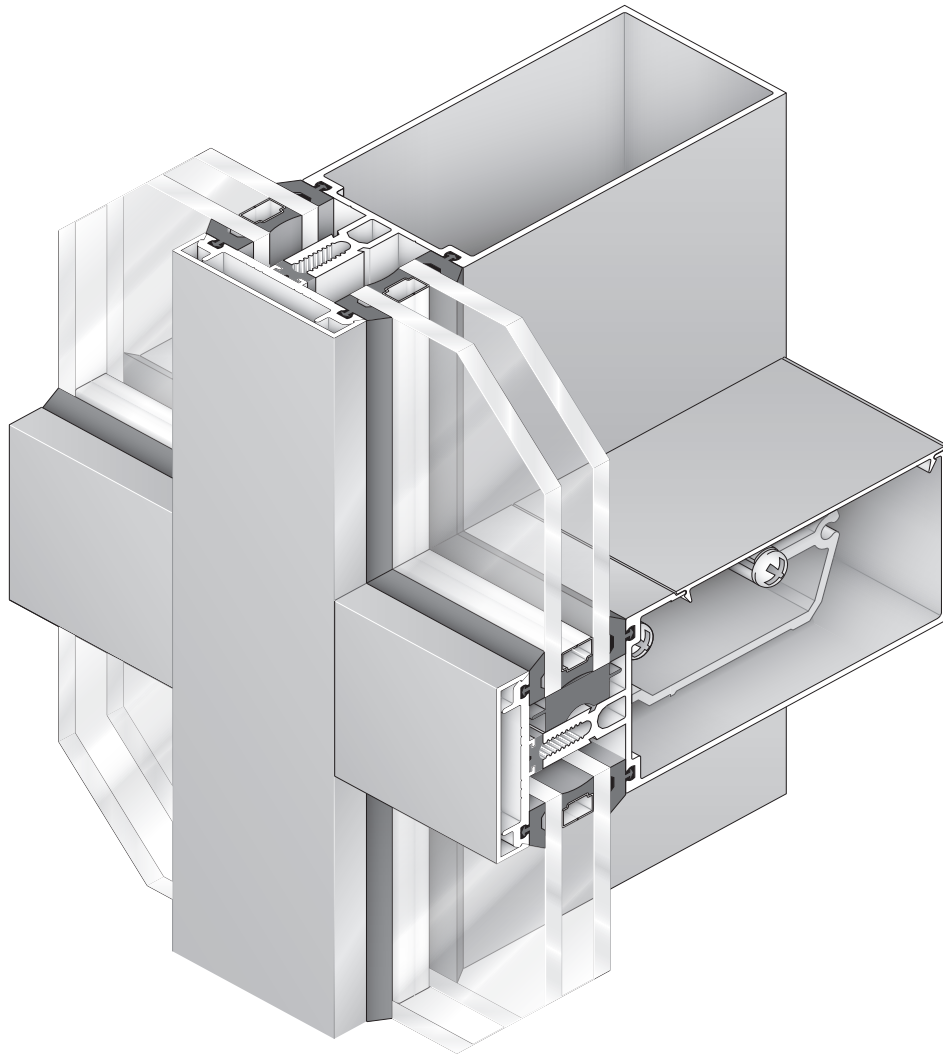


# INSTALLATION INSTRUCTIONS

## SERIES 3250 CURTAIN WALL



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# 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 the 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 for quantities 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.***

The rapidly changing technology within the architectural aluminum products industry demands that CRL U.S. Aluminum reserve the right to revise, discontinue or change any product line, specification or electronic media without prior written notice.

**NOTE:** Dimensions in parentheses ( ) are millimeters unless otherwise noted.

# 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.** All materials are to be installed plumb, level, square, and true.
- 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. STEEL ANCHORS.** Steel anchors that weld to steel structure are normally line set before mullions are hung. Outstanding leg of anchors must be at 90 degrees to offset lines. Mullion space should be held to  $\pm 1/32"$  (0.8). Anchor clips vary per job conditions. Follow approved shop drawings for size and location of clips.
- 5. 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.
- 6. 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.
- 7. 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.
- 8. 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.***
- 9. 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.
- 10. 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. CRL U.S. Aluminum exercises no control over the use or application of its products, glazing materials, and operating hardware, and assumes no responsibility thereof.
- 11. 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 difference 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.
- 12. WATER HOSE TEST.** As a representative amount of the wall 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.
- 13. 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.).
- 14. 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.
- 15. JOB SITE ESSENTIALS.** See pages 27.

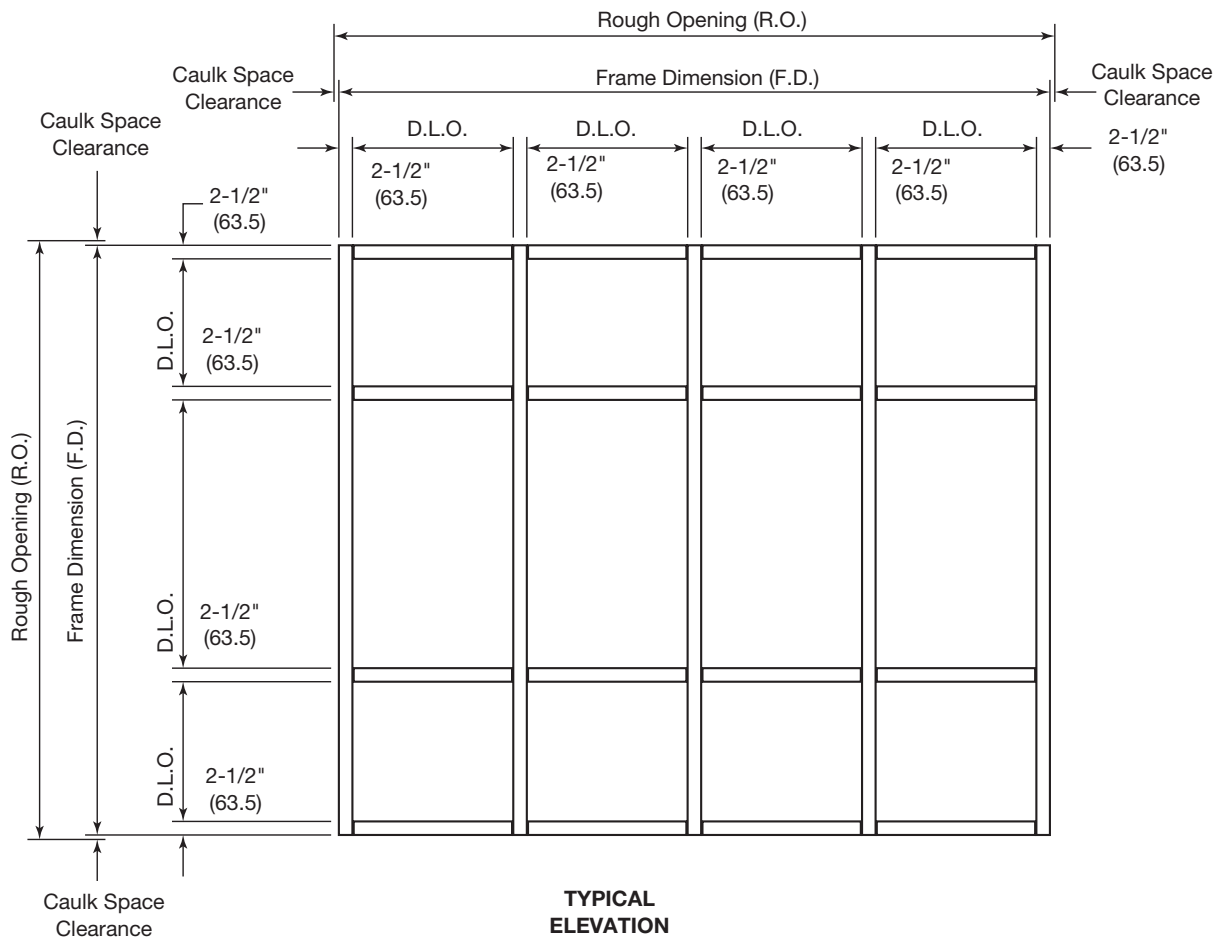
# INSTALLATION INSTRUCTIONS

## FRAME FABRICATION

Most of the details shown on these instructions are for 1" (25) glazing and 4" (101.6) back members. Details for 1/4" (6) glazing systems, 5" (127), and 8" (203.2) back members are similar.

**Cut members to size:**

- Vertical Members:** R.O. Minus Top and Bottom Clearances (F.D.)  
**(See DETAIL W for splice joint conditions)**
- Vertical Pressure Bars:** F.D. Minus 1/4" (6.4)  
**(See DETAIL Y for splice joint conditions)**
- Vertical Face Covers:** F.D. Minus 1/32" (0.8)  
**(See DETAIL Y for splice joint conditions)**
- Horizontal Members:** D.L.O. Minus 1/32" (0.8) - plus 0"
- Horizontal Pressure Bars:** D.L.O. Minus 1/4" (6.4)
- Horizontal Face Covers:** D.L.O. Minus 1/32" (0.8)
- Vertical Transition Adaptors:** D.L.O. Plus 1" (25.4)
- Horizontal Transition Adaptors:** D.L.O. Minus 1/8" (3.2)

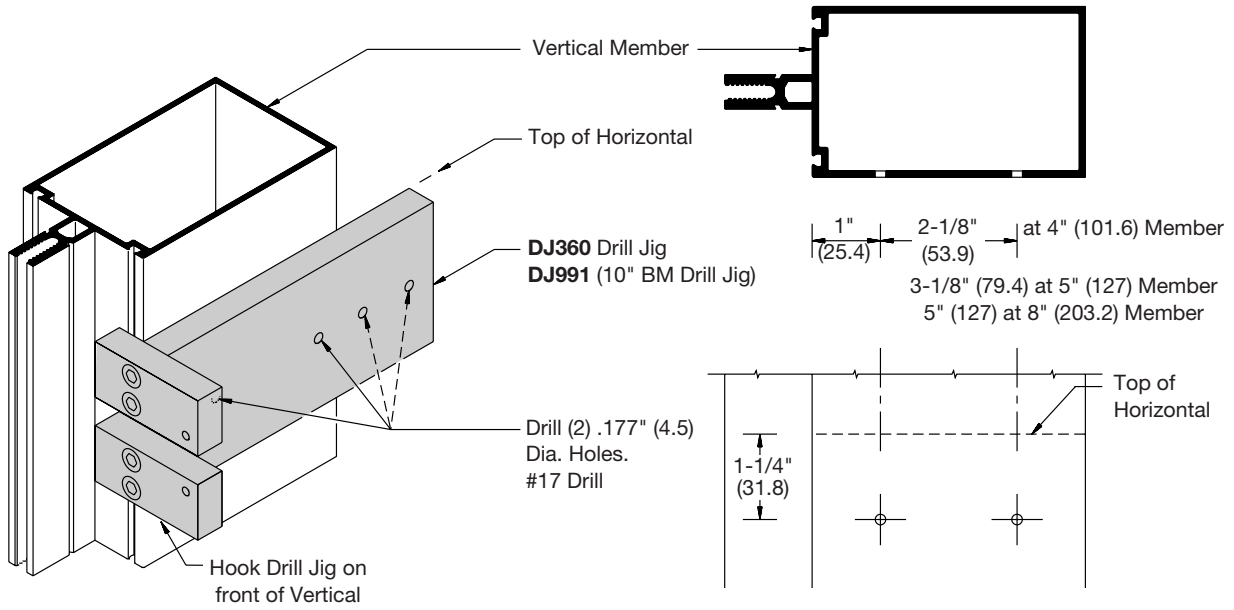


TYPICAL  
ELEVATION

DETAIL A

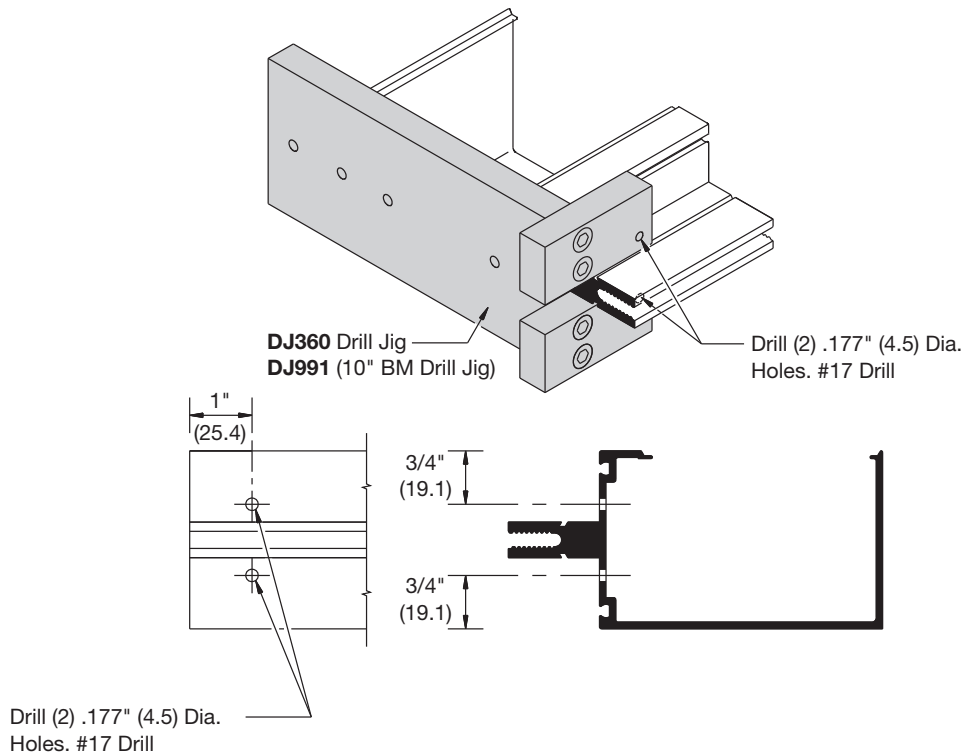
# DRILL JIG PREPARATION

2. Mark on verticals the location of horizontal members and drill holes for shear blocks. Drill jigs are available (**DETAIL B**). Visit [usalum.com](http://usalum.com) for additional information.



**DETAIL B**

3. Fabricate ends of horizontal members for shear block pick-up screws (**DETAIL C**).

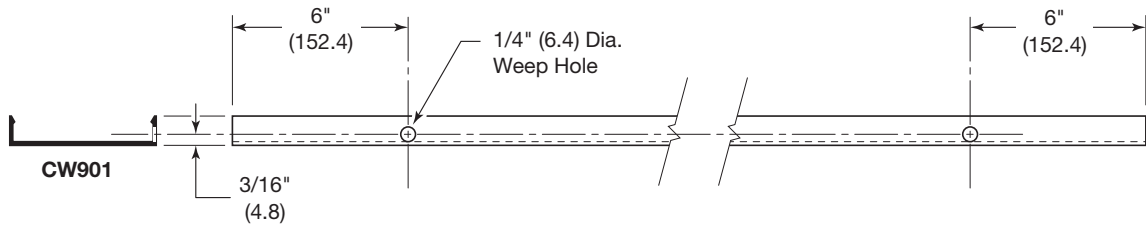


**DETAIL C**

**NOTE:** For larger projects we offer the Accufab Pro Tool Visit: [usalum.com](http://usalum.com) for additional information.

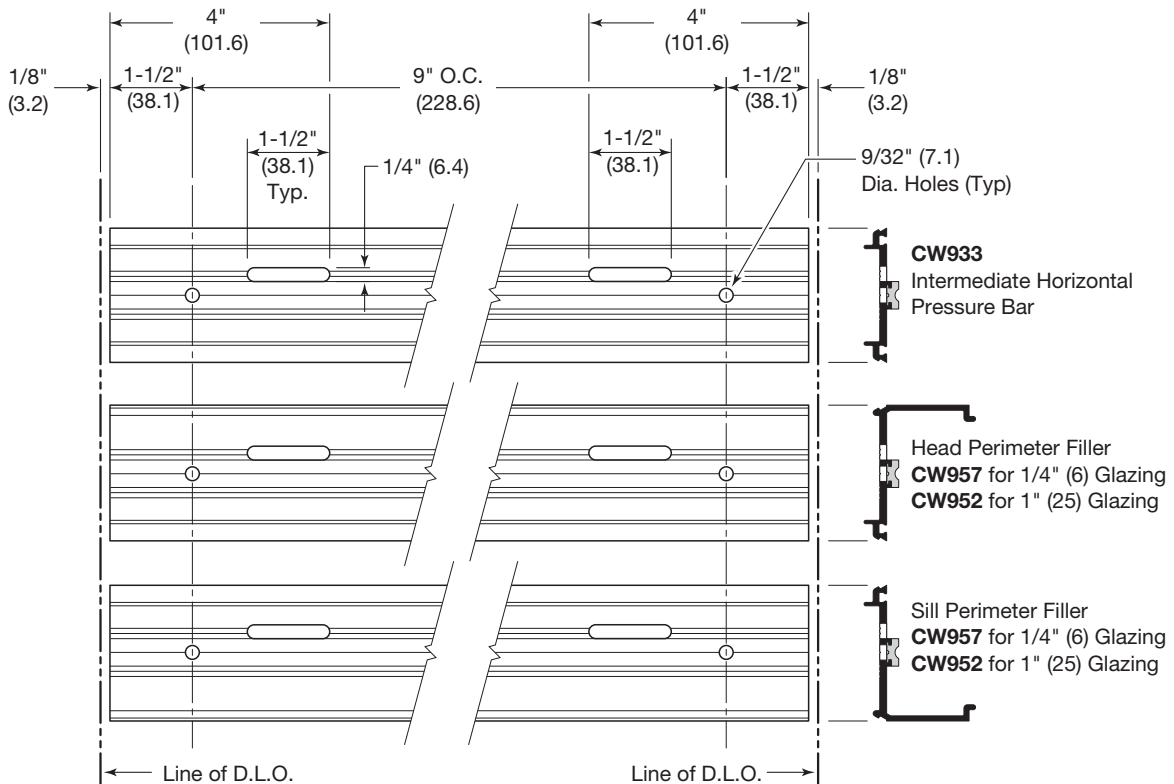
# SERIES 3250 CURTAIN WALL

4. Fabricate bottom of horizontal face covers for weep holes 6" (152.4) from each end as shown in **DETAIL D**.



**DETAIL D**

5. Vertical pressure bars feature 9/32" (7.1) Dia. attachment holes 9" (228.6) on center. Additional holes should be drilled at 1-1/2" (38.1) from all ends and at vertical/horizontal intersections.
6. Fabricate two 1/4" x 1-1/2" (6.4 x 38.1) weep slots 4" (101.6) from each end in horizontal pressure bars and drill 9/32" (7.1) dia. attachment holes 1-1/2" (38.1) from each end as shown on **DETAIL E**.



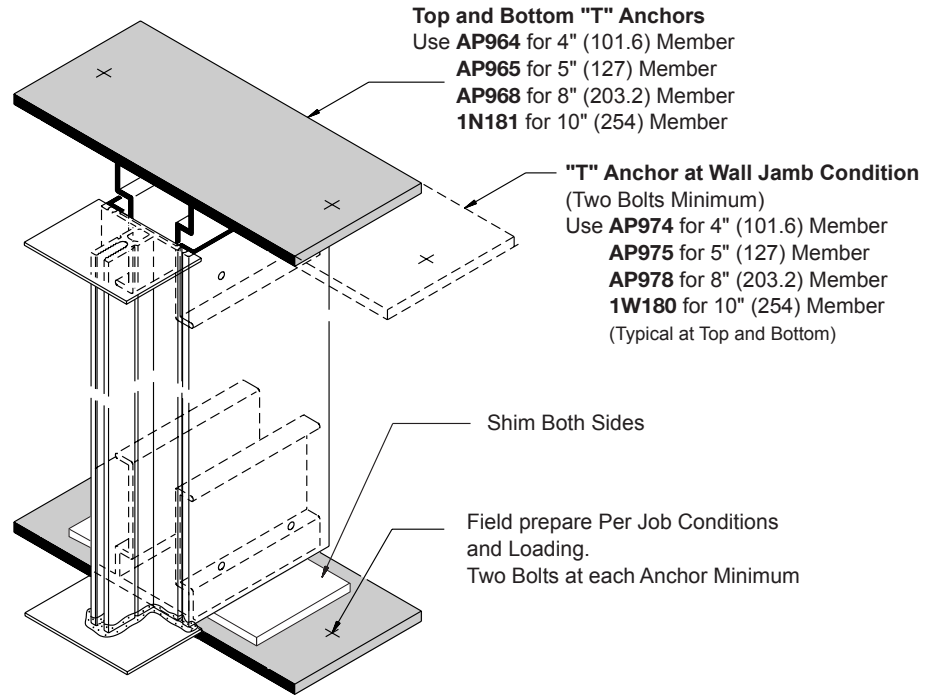
**DETAIL E**

# FRAME INSTALLATION

## SINGLE SPAN CONDITION

**NOTE:** Anchor type and sizes vary per job requirements. Details shown are to be used as a guide only. See approved shop drawings for actual conditions.

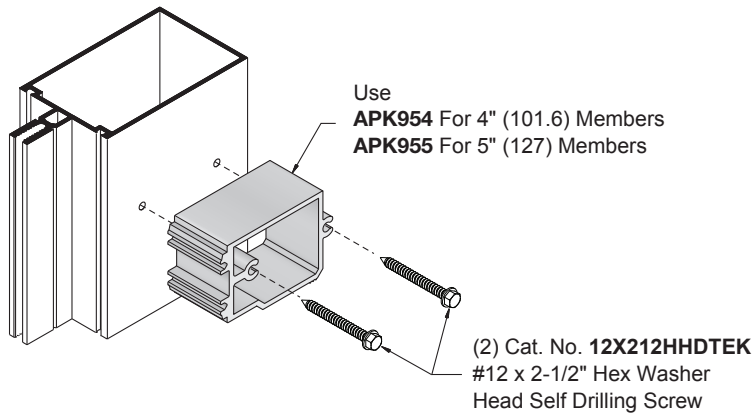
1. Slide top and bottom "T" anchors into vertical members (**DETAIL F**).
2. Install verticals, plumb, and level. If shims are required place them directly under each vertical for proper load distribution. Secure top and bottom anchors to structure.



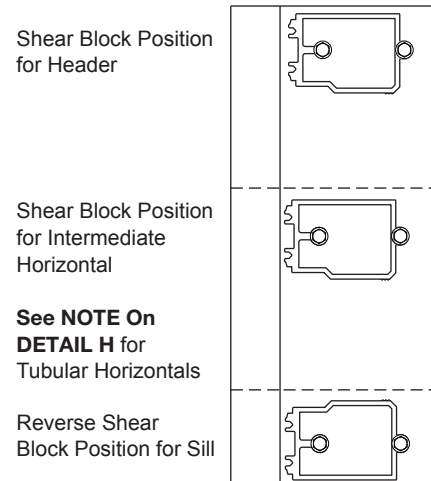
**DETAIL F**

3. Attach shear blocks to verticals with screws provided. See **DETAILS G** and **H** for shear blocks position. 4" (101.6) and 5" (127) horizontals shown.

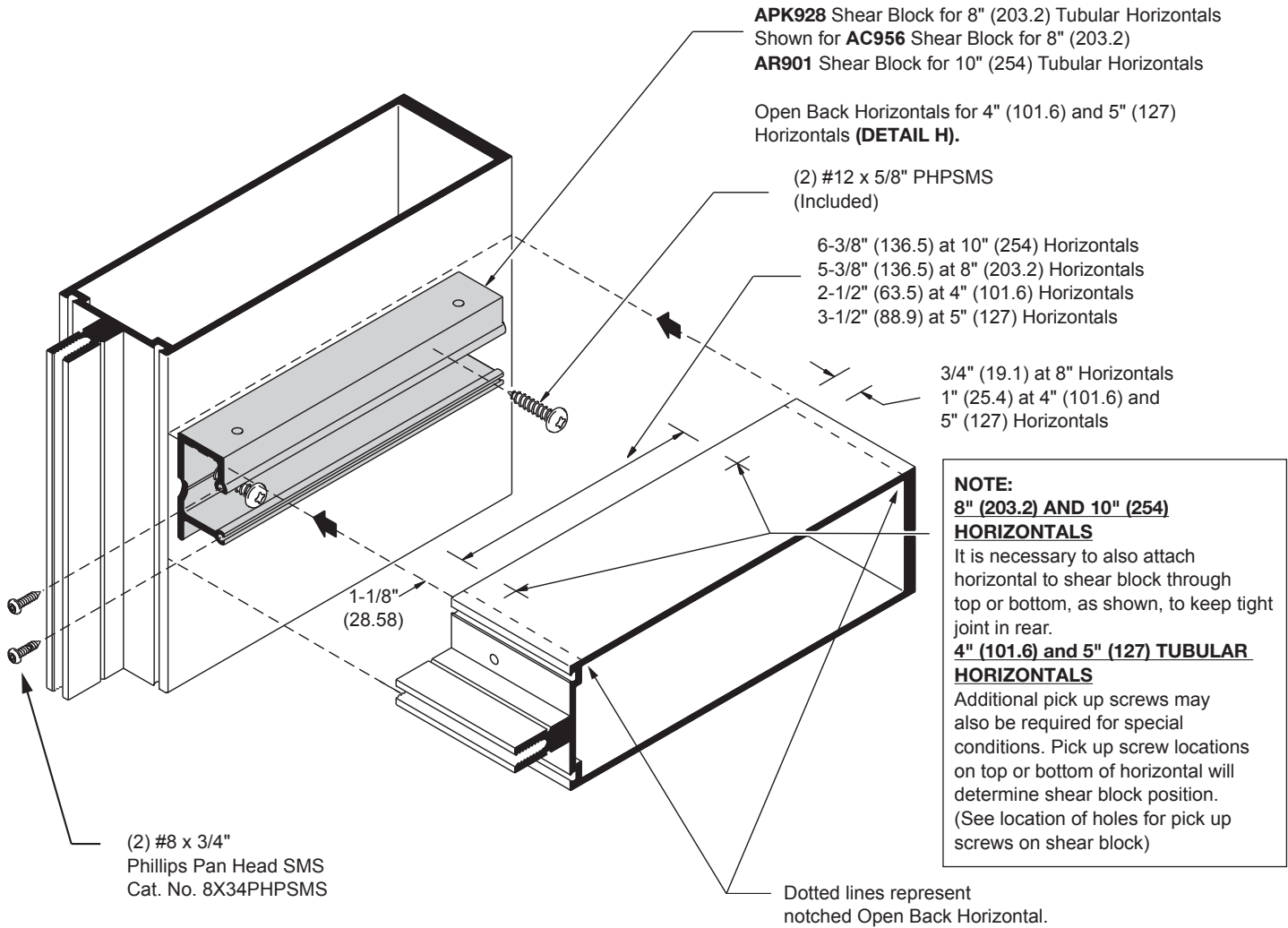
**NOTE:** Use tubular horizontals when span exceeds 6'-0" (1.8 m) or dead load exceeds 250 lbs. (113.4 Kg) Elevations using tubular horizontals must be installed per bay. See tubular horizontal notes at **DETAILS H** and **I**.



**DETAIL G**



# 8" (203.2 ) AND 10" (254 ) HOLLOW VERTICALS

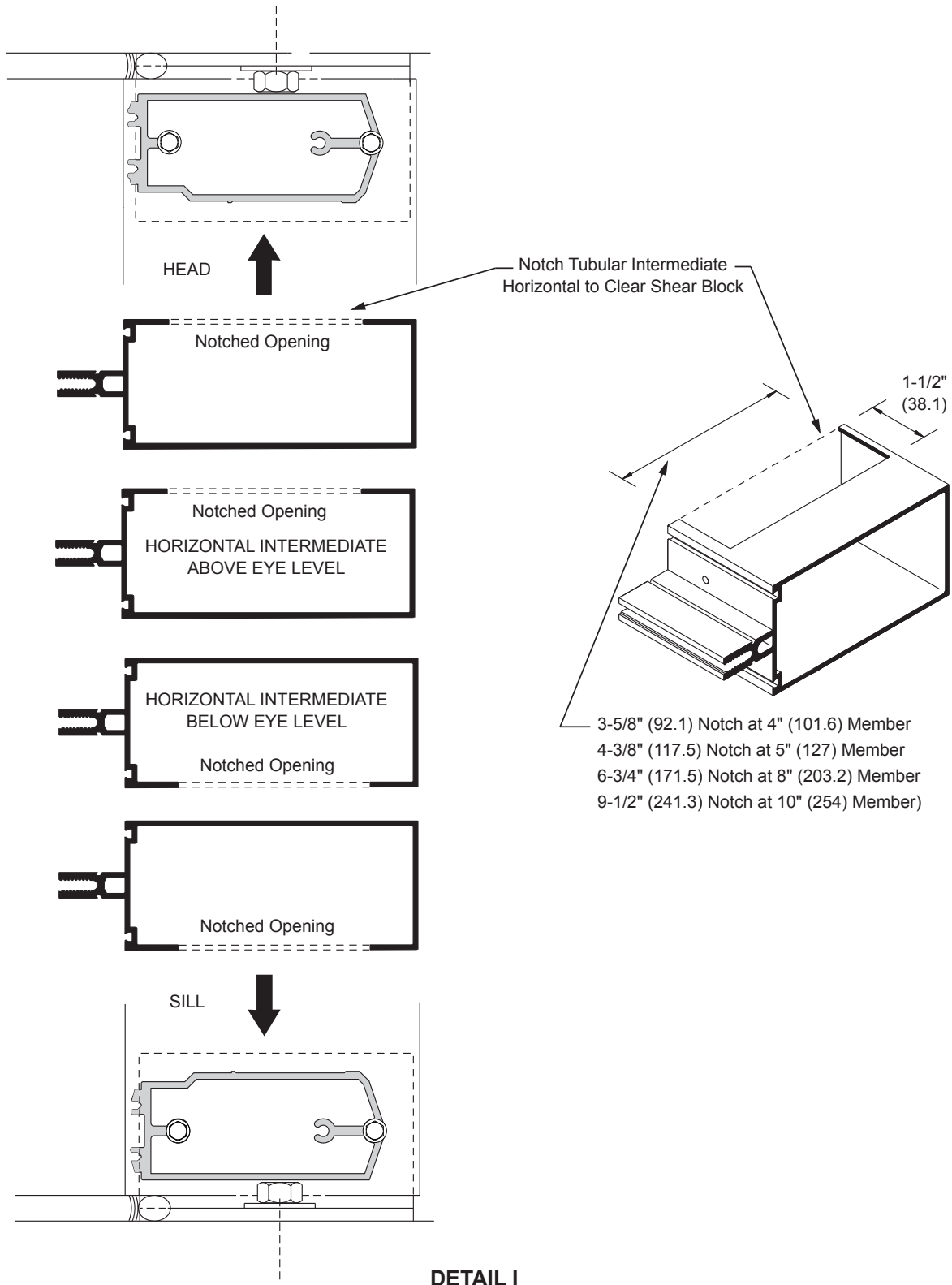


**DETAIL H**



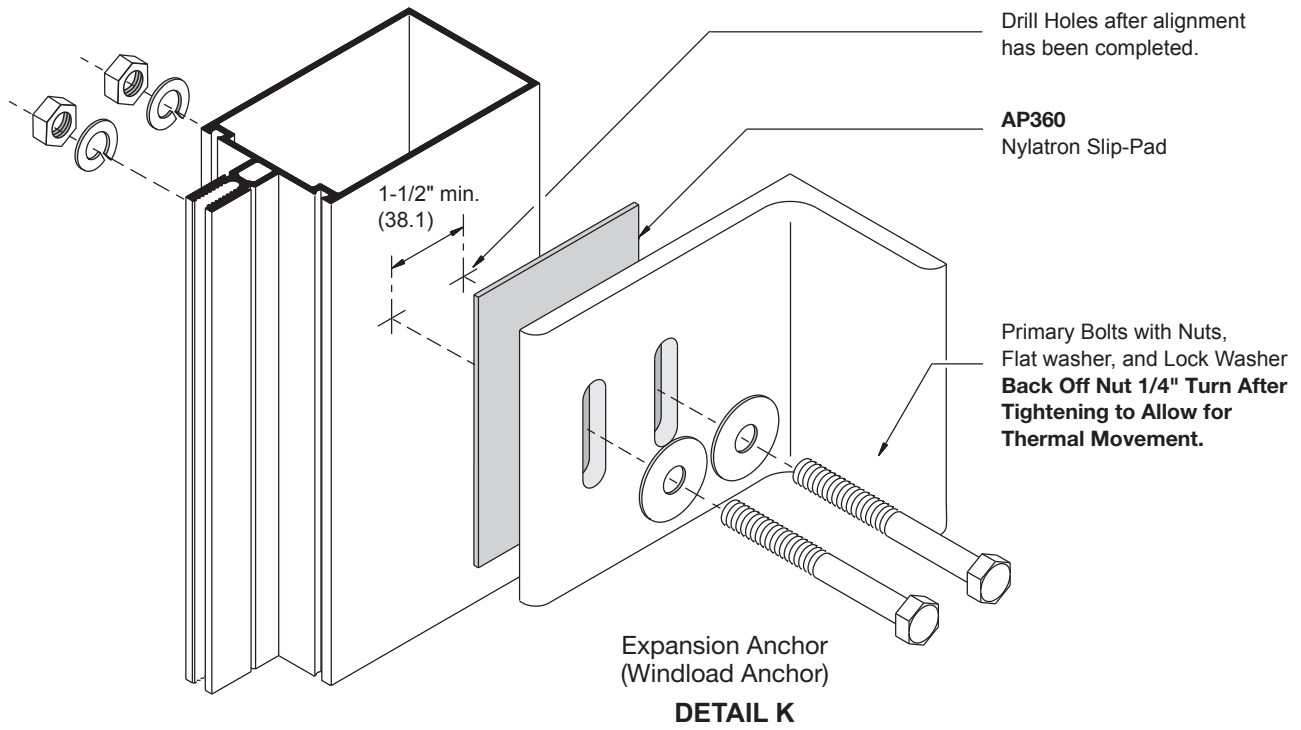
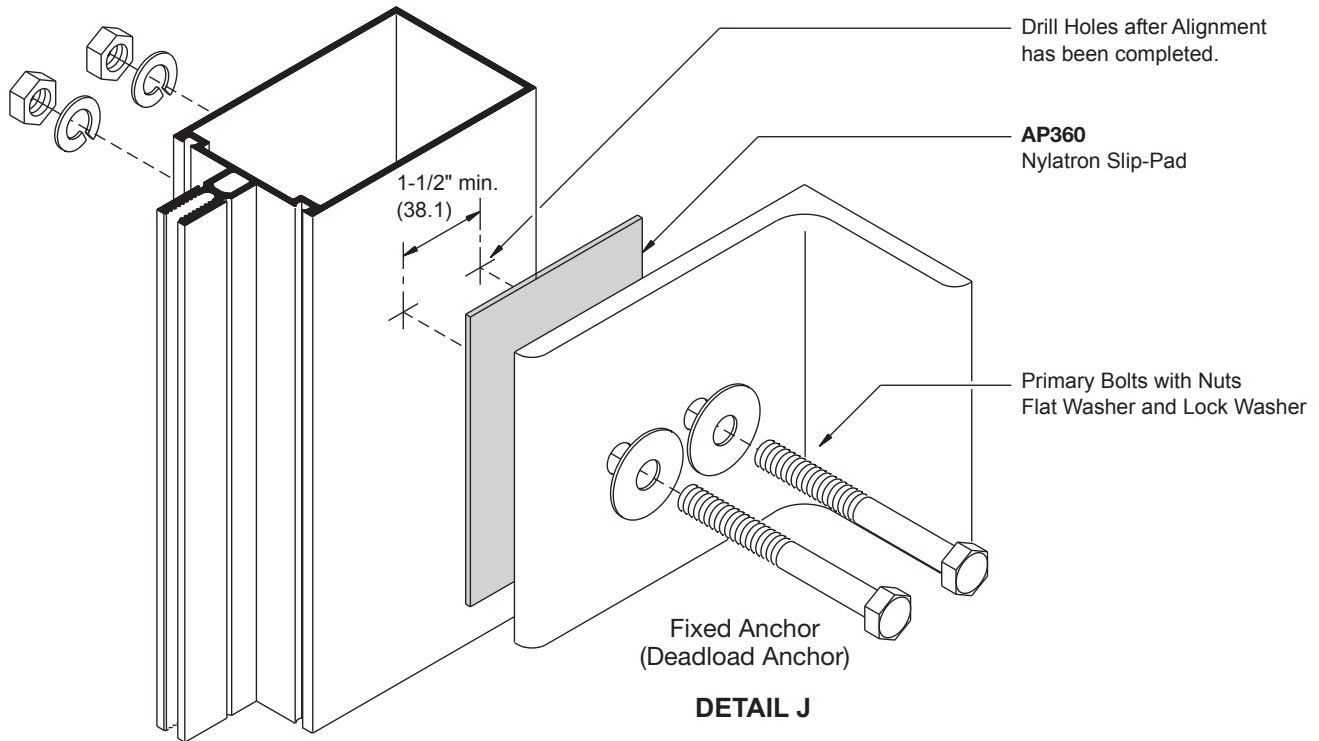
# TUBULAR HORIZONTALS

NOTE: Elevations using tubular horizontals at last bay (DETAIL I).



**MULTI-SPAN CONDITION**

**DETAILS J and K** show fixed (dead load) and expansion (windload) anchors. Anchor type and size vary per job requirements. Details shown are to be used as a guide only. See approved shop drawings for actual conditions.

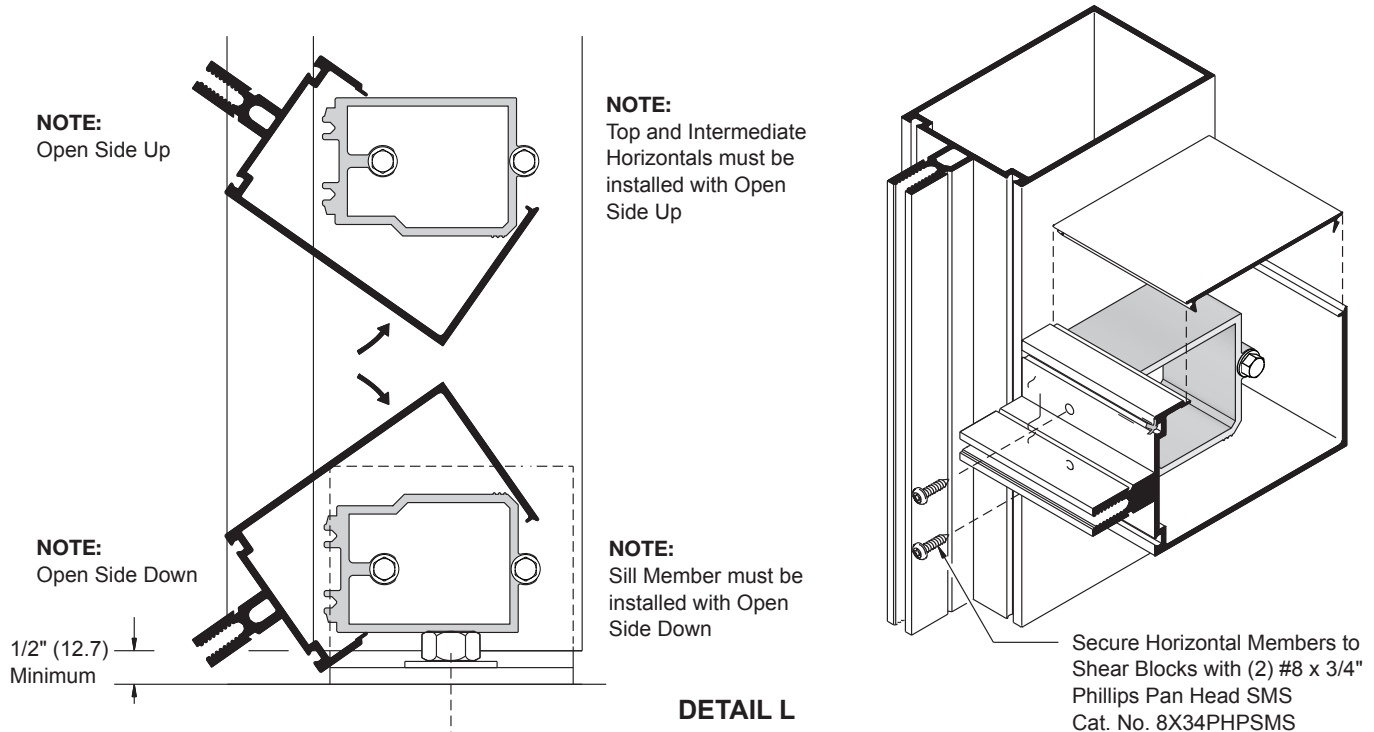


4. Secure verticals to anchor clips after alignment has been completed.

**NOTE:** Mullion spacing must be held to within  $\pm 1/32"$  (0.8). Check overall frame dimension every four bays to monitor dimension build up.

# OPEN BACK HORIZONTALS

6. Roll open back horizontal members over shear blocks and secure them with screws provided (**DETAIL L**).

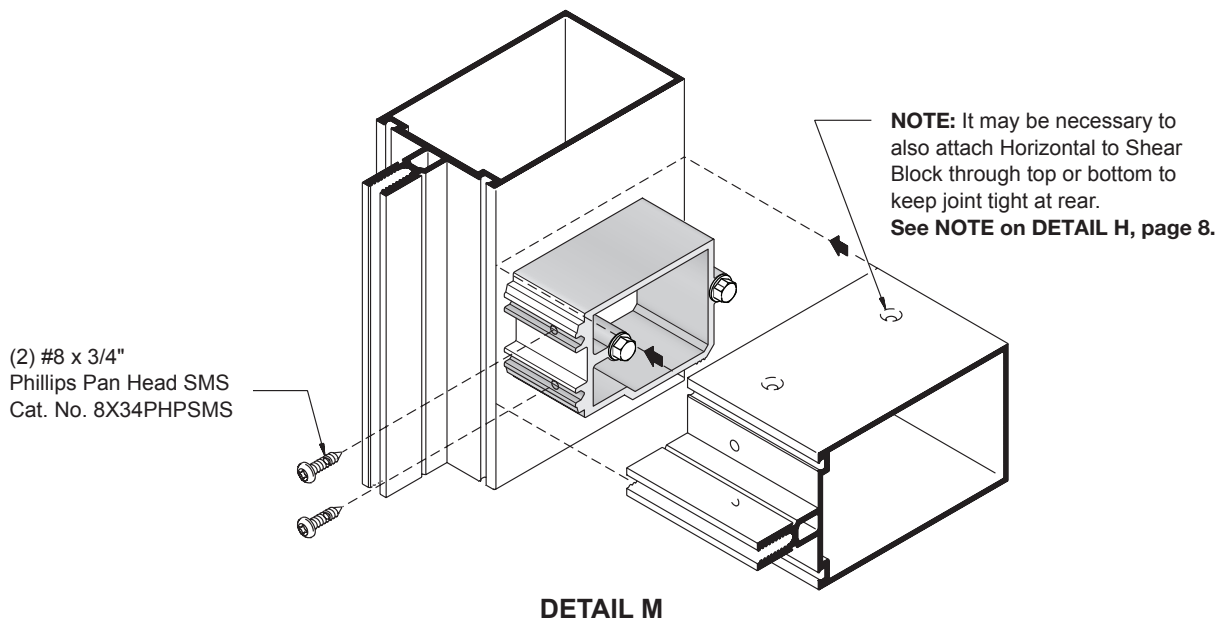


Install snap-in horizontal filler where open back of horizontal member is exposed.

**NOTE:** Snap-in fillers are optional at head and sill to facilitate interior caulking. (Cut fillers short to clear shear blocks and snap them in before installing).

# TUBULAR HORIZONTALS

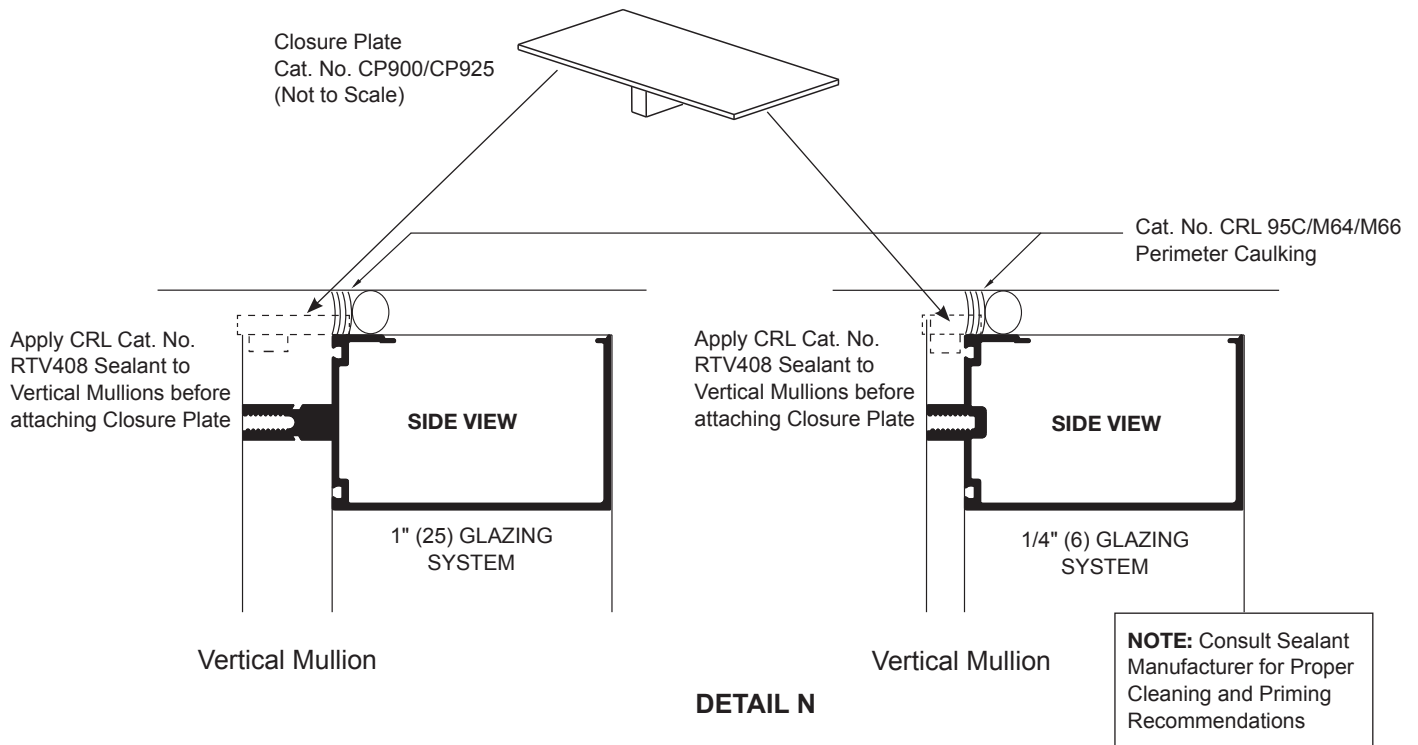
6a. Slide horizontals over shear blocks and secure them with screws provided (**DETAIL M**).



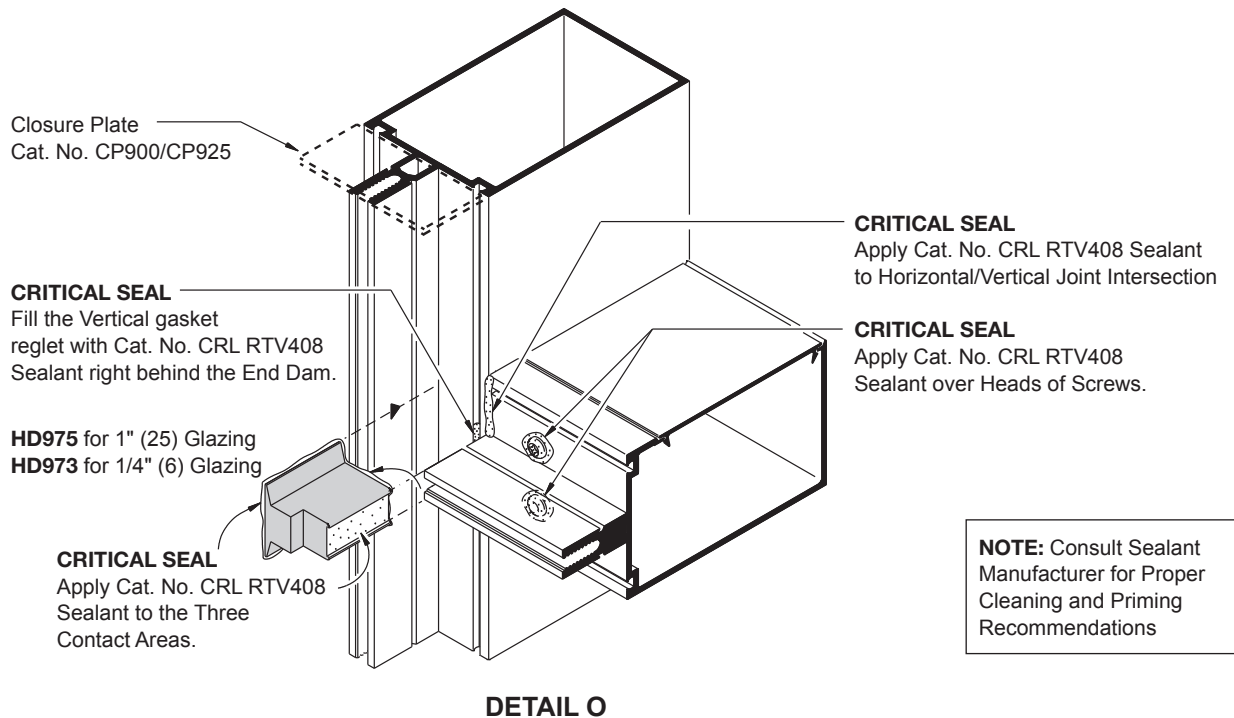
NOT TO SCALE

## SERIES 3250 CURTAIN WALL

7. Once all verticals and perimeter members are installed, seal around perimeter. Perimeter caulking must be completed prior to installation of glass and pressure bars. Ensure perimeter sealant has smooth transition across vertical End Dams (**DETAIL N**).



8. Seal joint between horizontal and vertical. Also seal over head of screws in the glazing pockets.
9. Apply sealant at the **three contact areas** of end dams. Also fill the vertical gasket reglet with sealant at the End Dam location (**DETAIL O**).
10. Slide End Dams into place. **NOTE:** End Dams occur at head and sill also.



# GLAZING

## GLASS SIZES

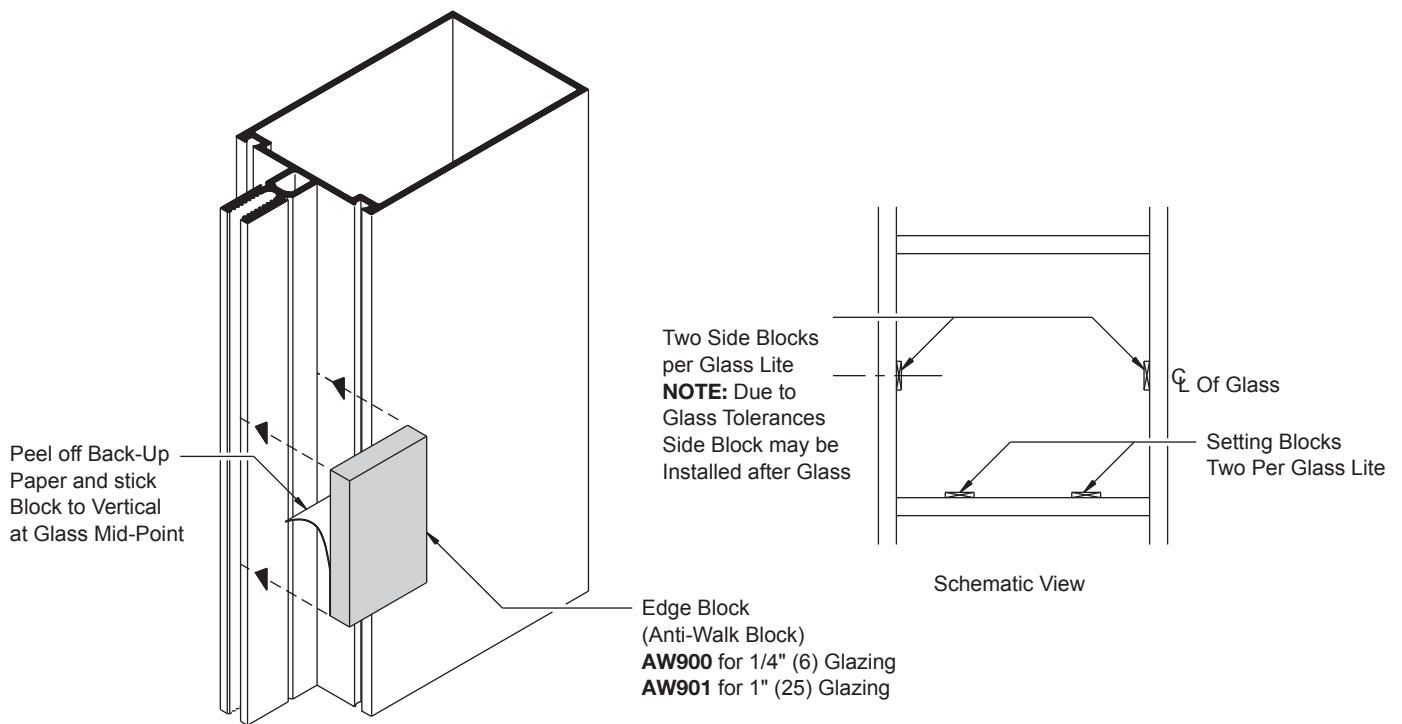
### GLASS WIDTH and HEIGHT = DAYLIGHT OPENING + 1" (25.4)

**NOTE:** This formula does not take into account glass tolerances. Consult glass manufacturer before ordering glass.

Remove gaskets from carton and lay flat in a clean, dry area in order to recover shape. Allow gaskets to relax at least two hours at temperatures above 50°F (10°C). Glaze with gaskets above 40°F (4°C). If necessary warm gaskets in a hot box before installing.

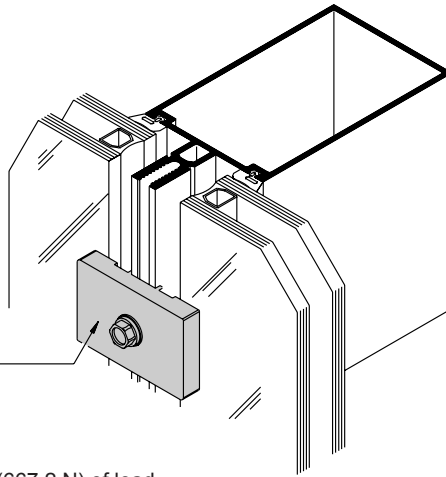
Use NP430 dense gasket at exterior and NP420 sponge gasket at interior.

1. Cut gaskets allowing 1/8" (3.2) extra length per foot of aluminum extrusion to allow for shrinkage.  
Vertical gaskets on mullion run past horizontal gaskets by 5/8" (16) **(DETAIL R)**.  
Horizontal gaskets butt against vertical gaskets.
2. Install back gaskets into vertical and horizontal members and front gaskets into pressure bars. Horizontal pressure bar gaskets should extend 1/8" (3.2) beyond each end of the extrusions. Vertical pressure bar gaskets run continuous.
3. Position two setting blocks for each glass lite as directed by the dead load charts and shop drawings.
4. Peel off side blocks paper backing and locate them, two per glass lite, at approximately mid-height of glass **(DETAIL P)**.



**DETAIL P**

5. Apply bead of sealant at interior gaskets corners 2" (50.8) in each direction **(DETAIL R)**.
6. Install glass and center in opening. Use CW368 Temporary Glass Retainers to hold glass in place until pressure bars are installed **(DETAIL Q)**.

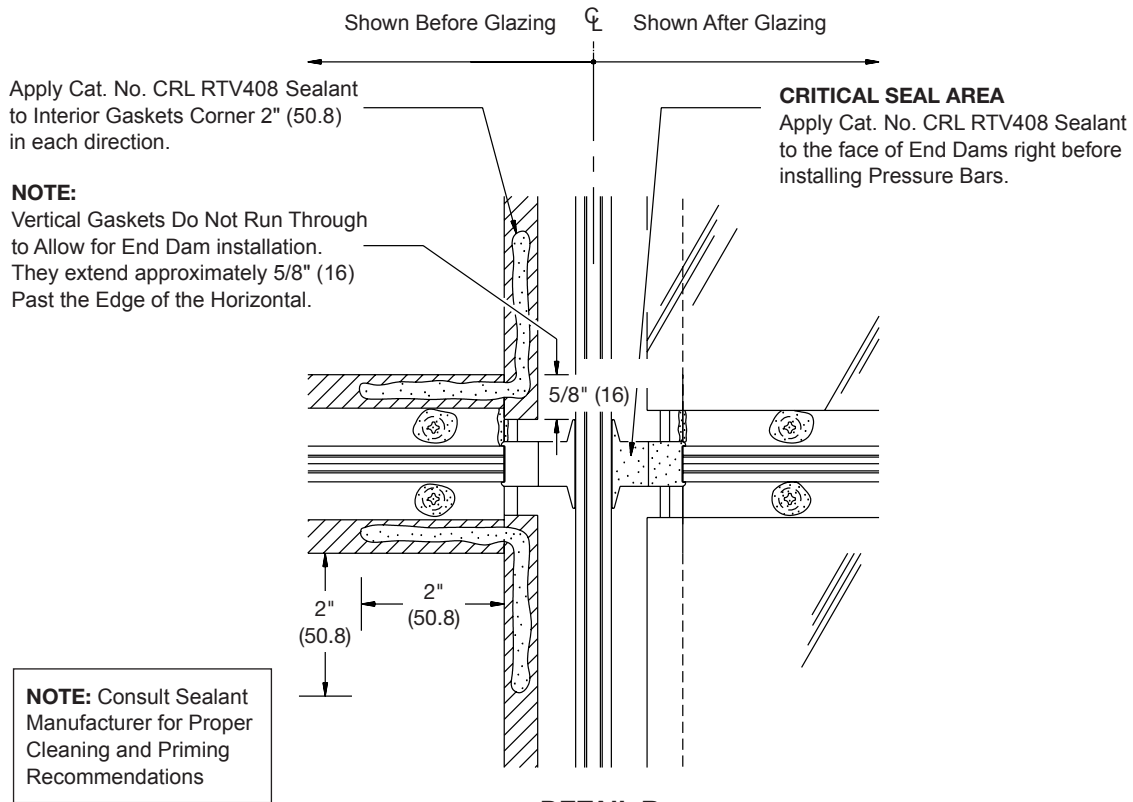


**CW368** Temporary Glass Retainer.  
Torque to 30 in. Pound (3.4 Nm)

**NOTE:** Do Not Over-Torque  
Glass Retainer Bolts.  
Use One Retainer Per Each 150 lbs. (667.2 N) of load.  
(i.e. if Glass Height x Glass Width x Windload = 350 lbs.  
Use Three Retainers)

**DETAIL Q**

7. Apply Cat. No. CRL RTV408 Sealant to face of End Dams. This is a **Critical Seal Area (DETAIL R)**.



**DETAIL R**

## PRESSURE BAR INSTALLATION

Install vertical pressure bar bolts from bottom to top and horizontal pressure bar bolts from center outward. Always locate bolts 1-1/2" (38.1) maximum from vertical/horizontal intersections to ensure proper pressure over End Dams (**DETAIL S**). **Be sure pressure bar spacer is not disengaged.**

8. Install vertical pressure bars first leaving 1/8" (3.2) gaps at top and bottom. Using a torque wrench, torque bolts to 30 inch pound (3.4 Nm). Increase torque to 50 to 60 inch pound (5.7 to 6.8 Nm) minimum after all four sides have been secured.

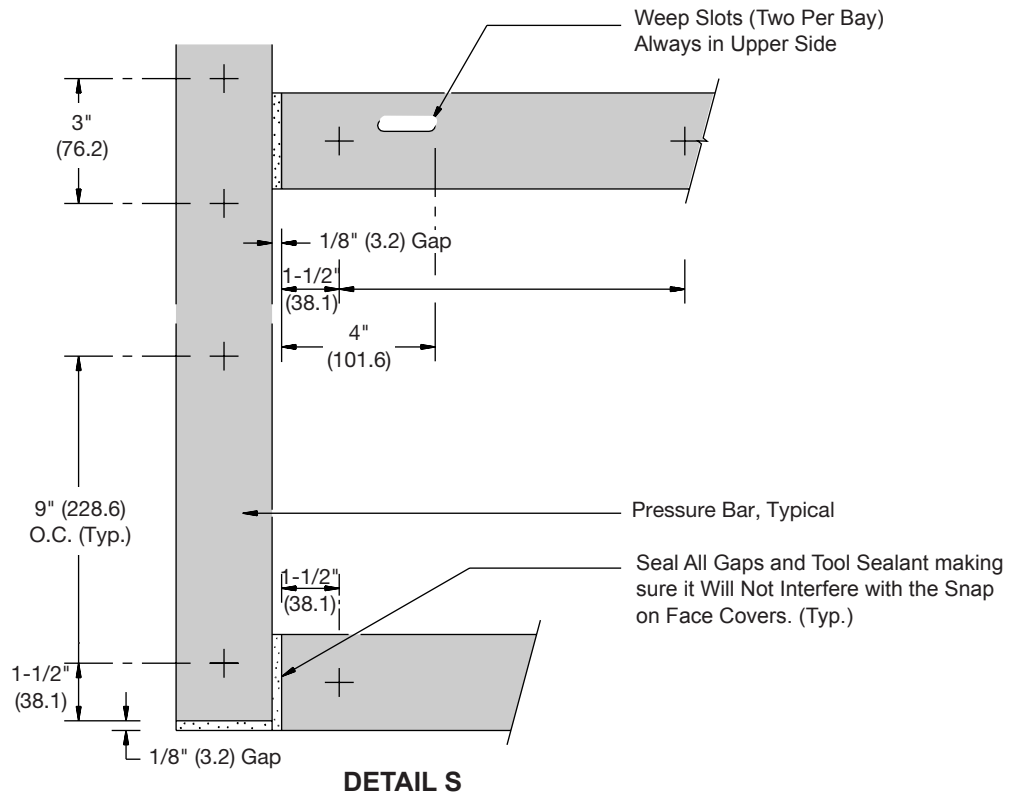
## SERIES 3250 CURTAIN WALL

9. Center horizontal pressure bars in opening leaving 1/8" (3.2) gaps at each end.

**NOTE:** Weep slots **must be** in top side of all horizontal pressure bars and level with bottom of glazing pocket to ensure proper drainage (**DETAIL S**).

10. Seal gaps at vertical/horizontal intersections and at top and bottom of vertical pressure bars (**DETAIL S**).

**NOTE:** Weep Slots are Required in All Horizontal Pressure Bars including the Head or Top Horizontal

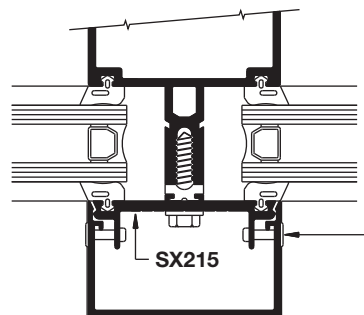
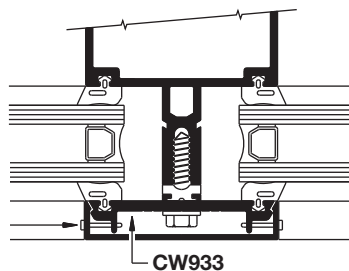


## FACE COVER INSTALLATION

Care must be taken to prevent damage of Face Covers during installation. Use a piece of wood such as 2" x 4" x 12" (51 x 102 x 305) and a 3" (76.2) diameter Stanley Three Pound Compo-Cast Dead Blow Soft Face Hammer.

11. Install Vertical Face Covers first. Do not disturb top and bottom closure plates when installing face covers. Pinning of vertical face cover is required to prevent slippage. Use one pin on each side per cut length, concealed behind horizontal face cover closer to center line or as shown on shop drawings (**DETAIL T**).
12. Install snap-in Horizontal Face Covers with the weep holes located on the bottom side. **NOTE:** Extended face covers require a special pressure bar. Pin vertical extended covers with one 1/8" (3.2) dia. pop rivet on each side per engineered calculations (optional #10 x 1/2" FHSMS) (**DETAIL U**).  
Extended Horizontal Covers must be pinned on top side at both ends.

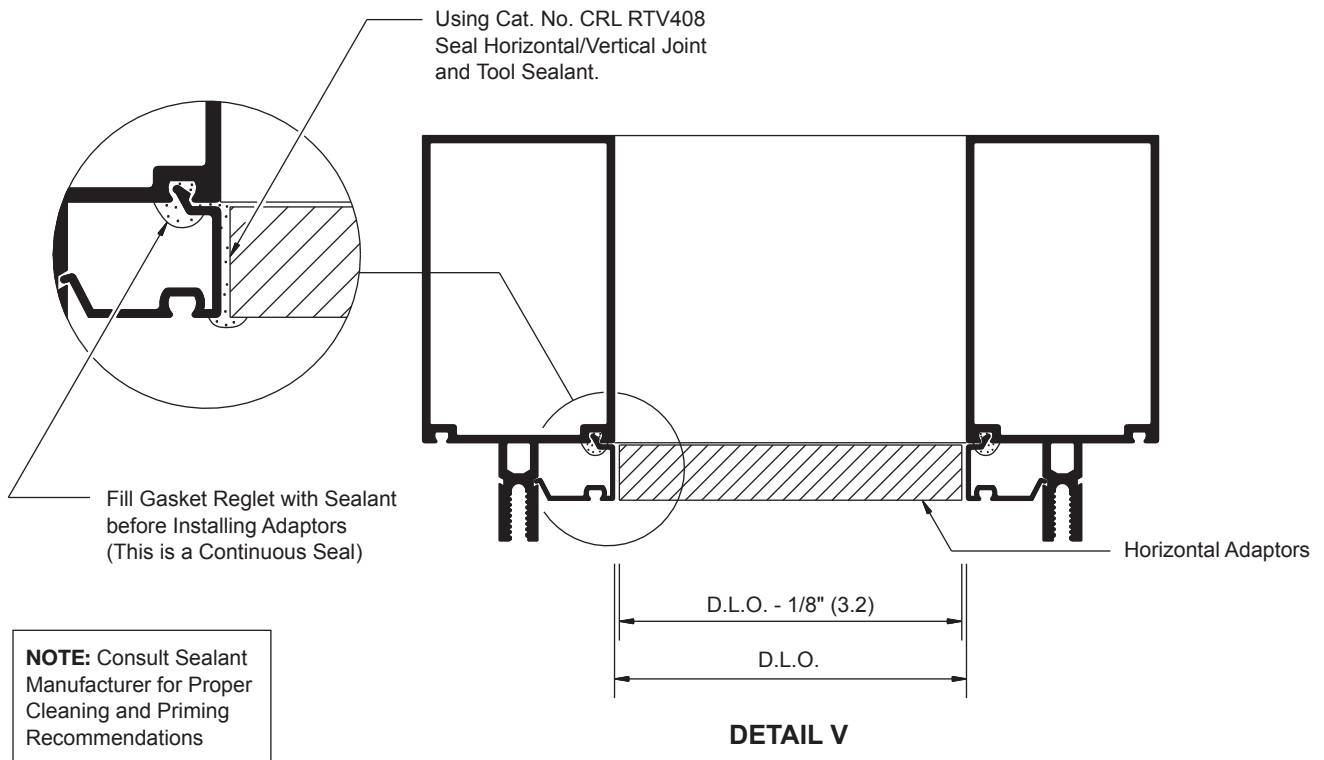
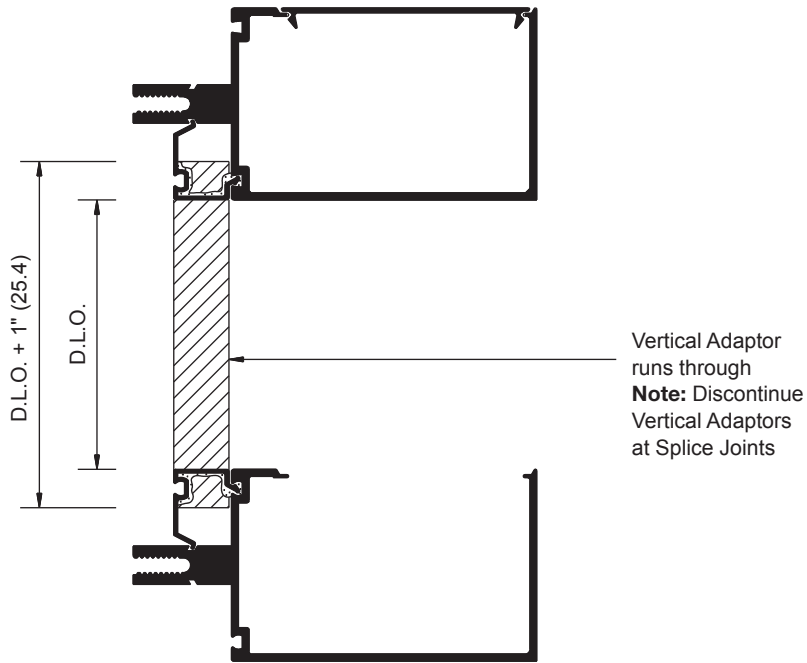
1/16" x 1/2" (1.6 x 12.7) Roll Pin at Center of Cut Length on Each Side. (Concealed behind Horizontal Face Cover)



1/8" (3.2) Pop Rivet at Center of Cut Length at Each Side (Concealed behind Horizontal Face Cover)

# TRANSITION GLAZING

1. Apply Cat. No. CRL RTV408 sealant into gasket reglets before installing snap-in transition adaptors.
2. Install vertical adaptors first.
3. Install horizontal adaptors and seal horizontal/vertical joints. Tool sealant (**DETAIL V**).





## VERTICAL SPLICE JOINTS

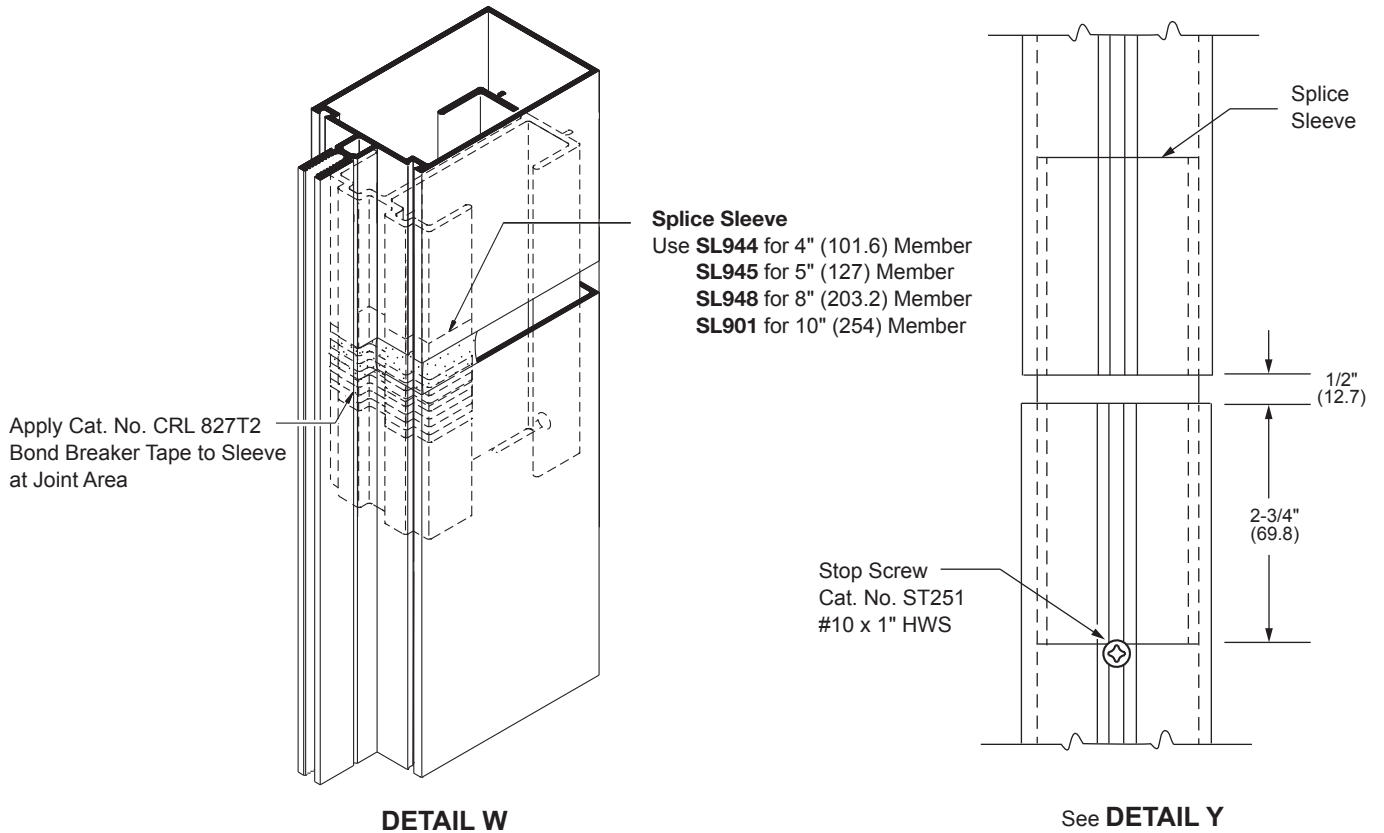
Splice joint width should be based on sealant movement capability and on the following formula:

**Linear expansion for aluminum, in inches = Length (") x F° difference in temperature x .0000129**  
**Linear expansion for aluminum, in millimeters = Length (mm) x C° difference in temperature x .02322**

A 1/2" (12.7) minimum joint is recommended. Use a 1/2" (12.7) spacer shim to set and hold the mullion joint constant during erection. Remove the shim after attaching the verticals to the anchors. **Splice joints must occur at spandrel areas.**

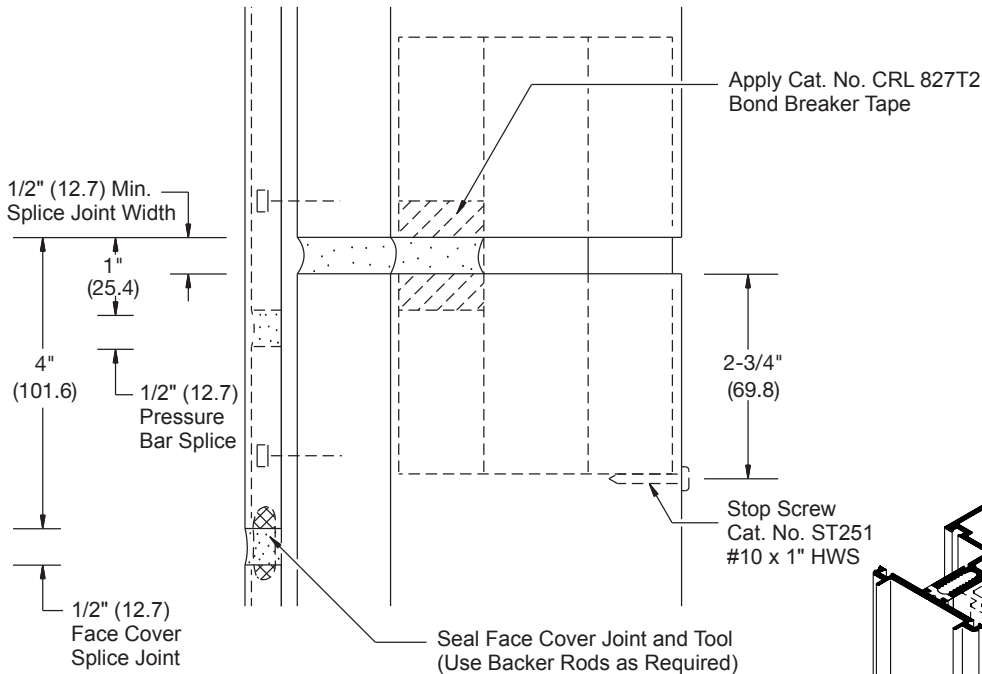
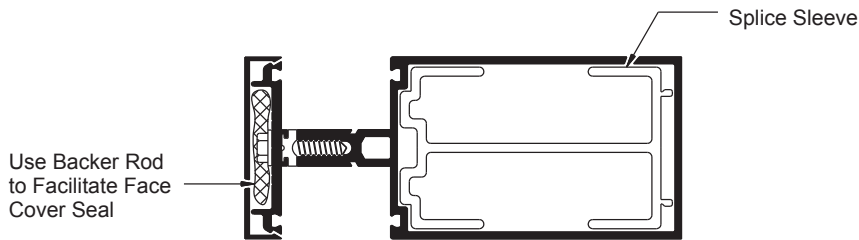
**NOTE:** Splice joints are designed to accommodate thermal movement only. They do not compensate for variations in floor levels.

1. Clean splice sleeves and all joint surfaces. Apply CRL Cat. No. 827T2 Bond Breaker Tape at areas where sleeve will be sealed to avoid three side adhesion (**DETAIL W**).
2. Slide sleeve into the upper member before it is installed and tape to hold it in retracted position (**DETAIL W**).

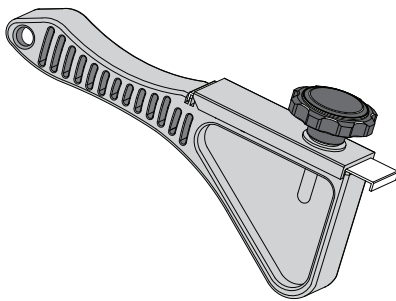


3. Install stop screw #10 x 1" HWS Cat. No. ST251, 2-3/4" (69.8) down from top of extrusion at inside of lower member (**DETAIL X**).
4. Install upper member and let extruded sleeve slide down until it sits on top of stop screw.
5. Seal joint over sleeve as shown on **DETAIL Y**. When transition adaptors for 1/4" (6) spandrel are used they should be discontinued at splice joint and installed after splice joint is sealed. Stagger joints on back members, pressure bars, and face caps as shown on **DETAIL X**.
6. Seal pressure bar joint (**DETAIL Y**).
7. Install face covers and seal joint using backer rod as required (**DETAIL X**).

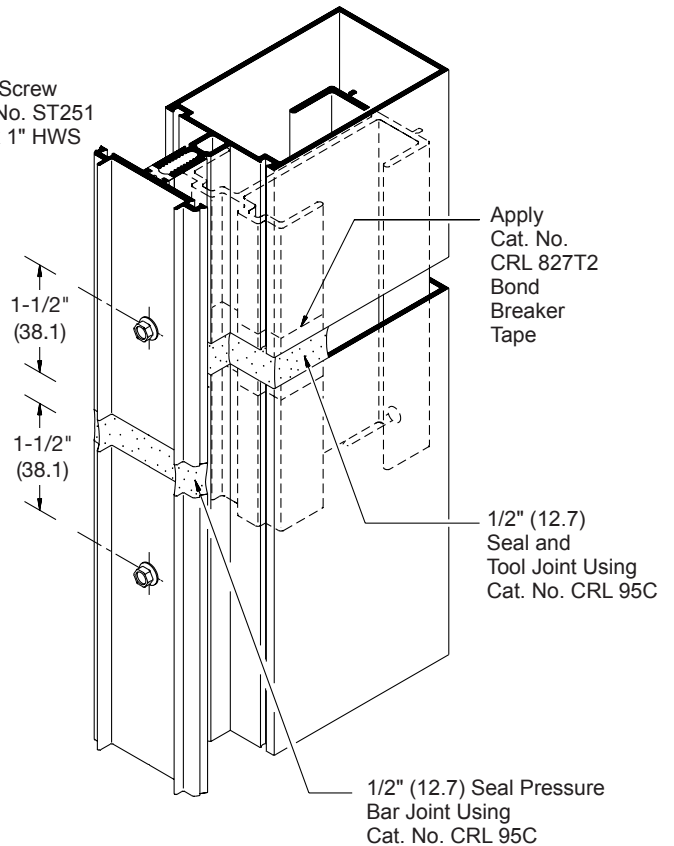
# SPLICE SLEEVE



**DETAIL X**



Aluminum Face Cap Remover Tool  
Cat. No. FCR1

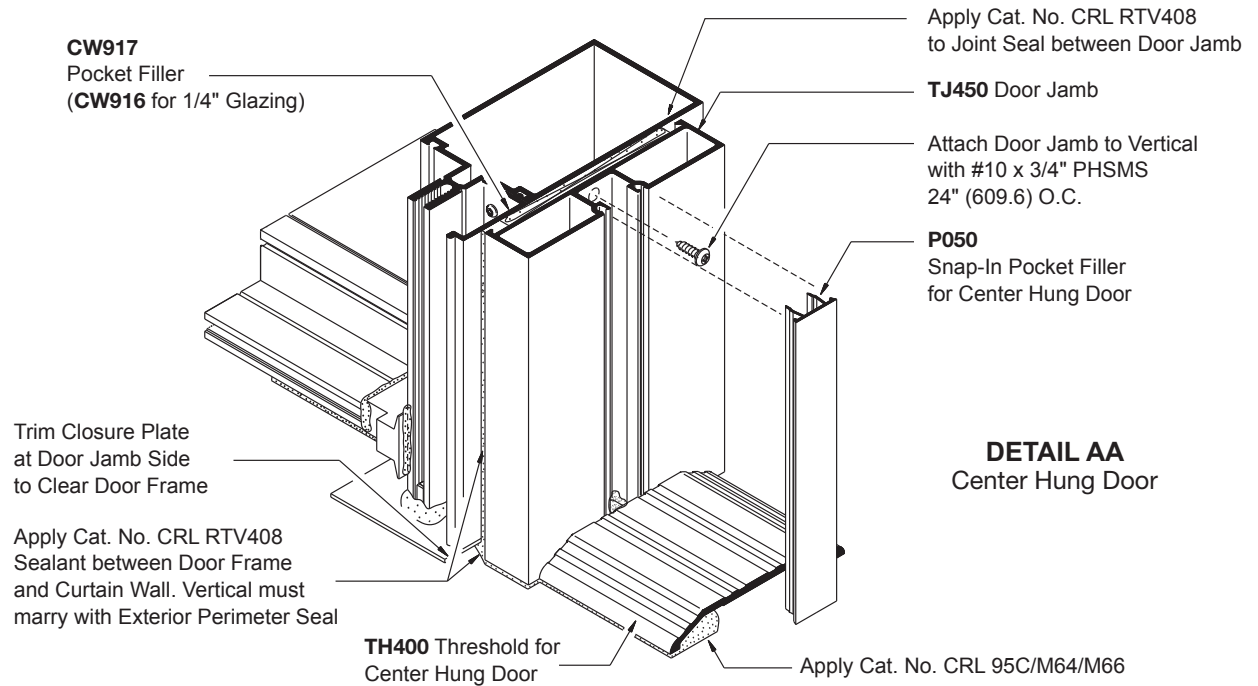
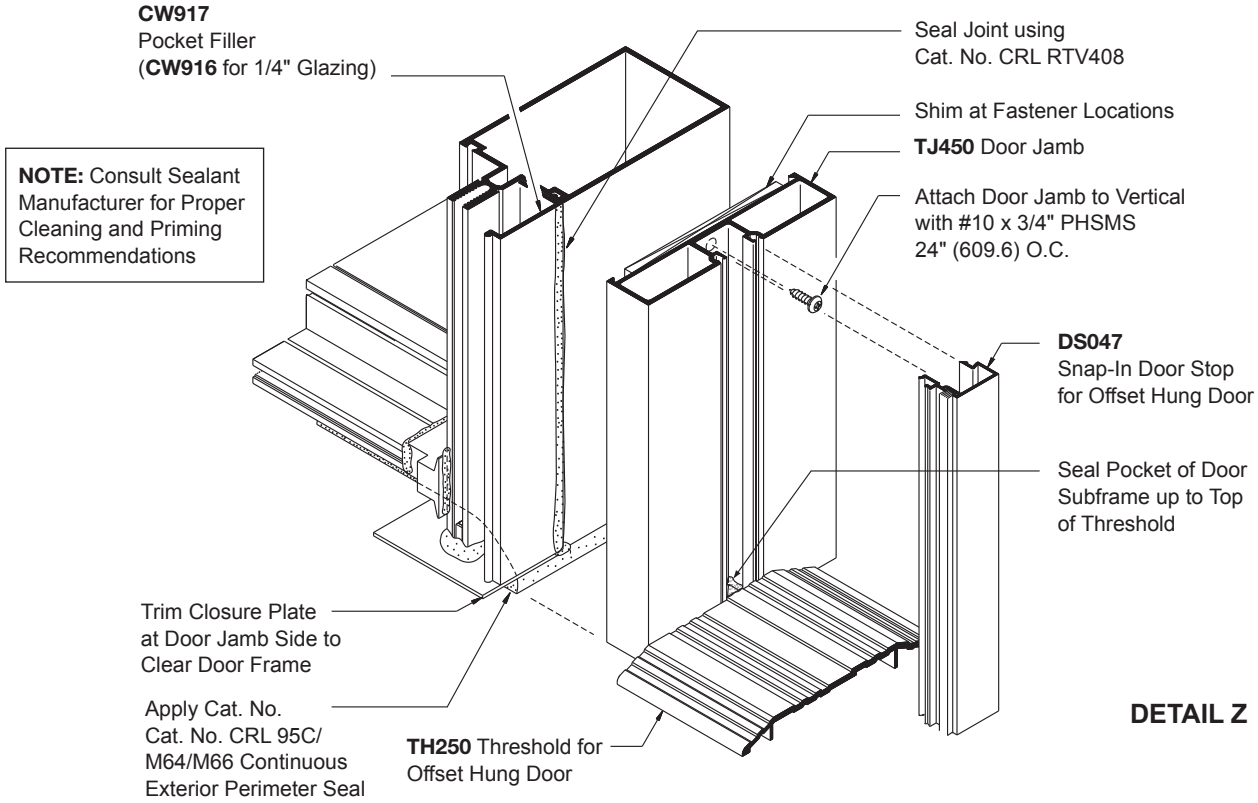


**DETAIL Y**

**NOTE:** Consult Sealant Manufacturer for Proper Cleaning and Priming Recommendations

# ENTRANCE FRAMES

Entrance Frames may be installed simultaneously with Curtain Wall or after Curtain Wall installation has been completed. Use CW917 or CW916 Pocket Fillers to close glazing pocket at door side.

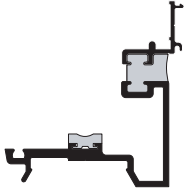


# FLUSH DOOR ADAPTOR

## FABRICATION

**NOTE:** Flush Door Adaptors Are Not Available for Series 3150 Butt Glaze Applications

1. Cut Door Adaptor Members to length.



**CW958**

Header Adaptor Length = DOOR OPENING WIDTH minus 1/32" (.8)  
 Jamb Adaptor Length = DOOR OPENING HEIGHT plus 9/16" (14)



**CW906**

Header Cap Length = DOOR OPENING WIDTH minus 1/32" (.8)  
 Jamb Cap Length = DOOR OPENING HEIGHT plus 9/16" (14)  
 (Field cutting may be required to obtain a tight joint with vertical cap above)

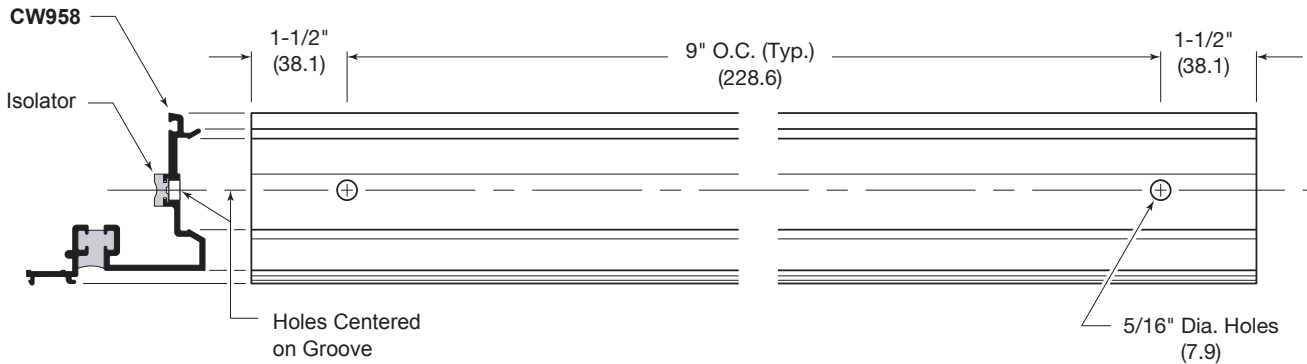


**CW219**

Header Door Stop Length = DOOR OPENING WIDTH minus 1/32" (.8)  
 Jamb Door Stop Length = DOOR OPENING HEIGHT minus 1-3/32" (27.8)

2. Drill 5/16" diameter anchor holes in all cut to length Adaptors 1-1/2" (38.1) from each end and 9" (228.6) on center. **See DETAIL BB.**

**NOTE:** Isolator must be in place prior to drilling anchor holes.

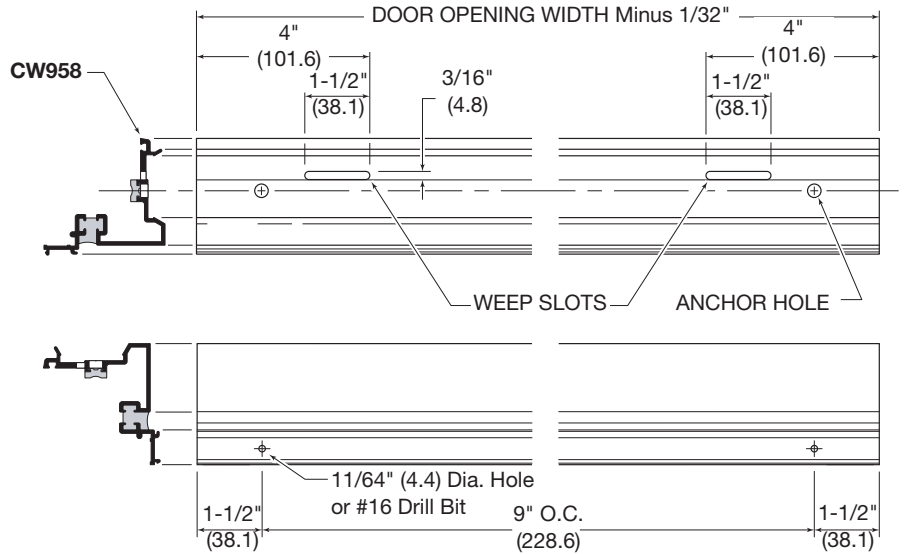


**DETAIL BB**

# FLUSH DOOR ADAPTOR FABRICATION AND INSTALLATION

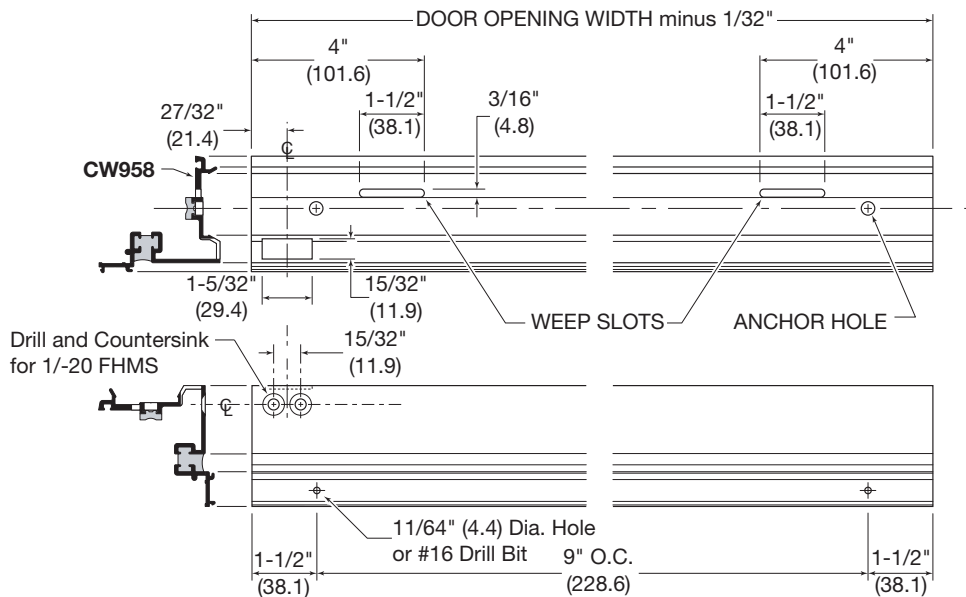
## FABRICATION

- Fabricate Header Adaptor for weep slots and additional anchor holes as shown in **DETAIL B**. (Refer to [usalum.com](http://usalum.com) for **entrances and frames** for flush bolt and panic rod strike fabrication.)

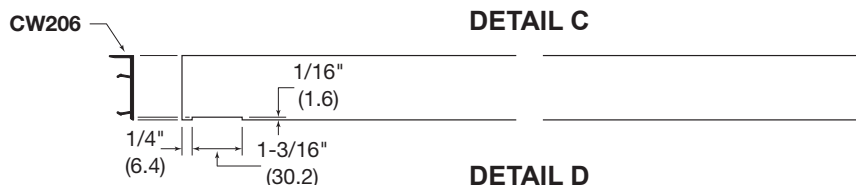


**DETAIL B**

- For offset pivot doors, fabricate Header Adaptor for pivot (left hand shown), weep slots and additional anchor holes as shown in **DETAIL C**. Notch Face Cap for pivot clearance as shown in **DETAIL D**. (Refer to [usalum.com](http://usalum.com) for **entrances and frames** section of this manual for flush bolt and panic rod strike fabrication.)



**DETAIL C**



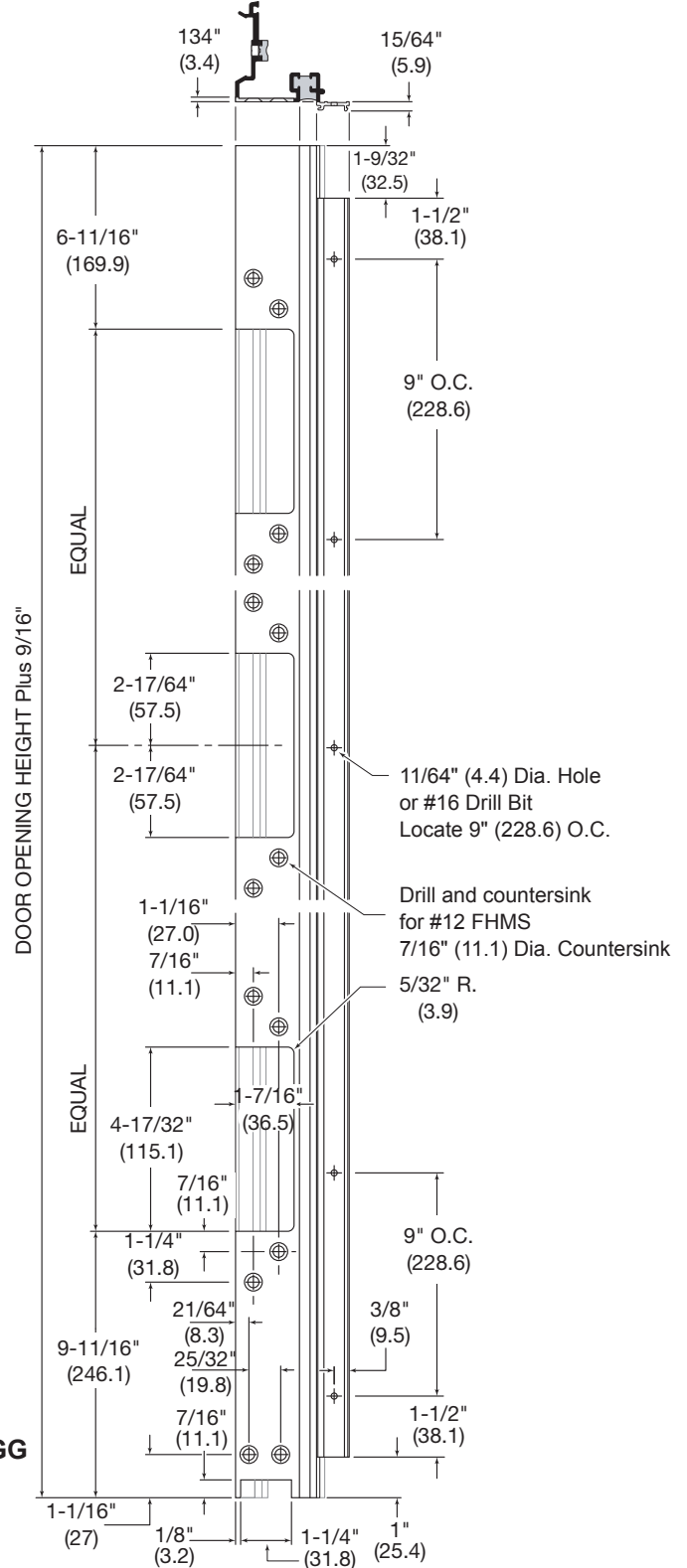
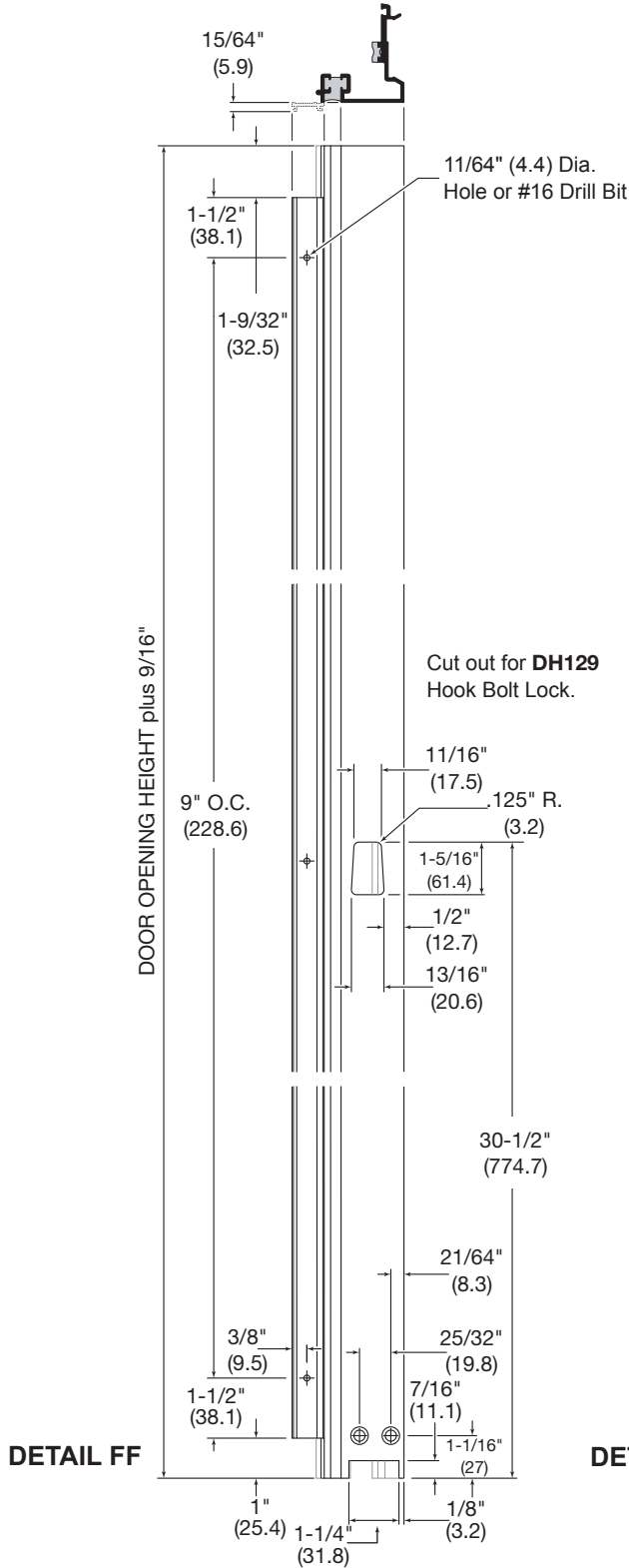
**DETAIL D**

# FLUSH DOOR ADAPTOR

## FABRICATION

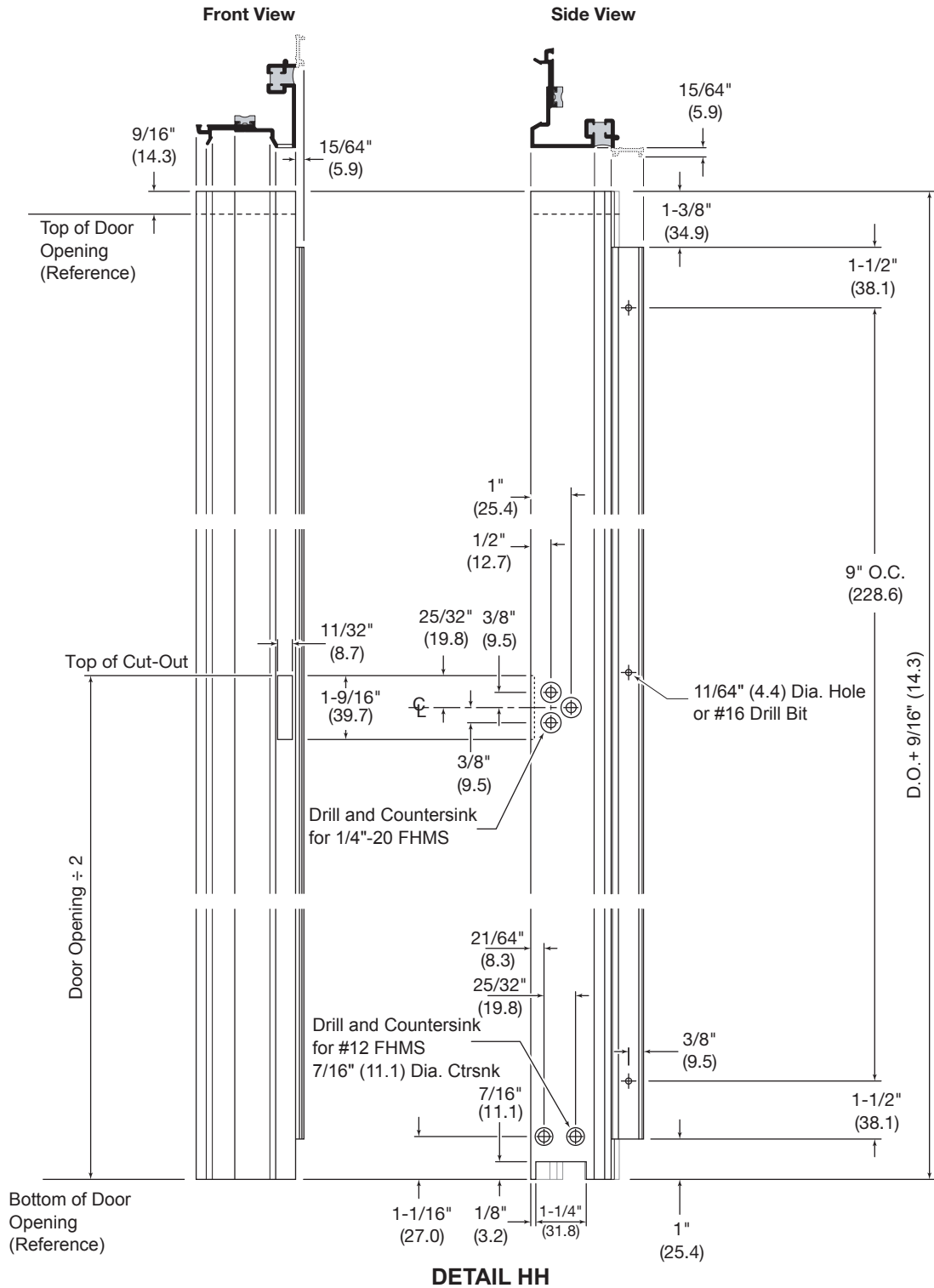
5. Fabricate for Lock Jamb see **DETAIL FF**.  
(right hand shown, left hand opposite)

6. Fabricate for Butt Hinges see **DETAIL GG**.  
(left hand shown, right hand opposite)



# FLUSH DOOR ADAPTOR FABRICATION

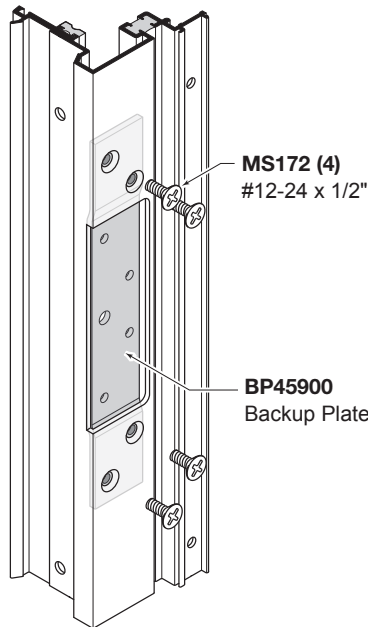
7. Fabricate for Offset Pivots **see DETAIL HH.** (left hand shown; right hand opposite)



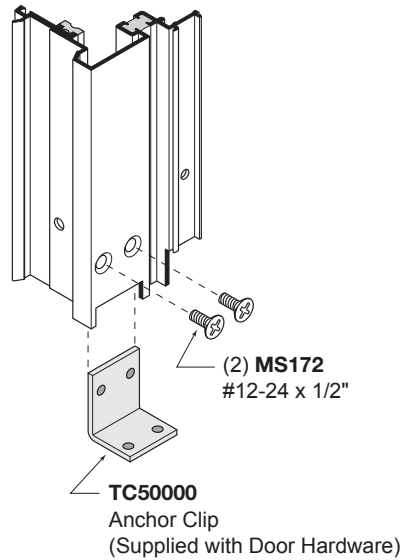
# FLUSH DOOR ADAPTOR

## FABRICATION

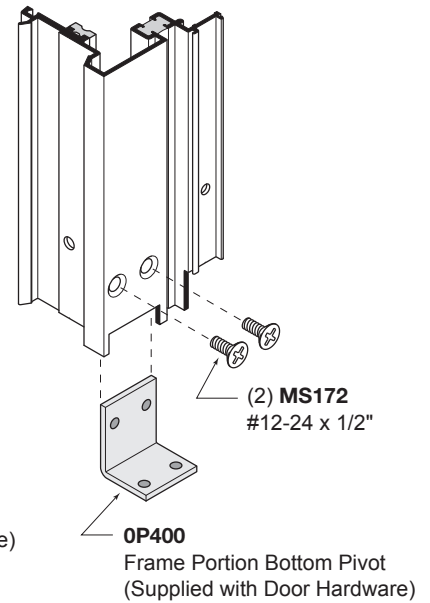
8. For butt hung application, install Hinge Back Up Plates and Threshold Clips as shown in **DETAIL II** and **DETAIL JJ**. For offset pivot application, install bottom frame portion pivot(s) as shown in **DETAIL KK**. Single doors require threshold clip at lock jamb (**DETAIL JJ**).
9. Install Gaskets in Door Adaptors.



**DETAIL II**



**DETAIL JJ**



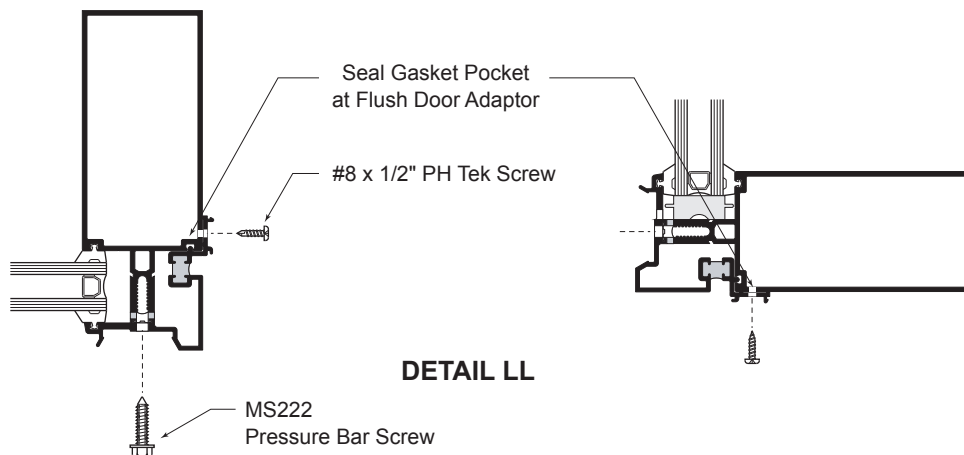
**DETAIL KK**

These hardware items must be applied prior to door adapt or installation.

## INSTALLATION

**NOTE:** Prior to adaptor installation all End Dams must be installed and sealed. Transom and sidelite glass must be in place.

1. Seal face of End Dams as shown in **DETAIL R**.
2. Install Jamb Door Adaptors using MS222 Pressure Bar Bolts as shown in **DETAIL LL**. Refer to page 14 of the glazing portion of this section for bolt tightening procedures. Vertical adaptors extend from floor to 9/16" (14.3) above bottom of door header/horizontal. Install Head Door Adaptor using MS222 Pressure Bar Bolts as shown in **DETAIL LL**.
3. Secure adaptors to mullion and head side walls with #8 tek screws as shown in **DETAIL LL**.



**DETAIL LL**

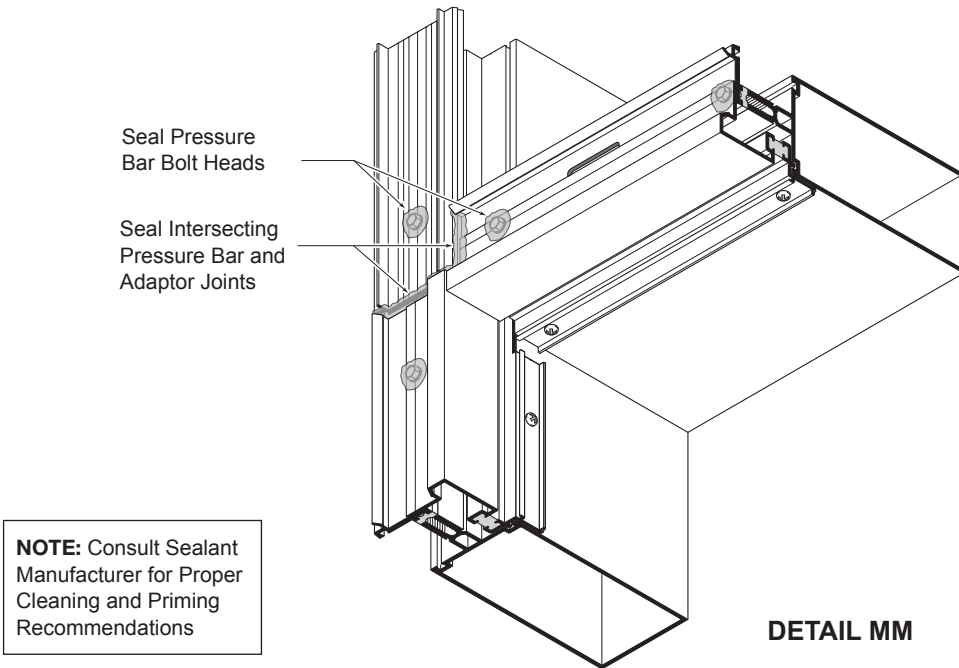


# FLUSH DOOR ADAPTOR

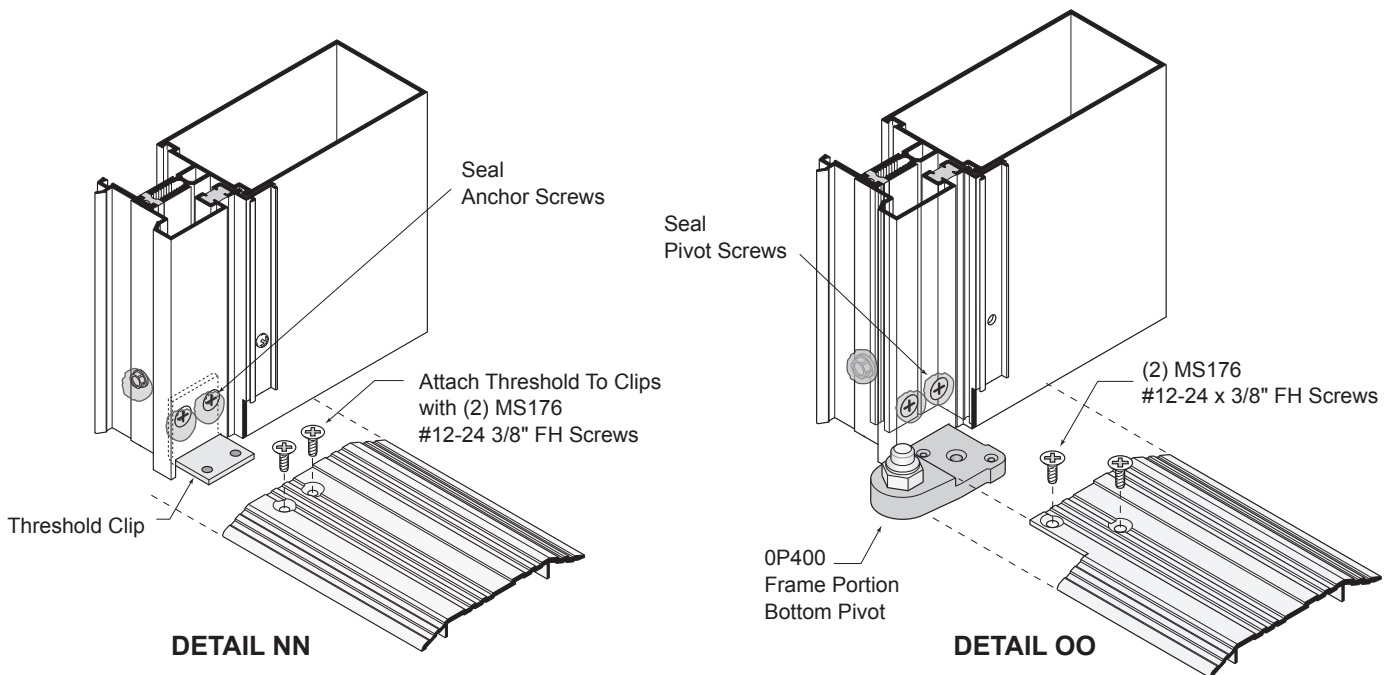
## INSTALLATION

4. Seal all Pressure Bar Bolt Heads with Cat. No. CRL RTV408 (See **DETAIL MM**).
5. Seal gaps at intersections of Pressure Bars and Door Adaptors with CRL RTV408.

**NOTE: This is a critical seal.**



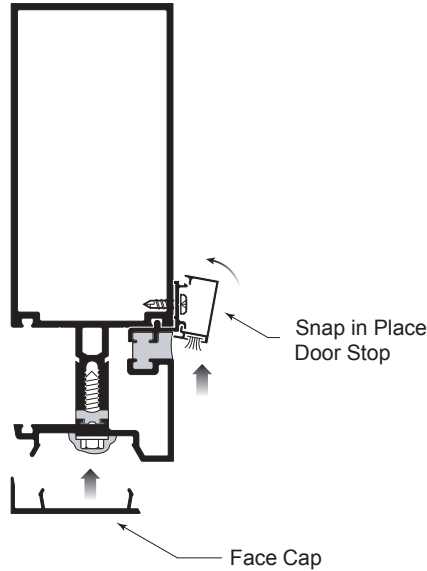
6. Install thresholds into opening using screws provided with door hardware. See **DETAIL NN** for butt hung, **DETAIL OO** for offset pivot application.



# FLUSH DOOR ADAPTOR

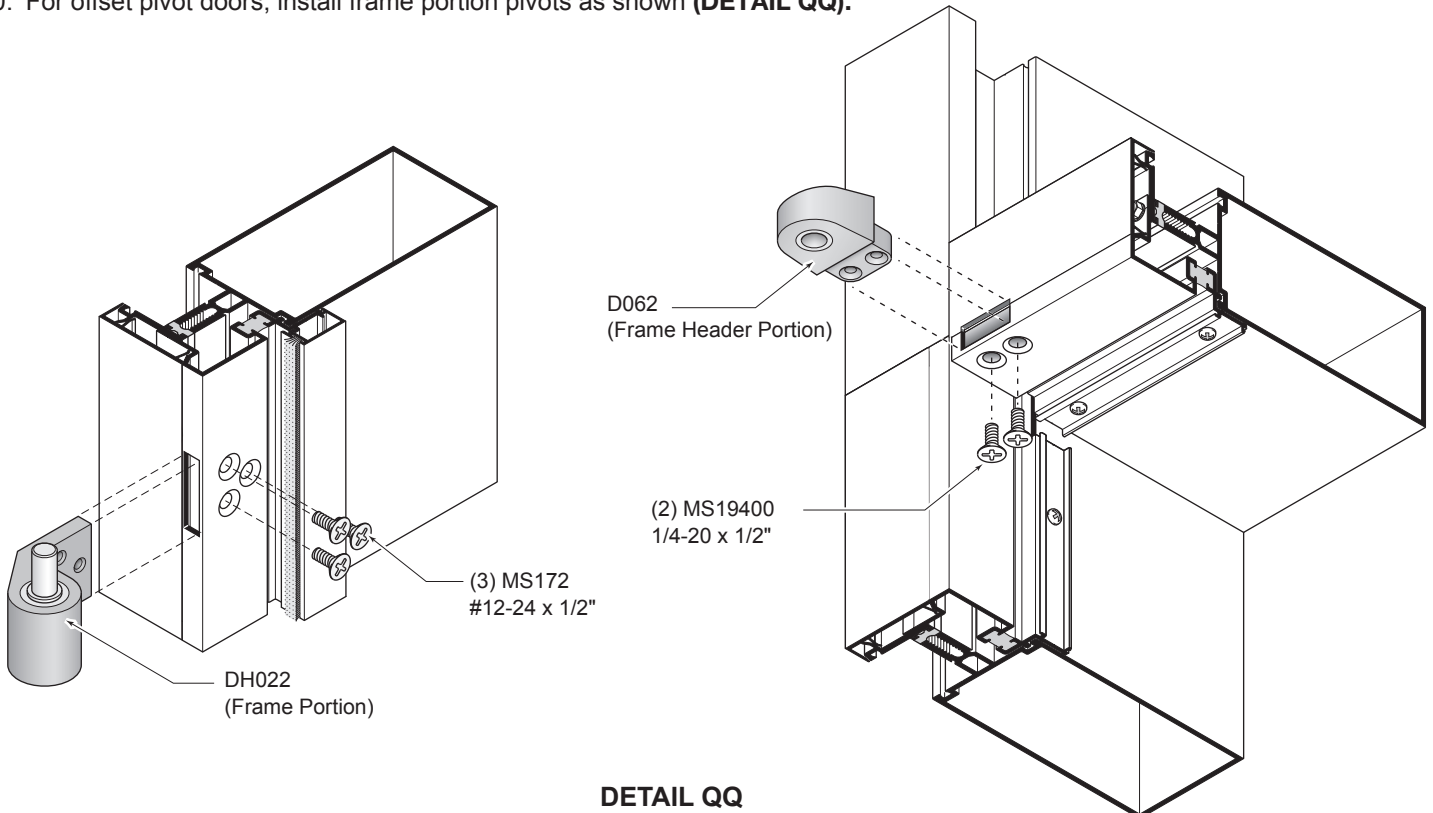
## INSTALLATION

7. Snap on Face Caps (**DETAIL PP**). Vertical face caps run from floor to 9/16" (14.3) above bottom of Header.  
(Field cutting to length is recommended)
8. Snap Door Stop on Header Adaptor (**DETAIL PP**). (Head door stop runs through)
9. Snap Door Stops on Jamb Members (**DETAIL PP**).



**DETAIL PP**

10. For offset pivot doors, install frame portion pivots as shown (**DETAIL QQ**).



**DETAIL QQ**



# 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**



**CRL RTV408 Neutral Cure Silicone**



**CRL33S Silicone Sealant**



**CRL M64 Modified Smooth Polyurethane Construction 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 Utility Knife  
CAT. NO. K82**



**CRL Backer Rod Roller Tool  
CAT. NO. SBRR**



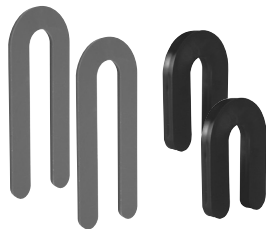
**CRL Soft-Face Power Hitter  
CAT. NO. ST57532**



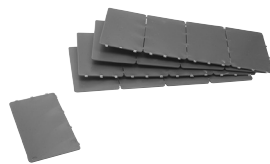
**CRL Saint-Gobain/Norton V2100 Thermalbond® Structural Glazing Spacer Tape  
CAT. NO. V2100**



**CRL Aluminum Face Cap Remover Tool  
CAT. NO. FCR1**



**CRL Plastic Horseshoe Shims  
CAT. NO. PHS18**



**CRL Plastic Bearing Shimstrips  
CAT. NO. PBS06**



**CRL Gloves  
CAT. NO. KF1TL**



**CRL Utility Knife Blades  
CAT. NO. 1992C**