## **INSTALLATION INSTRUCTIONS**

# SERIES 3000

## SLIDING PATIO DOOR





Phone: (800) 262-5151 • Fax: (866) 262-3299 crlaurence.com • usalum.com • crl-arch.com

#### HANDLING, STORAGE, AND PROTECTION OF ALUMINUM

The following precautions are recommended to protect the material against damage. Following these precautions will help ensure early acceptance of your products and workmanship.

#### A. HANDLE CAREFULLY.

All aluminum materials at job site must be stored in a safe place, well removed from possible damage by other trades. Cardboard wrapped or paper interleaved materials must be kept dry.

#### B. CHECK ARRIVING MATERIALS.

Check quantity counts and keep records of where various materials are stored.

C. KEEP MATERIALS AWAY FROM WATER, MUD, AND SPRAY. Prevent cement plaster or other materials from damaging the finish.

#### D. PROTECT THE MATERIALS AFTER ERECTION.

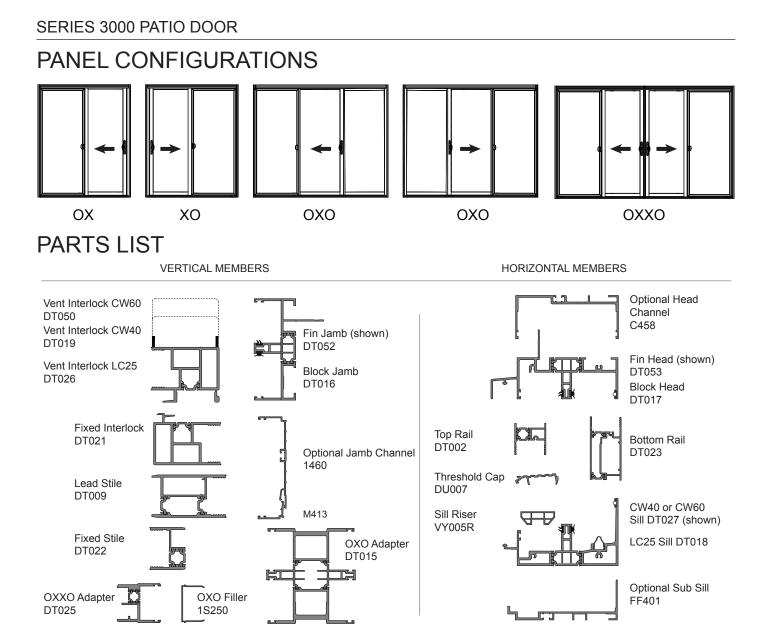
Protect erected frame with polyethylene or canvas splatter screen. Cement, plaster, terrazzo, other alkaline solutions, and acid based materials used to clean masonry are harmful to the finish. *If any of these materials come in contact with the aluminum, immediately remove with water and mild soap.* 

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## GENERAL INSTALLATION NOTES RECOMMENDED GUIDELINES FOR ALL INSTALLATIONS

- 1. **REVIEW CONTRACT DOCUMENTS.** Check shop drawings, installation instructions, architectural drawings, and shipping lists to become thoroughly familiar with the project. The shop drawings take precedence and include specific details for the project. Note any *field verified* notes on the shop drawings prior to installing. The installation instructions are of a general nature and cover most conditions.
- 2. INSTALLATION. The installation location must be level and plumb before beginning. All materials are to be installed plumb, level, and true. Install operable doors preglazed only.
- 3. BENCH MARKS. All work should start from bench marks and/or column lines as established by the architectural drawings and the general contractor with guaranteed accuracy. Working from these datum points and lines determine:
  - a) The plane of the wall in reference to offset lines provided on each floor.
  - b) The finish floor lines in reference to bench marks on the outer building columns.
  - c) Mullion spacing from both ends of masonry opening to prevent dimensional build-up of daylight opening.
- 4. FIELD WELDING. All field welding must be adequately shielded to avoid any splatter on glass or aluminum. Results will be unsightly and/or structurally unsound. Advise general contractor and other trades accordingly. All field welds of steel anchors must receive touch-up paint (zinc chromate) to avoid rust.
- SURROUNDING CONDITIONS. Make certain that construction which will receive your materials is in accordance with the contract documents. If not, notify the general contractor in writing and resolve differences before proceeding with work.
- 6. **ISOLATION OF ALUMINUM.** Aluminum to be placed in direct contact with uncured masonry or incompatible materials should be isolated with a heavy coat of zinc chromate or bituminous paint.
- 7. SEALANTS. Sealants must be compatible with all materials with which they have contact, including other sealant surfaces. Consult with sealant manufacturer for recommendations relative to joint size, shelf life, compatibility, cleaning, priming, tooling, adhesion, etc. It is the responsibility of the *Glazing Contractor* to submit a statement from the sealant manufacturer indicating that glass and glazing materials have been tested for compatibility and adhesion with glazing sealants, and interpreting test results relative to material performance, including recommendations for primers and substrate preparation required to obtain adhesion. The chemical compatibility of all glazing materials and framing sealants with each other and with like materials used in glass fabrication must be established. This is required on every project.
- 8. FASTENING. Within the body of these instructions "fastening" means any method of securing one part to another or to adjacent materials. Only those fasteners used within the system are specified in these instructions. Due to the varying perimeter conditions and performance requirements, perimeter and anchor fasteners are not specified in these instructions. For perimeter and anchor fasteners refer to the shop drawings or consult the fastener supplier.
- 9. BUILDING CODES. Due to the diversity in state/provincial, local, and federal laws and codes that govern the design and application of architectural products, it is the responsibility of the individual architect, owner, and installer to assure that products selected for use on projects comply with all the applicable building codes and laws. U.S. Aluminum exercises no control over the use or application of its products, glazing materials, and operating hardware and assumes no responsibility thereof.
- **10. EXPANSION JOINTS.** Expansion joints and perimeter seals shown in these instructions and in the shop drawings are shown at normal size. Actual dimensions may vary due to perimeter conditions and/or differences in metal temperature between the time of fabrication and the time of installation. Gaps between expansion members should be based on temperature at time of installation.
- **11. WATER HOSE TEST.** As soon as a representative amount of the doors has been glazed (500 square feet or 46.5 m<sup>2</sup>) a water hose test should be conducted in accordance with AAMA 501.2 specifications to check the installation. On all jobs the hose test should be repeated every 500 square feet (46.5 m<sup>2</sup>) during the glazing operation.
- **12. COORDINATION WITH OTHER TRADES.** Coordinate with the general contractor any sequence with other trades which offset curtain wall installation (i.e. fire proofing, back-up walls, partitions, ceilings, mechanical ducts, converters, etc.).
- **13. CARE AND MAINTENANCE.** Final cleaning of exposed aluminum surfaces should be done in accordance with AAMA 609.1 for anodized aluminum and 610.1 for painted aluminum.
- 14. JOB SITE ESSENTIALS. See pages 25 and 26.

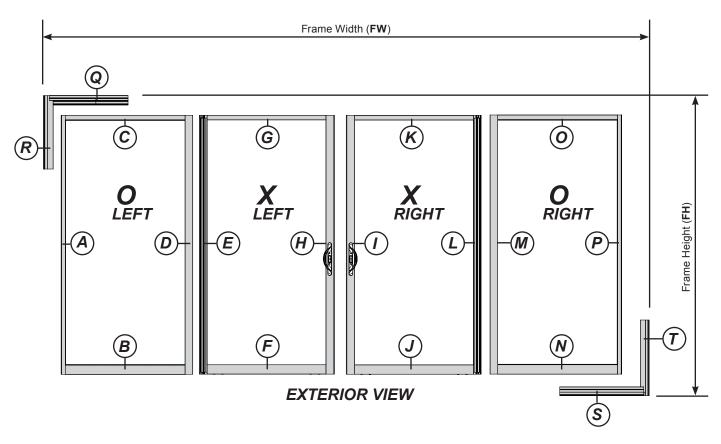




| Part No. | Description                         | Part No. | Description                        | Part No. | Description                 |
|----------|-------------------------------------|----------|------------------------------------|----------|-----------------------------|
| 1460     | Optional Jamb Channel               | DT002    | Top Rail - LC25, CW40, CW60        | DT027    | Sill - CW40, CW60           |
| 1S250    | OXO Snap-In Filler                  | DT009    | Lead Stile - LC25, CW40, CW60      | DT050    | Vent Interlock - CW60       |
| B0H1003  | 3" Dia. Tandem Roller Housing       | DT015    | OXO Adapter                        | DT052    | Fin Jamb - LC25, CW40, CW60 |
| B0H1005  | 2-1/4" Radius End Patio Door Bumper | DT016    | Block Jamb - LC25, CW40, CW60      | DT053    | Fin Head - LC25, CW40, CW60 |
| B0H1006  | 3-1/2" Radius End Patio Door Bumper | DT017    | Block Head - LC25, CW40, CW60      | DU007    | Threshold Cap               |
| B0H1007  | Round Patio Door Bumper             | DT018    | Sill - LC25                        | FF401    | Optional Sub Sill           |
| B0H1009  | Rubber Vent Stop                    | DT019    | Vent Interlock - CW40              | VY003R   | Fixed Interlock Isolator    |
| B0H1011  | Active Hardware Kit                 | DT021    | Fixed Interlock - LC25, CW40, CW60 | VY004R   | Vinyl Isolator              |
| B0H1012  | Inactive Hardware Kit               | DT022    | Fixed Stile - LC25, CW40, CW60     | VY005R   | Sill Riser                  |
| B0H1875  | 1-13/16" Dia. Tandem Roller Housing | DT023    | Bottom Rail - LC25, CW40, CW60     | VY006R   | Super Bug Strip             |
| C458     | Optional Head Channel               | DT025    | OXXO Adapter                       | WH803    | Fixed Panel Clips           |
| DS160    | Door Bumper Stop                    | DT026    | Vent Interlock - LC25              |          |                             |



## EXTRUSION IDENTIFICATION KEY



#### **EXTRUSION IDENTIFICATION**

Your order has been carefully fabricated, inspected, and packaged to work order specifications. We have placed an Indicator Label on the inside or back side of each part before final packaging. Use the Identification Key (above) to organize and lay out each Series 3000 Sliding Patio Door System before proceeding with the assembly process.

- (A) O-Left Fixed Stile
- **B** O-Left Bottom Rail
- C O-Left Fixed Top Rail
- **D** O-Left Fixed Interlock
- (E) X-Left Vent Interlock
- **(F)** X-Left Bottom Rail
- G X-Left Top Rail

- (H) X-Left Lead Stile
- (I) X-Right Lead Stile
- (J) X-Right Bottom Rail
- (K) X-Right Top Rail
- (L) X-Right Vent Interlock
- (M) O-Right Fixed Interlock
- N O-Right Bottom Rail

- (**0**) O-Right Top Rail
- (P) O-Right Fixed Stile
- (**Q**) Frame Head
- (R) Left Jamb
- (S) Sill
- $(\overline{T})$  Right Jamb

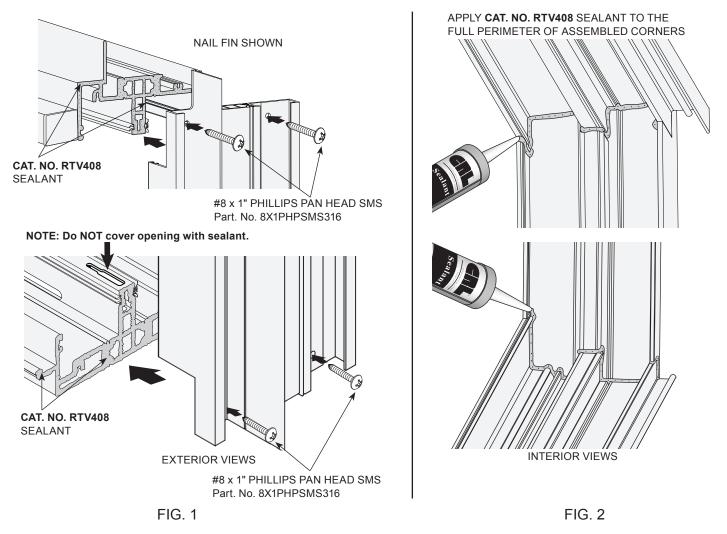
## **GLASS SIZE CHART**

|      |                 | LC25                       | CW40                     | CW60                      |
|------|-----------------|----------------------------|--------------------------|---------------------------|
| ХО   | Frame<br>Width  | F <u>W - 6-1/2</u> "<br>2  | <u>FW - 6-1/2"</u><br>2  | F <u>W - 6-1/2</u> "<br>2 |
| ХО   | Frame<br>Height | FH - 6-1/2"                | FH - 7-1/2"              | FH - 7-1/2"               |
| OX   | Frame<br>Width  | F <u>W - 6-1/2</u> "<br>2  | FW - 6-1/2"<br>2         | F <u>W - 6-1/2</u> "<br>2 |
| OX   | Frame<br>Height | FH - 6-1/2"                | FH - 7-1/2"              | FH - 7-1/2"               |
| ОХО  | Frame<br>Width  | F <u>W - 9-7/8"</u><br>3   | F <u>W - 9-7/8"</u><br>3 | F <u>W - 9-7/8</u> "<br>3 |
| ОХО  | Frame<br>Height | FH - 6-1/2"                | FH - 7-1/2"              | FH - 7-1/2"               |
| OXXO | Frame<br>Width  | F <u>W - 11-7/8</u> "<br>4 | n/a                      | n/a                       |
| OXXO | Frame<br>Height | FH - 6-1/2"                | n/a                      | n/a                       |

#### SERIES 3000 PATIO DOOR

## DOOR FRAME ASSEMBLY

- 1. Trim excess weatherstrip length flush with ends of cut members.
- 2. Apply Cat. No. RTV408 sealant to ends of head, sill, and all fin joints before assembly. (FIG. 1)
- 3. Assemble the frame using Part. No. 8X1PHPSMS316 #8 x 1" Phillips Pan Head SMS screws. (FIG. 1)



- 4. Apply Cat. No. RTV408 sealant to assembled corners. (FIG. 2)
- 5. Seal over heads of screws using Cat. No. RTV408 or Cat. No. 33S sealant. (FIG. 3)

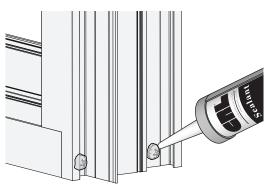
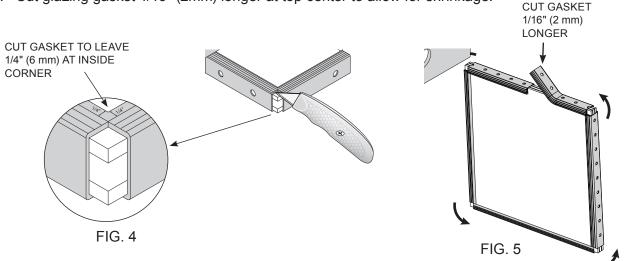


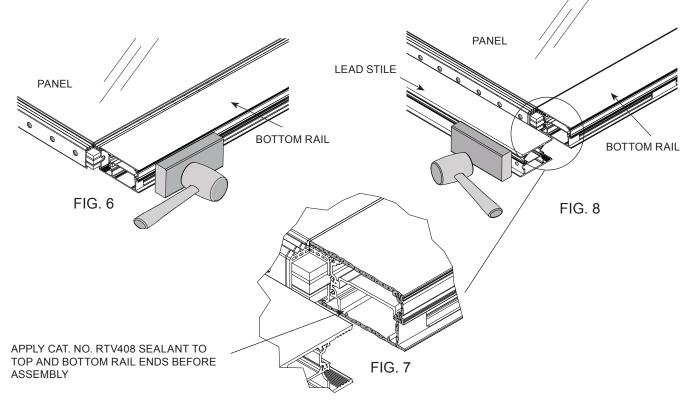
FIG. 3

#### DOOR PANEL ASSEMBLY AND GLAZING

- 1. Starting at the center top, wrap the glazing gasket around the perimeter of the glass. Cut partially through the gasket at the glass corners as shown. (FIG. 4)
- 2. Cut glazing gasket 1/16" (2mm) longer at top center to allow for shrinkage.



- 3. Install the top rail first, the bottom rail second, and then the stiles.
- 4. Using a wood block and Cat. No. ST57532 CRL Soft-Face Power Hitter Mallet, work the top rail onto the glass and gaskets until it is fully seated. (FIG. 6)



- 5. Apply Cat. No. RTV408 sealant to the ends of the bottom rail. (FIG. 7)
- 6. Install the door stile and interlock. (FIG. 8)
- 7. Apply Cat. No. RTV408 sealant to both ends of the top rail and install it. Tool excess sealant.

#### DOOR PANEL ASSEMBLY AND GLAZING (Continued)

8. Secure all corners with fasteners shown. (FIG. 9)

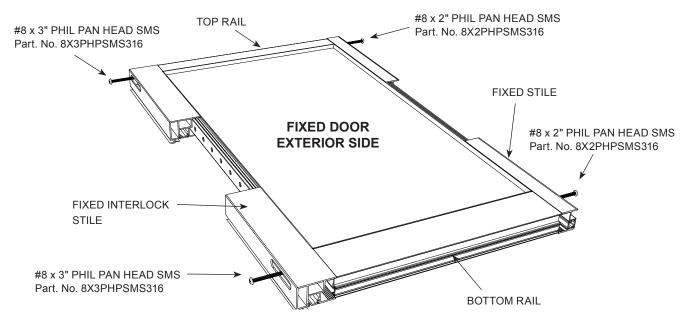
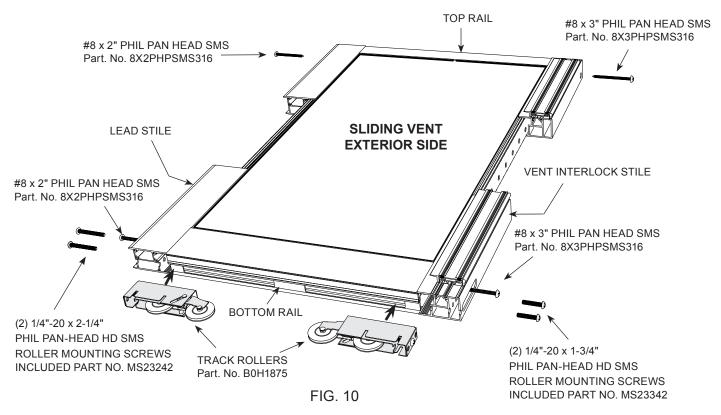


FIG. 9

9. Install the bottom track rollers with Part No. MS23242 (2) 1/4"-20 x 2-1/4" PH SMS and Part No. MS23342 (2) 1/4"-20 x 1-3/4" PH SMS side fasteners. (FIG. 10)

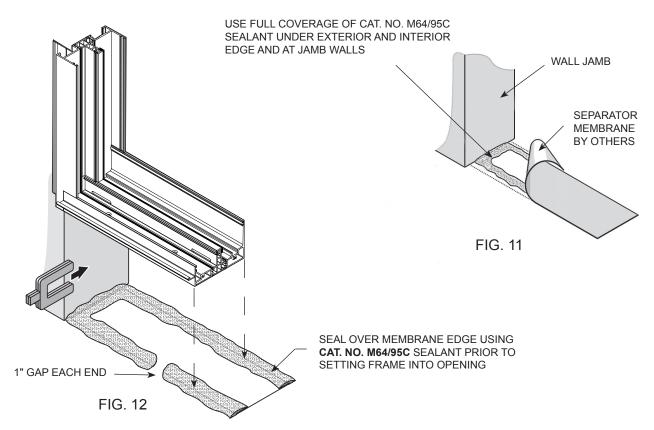


10. Complete the glazing and assembly of all sliding and fixed vents. Adjust rollers to their fully retracted position before installing doors.

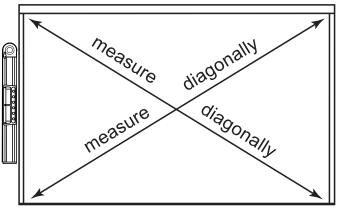
#### FRAME INSTALLATION

**IMPORTANT NOTE:** The frame sill must be mounted to a flat and level surface to try to avoid the use of shims.

1. Set a separator membrane in a bed of fresh **Cat. No. M64 or Cat. No. 95C** sealant the full length of the frame threshold. (FIG. 11)



- 2. Add a second bed of **Cat. No. M64 or Cat. No. 95C** sealant to the top of the membrane leaving a 1" (25 mm) gap approximately 6" (152 mm) from each end. (FIG. 12)
- 3. Place the assembled frame in the opening, plumb and true. Measure installed frame diagonally to ensure it is square. (FIG. 13)
- 4. Shim head and jambs as required. Secure the frame to the opening with fasteners supplied by others using the prefabbed holes in the head and jamb. Seal over all screw heads at sill using Cat. No. 33S sealant.

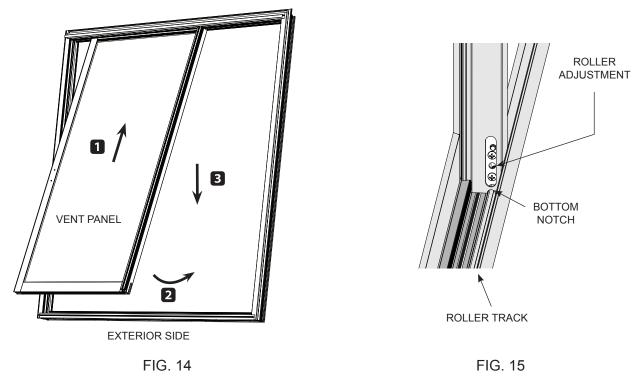




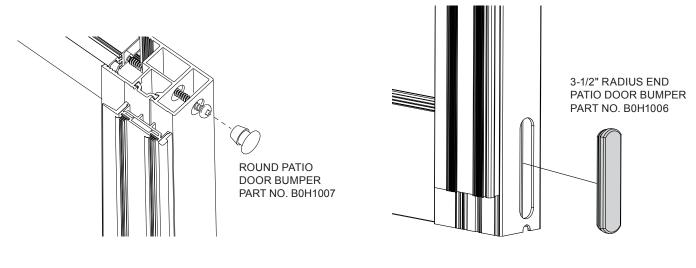


## VENT PANEL INSTALLATION

- 1. Install the sliding vent panel from the exterior before the installation of the **fixed panel**.
- 2. With the rollers in their retracted position, lift and tilt the vent panel and insert it into the interior side of the head. (FIG. 14)



- 3. Lift the panel and swing the bottom until it rests on the roller track while centering the bottom notch. (FIG. 15)
- 4. Adjust the bottom rollers until the vent panel is plumb with the frame and rolls smoothly.
- 5. Install the Round Patio Door Bumper. (FIG. 16)
- 6. Install the 3-1/2" Radius End Patio Door Bumper. (FIG. 17)



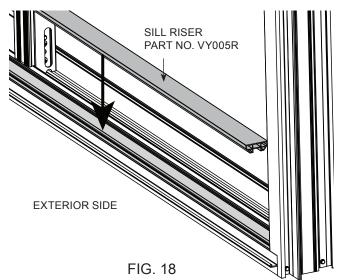


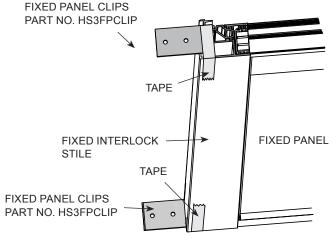




#### FIXED PANEL INSTALLATION (Part 1)

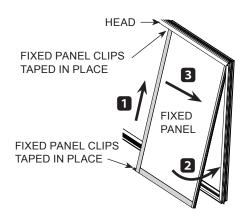
- 1. Install the sill riser strip into the sill before the fixed panel. (FIG. 18)
- 2. Attach two L-shaped anchor clips to the fixed interlock. Insert and temporarily tape the fixed panel clips in place on the outside top and bottom of the fixed interlock. (FIG. 19)







- 3. From the exterior, tilt the fixed panel and insert into the top track. Swing bottom of panel in and set it in place on top of the sill riser. (FIG. 20)
- 4. Slide the fixed panel over and into the side jamb.
- Fasten the top and bottom fixed panel clips to the fixed interlock stile of the fixed panel with Part No. ST12042 #12 x 3/4" Phillips Hex Washer HD screws and then to the head and sill frame members. (FIG. 21)
- Remove tape from fixed panel clips. Apply Cat. No. 33S sealant over bottom clip screw heads. Seal all screw penetrations in the bottom track during assembly. (FIG. 22)





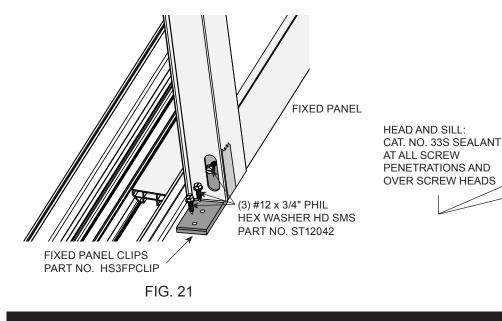




FIG. 22

#### FIXED PANEL INSTALLATION (Part 2)

- 1. Install the threshold cap into the sill between the fixed panel and the lock jamb. (FIG. 23)
- 2. To install the threshold cap, first insert Tab A into the center leg of the sill and snap Tab B into the exterior leg of the sill. (FIG. 24)

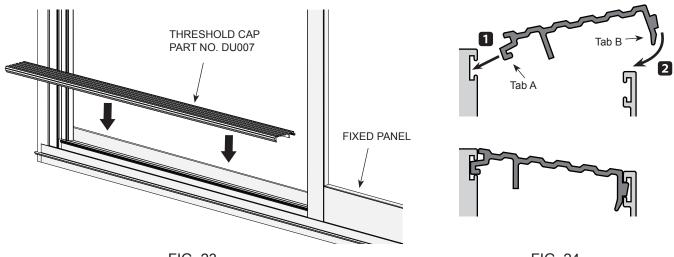
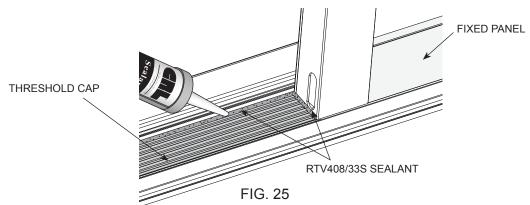


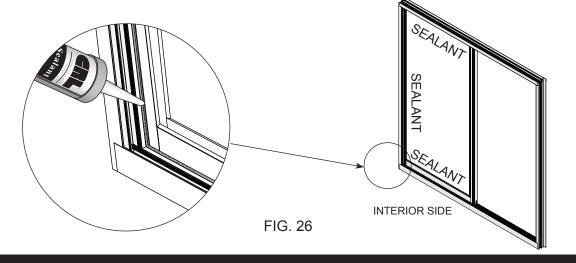
FIG. 23

FIG. 24

3. Apply Cat. No. RTV408 or Cat. No. 33S sealant around the perimeter of the threshold cap. (FIG. 25)



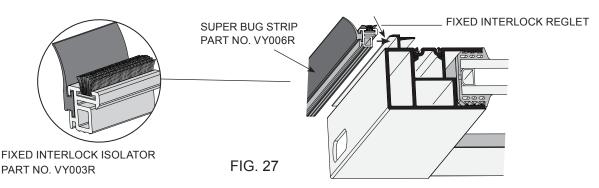
4. Seal the interior side of the fixed panel to the frame using **Cat. No. RTV408** or **Cat. No. 33S** sealant. Run a continuous bead of sealant at the sill, jamb, and head. (FIG. 26)



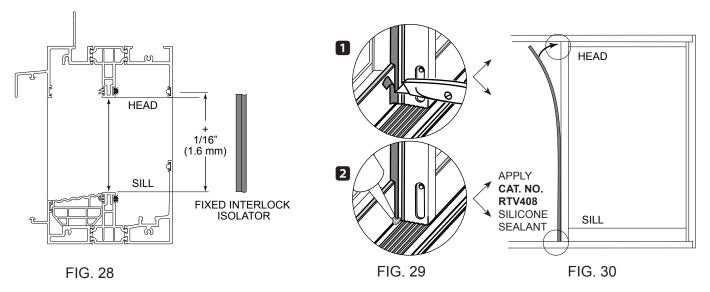


## FIXED PANEL INSTALLATION (Part 3)

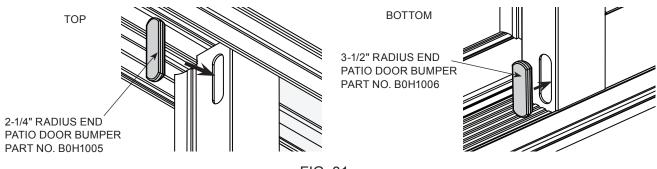
1. The super bug strip attached to the fixed interlock isolator snaps into the U-channel on the interior side of the fixed interlock stile. (FIG. 27)



- 2. Measure the panel between the head and sill D.L.O. and cut the super bug strip 1/16" (2 mm) longer. (FIG. 28)
- 3. Apply Cat. No. RTV408 sealant at the top and bottom of the fixed interlock isolator. (FIG. 29)
- 4. Beginning at the sill, push the super bug strip into the RTV408 sealant and snap into the fixed interlock. Continue working up the side of the panel to the head. (FIG. 30)
- 5. Trim the super bug strip to match the contour of the top and bottom rail. Ensure the super bug strip is embedded into the sealant at the head and sill. (FIG. 29)



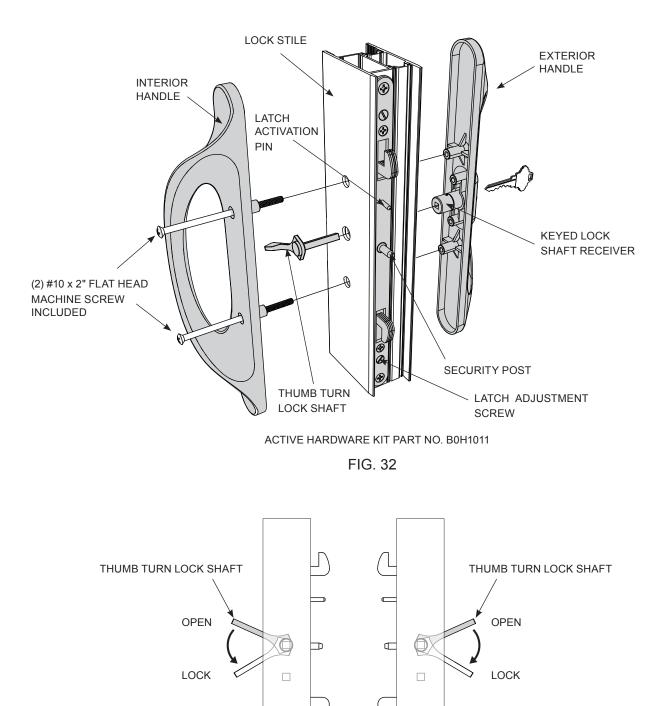
6. Insert both top and bottom Radius End Patio Door Bumpers into the fixed interlocking stile. (FIG. 31)





#### HANDLE AND LOCK INSTALLATION

1. Install the door handle as illustrated below. Starting with the exterior side, align the exterior handle to the holes, insert the thumb turn lock shaft through the door stile, and press into the keyed lock shaft receiver. Hold in place while attaching the interior handle. (FIG. 32)





VIEWED FROM INSIDE

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### LATCH AND STRIKE ADJUSTMENT

1. Install the strike with (4) Part. No. ST27442 #12 x 4" PHIL FLAT HD SMS 18/8SS.

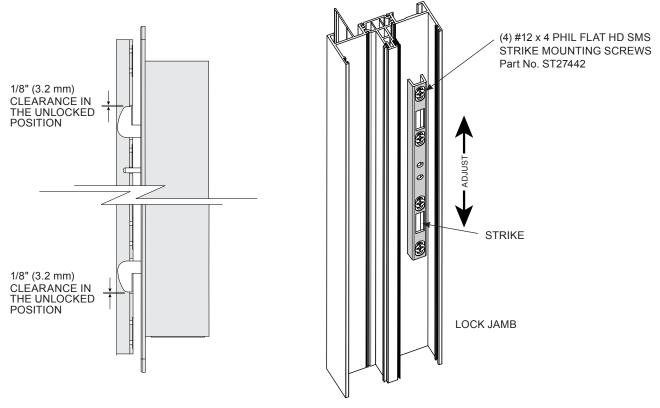
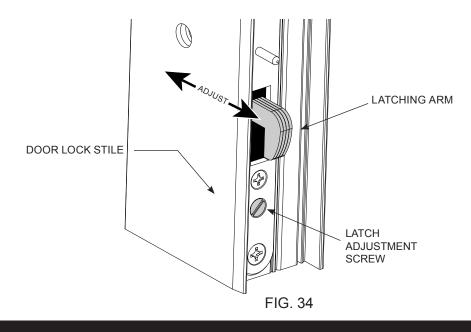


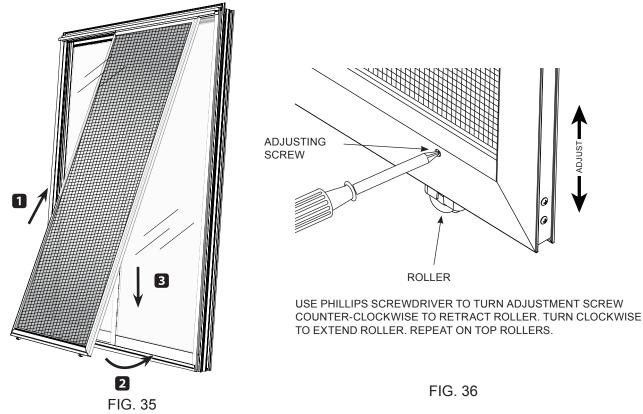
FIG. 33

- Adjust the strike up to 1/4" (6 mm) vertically to compensate for any misalignment. Loosen the (4) flat head screws enough to allow you to tap the strike up or down. Tighten the screws securely when complete. (FIG. 33)
- Use the latch adjusting screws to independently adjust the latching arms in or out. With the door closed and latched, slide the door back-and-forth. Adjust the latching arms to allow for 1/16" (2 mm) of travel. (FIG. 34)

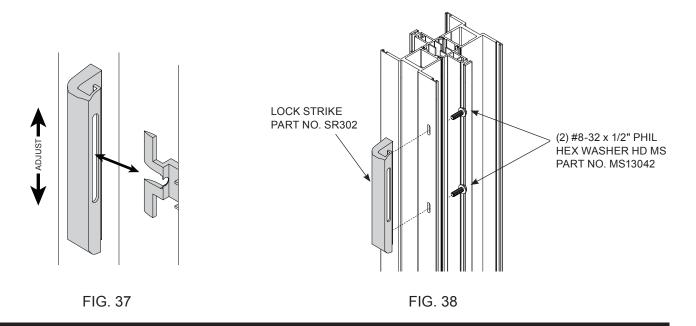


#### SCREEN INSTALLATION

- 1. From the exterior, tilt the screen and insert into the top track. Rotate to vertical and set it in place. (FIG. 35)
- 2. Starting at the bottom, adjust screen rollers so the screen rolls freely and the frame is parallel with the jamb. (FIG. 36) Then repeat with the top rollers.



- 3. Position lock strike so screen catch moves freely. (FIG. 37)
- 4. Install with Part No. MS13042 (2) #8-32 x 1/2" Phil Hex Washer HD MS fasteners. (FIG. 38)



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#### **BUMPER INSTALLATION**

You can slide the fixed bumper over to ensure more clearance between the door and the fixed interlock.

- 1. Insert door bumper stop into the head channel touching the jamb. (FIG. 39)
- 2. Inspect for any corner sealant damage and repair.
- 3. Apply Cat. No. M64 or Cat. No. 95C sealant to interior and exterior of the frame perimeter.

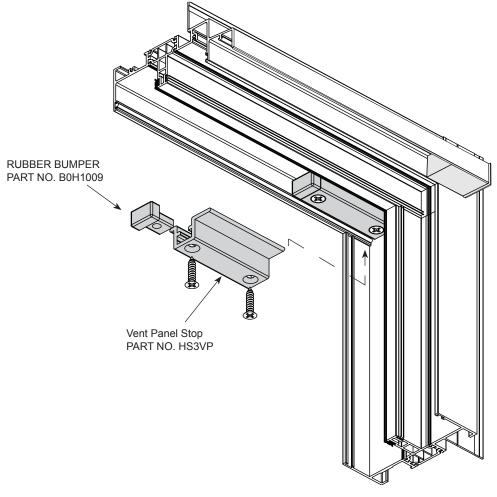
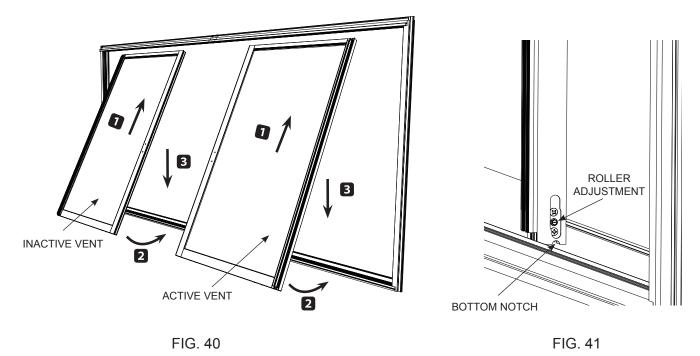


FIG. 39

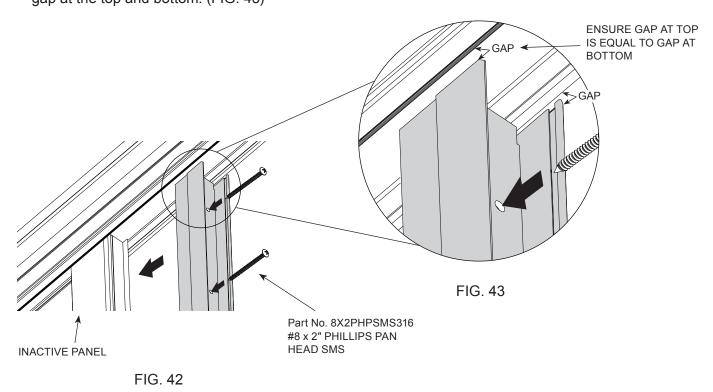


#### **OPTIONAL CONFIGURATIONS - OXXO INSTALLATION PART 1**

- 1. Install both vents from the exterior side. (FIG. 40)
- 2. Adjust rollers on both doors until frames are level and flush, and roll freely. (FIG. 41)



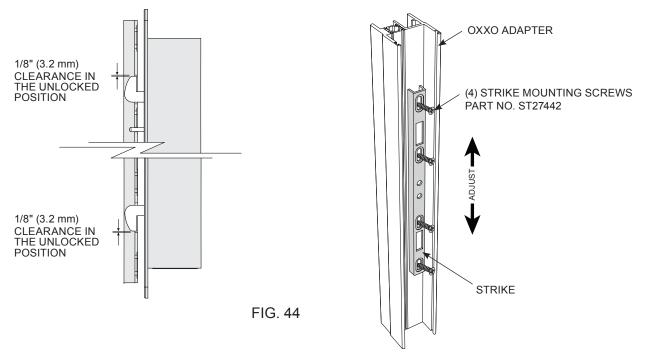
3. Install DT025 OXXO Adapter (FIG. 54 on page 24) to the inactive vent panel. Dry fit the adapter on the panel first. Close both panels and check the spacing and alignment. (FIG. 42) Maintain an equal gap at the top and bottom. (FIG. 43)



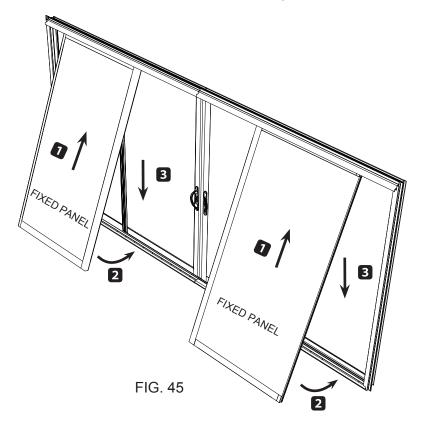
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## **OPTIONAL CONFIGURATIONS - OXXO INSTALLATION PART 2**

4. Install strike to the OXXO adapter on the inactive panel. (FIG. 44)



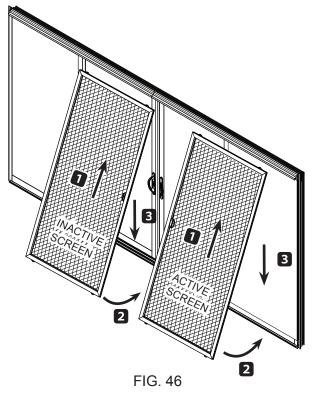
- 5. Install both fixed panels from the exterior. (FIG. 45)
- 6. Refer to the Fixed Panel Installation instructions on pages 10-12. Seal as instructed. Continue with Handle and Lock Installation and Latch and Strike Adjustment on pages 13-14.
- 7. Install threshold cap and seal as shown in "FIG. 25" on page 13.





### **OPTIONAL CONFIGURATIONS - OXXO SCREEN INSTALLATION**

1. Install both screens from the exterior side. (FIG. 46)



- 2. Refer to the instructions to adjust top and bottom screen rollers. (FIG. 28 on page 14)
- 3. Install OXXO screen lock strike on the inactive panel. Position so screen catch moves freely. (FIG. 47)

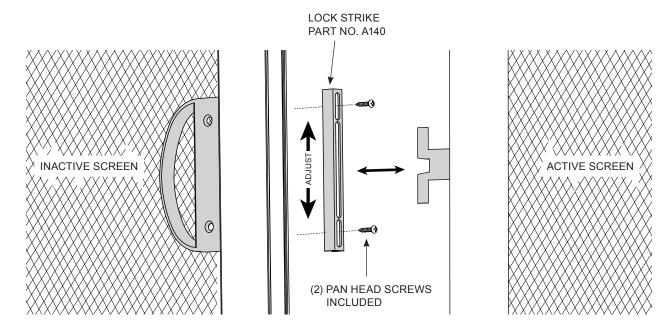


FIG. 47

4. Refer to instructions to install bumper. (FIG. 39 on page 18)



#### **OPTIONAL CONFIGURATIONS - OXO INSTALLATION PART 1**

- 1. Tip active vent into far interior track. Install from the exterior side.
- 2. Adjust rollers on door until frame is level and flush, and rolls freely.

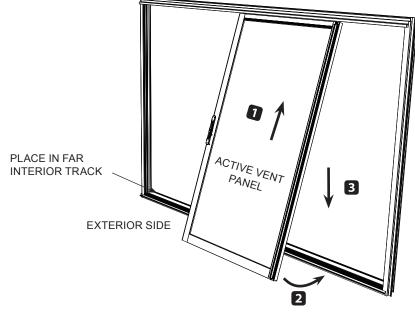


FIG. 48

3. Install the fixed panels on either side of the active vent. Slide the fixed panels to each end of the frame. Steps 1 and 2 in FIG. 49.

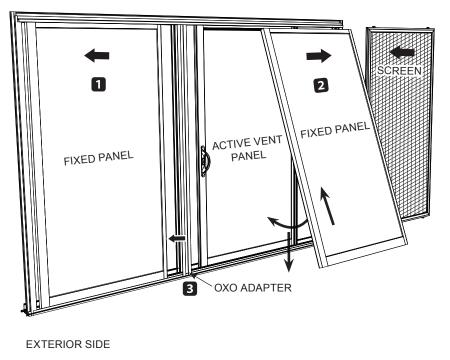
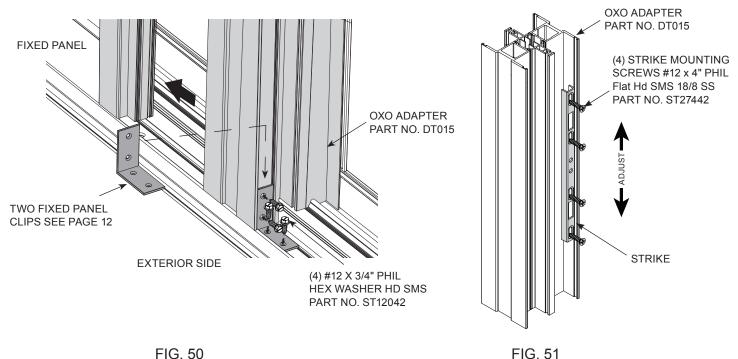


FIG. 49

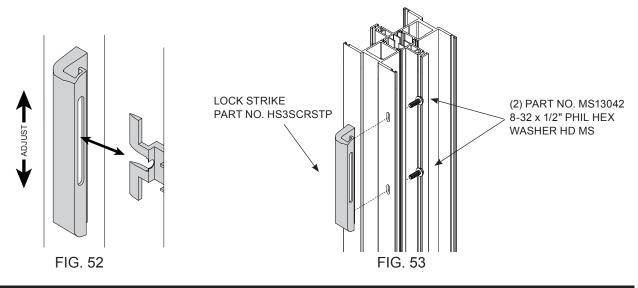


## **OPTIONAL CONFIGURATIONS - OXO INSTALLATION PART 2**

- 4. Place OXO adapter on sill and slide tight to fixed panel. See step 3 in FIG. 49 on page 22.
- 5. Install clips at top and bottom of OXO adapter. (FIG. 50). Refer to FIG. 19 on page 10 for clip attachment method.



- Install strike to the OXO adaptor (EIC
- 6. Install strike to the OXO adapter. (FIG. 51)
- 7. Refer to the Fixed Panel Installation instructions on pages 10-12. Seal as instructed. Continue with Handle and Lock Installation and Latch and Strike Adjustment on pages 13-14.
- 8. Install screen door. Refer to FIG. 54 on page 24 for screen adapter.
- 9. Position lock strike so screen catch moves freely and secure with (2) Part No. MS13042 #8-32 x 1/2" Phil hex washer HD MS fasteners.
- 10. Install threshold cap and seal as shown in "FIG. 25" on page 13.
- 11. Snap in the OXO filler Part No. 1S250 shown in "FIG. 55" on page 24.





### OXXO ADAPTERS

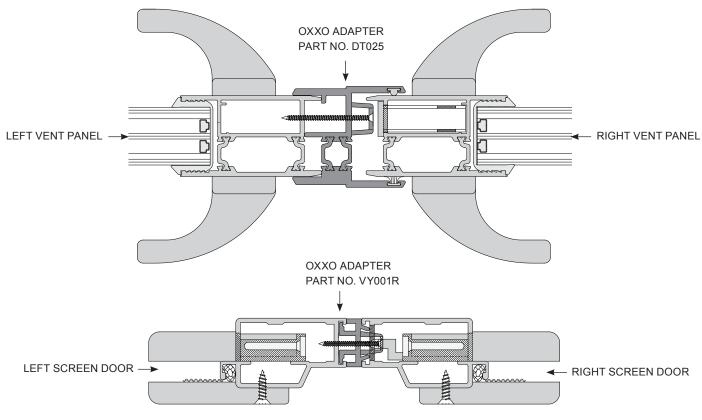


FIG. 54

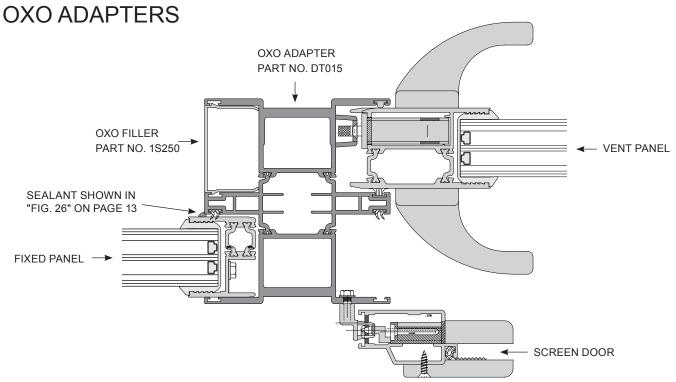


FIG. 55



# GUIDE TO SEALANTS

#### WATERPROOFING

#### • 33S ACETIC CURE SILICONE

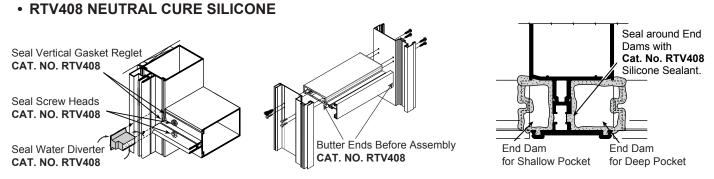
NOTE: Not for use near insulated glass units with butyl sealant.

Fill with Sealant to Create a Water Shed. **CAT.NO. 33S Sealant**  Seal Over Screw Heads CAT.NO. 33S Sealant

Sill to Subsill, End Dams, Screw Heads and Threshold to Door Frame Sealing.

#### JOINT ADHESIVE

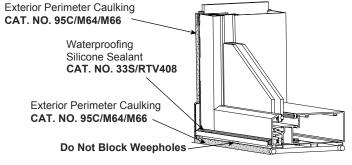
NOTE: I.G. butyl contact OK.



Small Joints, End Joints and Buttered Surfaces, Water Diverters, End Dams and Reglet Fills.

#### PERIMETER

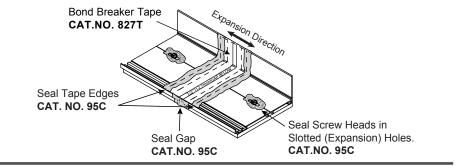
- 95C NEUTRAL CURE SILICONE
- M64 (SMOOTH) MODIFIED POLYURETHANE
- M66 (TEXTURED) MODIFIED POLYURETHANE



Perimeter Seals, Expansion Joints, Sill and Threshold Beds, Concrete, Wood and Steel Openings.

#### EXPANSION

• 95C NEUTRAL CURE SILICONE



Expansion Joints.

#### STRUCTURAL

#### • ALL STRUCTURAL SEALANTS REQUIRE TESTING AND APPROVAL.

Glass to Glass or Glass to Metal.





# **JOB SITE ESSENTIALS**

Helpful Tools and Supplies for Installing CRL U.S. Aluminum Entrances, Storefronts, Windows, and Curtain Wall Systems



CRL 95C Silicone Building Sealant CAT. NO. 95C



**CRL RTV408 Neutral** 

Cure Silicone

**CAT. NO. RTV408** 



CRL33S Silicone Sealant CAT. NO. 33S



CRL M64 Modified Smooth Polyurethane Construction Sealant CAT. NO. M64GRY

Polvurethane

struction Sealant



CRL M66 Modified Grainy Polyurethane Construction Sealant CAT. NO. M66



CRL12:1 Ratio Strap Frame Caulking Gun CAT. NO. GA1203

CRL Complete Set of Seven All Stainless Steel Spatulas CAT. NO. AB958G



CRL Open Cell Backer Rod CAT. NO. B0CBR58C



CRL Backer Rod Roller Tool CAT. NO. SBRR



CRL Flat Head Phillips Sheet Metal Screws CAT. NO. 6X1FHPSMS

CRL Plastic Bearing Shimstrips CAT. NO. PBS06

**CRL** Pan Head Phillips

Sheet Metal Screws

CAT. NO. 6X1PHPSMS



CRL Soft-Face Power Hitter CAT. NO. ST57532



CRL Saint-Gobain/Norton V2100 Thermalbond<sup>®</sup> Structural Glazing Spacer Tape CAT. NO. V2100



CRL Plastic Horseshoe Shims



CRL Level Tool CAT. NO. 406065





#### SERIES 3000 PATIO DOOR



CRL Bond Breaker Tape CAT. NO. 827T2



CRL Gasket Roller CAT. NO. VR10



CRL Tape Measure CAT. NO. 54125



CRL Glass Marking Pencils CAT. NO. GM44



CRL Gloves CAT. NO. KF1TL



**CRL Belt Sander** 

**CAT. NO. LD321** 

**CRL Glass Cutters** 

CAT. NO. TC17B

**CRL Gasket Cutter** 

CAT. NO. MC80N

**CRL Glazier's Rule Holder** 

**CAT. NO. RH670** 

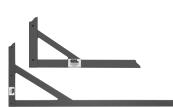
CRL Utility Knife CAT. NO. K82



CRL Running Pliers CAT. NO. PPG1



CRL Glass Cleaner CAT. NO. 1973



CRL Phenolic L Square CAT. NO. L48



CRL Glass Grinding Belts CAT. NO. CRL3X21120X



CRL Utility Knife Blades CAT. NO. 1992C



CRL Vacuum Cup CAT. NO. S7950



CRL Glass Wipes CAT. NO. 1550



CRL Spring Clamp CAT. NO. JC3202HT



CRL Portable Ladder CAT. NO. 6206



CRL Cordless Driver/Drill CAT. NO. 6281DWPE

