig. 11, Pg. 25.
  4. Adjust the vertical adjustment screw on the PSA arm to lift the lead edge of the door and ball catch into alignment with the ball catch receiver. See Fig. 12, Pg. 25.
- Note:** if the glass has not been previously installed, you will need to recheck alignment once the glass is in place and readjust as necessary.
5. Loosen wheel brackets & anti-riser bolts and adjust door to proper height using the adjustment screw on the wheel brackets, taking into account the floor conditions for the full travel of the doors. Tighten wheel brackets.

## Full Breakout Active Leaf Installation Procedure

### Trackless Applications - Unequal Panel ONLY

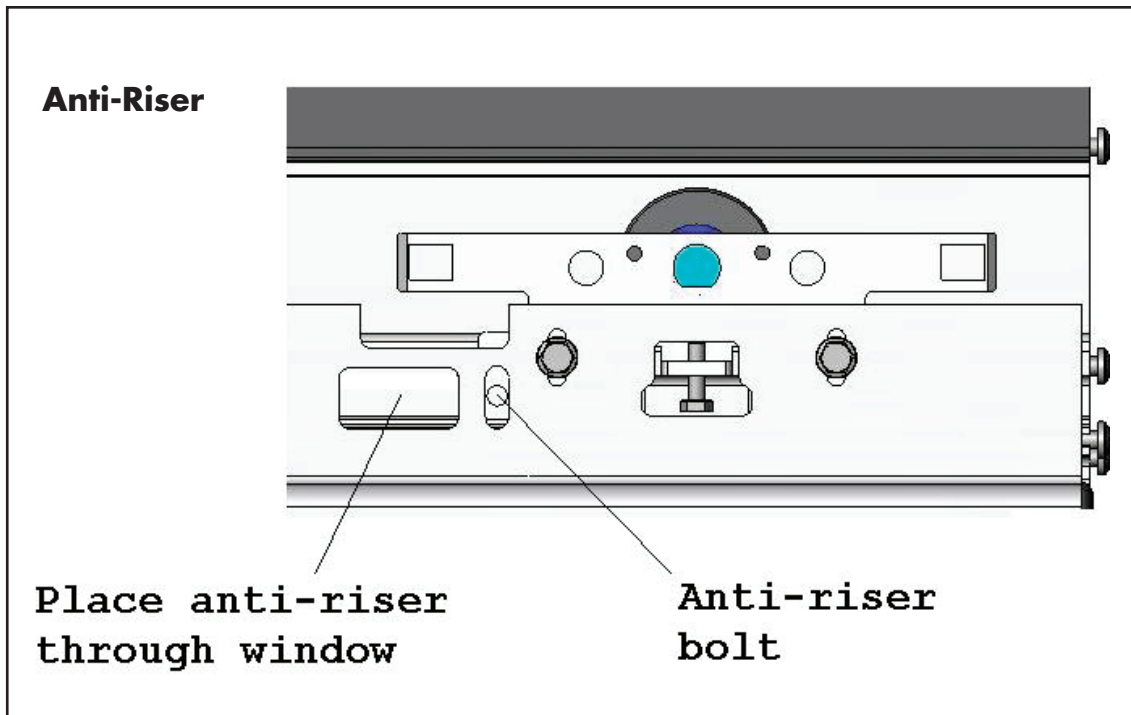


**Fig. 14**

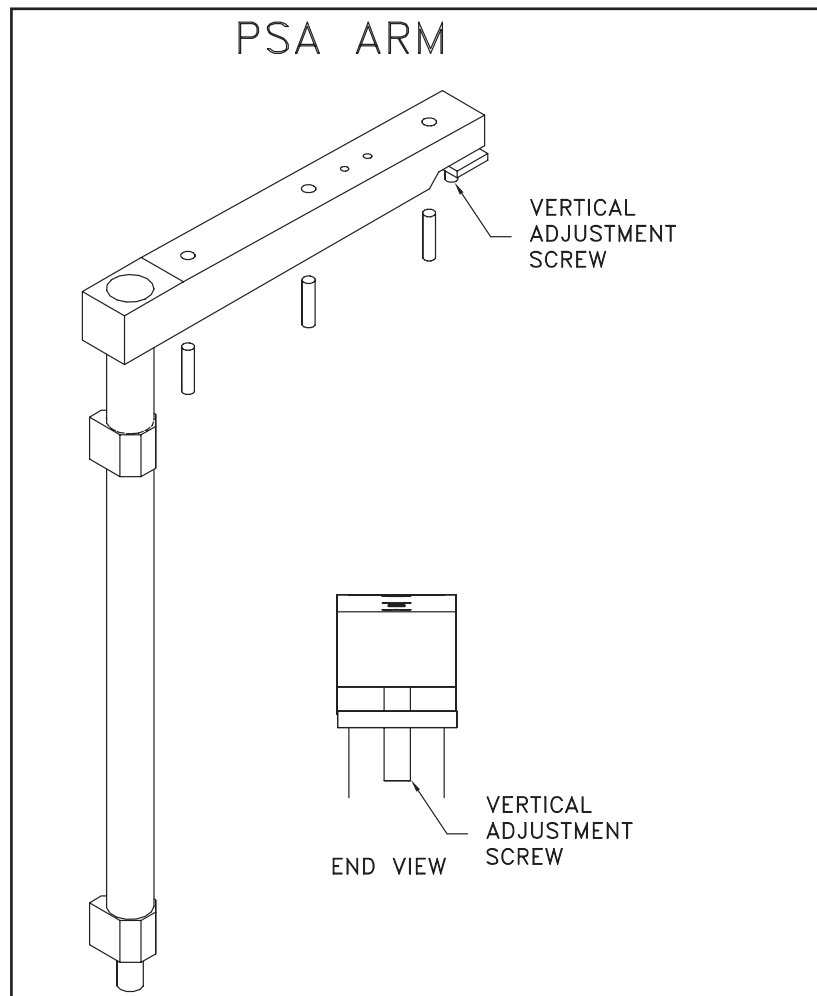
1. Install bottom guide block in active leaf. See Fig. 6, Pg. 21 (Sec. A-A).
  2. Remove Full Breakout Tube.
  3. Insure wheel brackets are all the way up on carrier.
  4. To install the active leaf, position the door panel in the opened position with the back of the door outside of the jamb.
  5. Place the door under the cover and over the DHD foot assembly at the nose of the sidelite, being careful not to damage the cover. Position the bottom of the door such that the DHD foot assembly inserts into the track inside the bottom rail of the active leaf. Then tilt and lift the wheel brackets on top of the door onto the track inside the header. See Fig. 14.
  6. Install the anti-risers by sliding the door past the anti-riser block and lining up the carrier and block. Insert anti-riser bolt and secure. See Fig. 11, Pg. 25.
  7. Adjust the vertical adjustment screw on the PSA arm to lift the lead edge of the door and ball catch into alignment with the ball catch receiver. See Fig. 12, Pg. 25. Slide open door completely.
- Note:** if the glass has not been previously installed, you will need to recheck alignment once the glass is in place and readjust as necessary.
8. Slide door completely open. Adjust the black endcap attached to the header such that it is 1/8" away from the extended rail. Trim the Full Breakout Tube to this length. Caulk both legs on the Full Breakout Tube and reinstall.
  9. Loosen wheel brackets & anti-riser bolts and adjust door to proper height using the adjustment screw on the wheel brackets, taking into account the floor conditions for the full travel of the doors. Tighten wheel brackets.
  10. Slide door to full open position, and ensure that door breaks out.



**Fig. 11**



**Fig. 12**

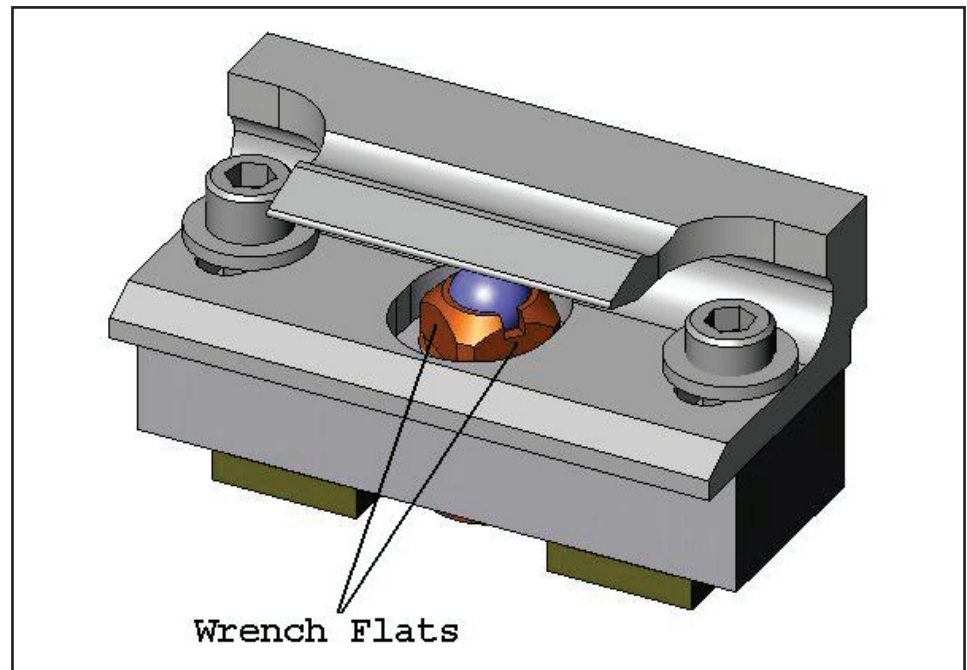


## Ball Catches and Ball Detent Adjustment

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Provided on door panels that break out is a ball catch that is standard on the sidelite and on the active leaf. The ball catch can each be adjusted if ever misaligned.

The tension for the ball catch is adjustable as required by local egress codes. Adjust doors for proper operation in accordance with manufacturer's instruction and adherence to NFPA 101 Life Safety Code and or AHJ "Authority Having Jurisdiction". Tension is not to exceed 50 lbs. breakout force. To adjust, use a 1/2" wrench on the wrench flats to turn the detent assembly. To increase the tension on the ball catch, rotate CCW. To decrease the tension, rotate CW.

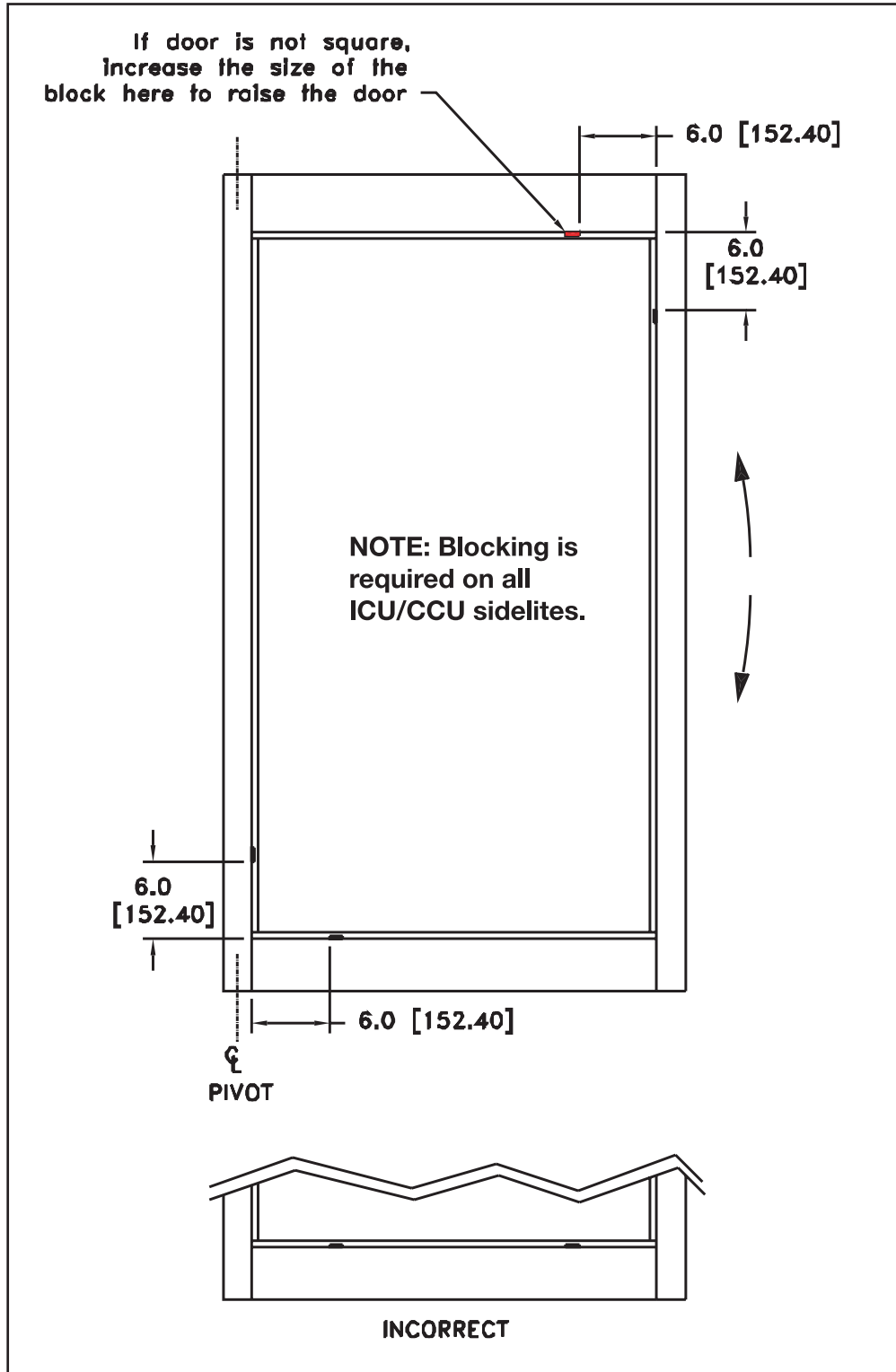


## Full Open Dampener Assembly

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The dampener in the header is preset at the factory at a distance to minimize any noise stemming from a forceful door opening. If necessary, the dampener can be adjusted by loosening the (3) screws that hold it in place to provide more or less dampening. If adjusted, ensure that the door will slide into the full open position or else the door will not break out (trackless package only).

## Glazing and Blocking





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