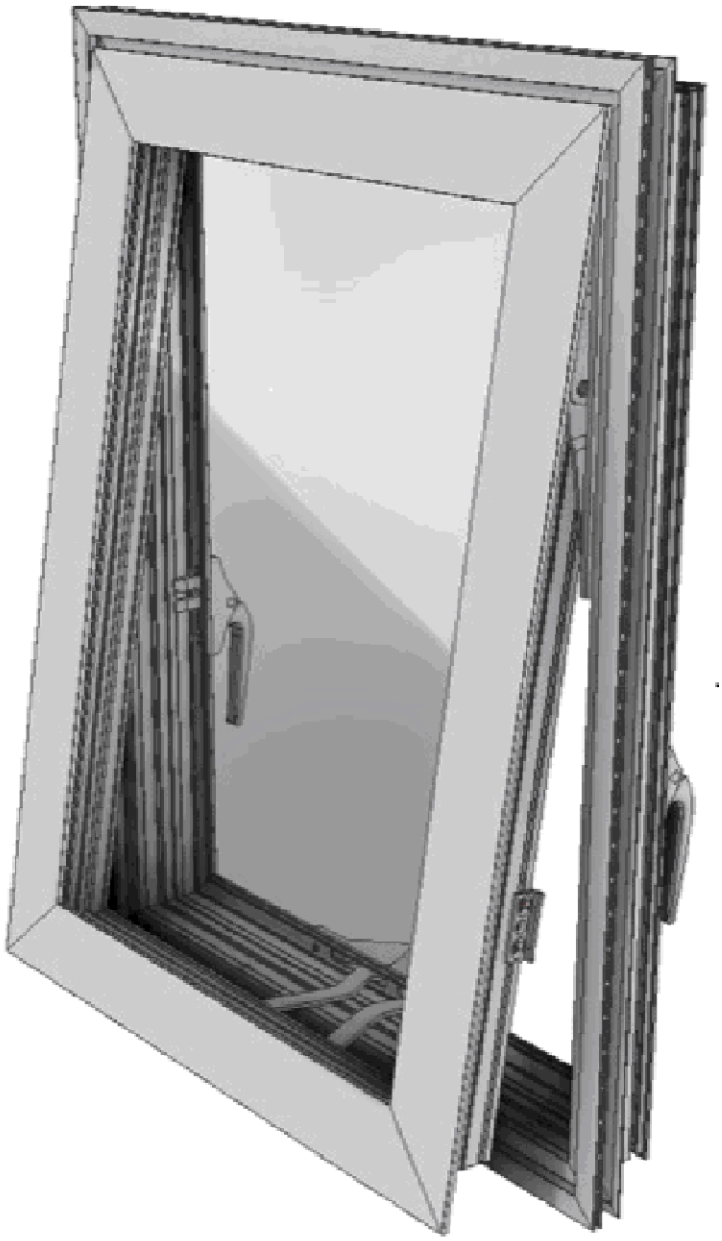
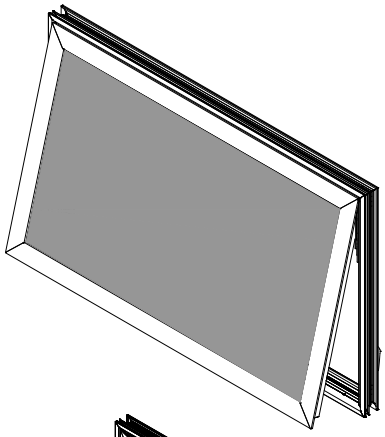


UniVent 1350

INSTALLATION MANUAL

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 CSA 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 FGIA 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
16. [ ] Dimensions in brackets are in [mm] millimeters



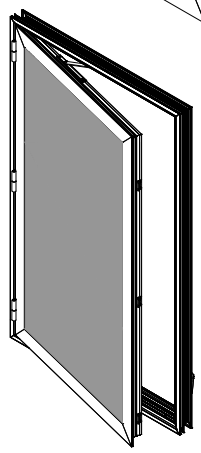
1350 PO AWNING INFORMATION

DUAL GLAZED

	CAM HANDLES
***MIN DIMENSIONS**	16" x 16" [406 x 406]
***MAX DIMENSIONS**	60" x 36" [1524 x 914]
SCREEN	OPTIONAL with WICKET
MAX OPENING	VARIES
LIMITED OPENING	OPTION @ 4" [102]
CUSTODIAL HANDLE	N/A

	ROTO-MPL
***MIN DIMENSIONS**	21" x 18" [533 x 457]
***MAX DIMENSIONS**	38" x 80" [965 x 2032] or 60" x 50" [1524 x 1270] or max. 21 ft^2 [1.95 m^2]
SCREEN	OPTIONAL
MAX OPENING	2 1/4" < 32" [57 < 813] 7 1/2" > 32" [191 > 813]
LIMITED OPENING	**OPTION @ 4" [102]
CUSTODIAL HANDLE	OPTIONAL

*Based on (DLO) dimensions
[ ] Dimensions in brackets are in [mm] millimeters



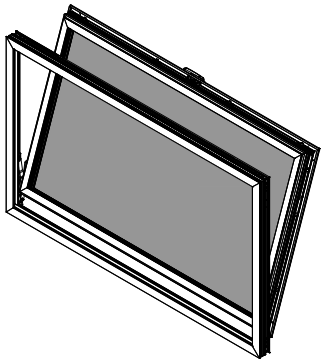
1350 PO CASEMENT INFORMATION

DUAL GLAZED

	CAM HANDLES
***MIN DIMENSIONS**	**16" x 16" [406 x 406]
***MAX DIMENSIONS**	**35" x 54" [889 x 1372]
SCREEN	OPT. (wicket)
MAX OPENING	6"- 8" [152-203]
EGRESS	OPTIONAL
LIMITED OPENING	OPTION @ 4"
CUSTODIAL LOCK	N/A

	ROTO-MPL
***MIN DIMENSIONS**	**16 5/8" x 21" [422 x 533]
***MAX DIMENSIONS**	**35" x 62" [889 x 1575] or 27" x 80" [686 x 2032]
SCREEN	OPTIONAL
MAX OPENING	6"-8" [152-203]
EGRESS	OPTIONAL
LIMITED OPENING	OPTION @ 4" [102]
CUSTODIAL LOCK	OPTIONAL

Based on (DLO) dimensions
**Width/Height ratio exceeding 65% is not recommended
[ ] Dimensions in brackets are in [mm] millimeters

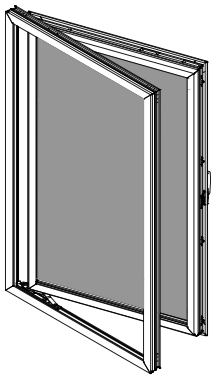


1350 PI HOPPER INFORMATION

DUAL GLAZED

	MPL	CAM HANDLES
***MIN DIMENSIONS**	16" x 16" [406 x 406]	16" x 16" [406 x 406]
***MAX DIMENSIONS**	60" x 36" [1524 x 914] or 36" x 54" [914 x 1372]	48" x 36" [1219 x 914]
SCREEN	STANDARD	STANDARD
MAX OPENING	VARIES	VARIES
EGRESS	NA	NA
LIMITED OPENING	STANDARD @ 4"	STANDARD @ 4"
CUSTODIAL HANDLE	STANDARD	N/A

*Based on (DLO) dimensions
[ ] Dimensions in brackets are in [mm] millimeters



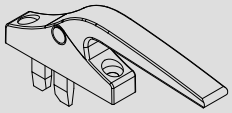
1350 PI CASEMENT INFORMATION

DUAL GLAZED

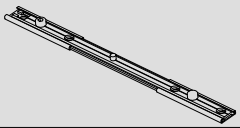
	MPL	CAM HANDLES
***MIN DIMENSIONS**	**18" x 24" [457 x 607]	**18" x 24" [457 x 610]
***MAX DIMENSIONS**	**35" x 80" [889 x 2032]	**32" x 54" [813 x 1372]
SCREEN	OPTIONAL	OPTIONAL
MAX OPENING	VARIES	VARIES
EGRESS	OPTIONAL	OPTIONAL
LIMITED OPENING	OPTIONAL @ 4"	OPTIONAL @ 4"
CUSTODIAL HANDLE	OPTIONAL	NA

*Based on (DLO) dimensions
**Width/Height ratio exceeding 65% is not recommended
[ ] Dimensions in brackets are in [mm] millimeters

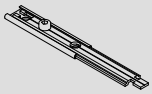
Multi Point Lock MPL (PO, Used with ROTO Operator)



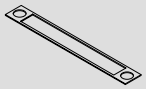
LINEAR HANDLE		
PART #	FINISH	USED WITH
1162001	SILVER	1162304 Backer Plate 1162203 Gasket 7200201 Machine Screw
1162105	WHITE	
1162103	BLACK	



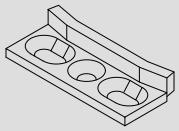
MPL LOCK BAR		
PART #	SIZE	USED WITH
1168001	12	116200x Linear Handle PA133500x Custodial Lock PA133600x ADA Extended 7238101 Machine Screw
1168101	24	
1168201	36	
1168301	48	



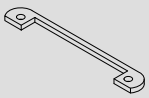
MPL EXTENSION BAR		
PART #	SIZE	USED WITH
1163001	6	1168x01 Lock Bar 7238101 Machine Screw
1162901	10	
1162801	14	
1162701	18	
1162601	22	



1162203 MPL GASKET



1162404 MPL KEEPER
used with 7238101

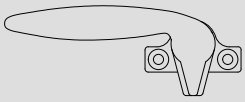


1162304 MPL BACKER PLATE

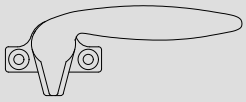
7200201
10-32 x $\frac{3}{4}$ PHS, SS

7238101
10-24 x $\frac{3}{8}$ FHS, SS

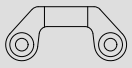
CAM Handle Locking Hardware (PO)



CAM HANDLE LH		
PART #	FINISH	USED WITH
1147101	WHITE BRONZE	1147301 Surface Strike 7238101 Machine Screw



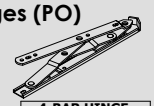
CAM HANDLE RH		
PART #	FINISH	USED WITH
1147201	WHITE BRONZE	1147301 Surface Strike 7238101 Machine Screw



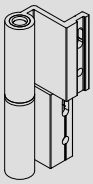
1147301 SURFACE STRIKE

7238101 10-24 x $\frac{3}{8}$ FHS, SOS

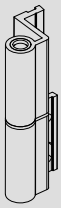
Hinges (PO)



4-BAR HINGE, AWNING	
PART #	SIZE
1171001	10
1171601	16
1172401	24
1142701	28
Used with 7237301	



BUTT HINGE RH, CASEMENT	
PART #	FINISH
1452741	SILVER
1452773	BLACK
1452709	PAINTED
Used with 7237001	

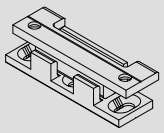


BUTT HINGE LH, CASEMENT	
PART #	FINISH
1453741	SILVER
1453773	BLACK
1453709	PAINTED
Used with 7237001	

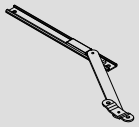
7237001 10 x 1/2 PHS, SS

7237301 10 x 3/8 PHS, SS

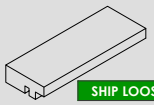
MISC.



1167003
SNUBBER SET
used with 7238101

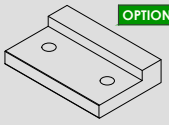


1140501
FRICTION ADJUSTOR/LIMITER
used with 7237001



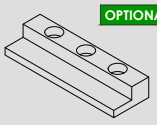
SHIP LOOSE

1476203
EPDM SETTING BLOCK



OPTIONAL

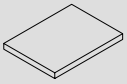
1141603
AWNING LIMIT BLOCK, 2 $\frac{1}{4}$
used with 7234701



OPTIONAL

1142003
CSMT LIMIT BLOCK, 3
used with 7234701

SHIP LOOSE



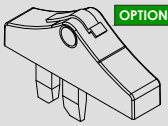
1141501
ADJUSTING SCREW PVC SHIM
used on casement only

7234701 10 x 7/8 PHS, SS

7203901
ADJUSTING SCREW
used on casement only

Custodial Lock (OPTIONAL)

OPTIONAL

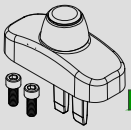


PO CUSTODIAL LOCK		
PART #	FINISH	USED WITH
PA1335001	SILVER	PA1337001 Handle 1162203 Gasket 7240101 Machine Screw
PA1335005	WHITE	
PA1335003	BLACK	

OPTIONAL

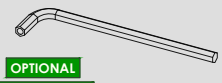
SHIP LOOSE

PA1337001
REMOVABLE CUSTODIAL HANDLE



OPTIONAL

PI EURO CUSTODIAL LOCK		
PART #	FINISH	USED WITH
PA4700901	SILVER	PA4701000 Security Wrench
PA4700905	WHITE	
PA4700903	BLACK	

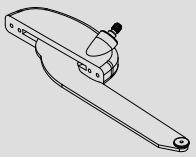


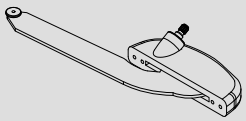
OPTIONAL

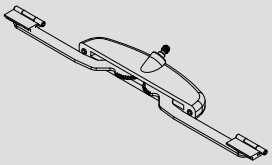
SHIP LOOSE

PA4701000 MAINTENANCE WRENCH
used with PA470090X

ROTO OPERATOR (PO)







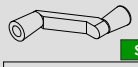
7200104 10-24 x $\frac{3}{8}$ SHS, SS

7280104 8-32 x $\frac{3}{8}$ SHS, SS

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

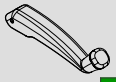
9 $\frac{1}{2}$ ROTO LH, CASEMENT		
PART #	FINISH	USED WITH
1451601	SILVER	1450402 Gasket 7200104 Socket H.Screw 1452101 13 $\frac{1}{2}$ TRACK
1451603	BLACK	
1451605	WHITE	

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



OPTIONAL

SHIP LOOSE



OPTIONAL

SHIP LOOSE

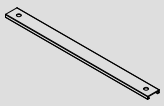
13 $\frac{1}{2}$ ROTO RH,CASEMENT		
PART #	FINISH	USED WITH
1451701	SILVER	1450402 Gasket 7200104 Socket H.Screw 1452101 13 $\frac{1}{2}$ Track
1451703	BLACK	
1451705	WHITE	

13 $\frac{1}{2}$ ROTO LH, CASEMENT		
PART #	FINISH	USED WITH
1451801	SILVER	1450402 Gasket 7200104 Socket H.Screw 1452101 13 $\frac{1}{2}$ Track
1451803	BLACK	
1451805	WHITE	

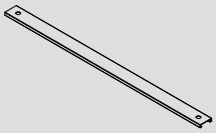
16 3/4 ROTO, AWNING		
PART #	FINISH	USED WITH
1450501	SILVER	1150402 Gasket 7280104 Socket H.Screw 1450601 8 3/8 Track
1450503	BLACK	
1450505	WHITE	

ROTO HANDLE		
PART #	FINISH	USED WITH
1449901	SILVER	ROTO OPERATORS
1449902	BRONZE*	
1449903	BLACK	
1449905	WHITE	

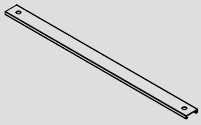
FOLDING ROTO HANDLE		
PART #	FINISH	USED WITH
1459901	SILVER	ROTO OPERATORS
1459902	BRONZE*	
1459903	BLACK	
1459905	WHITE	



1450601 8 $\frac{3}{8}$ TRACK, AWNING



1149801 13 $\frac{7}{8}$ TRACK, AWNING

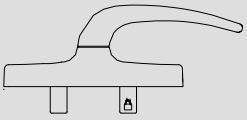


1452101 13 $\frac{1}{8}$ TRACK, CASEMENT

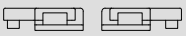
1450401 GASKET, CSMT

1150402 GASKET, AWNING

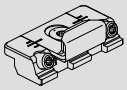
Multi Point Lock MPL (PI)



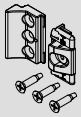
MULTIPOINT IN-SWING HANDLE		
PART #	FINISH	USED WITH
PA1338001	SILVER	1173801
PA1338005	WHITE	
PA1338003	BLACK	



1173801 HANDLE CONNECTION

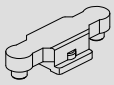


1172603
ADJUSTABLE IN-SWING KEEPER

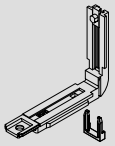


6220301
SNUBBER IN-SWING

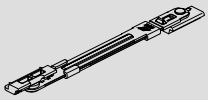
1172703
END LOCKING BOLT



1173003
INTERMEDIATE LOCKING BOLT



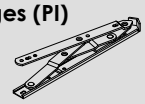
1173701
CORNER DRIVE



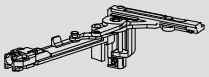
OPTIONAL

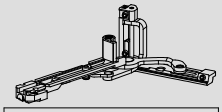
1174501
FRICTION LIMIT DEVICE

Hinges (PI)

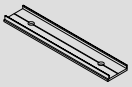


4-BAR HINGE, HOPPER	
PART #	SIZE
1171001	10
1171601	16
1172401	24
1142701	28
Used with 7237001	





1457100 CASEMENT HINGE



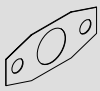
4-BAR HINGE SHIM	
PART #	SIZE
1490503	10
1490903	16
1490603	24 & 28
Used with 4-BAR HINGE	

7237001 10 x 1/2 PHS, SS

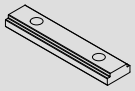
IN-SWING CAM HANDLE

IN-SWING RING CAM HANDLE (LH)		
PART #	FINISH	USED WITH
1449101	SILVER	1448802 Gasket 7238101 Screw
1449103	BLACK	
1449105	WHITE	

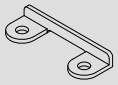
IN-SWING RING CAM HANDLE (RH)		
PART #	FINISH	USED WITH
1449201	SILVER	1448802 Gasket 7238101 Screw
1449203	BLACK	
1449205	WHITE	



1448802
GASKET

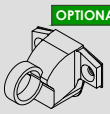


1448901
KEEPER SHIM



1449001
UNIVERSAL KEEPER
used with 7237001

OPTIONAL



1148001
RING PULL SPRING CATCH
used with 7238101

1147803
GASKET FOR SPRING CATH

7238101
10-24 x $\frac{3}{8}$ FHS, SS

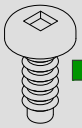
7237001
10 x 1/2 PHS, SS

Insect Screen Components

SHIP LOOSE

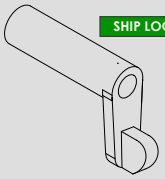
1159101
$\frac{5}{16}$ SCREEN TURN CLIP
(used on PO with ROTO hardware)

SHIP LOOSE



7248101
#8 x $\frac{5}{8}$ PHS, SS

SHIP LOOSE

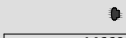


1159301
1" SCREEN TURN CLIP
(used on PI and PO with wickets)

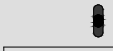
SHIP LOOSE

7243101
#8 x 1 $\frac{3}{8}$" PHS, SS

Extrusions



1466001
PVC POCKET FILLER FOR SHIM TAPE



2250803
PolyShim Tape 3/16"x 25'

SHIP LOOSE

1841003
GLAZING GASKET, 1" [25] GLASS

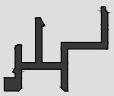
5100701
WEATHERSTRIPPING PILE

1461003
CENTRAL SEAL GASKET, PI

1462003
PERIMETER BULB GASKET

EA135005
PO GLASS STOP

EA135011
PI GLASS STOP



1474003
PI CW ADAPTOR-DUAL GLAZED PVC

SHIP LOOSE

1350103
FB FLUSHGLAZE PVC ADAPTOR

SHIP LOOSE
ORDERED SEPR.

TA9404
POCKET FILLER WITH LEG FOR FLAT BACK INSTALLATION

SHIP LOOSE
ORDERED SEPR.

P4563
JAMB POCKET FILLER FOR SF INSTALLATION

STEP 1

a. Make sure vent opening is plumb and level. Measuring corner-to corner is easiest way to make sure it is square. See **FIG. 1**

b. Make sure frame size is smaller than Window Opening. See **FIG. 2**

c. See **FIG. 2** to measure and verify GLASS SIZE.

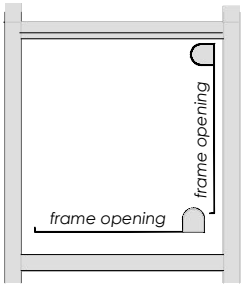


FIG. 1

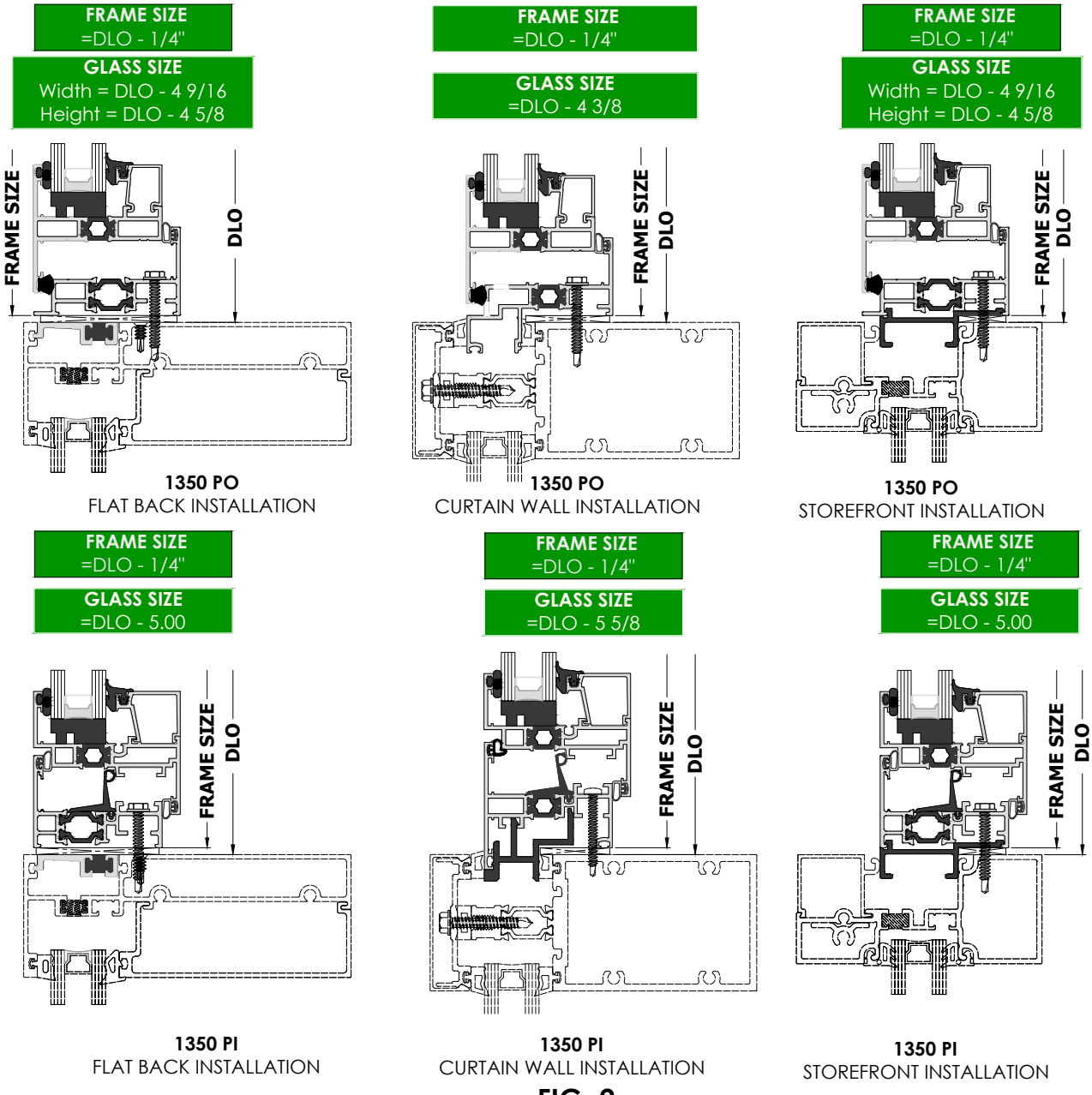


FIG. 2

SYSTEM COMPATIBILITY

WINDOW WALL:
900RW T[*1]
900RW TU[*1]

CURTAINWALL:
200[*1*2], 400CW[*1*2], 400SS[*1*2],
400T[*1*2], 400TU[*1*2]

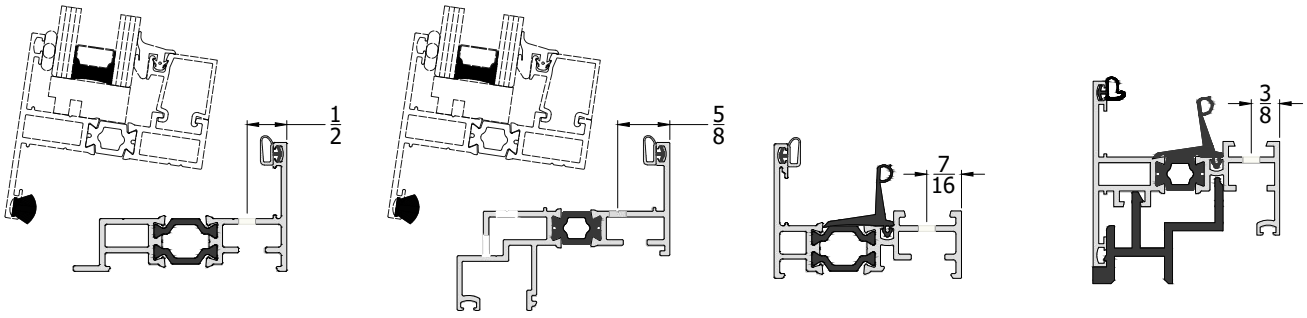
STOREFRONT:
E14000[*3], T14000,
E14000 I/O[*3], T14000 I/O, TU24000
E24650[*1*3], T24650[*1]

*[*1] not compatible with SSG condition* *[*2] installed from exterior only* *[*3] Please note, in this application the vents can be installed but will thermally bridge.*

STEP 1

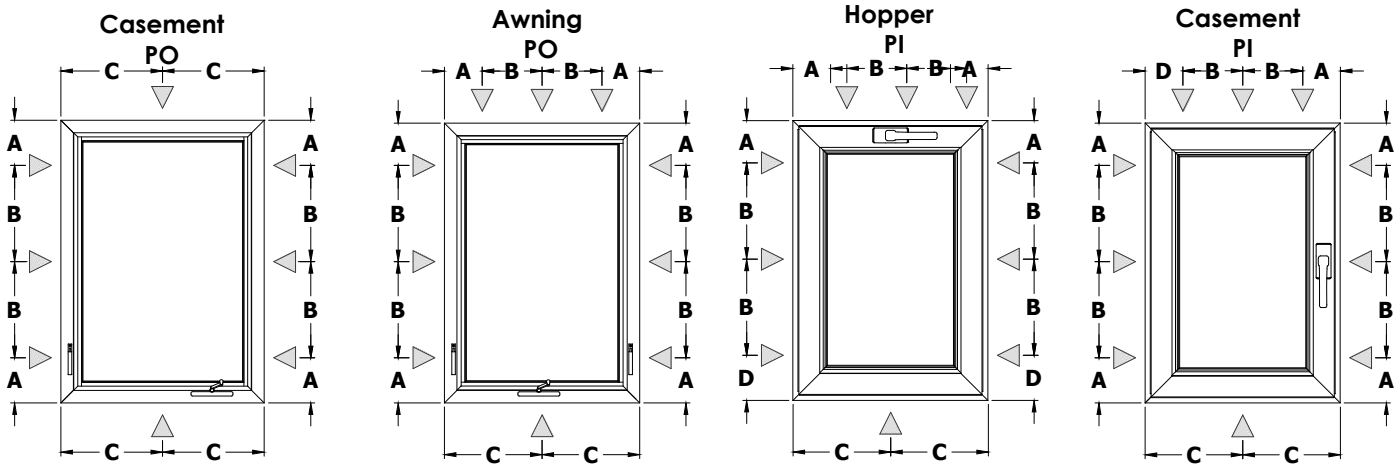
a. Drill Ø.201[5] clearance holes for #10 Screws using #7 Drill bit for anchoring holes, as per recommended location, see **FIG. 1.**

b. See **FIG. 2** for recommended spacing of clearance holes. Double check anchor size and location as per shop drawings.



PO FLAT BACK INSTALLATION | PO CURTAIN WALL INSTALLATION | PI FLAT BACK INSTALLATION | PI CURTAIN WALL INSTALLATION

FIG. 1



△ RECOMMENDED ANCHORING LOCATION

FIG. 2

A=5" [127] B= max 18" O.C [457] C= if Frame Width >36" [914]

STEP 1

a. Pre-drill and countersink TA9404 pocket filler for #10 FHS, 2" from each end and 16" O.C. using V-groove as reference. **See FIG. 1**

b. Install continuous TA9404 Pocket Filler at both jambs and head using S444 fastener *(#10 x $\frac{1}{2}$" FHS Self Drilling*. See **FIG. 2**

c. Install 2 $\frac{1}{2}$" long TA9404 at sill from both sides tight against adjacent pocket filler. Fasten using one S444 screw in the center of the V-groove. Seal fasteners with sealant. See **FIG. 3**

d. Add additional 2 $\frac{1}{2}$" long TA9404 at the sill if the frame opening width is larger then 36".

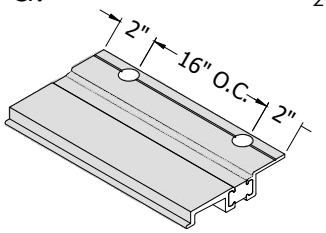


FIG. 1

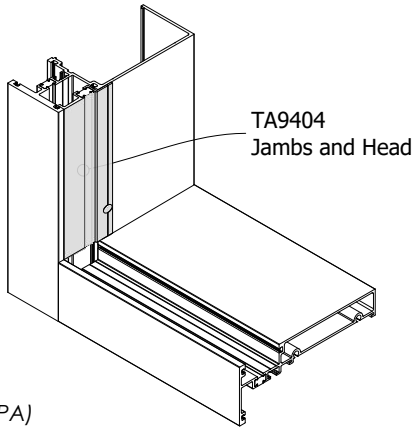


FIG. 2

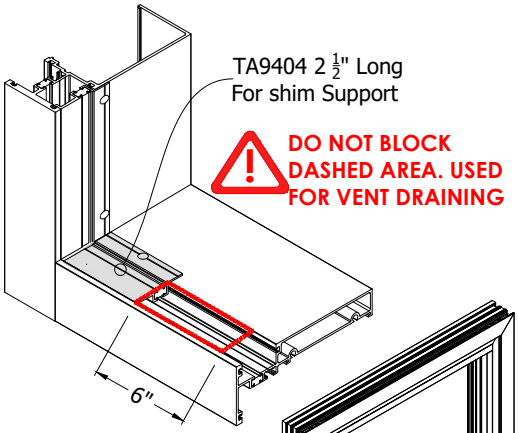


FIG. 3

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

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.*

STEP 2

a. Set Horseshoe shims onto the sill opening at each corner. Carefully set the vent onto the shims . See **FIG. 4** & **FIG. 5**

b. Position window frame in the opening, use **FIG. 7** as guide.

c. Ensure weep holes are not blocked. Refer to **FIG. 3**

d. Once vent is positioned, carefully open the sash and place a temporary fastener near the top hinge through the clearance hole.

e. Place appropriate horseshoe shims around the perimeter, ensure window is square and plumb. Fasten in all remaining areas. Use #10 x 1 $\frac{1}{2}$ SELF DRILLING Screw.

f. Check corners of the frame/sash at the lock side to make sure they are aligned on the lock side, adjust shims if necessary. See **FIG. 6**

g. Seal all the screw heads.

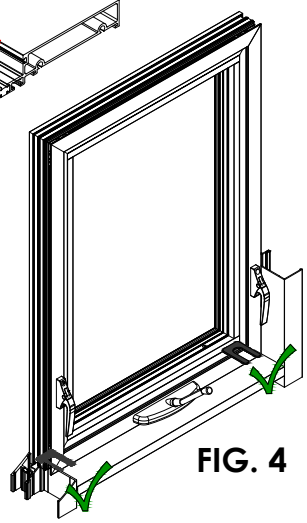


FIG. 4

SEE GLAZING

a. Refer to GLAZING INSTRUCTIONS before proceeding to STEP 3.

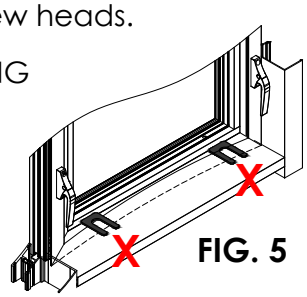


FIG. 5

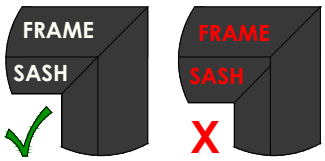


FIG. 6

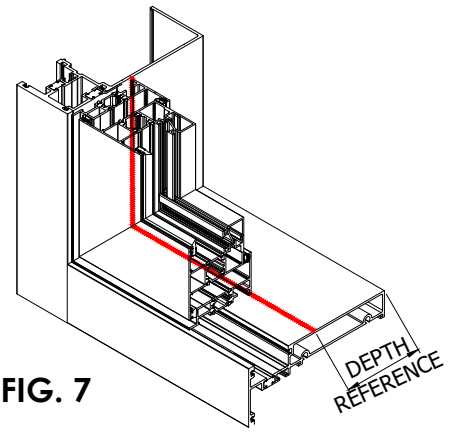


FIG. 7

STEP 3

a. Check operation of the window by opening and closing multiple times.

b. Cut horseshoe shims flush to interior/exterior frame surface.

c. Clean perimeter of the frame where seal will be applied using IPA 2 METHOD.

d. Apply Interior/Exterior seal around the frame and tool.

DEPTH REFERENCE		
	RECEIVING SYSTEM	
VENT TYPE	900RW (4 $\frac{1}{2}$")	900RW (6")
1350 PO	1 $\frac{5}{8}$"	3 $\frac{1}{8}$"
1350 PI	2.00"	3 $\frac{1}{2}$"

STEP 1

a. Clean the around the corners of the frame using IPA2 METHOD.
b. Apply a bed of sealant 2" [51] 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**

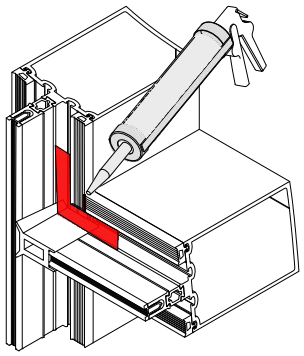


FIG. 1

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.*

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

STEP 2

a. Clean exterior area of the vent where it will come in contact with the primary gasket using IPA 2 method
b. Set Horseshoe shims onto the sill opening at each corner. Carefully set the vent onto the shims. See **FIG. 2**
c. Push the vent in tight to the primary gasket seal. See **FIG. 3**
d. Place temporary shims 1/4" [6] between sash and frame maintaining consistent gap. This will prevent bowing and shifting of the vent during pressure plate installation. See **FIG. 4**
e. Install exterior pressure plates ensuring drainage slots are facing up. **FIG. 5 ,** ensure window remains square.
f. For windows exceeding 36" [914] in height or width, place an anchoring screw. Refer to **FIG. 4 on Page 6**
g. For casements windows, an additional fastener is needed beside the top hinge. Refer to **FIG. 4 on Page 8**
h. Check sight line, adjust if necessary. See **FIG. 6**

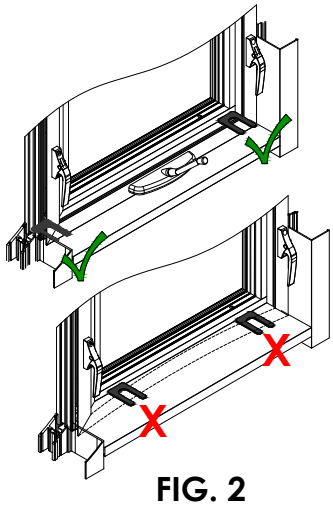


FIG. 2

SEE GLAZING

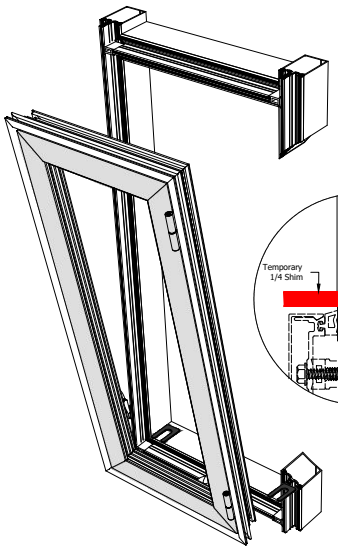


FIG. 3

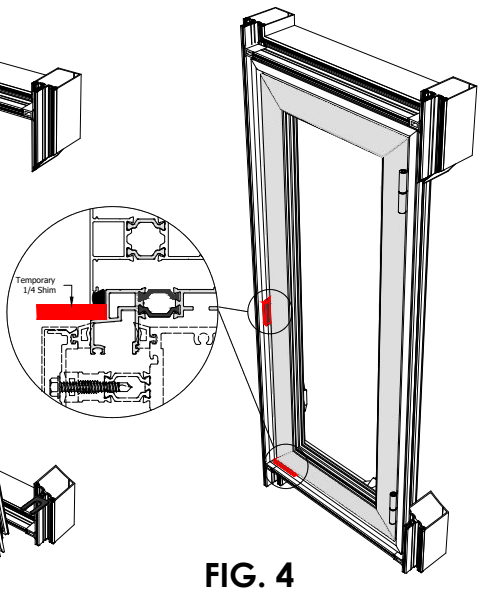


FIG. 4

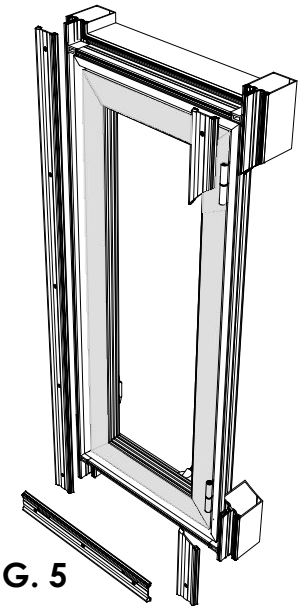


FIG. 5

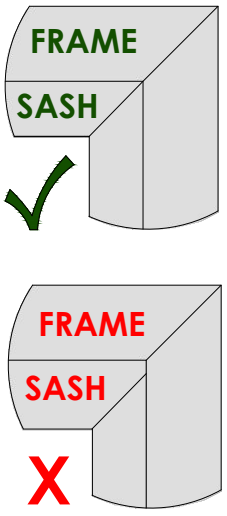


FIG. 6

STEP 3

a. Check operation of the window by opening and closing multiple times.
b. Cut horseshoe shims flush to interior/exterior frame surface.
c. Clean perimeter of the frame where seal will be applied using IPA 2 METHOD.
d. Apply Interior/Exterior seal around the frame and tool.
e. Seal all the screw heads.

STEP 1

a. Install **P4563 Pocket Filler** at jambs at each side**.** See **FIG. 1**
b. Install 1350103 PVC adaptor at sill & head only. See **FIG. 2**
c. Insert and slide top of the window into the glazing pocket. See **FIG. 3**
d. Swing bottom of the window into place **FIG 4**. Set plastic horseshoe shims on the sill at each corner. See **FIG. 6**
e. Snap glass stop stop into place. See **FIG. 5**

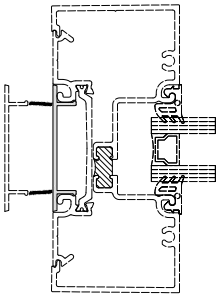


FIG. 1

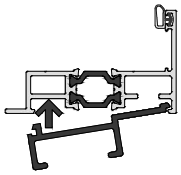


FIG. 2

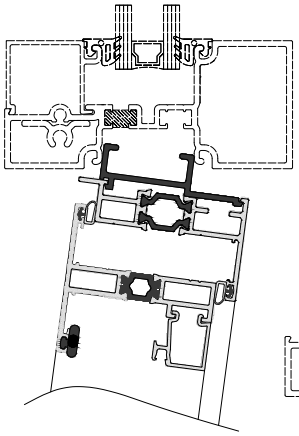


FIG. 3

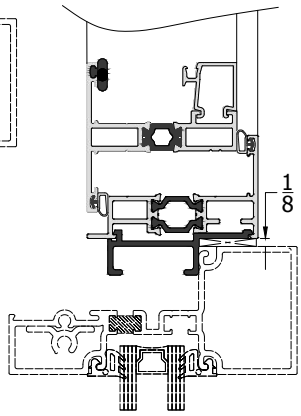


FIG. 4

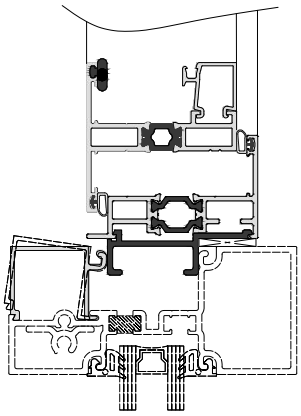


FIG. 5

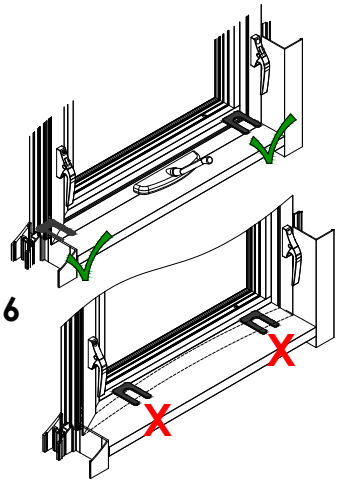


FIG. 6

STEP 2

a. Place appropriate horseshoe shims around the perimeter, ensure window is square and plumb. Fasten the jambs of the frame **FIG 7**, refer to **FIG. 4 on Page 8** for spacing schedule .

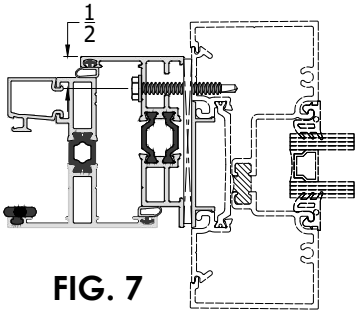


FIG. 7

SEE GLAZING

a. Refer to GLAZING INSTRUCTIONS before to proceeding to STEP 3.

STEP 3

a. Check operation of the window by opening and closing multiple times.
b. Cut horseshoe shims flush to interior/exterior frame surface.
c. Clean perimeter of the frame where seal will be applied using IPA 2 METHOD.
d. Apply Interior/Exterior seal around the frame and tool. See **FIG. 8**
e. Seal all the screw heads.

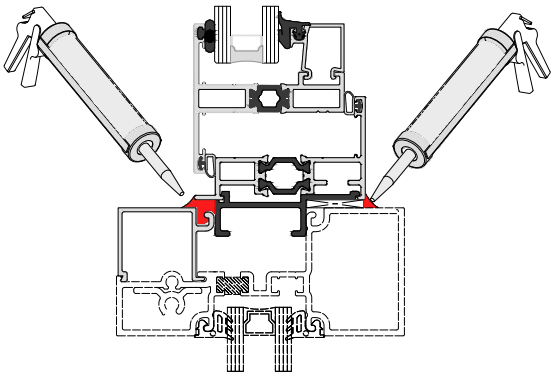


FIG. 8

STEP 1

a. Carefully remove glass stops around the interior perimeter of the sash.
b. Clean the exterior glazing leg by using IPA 2 wipe method. Apply 1/8" PolySHIM tape ensuring it is not loose or wavy. Ensure that the corners of the tape do not overlap. See **FIG. 1**
c. Peel back the adhesive backing from the glazing tape.
d. Apply a bed of sealant 2" [51] around each corner of the sash ensuring it comes in contact with glazing tape. Apply a light bead of sealant to the glazing tape joint.

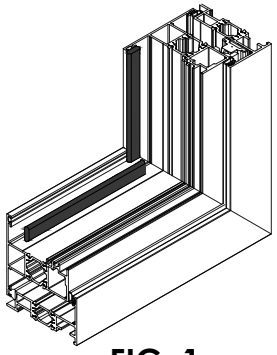


FIG. 1

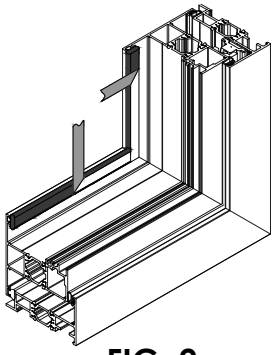


FIG. 2

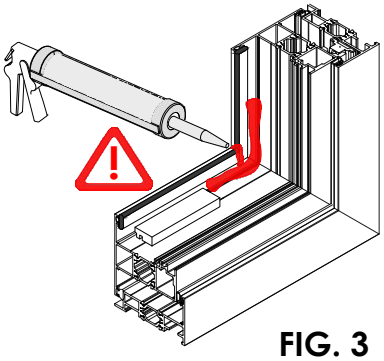


FIG. 3

STEP 2

a. Inspect glass unit for any sealant overlap, clean as necessary. Using IPA2 method clean 2" [51] of interior/exterior glass surface all around the perimeter.
b. Place setting blocks at each corner, approximately 4"-6" [102-152] from the corner. Dab of sealant can be used to hold it in place. See **FIG. 4**
c. Carefully slide the glass into glazing pocket at the top, set the glass onto the Setting Blocks and center the glass into the sash opening. See **FIG. 5**
d. Ensure sight lines are even on all sides, sash must be square.
e. Place PVC shim used for Adjusting Screw for Casement Out-swing only. Adjust screw to be snug. See **FIG. 4** (comes pre-installed)

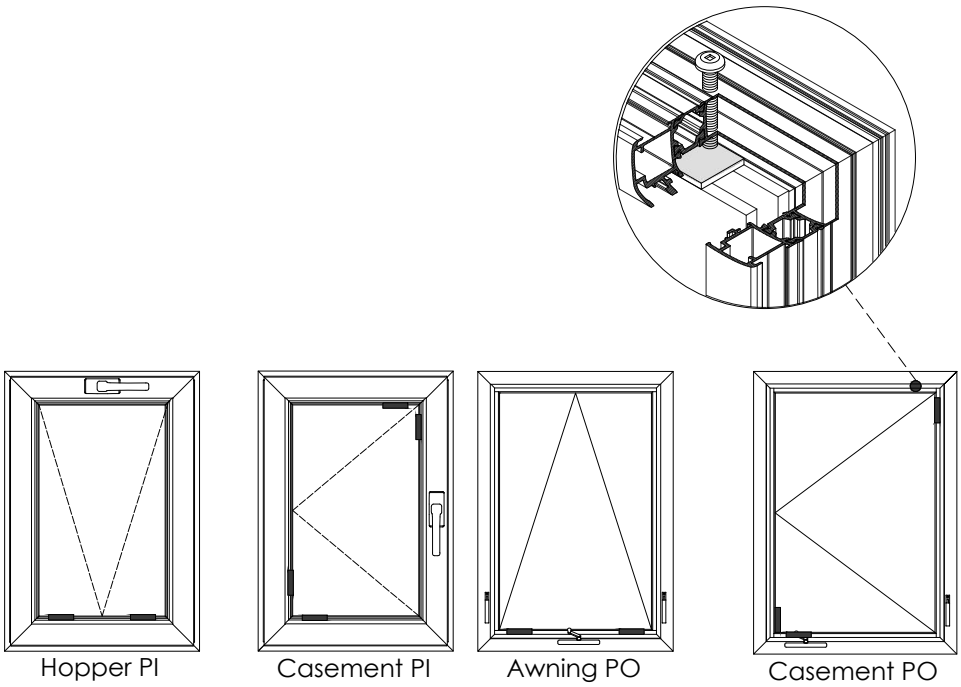


FIG. 4

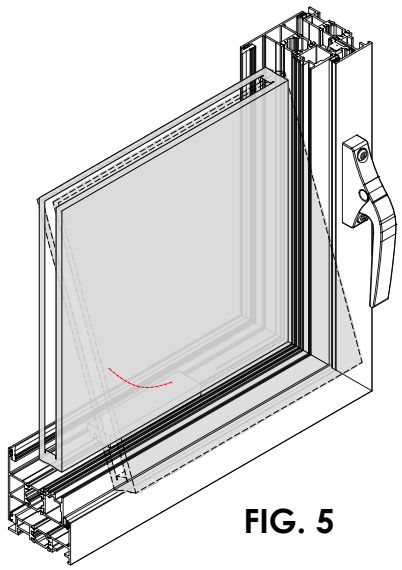


FIG. 5

NEXT PAGE

STEP 3

a. Using a mallet hammer install glass stops, starting with horizontals. See **FIG. 1**
b. Repeat same step for vertical glass stops.

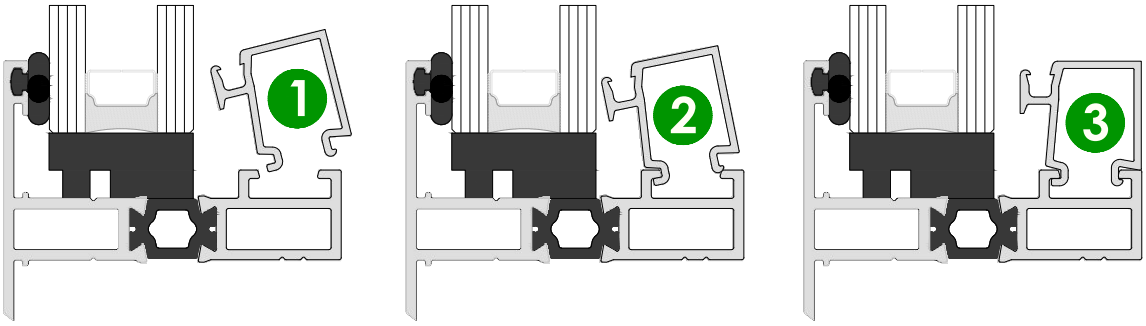


FIG. 1

STEP 4

c. Insert glazing gasket starting from one end, repeat this every 16" [406]. Ensure opposite end of the gasket is inserted before rolling remaining gasket. See **FIG. 2**

d.

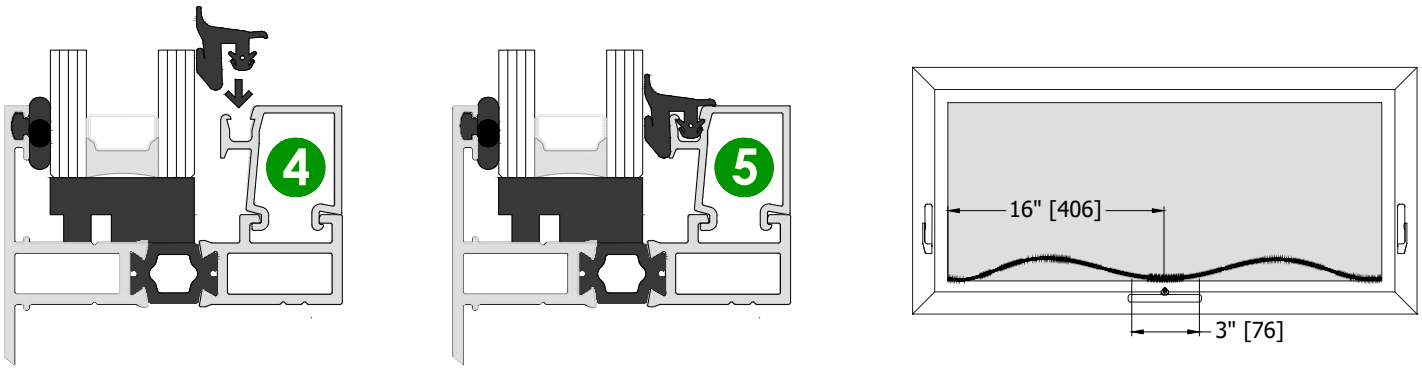


FIG. 2

STEP 1

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

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

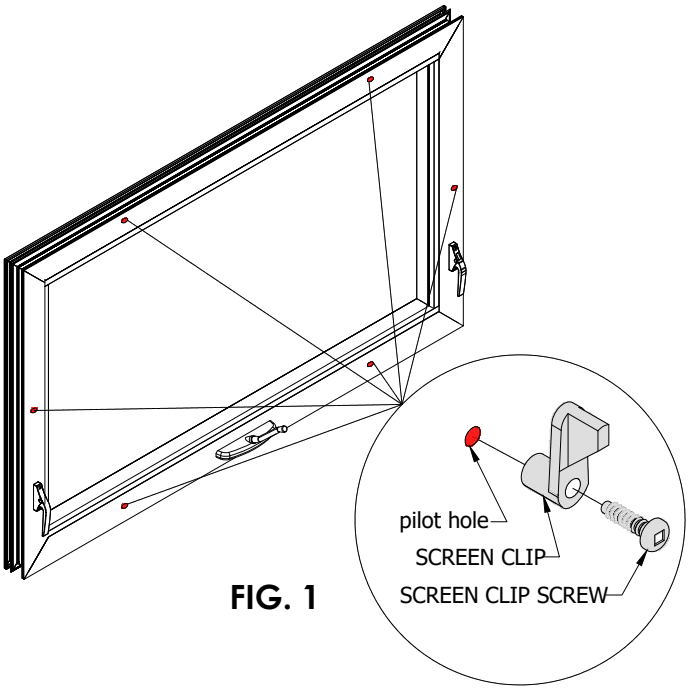


FIG. 1

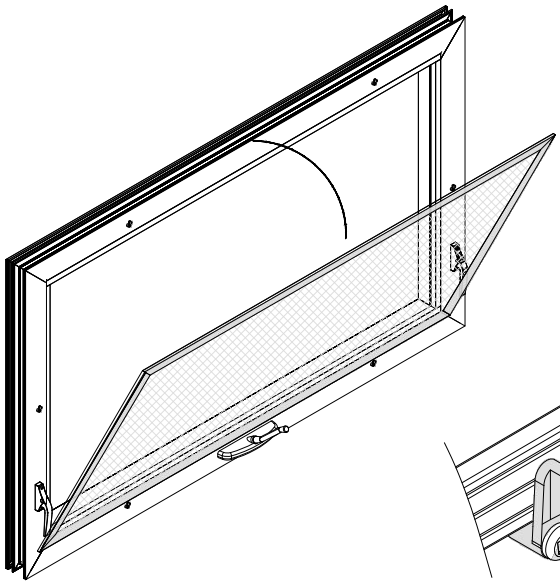


FIG. 2

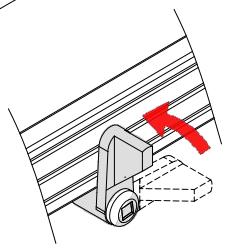
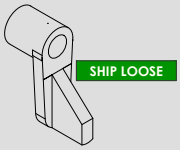


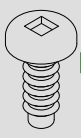
FIG. 3

Insect Screen Components



SHIP LOOSE

1159101
$\frac{5}{16}$ SCREEN TURN CLIP
(used on PO with ROTO hardware)



SHIP LOOSE

7248101
#8 x $\frac{5}{8}$ PHS, SS

SHIP LOOSE

1159301
1" SCREEN TURN CLIP
(used on PI and PO with wickets)

SHIP LOOSE

7243101
#8 x 1 $\frac{3}{8}$" PHS, SS

LIMIT BLOCK REMOVAL/REINSTALL

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

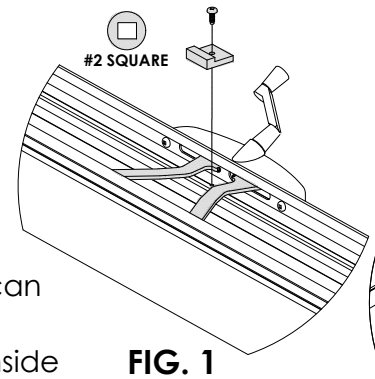


FIG. 1

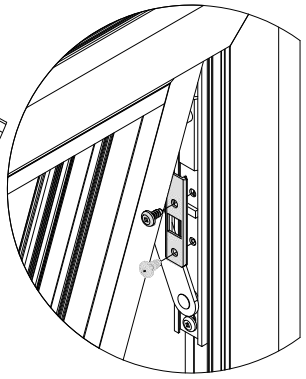


FIG. 2

FRICTION ARM LIMIT DEVICE REMOVAL/REINSTALL

a. Vents equipped with FRICTION ARM LIMIT DEVICE can be removed to aid with anchor screw installation.
b. Open sash to the maximum, locate LIMIT DEVICE inside of the Friction Arm, if applicable. See **FIG. 2**
c. Remove 2 #10 fasteners holding LIMIT DEVICE.
d. Temporarily place same fasteners back into the Friction Arm securing the hinges.
e. 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.

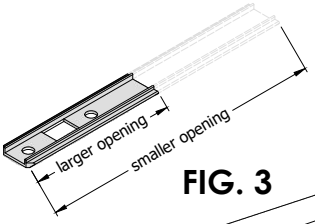


FIG. 3

CASEMENT FRICTION ADJUSTOR/LIMITER

a. Open sash, locate Friction Adjustor bracket located on the frame.
b. Remove 2 fasteners holding the bracket on the frame side. See **FIG. 4**
c. Sash can be opened to the full extend for any maintenance or installation work.
d. 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**
e. Reinstall the bracket to its place using original fasteners.

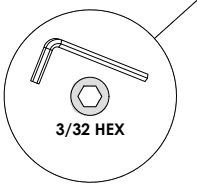


FIG. 5

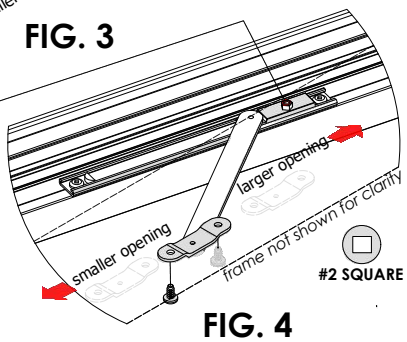


FIG. 4

PI CASEMENT HINGE ADJUSTMENT (EGRESS)

a. Open sash, remove FRICTION ADJUSTOR if applicable
b. Locate adjusting screws at the bottom and the top hinge.
c. Using 4mm HEX KEY adjust hinge if needed as per **FIG. 6**
d. Reinstall FRICTION ADJUSTOR.
e. Close sash and check for any interferences.

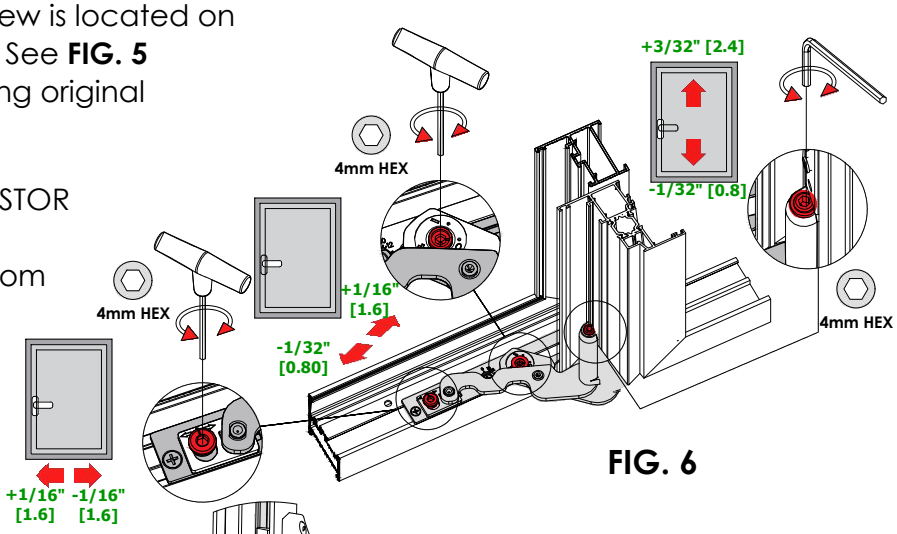


FIG. 6

MPL COMPRESSION ADJUSTMENTS

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

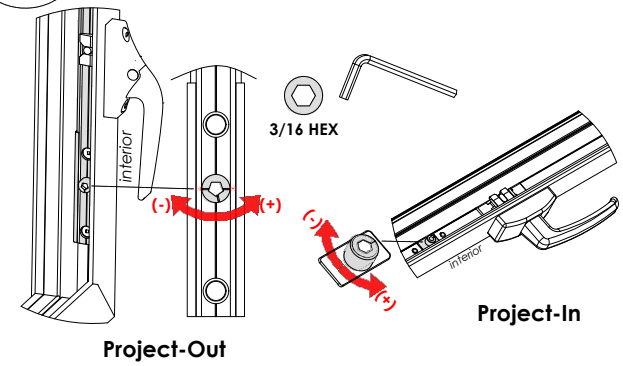


FIG. 7