



4000 Phantom Vent

INSTALLATION INSTRUCTIONS

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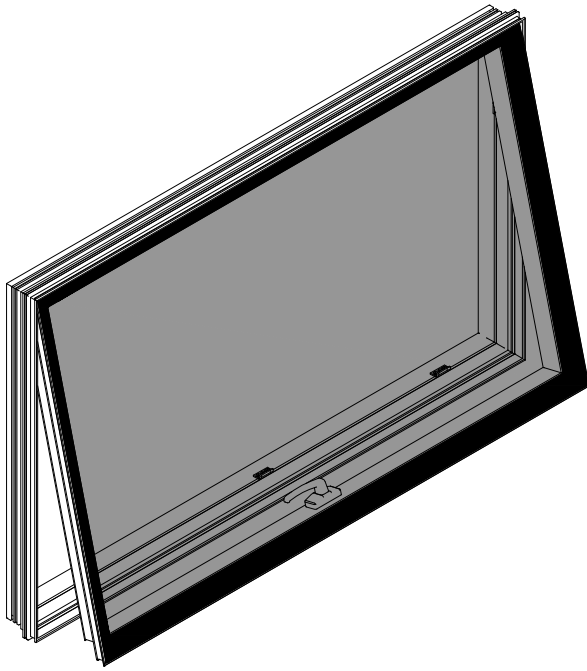
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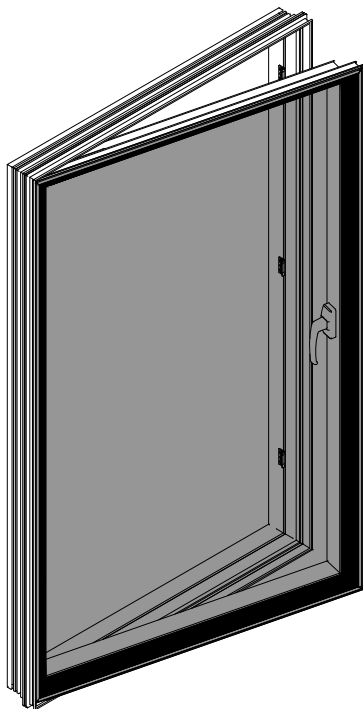
1. These instructions cover typical product application, fabrication, installation and standard conditions and are general in nature. They provide useful guidelines, but the final shop drawings may include additional details specific to the project. Any conflict or discrepancies must be clarified prior to execution.
2. Materials stored at the job site must be kept in a safe place protected from possible damage by other trades. Stack with adequate separation so materials will not rub together and store off the ground. Cardboard or paper wrapped materials must be kept dry. Check arriving materials for quantity and keep a record of where various materials are stored.
3. All field welding must be done in accordance with AISC guidelines. All aluminum and glass should be shielded from field welding to avoid damage from weld splatter. Results will be unsightly and may be structurally unsound. Advise general contractor and other trades accordingly.
4. Coordinate protection of installed work with general contractor and/or other trades.
5. Coordinate sequence of other trades which affect framing installation with the general contractor (e.g. fire proofing , back up walls, partitions, ceilings, mechanical ducts, HVAC, etc.).
6. General contractor should furnish and guarantee bench marks, off set lines and opening dimensions. These items should be checked for accuracy before proceeding with erection. Make certain that all adjacent substrate construction is in accordance with the contract documents and/or approved shop drawings. If not, notify the general contractor in writing before proceeding with installation because this could constitute acceptance of adjacent substrate construction by others.
7. Isolate all aluminum to be placed directly in contact with masonry or other incompatible materials with a heavy coat of zinc chromate or bituminous paint. Fasteners attaching framing to building structure are typically not provided by Tubelite, nor specified in these instructions due to varying perimeter conditions and job performance requirements. Consult approved shop drawings.
8. Sealant selection is the responsibility of the erector, installer and/or glazing contractor and must be approved by the sealant manufacturer with regard to application and compatibility for its intended use. All sealants must be used in strict accordance with the manufacturer's instructions and applied only by trained personnel to surfaces that have been properly prepared.
9. Sealant must be compatible with all materials with which they have contact, including other sealant surfaces. Consult the sealant manufacturer for recommendations relative to shelf life, compatibility, cleaning of substrate, priming, tooling adhesion, etc. Recommend sealant manufacturer perform adhesion "pull test" at "wet" glazing for quality assurance.
10. Drainage gutters and weep holes must be kept clean at all times. Tubelite will not accept responsibility for improper drainage as a result of clogged gutters and weep holes.
11. All framing members, entrances and other materials are to be installed plumb, level and true with regard to established bench marks, column center lines or other working points established by the general contractor and checked by the erector, installer and/or glazing contractor.
12. Cleaning of exposed aluminum surfaces should be done per AAMA recommendations.
13. Due to varying perimeter conditions and job performance requirements, anchor fasteners are not specified in these instructions. For anchor fastening, refer to the shop drawings or consult the fastener supplier.
14. Codes governing the design and use of products vary widely. Tubelite does not control the selection of products configurations, operating hardware, or glazing materials, and assumes no responsibility for these considerations. It is the responsibility of the owner, specifier, architect, general contractor and the installer to make these selections in strict conformance with all applicable codes.
15. Check weblink below for any installation instruction updates



4000 AWNING INFORMATION

	MPL	ROTO-CLAW
*MIN DIMENSIONS	16" x 16" [406 x 406]	21" x 19" [533 x 483]
*MAX DIMENSIONS	60" x 36" [1524 x 914]	60" x 36", [1524 x 914]
SCREEN	914	OPTION
MAX OPENING	OPT. (wicket) VARIES	3.00" < 31" W 8 1/4" > 31" W
LIMITED OPENING	OPTION @ 4" [102]	OPTION @ 4" [102]

*Based on (F.O.) dimensions
[] Dimensions in brackets are in [mm] millimeters



4000 CASEMENT INFORMATION

	MPL HANDLE <small>(LHR ONLY)</small>	ROTO + CLAW
*MIN DIMENSIONS	16" x 24" [406 x 610]	21 1/2" x 33" [546 x 838]
*MAX DIMENSIONS	36" x 60" [914 x 1524]	36" x 60" [914 x 1524]
SCREEN	OPT. (wicket)	OPTION
MAX OPENING	VARIES	VARIES
LIMITED OPENING	OPTION @ 4" [102]	OPTION @ 4" [102]

*Based on (F.O.) dimensions
[] Dimensions in brackets are in [mm] millimeters

SYSTEM COMPATIBILITY

WINDOW WALL:

900T
900TU

CURTAINWALL:

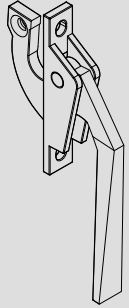
400T, 400SS, 400TU

STOREFRONT:

E1 4000 I/O*, T1 4000 I/O*
E24650, T24650

*Outboard Pane Only

Claw Handle



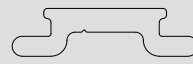
CLAW HANDLE		
PART #	FINISH	USED WITH
1452401	SILVER	1452302 Gasket
1452405	WHITE	7238301 10 x 3/8" PHS SS Screw
1452403	BLACK	



1452501 SHPO KEEPER
used with 4x-7238101



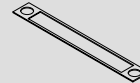
1152501 THPO KEEPER
used with 4x-7238101



818041 ALUMINUM CONNECTING BAR



1156001 Fixing Pin

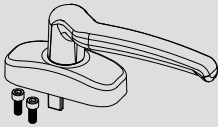


1452302 CLAW HANDLE GASKET

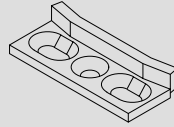


7238301 10 x 3/8 PHS, SS

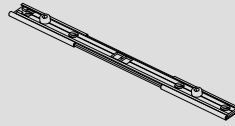
Multi Point Lock with EURO Handle



OFFSET EURO HANDLE		
PART #	FINISH	USED WITH
1162501	SILVER	10-32 x 1/2 SHS
1162505	WHITE	
1162503	BLACK	



1162404 MPL KEEPER
used with 7238101



CENTER DRIVE LOCK BAR		
PART #	FINISH	USED WITH
PA4701201	12"	7238101
PA4701301	24"	
PA4701401	36"	
PA4701501	48"	



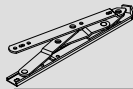
7238101 10-24 x 3/8 PHS, SS

Hinges (PO)



4-BAR HINGE, AWNING		
PART #	SIZE	
1171001	10"	
1171601	16"	
1172401	24"	

Used with 7237001



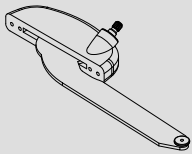
4-BAR HINGE, CASEMENT		
PART #	SIZE	
PA4700401	10"	
PA4700501	12"	

Used with 7237001



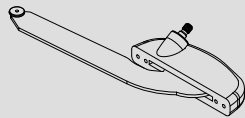
7237001 10 x 1/2 PHS, SS

ROTO OPERATOR (PO)



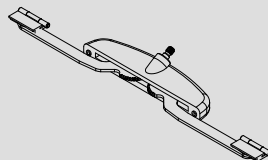
9 1/2 ROTO RH, CASEMENT		
PART #	FINISH	USED WITH
1451501	SILVER	1450402 Gasket
1451503	BLACK	7200104 Socket H.Screw
1451505	WHITE	1452101 13 1/2 TRACK

13 1/2 ROTO RH, CASEMENT		
PART #	FINISH	USED WITH
1451801	SILVER	1450402 Gasket
1451803	BLACK	7200104 Socket H.Screw
1451805	WHITE	1452101 13 1/2 Track



9 1/2 ROTO LH, CASEMENT		
PART #	FINISH	USED WITH
1451601	SILVER	1450402 Gasket
1451603	BLACK	7200104 Socket H.Screw
1451605	WHITE	1452101 13 1/2 TRACK

13 1/2 ROTO LH, CASEMENT		
PART #	FINISH	USED WITH
1451701	SILVER	1450402 Gasket
1451703	BLACK	7200104 Socket H.Screw
1451705	WHITE	1452101 13 1/2 Track



27 3/4 ROTO, AWNING		
PART #	FINISH	USED WITH
1450001	SILVER	1150402 Gasket
1450003	BLACK	7280104 Socket H.Screw
1450005	WHITE	1149801 13 7/8 TRACK

16 3/4 ROTO, AWNING		
PART #	FINISH	USED WITH
1450501	SILVER	1150402 Gasket
1450503	BLACK	7280104 Socket H.Screw
1450505	WHITE	1450601 8 3/8 Track



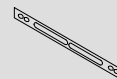
7200104 10-24 x 3/8 SHS, SS



7280104 8-32 x 3/8 SHS, SS



1450401 GASKET, CSMT

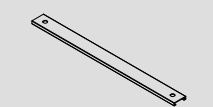


1150402 GASKET, AWNING

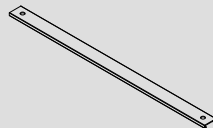


OPTIONAL
SHIP LOOSE

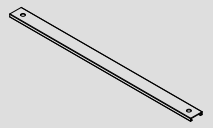
ROTO HANDLE		
PART #	FINISH	USED WITH
1449901	SILVER	ROTO OPERATORS
1449903	BLACK	
1449905	WHITE	



1450601 8 3/8 TRACK, AWNING

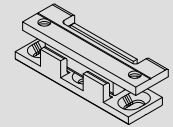


1149801 13 7/8 TRACK, AWNING



1452101 13 1/2 TRACK, CASEMENT

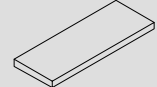
MISC.



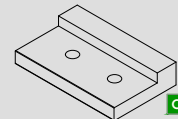
1167003 SNUBBER SET
used with 7238101



PA4704001 Universal Limit Stop
used with 7238101

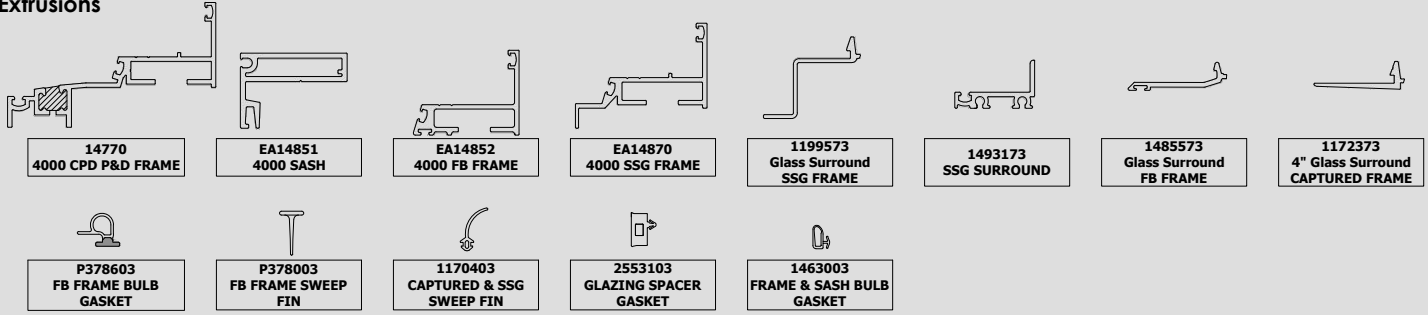


SHIP LOOSE
1170503 SILICONE SETTING BLOCK
1/8" x 1 1/4" x 4"

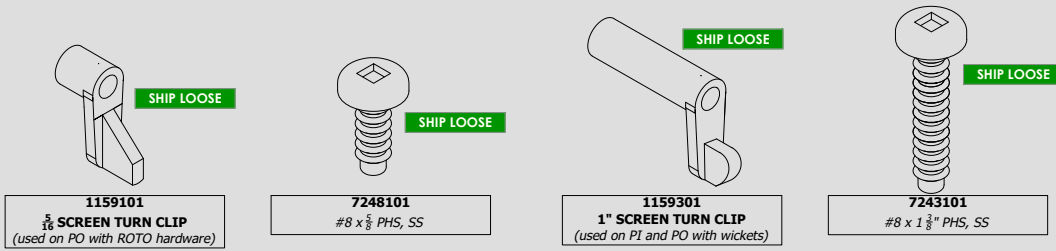


OPTIONAL
PA4706003 AWNING LIMIT BLOCK, 2 1/2"
used with 7237001

Extrusions



Insect Screen Components



STEP 1

- a. Make sure frame opening (F.O) is plumb and level. Measuring corner-to-corner is easiest way to make sure it is square. See **FIG. 1**
- b. Make sure Vent size is smaller than F.O. See **FIG. 2**
- c. See **Fig. 2** and GLASS SIZE TABLE to measure and verify GLASS SIZE.

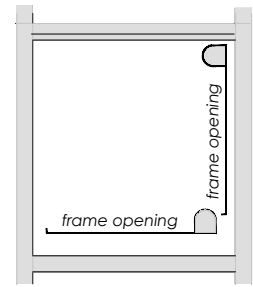


FIG. 1

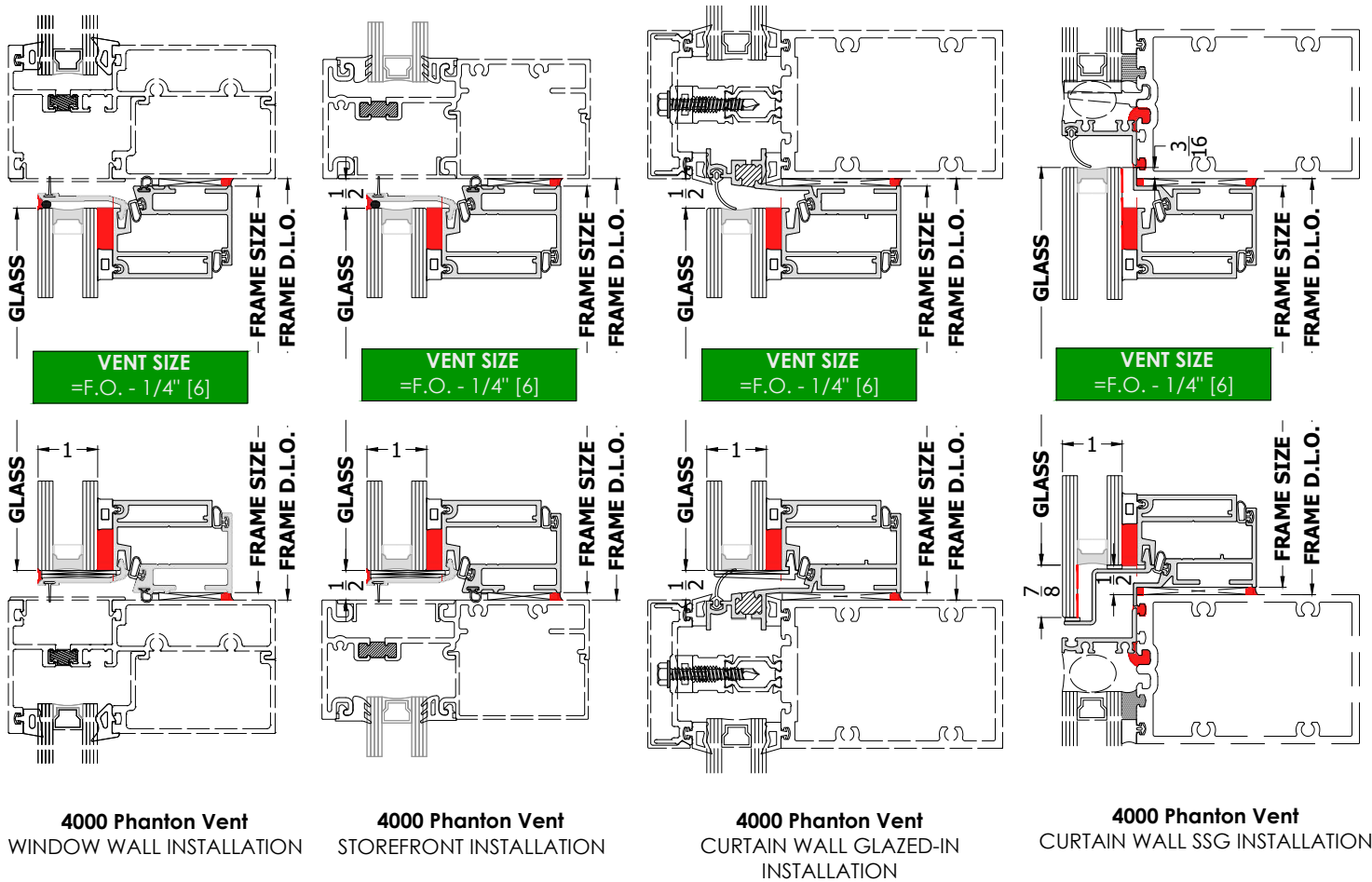
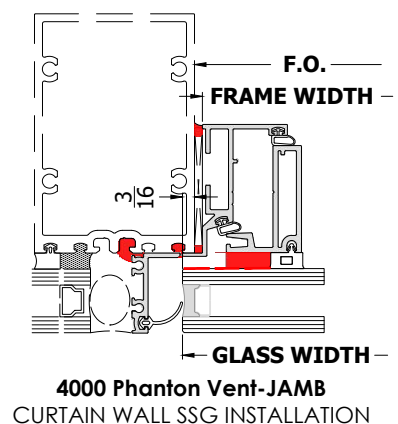


FIG. 2

4000 FRAME TYPE:	GLASS SIZE	
	GLASS WIDTH	GLASS HEIGHT
Window Wall	D.L.O. Width - 1.00" [25.4]	D.L.O. Height - 1.00" [25.4]
Storefront	D.L.O. Width - 1.00" [25.4]	D.L.O. Height - 1.00" [25.4]
Curtain Wall-Captured	D.L.O. Width - 1.00" [25.4]	D.L.O. Height - 1.00" [25.4]
Curtain Wall-SSG* <small>*7/8" [22] Offset at sill</small>	<i>(inboard pane)</i> D.L.O. Width + 3/8" [9.5]	<i>(inboard pane)</i> D.L.O. Height - 5/16" [8]
	<i>(outboard pane)</i> D.L.O. Width + 3/8" [9.5]	<i>(outboard pane)</i> D.L.O. Height + 9/16" [14]



4000 Phantom Vent-JAMB
CURTAIN WALL SSG INSTALLATION

STEP 1

- Drill $\varnothing.201$ clearance holes for #10 Screws using #7 Drill bit for anchoring holes, as per recommended location, see **FIG. 1**.
- In case of hardware interference, stagger and drill clearance holes as per **FIG. 2**.
- See **FIG. 3** for recommended spacing of clearance holes. Double check anchor size and location as per shop drawings.

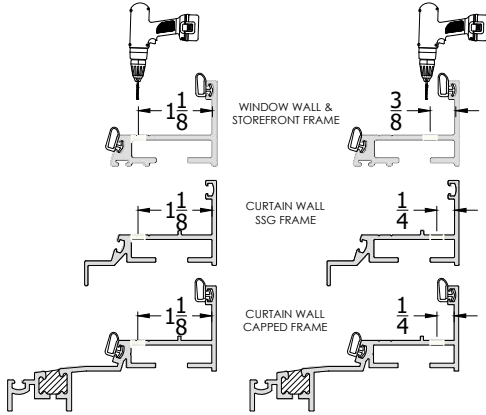


FIG. 1

FIG. 2

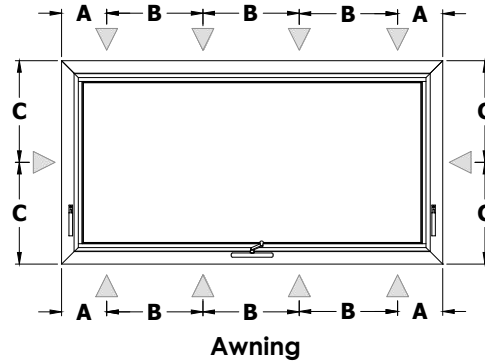
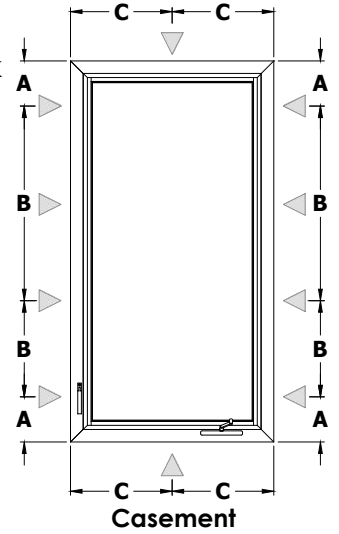


FIG. 3



▲ RECOMMENDED ANCHORING LOCATION

A=3" B= max 18" O.C C= Additional if Frame Width >36"

STEP 2

NOTE: If SSG Adapter is required this should be installed prior to the window frame.

- Pre-drill $\varnothing.201$ clearance holes for #10 Screws through 1493173 SSG Surround. 1" [25] from ends and spaced 24" [610] on center thereafter. See **FIG. 3**

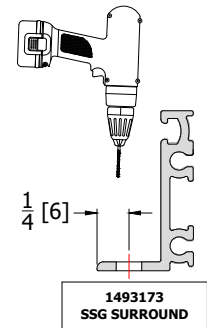


FIG. 3

STEP 3

- Locate adapter inset from DLO of wall framing and "match drill" $\varnothing.177$ (#16 drill bit) pilot hole through wall framing for #10 fastener. See **FIG. 5**
- Use S017 (#10-16 x $\frac{5}{8}$ " Tp B, SS) fastener to secure surround to the framing member.
- Seal all anchor heads with approved sealant. See **FIG. 6**
- Apply a continuous silicone seal around the perimeter of the surround. See **FIG. 6**

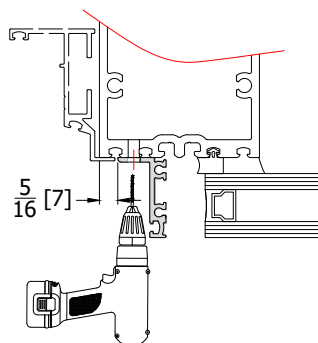


FIG. 5

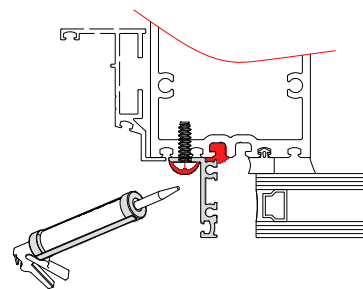


FIG. 6

STEP 1

- Identify which openings will have 4000 Phantom Vent Installed and apply sealant across interior/exterior gasket race at the sill and head only. **See FIG. 1**
- Cut P2500 to size and snap into place all four sides. **See FIG. 2**
- Apply sealant at all corners of P2500 Pocket Filler and 2" [50] to the interior. **See FIG. 3**

MAXIMUM CLEARANCE BETWEEN THE VENT AND ROUGH OPENING SHOULD NOT EXCEED $\frac{3}{8}$ " ON ALL SIDES

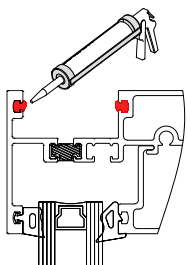


FIG. 1

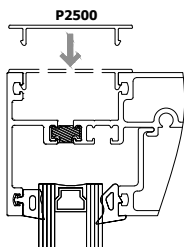


FIG. 2

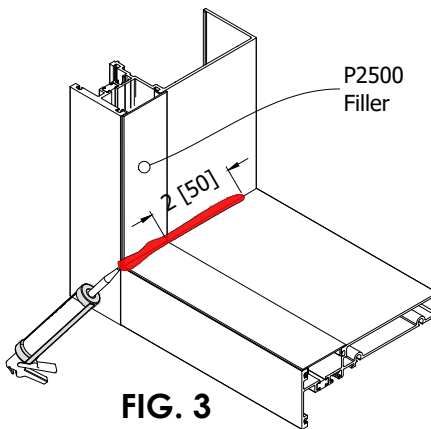


FIG. 3

REFER TO FRAMING SYSTEMS FAB/INSTALLATION MANUAL FOR COMPLETE FABRICATION INSTRUCTIONS

STEP 2

- Set Horseshoe shims onto the sill opening at each corner. Carefully set the vent onto the shims. See **FIG. 4 & FIG. 5**
- Position window frame in the opening, use **FIG. 5** as a guide.
- Once vent is positioned, carefully open the sash and place a temporary fastener near the top hinge through the clearance hole.
- Place appropriate horseshoe shims around the perimeter, ensure window is square and plumb. Fasten in all remaining areas using approved fastener.
- Check corners of the frame/sash at the lock side to make sure they are aligned, adjust shims if necessary. See **FIG. 6**
- Seal all the screw heads at the sill.

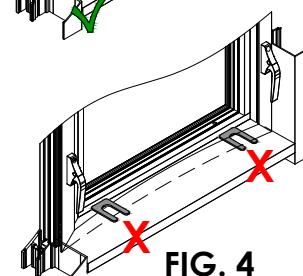
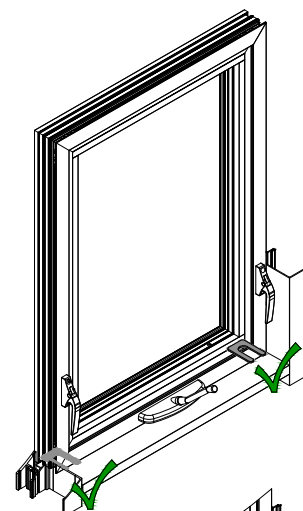


FIG. 4

STEP 3

- Check operation of the window by opening and closing multiple times.
- Cut horseshoe shims flush to interior frame surface.
- Clean perimeter of the frame where seal will be applied using IPA 2 METHOD.
- Apply Interior seal around the frame and tool.
- Apply Exterior seal at the sill and 3" up the jambs only.

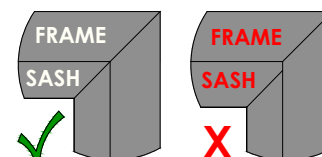


FIG. 6

NOTE: IPA 2 method- dispense Iso-Propanol Alcohol (IPA) on a cloth, gently wipe the area. Immediately use another lint-free clean cloth to wipe the area dry.

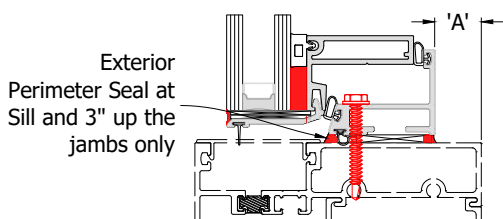


FIG. 5

'A' DEPTH REFERENCE	
RECEIVING SYSTEM	
900RW (4 1/2")	900RW (6")
3/4" [19]	2 1/4" [57]

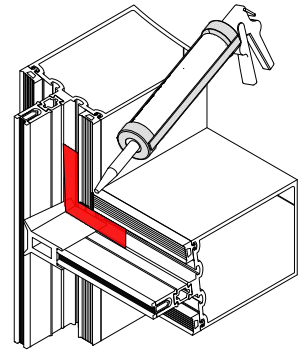
STEP 1

- Clean the around the corners of the frame using IPA2 METHOD.
- Apply a bed of sealant 2" around each corner of the frame ensuring it comes in contact with the gasket. Apply a dab of sealant on the the gasket joints. See **FIG. 1**

NOTE: *IPA 2 method*-dispense Iso-Propanol Alcohol (IPA) on a cloth, gently wipe the area. Immediately use another lint-free clean cloth to wipe the area dry.

MAXIMUM CLEARANCE BETWEEN THE VENT AND ROUGH OPENING SHOULD NOT EXCEED $\frac{1}{8}$ " ON ALL SIDES

FIG. 1



STEP 2

- Clean exterior area of the vent where it will come in contact with the primary gasket using IPA 2 method
- Set Horseshoe shims onto the sill opening at each corner. Carefully set the vent onto the shims . See **FIG. 2**
- Push the vent in tight to the primary gasket seal. See **FIG. 3**
- Install exterior pressure plates ensuring drainage slots are facing up. See **FIG. 4** , ensure window remains square. See **FIG. 5**
- Fasten the window to the framing member using approved fastener.
- Check sightline, adjust if necessary. See **FIG. 6**

REFER TO FRAMING SYSTEMS FAB/INSTALLATION MANUAL FOR COMPLETE FABRICATION INSTRUCTIONS

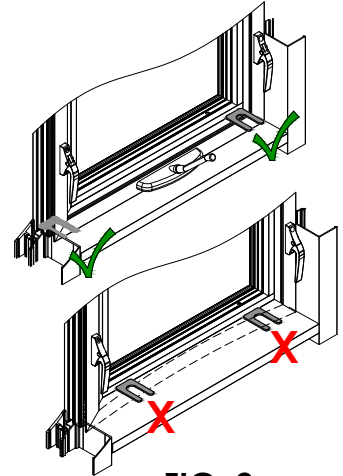


FIG. 2

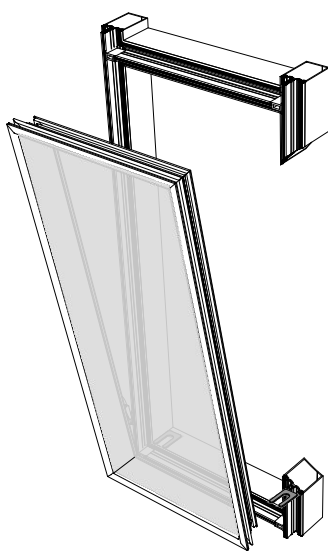


FIG. 3

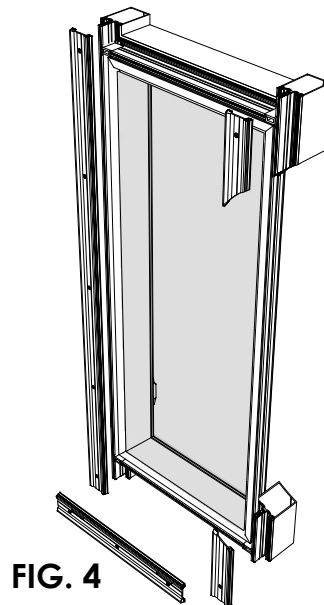


FIG. 4

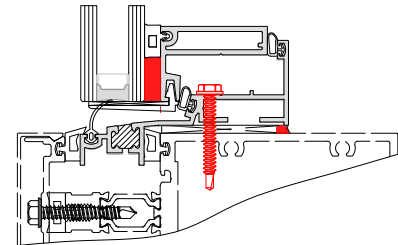


FIG. 5

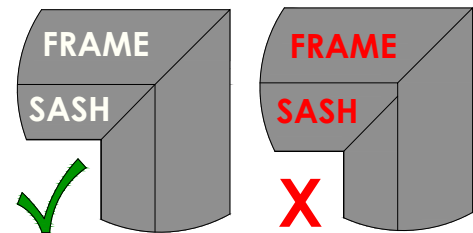


FIG. 6

STEP 3

- Check operation of the window by opening and closing multiple times.
- Cut horseshoe shims flush to interior frame surface.
- Clean perimeter of the frame where seal will be applied using IPA 2 METHOD.
- Apply Interior seal around the frame and tool.
- Seal all the screw heads at the sill.

STEP 1

- Apply sealant at both gasket races right before installing Pocket Filler.
- Install **P4563 Pocket Filler** at all sides. See **FIG. 1**
- Insert and slide the window into the opening. See **FIG. 2**
- Set plastic horseshoe shims on the sill at each corner. See **FIG. 3**.

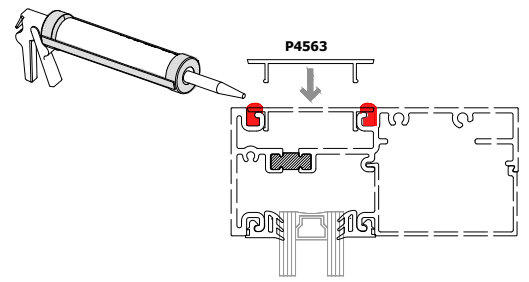


FIG. 1

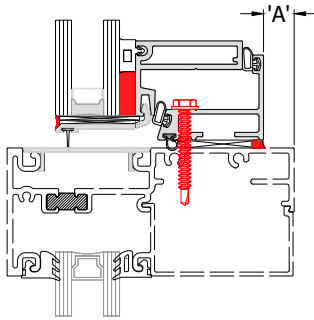


FIG. 2

DEPTH REFERENCE	
RECEIVING SYSTEM	'A'
E14000 I/O Outboard*	1/2 [12.7]
T14000 I/O Outboard*	1/2 [12.7]
E24650/T24650/TU24650*	1/2 [12.7]

**Vent glass aligns with adjacent SF glass*

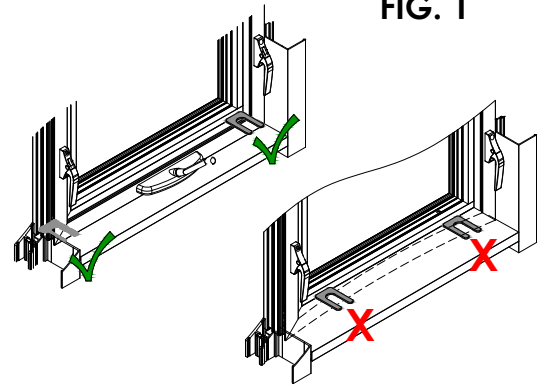


FIG. 3

STEP 2

- Place appropriate horseshoe shims around the perimeter, ensure window is square and plumb. Fasten the window to the framing member using approved fastener. See **FIG 4**.

STEP 3

- Check operation of the window by opening and closing multiple times.
- Cut horseshoe shims flush to interior frame surface.
- Clean perimeter of the frame where seal will be applied using IPA 2 METHOD.
- Apply Interior seal around the frame and tool. See **FIG. 5**
- Open sash and apply Exterior seal at the sill and 3" up the jambs only. See **FIG. 5**
- Seal all the screw heads at the sill.

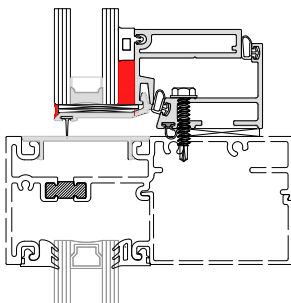


FIG. 4

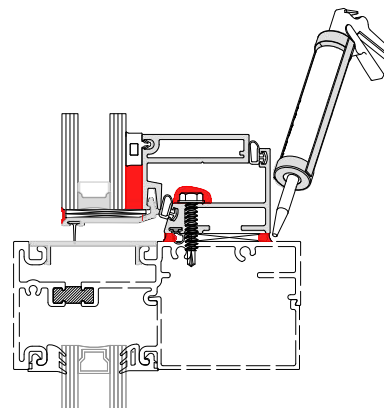


FIG. 5

STEP 1

- Lay assembled frame on glazing table, ensure sash is square.
- Apply masking tape around the exterior of the sash. See FIG 1.
- Applications intended for Captured or SSG installation the sash must be removed from the frame by removing fasteners from 4-Bar hinges and ROTO Track.

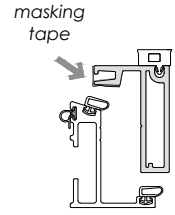


FIG. 1

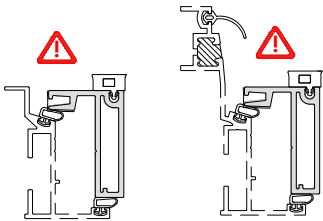


FIG. 2

NOTE: SASH MUST BE REMOVED FROM CAPTURED & SSG FRAMES FOR GLAZING. 4-BAR HINGE AND ROTO TRACK FASTENERS MUST BE REMOVED.

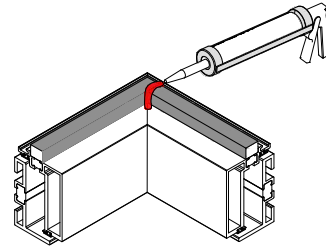


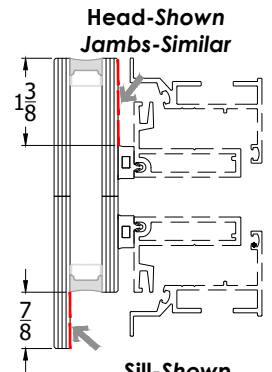
FIG. 3

NOTE: SKIM COAT OF STRUCTURAL SEALANT REQUIRED ON SSG APPLICATIONS

STEP 2

- Ensure glazing spacer gasket is straight and not wavy.
- Seal corners of spacer tape together at intersections. See FIG. 3

NOTE: IPA 2 method-dispense Iso-Propanol Alcohol (IPA) on a cloth, gently wipe the area. Immediately use another lint-free clean cloth to wipe the area dry.



Head-Shown Jamb-Shown

STEP 3

- Using IPA 2 method clean all surface that will come into contact with glazing material.
- If glass has offset glass pane a skim coat of silicone is required on all 4 sides. See FIG 4
- Lay the window sash down on the glazing table, ensure sash is square.
- Carefully place the glass onto the spacer tape making sure to orient the glass correctly.
- Fill cavity of glass with structural silicone. Tool silicone, eliminate all air pockets assuring glazing pocket is filled. See FIG 5.
- Remove masking tape before silicone skins over.

Sill-Shown FIG. 4

NOTE: Glazing contractor is responsible for selection and proper installation of silicone for glass to sash attachment/glazing. Follow manufacturer's recommendations for application, environmental conditions, curing time and handling.

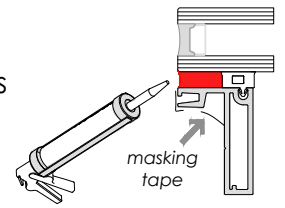


FIG. 5

STEP 4

- For Captured & SSG applications slide in supplied glass supports. See FIG 6.
- Install Supplied Setting blocks at quarter points under glass sill.

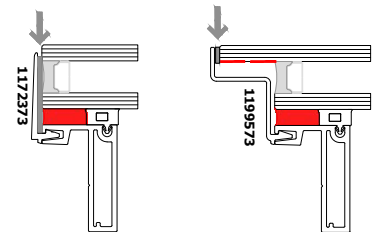


FIG. 6

STEP 5

- For Window Wall & SF applications install supplied 1485573 Glass Surround on all four sides. See FIG 7.
- Install 2 stacked Setting blocks at quarter points under glass sill.
- Install backer rod and seal between glass and surround all around the glass.
- Tool silicone and clean any excess.

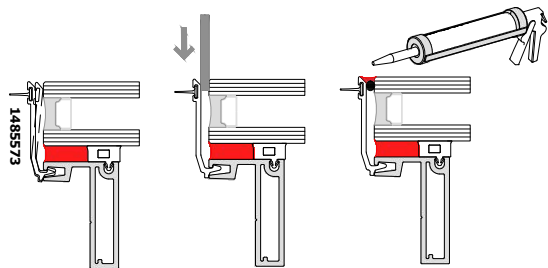


FIG. 7

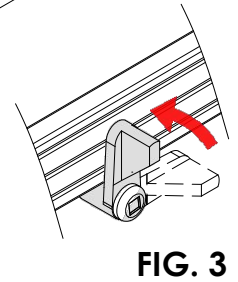
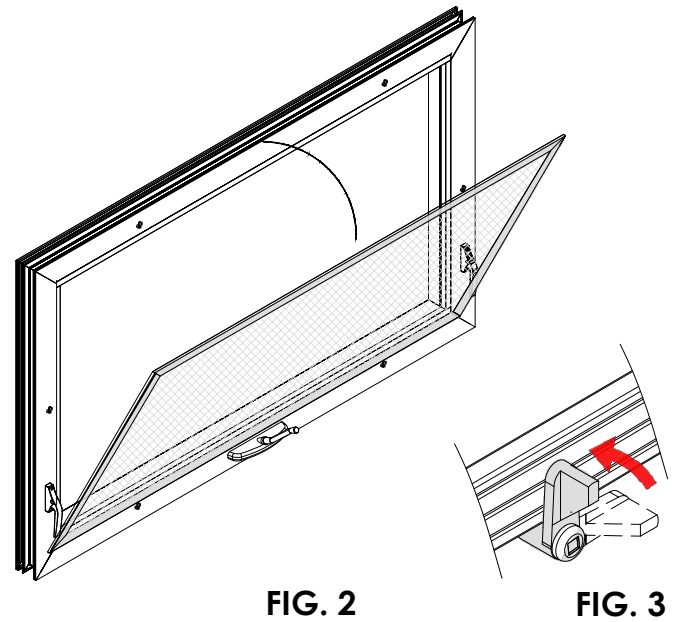
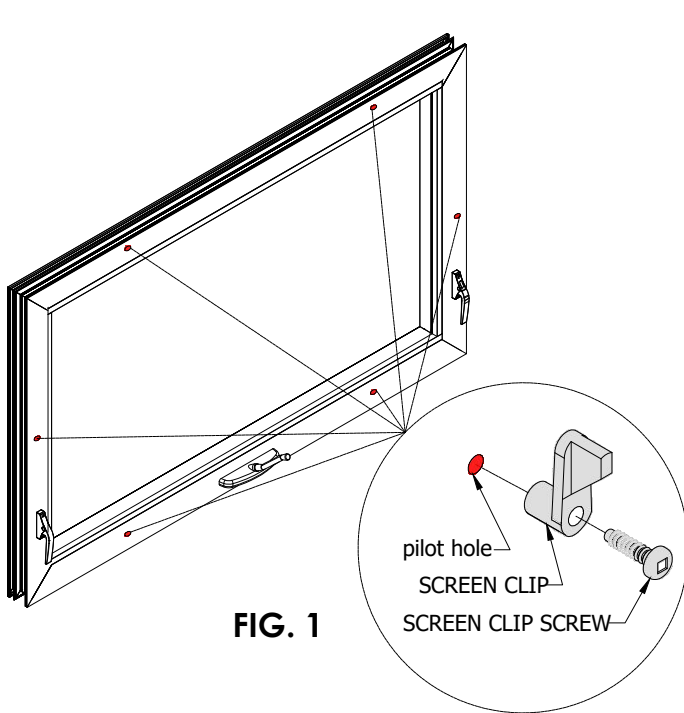
FIG. 8

FIG. 9


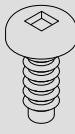
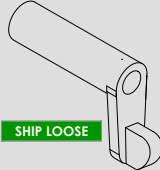

STEP 1

- Install supplied screen clips & fasteners on all the pre-drilled pilot holes. See **FIG. 1**
- Ensure screen clip is snug and free to rotate.
- Insert supplied screen frame in between the screen clips. See **FIG. 2**
- Rotate screen clips to lock the screen frame in place. See **FIG. 3**

SCREEN CLIP SCHEDULE		
Screen HEIGHT	Screen WIDTH	
	W<48"	W>48"
H<48"	4x	6x
H>48"	6x	8x

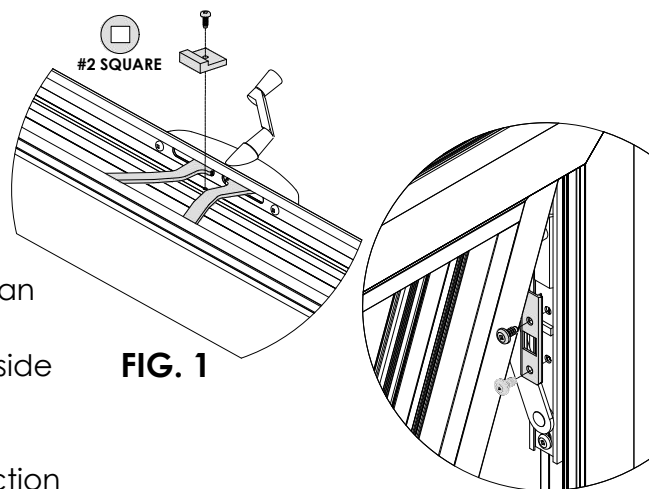


Insect Screen Components

 SHIP LOOSE	 SHIP LOOSE	 SHIP LOOSE	 SHIP LOOSE
1159101 5/16" SCREEN TURN CLIP (used on PO with ROTO hardware)	7248101 #8 x 5/8" PHS, SS	1159301 1" SCREEN TURN CLIP (used on PI and PO with wickets)	7243101 #8 x 1 3/8" PHS, SS

**LIMIT BLOCK
REMOVAL/REINSTALL**

- Open sash using ROTO operator.
- Locate LIMIT BLOCK next to ROTO arms
- Remove fastener by using #2 SQUARE DRIVE
- Prior to reinstalling LIMIT BLOCK apply sealant into fastener hole
- Place LIMIT BLOCK back into its place, fasten using #2 SQUARE DRIVE. See **FIG. 1**



**FRICION ARM LIMIT DEVICE
REMOVAL/REINSTALL**

- Vents equipped with FRICTION ARM LIMIT DEVICE can be removed to aid with anchor screw installation.
- Open sash to the maximum, locate LIMIT DEVICE inside of the Friction Arm, if applicable. See **FIG. 2**
- Remove two #10 fasteners holding LIMIT DEVICE.
- Temporarily place same fasteners back into the Friction Arm securing the hinges.
- If larger opening is desired trim LIMIT DEVICE as needed. See **FIG. 3**. Once installation and any adjustments are complete, bring sash to the original opening and install LIMIT DEVICE into its place.

FIG. 1

FIG. 2

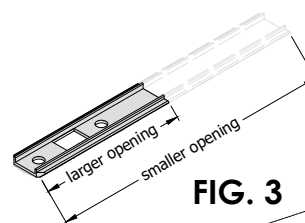


FIG. 3

**CASEMENT FRICTION
ADJUSTOR/LIMITER**

- Open sash, locate Friction Adjustor bracket located on the frame.
- Remove two fasteners holding the bracket on the frame side. See **FIG. 4**
- Sash can be opened to the full extend for any maintenance or installation work.
- Over time friction must be adjusted, this can be done by using 3/32 HEX KEY, adjusting screw is located on top of sliding shoe within the track. See **FIG. 5**
- Reinstall the bracket to its place using original fasteners.

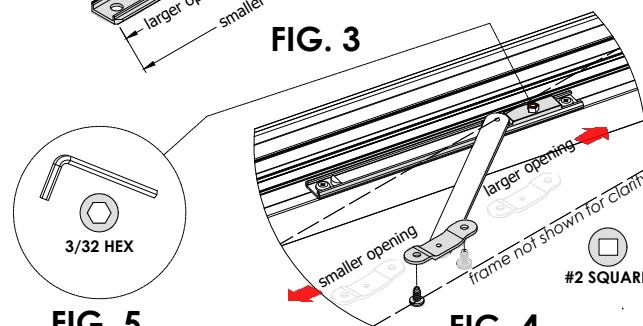


FIG. 5

FIG. 4

**MPL COMPRESSION
ADJUSTMENTS**

- To adjust compression open the sash and locate MPL lock points.
- Using 3/16 HEX KEY adjust cam bolts. **FIG. 7**
- Lock the handle, sash must compress up to 1/8" from the initial surface contact with the bulb seal.

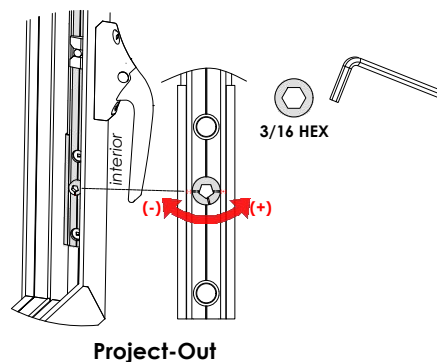


FIG. 7

Project-Out