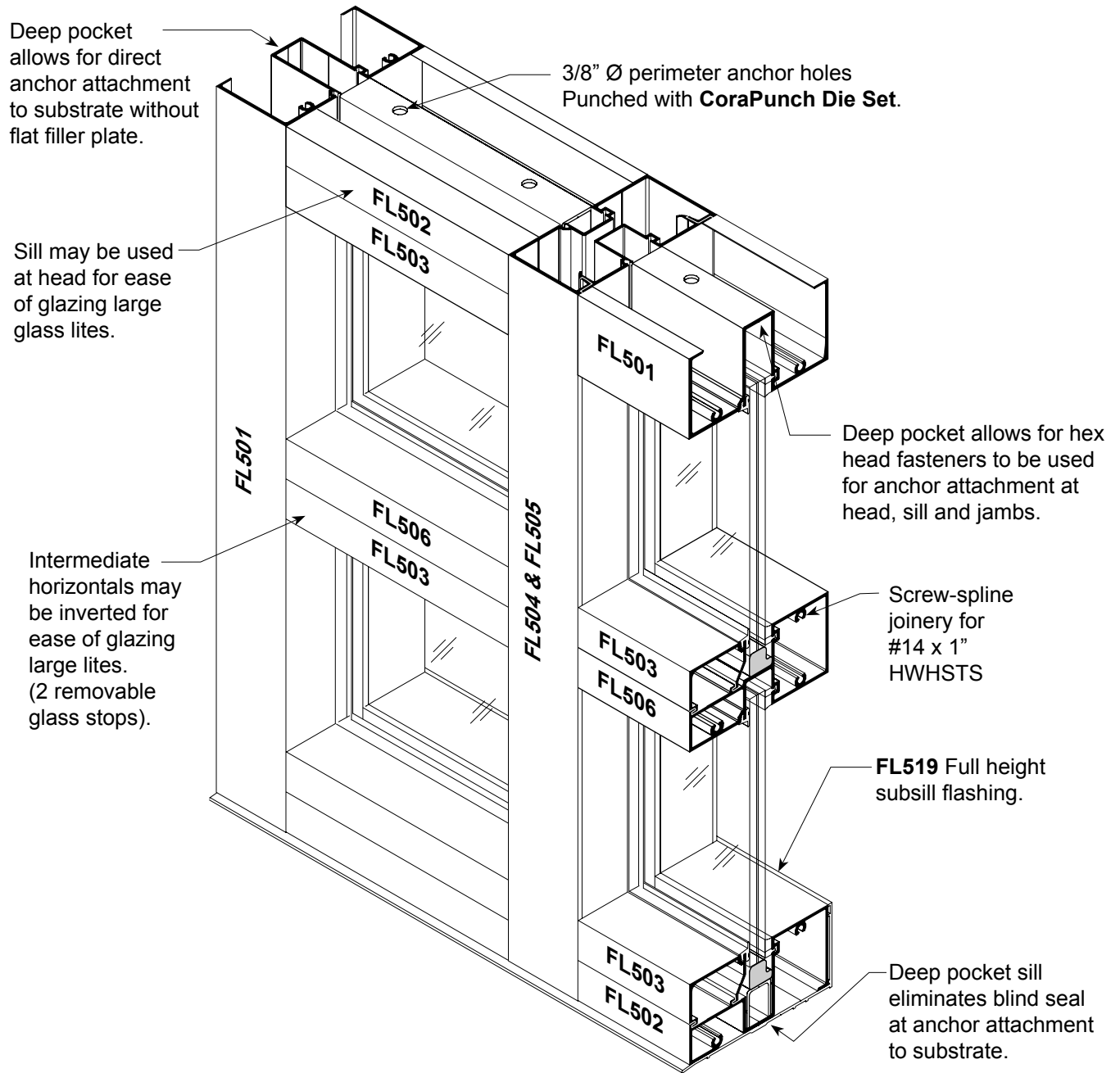
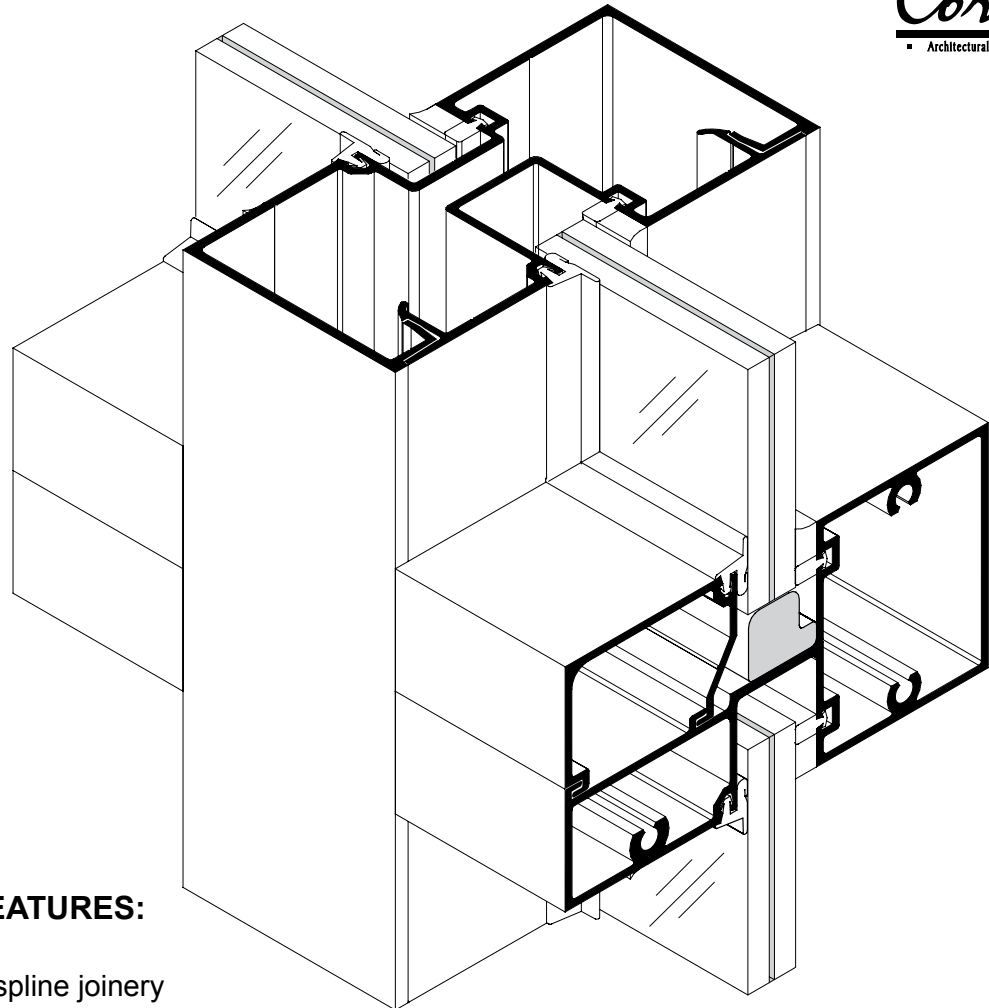


INSTALLATION INSTRUCTIONS

2 1/2" x 5" for 9/16" Laminated Glass





PRODUCT FEATURES:

- Screw-spline joinery
- **CoraPunch** or drill jig fabrication
- Panelized assembly
- Deep pocket perimeter sections:
 - Eliminates drilling access holes with blind seals
 - Eliminates flat filler plate at head and wall jambs
 - Allows for 3/8" diameter hex head anchor bolt attachment to substrate
 - Intermediate horizontals may be inverted for ease of glazing large lites
 - Sill may be used at head for ease of glazing large lites
- Heavy wall mullion option without steel
- Steel reinforcing attachment to mullions at head and sill only
- Tested with and without steel reinforcement at various design pressures
- Tested with 84" x 96" **Series 381 M.S.** impact-resistant entrance doors
- Tested with 72" x 84" **Series 281 N.S.** impact-resistant entrance doors
- Anodized finishing or factory applied thermosetting fluorocarbon powder coating option

To download 3-part specification, go to: www.coralind.com

These instructions are for typical conditions. Reference the Dade County Applications (Options and Limitations) for FL500 framing and for Series 281 or 381 impact resistant entrance doors. Always check www.coralind.com for the latest updates to these instructions prior to installation.

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INSTALLATION INSTRUCTIONS

- General Notes -

Coral Series **FL500** (2-1/2" x 5") hurricane impact-resistant system was especially designed to meet the stringent Dade County, FL Building Codes for impact-resistant glass and framing systems. Series **FL500** successfully passed a series of large missile impact and cyclic wind tests with multiple impact-resistant glass compositions.

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. Field verified notations shown within shop drawings must be resolved prior to installation. These installation instructions are of general nature and cover most conditions.
2. **INSTALLATION.** All materials shall be installed plumb, level and true.
3. **BENCHMARKS.** All work should start from established benchmarks and column center lines established by the architect and general contractor.
4. **FIELD WELDING.** All field welding must be adequately shielded to avoid any splatter on glass or aluminum. Advise general contractor and other trades accordingly. All field welds of steel anchors must receive touch-up paint (zinc chromate) to avoid rust.
5. **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. **STRUCTURAL SEALANTS.**
 - A. **DOW 995** structural sealant was used on the Series **FL500** test specimen approved by Dade County for glass to metal adhesion. To comply with Dade County, FL Building Code Protocols, **DOW 995** sealant must be used for glass to metal adhesion with Series **FL500**.
 - B. Perimeter Sealants: Due to varying job conditions, all perimeter sealants used should be approved by the sealant manufacturer to ensure the sealant will function for the conditions shown on these instructions and shop drawings. Sealants must be compatible with all surfaces in which adhesion is required, including other sealants. Use primers where directed by sealant manufacturer. Be sure to properly store sealants at recommended temperature and check container for remainder of shelf life before using. **DOW 795** structural silicone was the perimeter sealant used on the Series **FL500** test specimen approved by Dade County.
8. **FASTENING.** This framing system must be assembled with the same type fasteners specified within these instructions. **FL500** framing system must be attached to the substrate(s) with the quantity and type fasteners shown in the anchor charts contained within these instructions. It is the installer's responsibility to ensure that the framing configuration selected conforms to all applicable state and/or local building codes for High

INSTALLATION INSTRUCTIONS - General Notes -

Velocity Wind Zones. Please reference the **Options and Limitation Charts for FL500 Framing and Approved Glass Types**. Where entrance doors are required, please reference the **Options and Limitation Charts for Series 281 and Series 381 Entrance Doors** for the proper selection that meets your job requirements. These Options and Limitation Charts are shown in the CORAL ARCHITECTURAL MANUAL and also maybe found at www.coralap.com. Select Products and then for Hurricane Impact-Resistant Products.

- 9. BUILDING CODES.** Due to the diversity in state, local and national codes that govern the design and application of architectural products, it is the responsibility of the architect, owner and installer to assure that products selected for use on each project comply with all the applicable building codes and laws. CORAL ARCHITECTURAL PRODUCTS 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 shop drawings are shown at normal size. Expansion mullion gaps should be based on temperature at time of installation.
- 11. WATER HOSE TEST.** After a representative amount of the storefront system has been glazed (250 square feet) and the sealant has cured, a water hose test should be conducted in accordance with AAMA 501.2 specifications to check the installation. This test should be repeated every 500 square feet during the glazing operation. Note: This test procedure should not be used for entrance doors.
- 12. COORDINATION WITH OTHER TRADES.** Coordinate with the general contractor and sequence with other trades items which offset the storefront installation such as back-up walls, partitions, ceilings and mechanical ducts.
- 13. MATERIAL HANDLING:**
 - A. SHOP
 1. Cardboard wrapped or paper interleaved material must be kept dry.
 2. Immediately remove aluminum from cardboard wrapped or paper interleaved materials should it get wet to prevent staining or etching aluminum finish.
 3. Check arriving materials for quantity and keep record of where various materials are stored.
 - B. JOB SITE
 1. Material at job site must be stored in a safe place well removed from possible damage by other trades.
 2. Cardboard wrapped or paper interleaved material must be kept dry. (See 13.A.2)
 3. Keep record of where various materials are stored.
 4. Protect materials after erection. Cement, plaster, mortar and other alkaline solutions are very harmful to the finish.
- 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. CORAL ARCHITECTURAL PRODUCTS.** It is the responsibility of CORAL ARCHITECTURAL PRODUCTS to supply a system to meet the architect's specifications.
- 16. GLASS.** Glazing gaskets are designed for a compression fit against glass and can accommodate (+/- 1/32"). Be sure to check overall size of glass size and thickness.

PRODUCT APPLICATION AND INSTALLATION

Series **FL500** hurricane impact-resistant storefront system was designed with screw spline joinery for simple fabrication and panelized installation, but should only be installed by glazing contractors employing personnel with the necessary installation and project management experience to handle these type projects.

FL500 hurricane impact-resistant storefront system requires the installer to pay close attention to the details shown within these ***Instructions*** and ***General Notes***. All critical seal areas must be done as shown.

OPTIONS and LIMITATIONS

*The laminated glass and mullions function as an integral unit. The combinations shown in the **Options and Limitation Charts** for **FL500** framing and **Series 281** and **381** entrance doors are based on actual performance testing and cannot be altered without sacrificing the integrity of the system.*

FRAME FABRICATION

Establish Frame Size and Cut Metal to Length

STEP 1.

Measure width of rough opening.

- A. Measure opening at bottom.
- B. Measure opening at center.
- C. Measure opening at top.

The frame width will be the smallest dimension less 1/2" allowing for a minimum 1/4" caulk joint at each jamb.

Note: Maximum caulk joint for Dade County, FL installation is 1/4".

Repeat process to determine frame height.

- A. Beginning on left side of opening, measure dimension from top to bottom.
- B. Repeat at center.
- C. Repeat at right side of opening.

The frame height will be the smallest dimension less 5/8".

This allows 1/8" for subsill and a 1/4" caulk joint at the sill and head.

STEP 2.

Cut members to size.

- A. Cut subsill to frame dimension plus 1/4". The subsill at entrance locations butt tight against door jambs and is cut 1/8" longer than width of side lights on either side of door frame.*
- B. Wall jambs and intermediate vertical mullions are cut to frame height.
- C. Horizontal members are cut to D.L.O.
- D. Snap-on glass stops are cut D.L.O. minus (-) 1/16".

* **Note:** See **Page 30** for subsill condition abutting door frame.

Abbreviations used within these instructions:

D.L.O. = Day Light Opening

D.O.W. = Door Opening Width

D.O.H. = Door Opening Height

C.O.C. = Concealed Overhead Closer

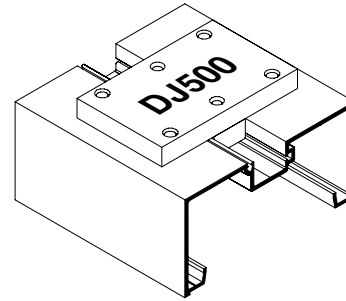
C.V.R. = Concealed Vertical Rod

∅ = Diameter

FRAME FABRICATION Joinery Hole Locations

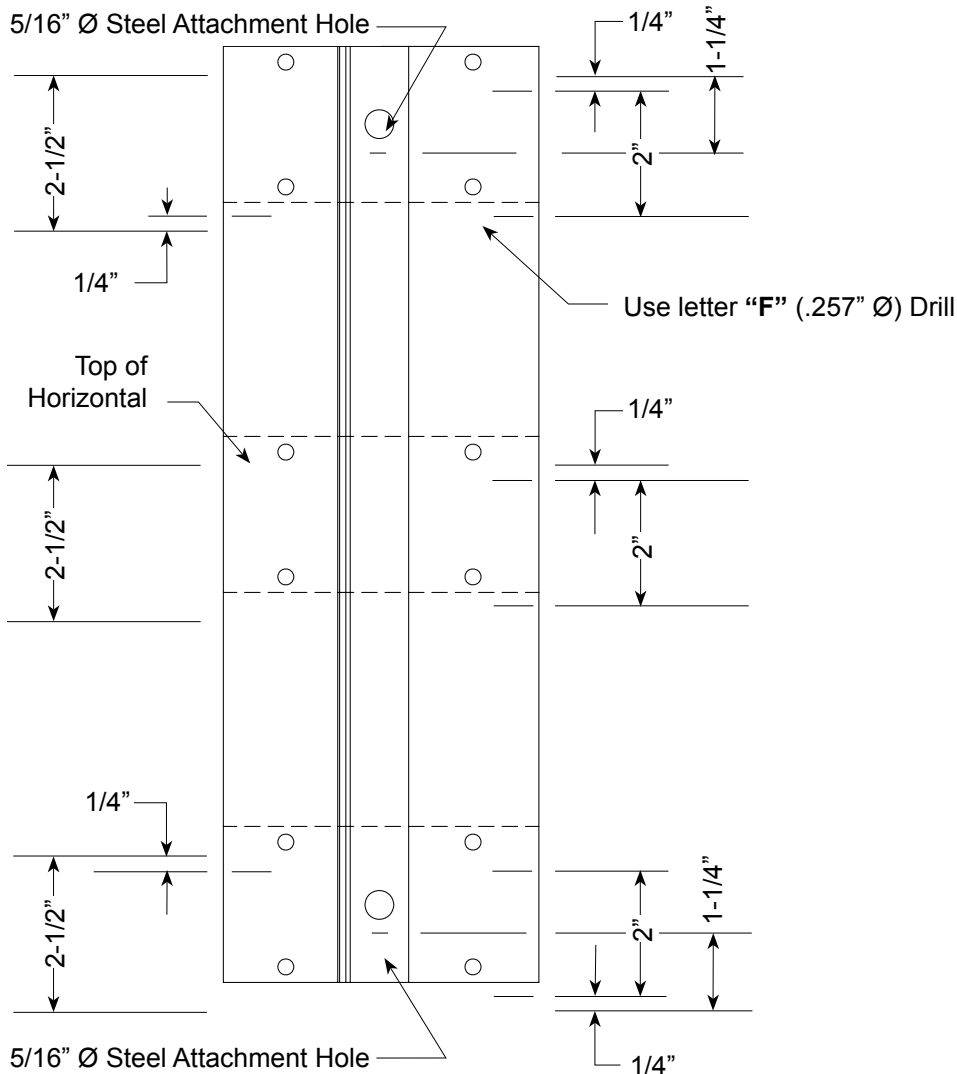
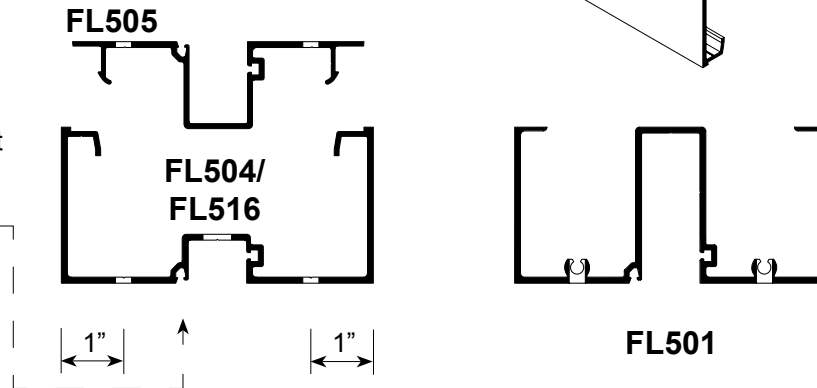
STEP 3.

Use **DJ500** drill jig or **FL500 Punch Die Set** for fabricating spline hole locations in verticals.



Note: NG1 Gasket reglet is always to exterior.

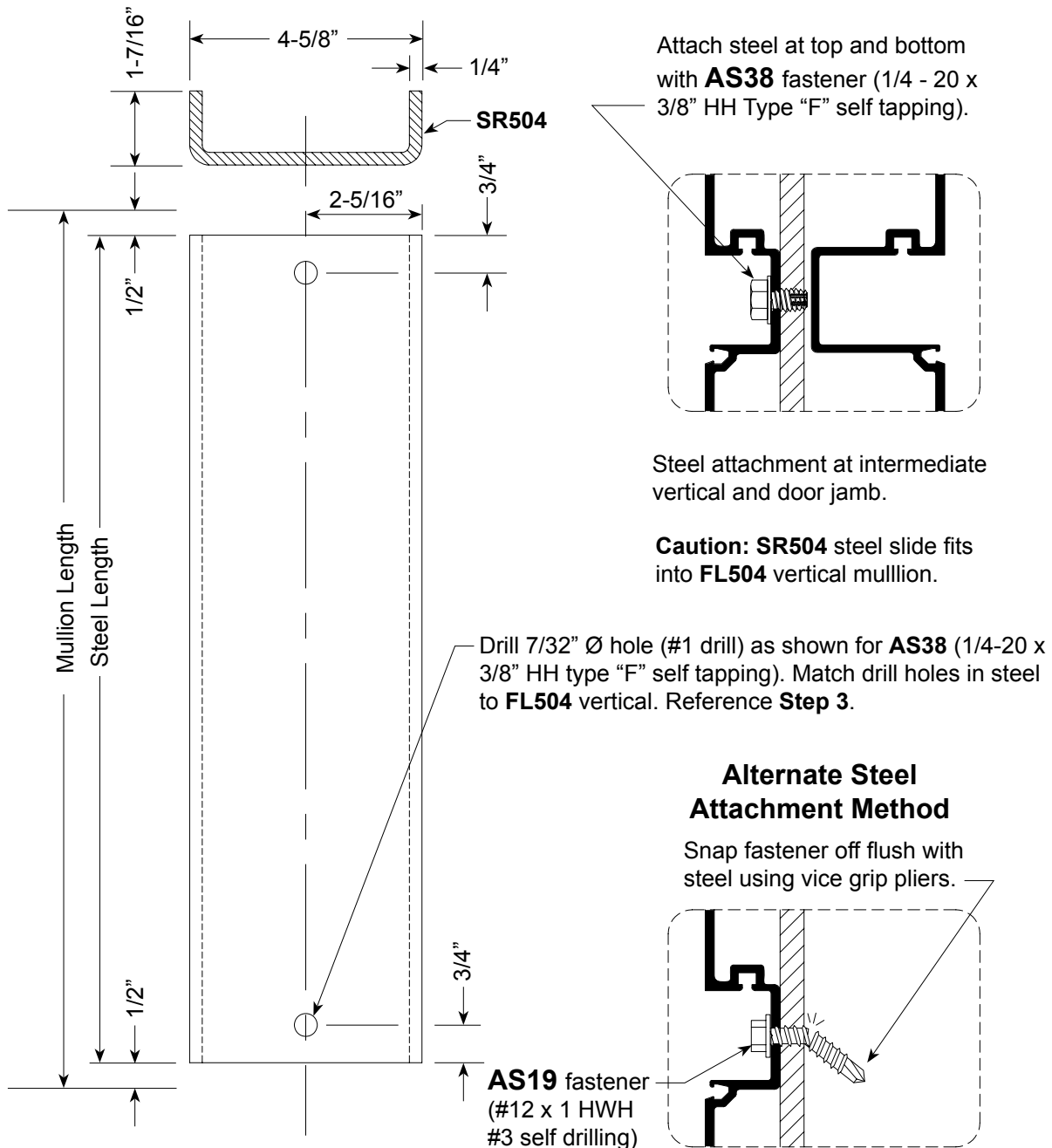
← **EXTERIOR**



FRAME FABRICATION Steel Reinforcement

STEP 4.

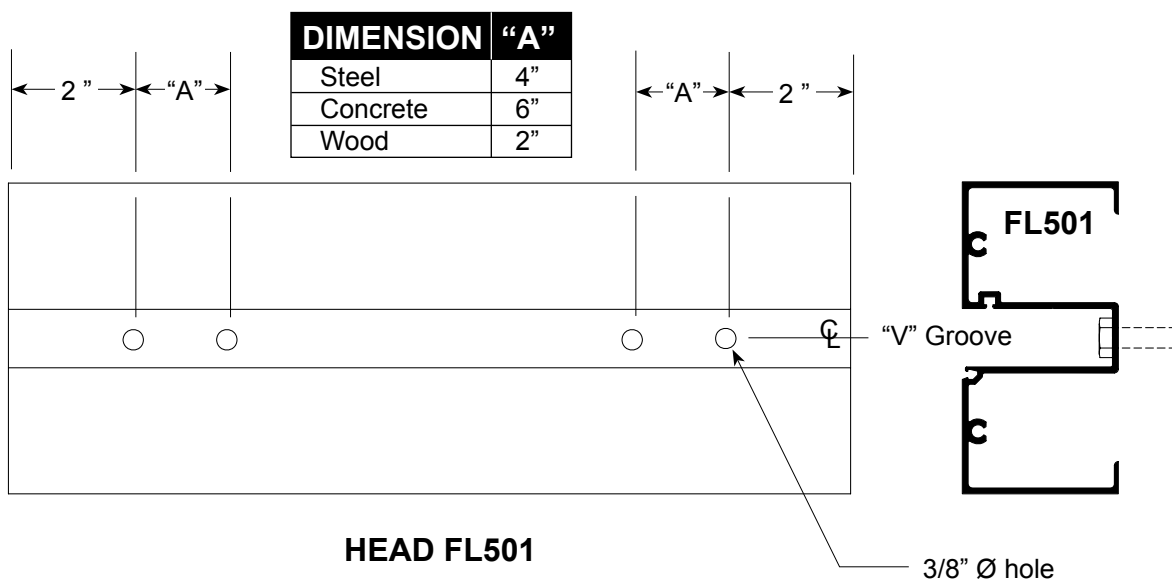
Fabricate steel reinforcement where required. Cut steel 1" less than length of vertical mullion.
Note: AS38 hex head fastener location is below glass line and does not interfere with glazing.



FRAME FABRICATION Head / Sill

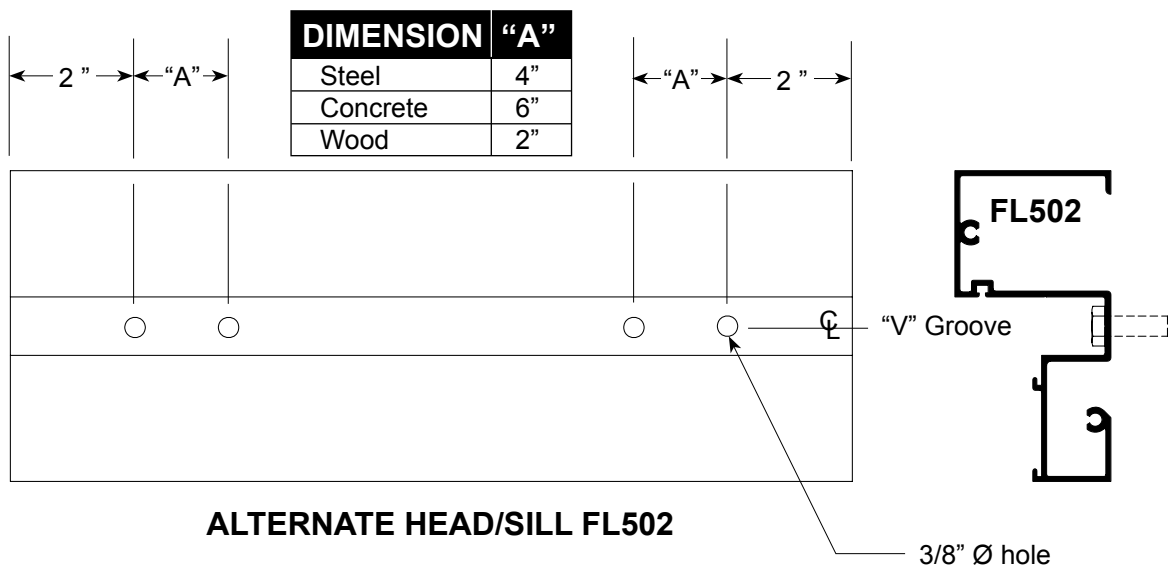
STEP 5.

Drill head and sill anchor holes as shown or punch using **FL500 Punch Die Set**. Number of anchor holes required is based on substrate material conditions. Reference **CAP anchor charts, (Pages 51-56)** for number of anchor holes and locations for various substrates. First hole is always 2" from end. Each additional fastener hole is at required minimum spacing "A" between fasteners as shown in fastener charts.



Note: Removable glass stop at head facilitates glazing of large lites.
(Reference **Page 21**)

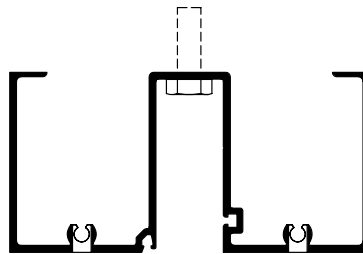
Note: Anchor holes may be punched using **FL500 Punch Die Set**.



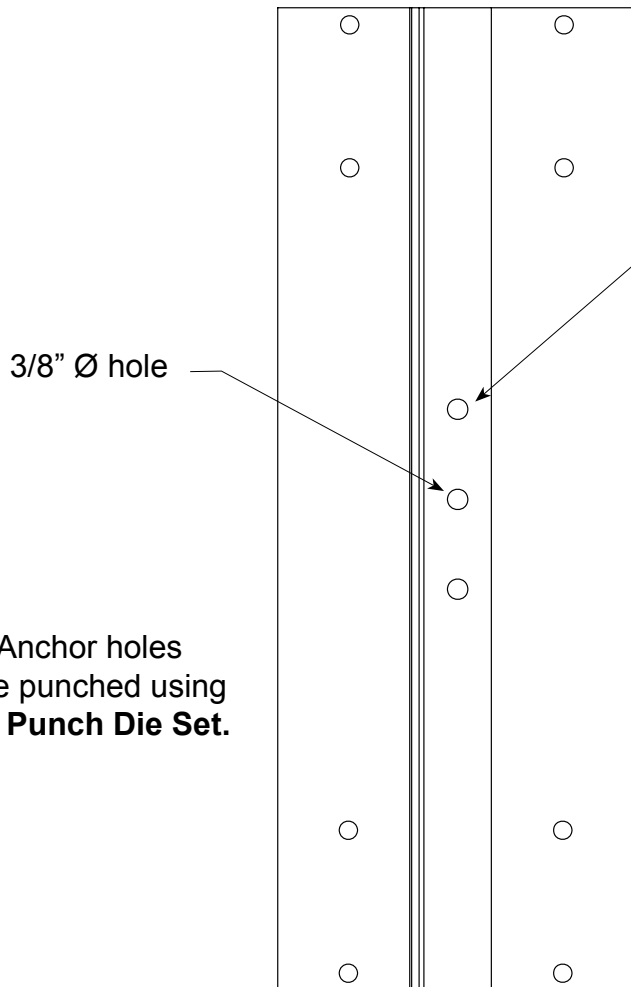
FRAME FABRICATION Wall Jamb

STEP 6.

Fabricate wall jamb for anchor holes, when required. Number of anchors required is dependent on mullion length and substrate material. Reference **CAP Anchor Chart**, (Pages 51-56).



FL500



3/8" Ø hole

Compare charted anchor hole locations with intermediate horizontal dimensions on shop drawings. Should charted anchor holes be shown at same location as intermediate horizontal, then drill holes directly above or below horizontal to avoid fastener installation interference.

Note: Anchor holes may be punched using **FL500 Punch Die Set**.

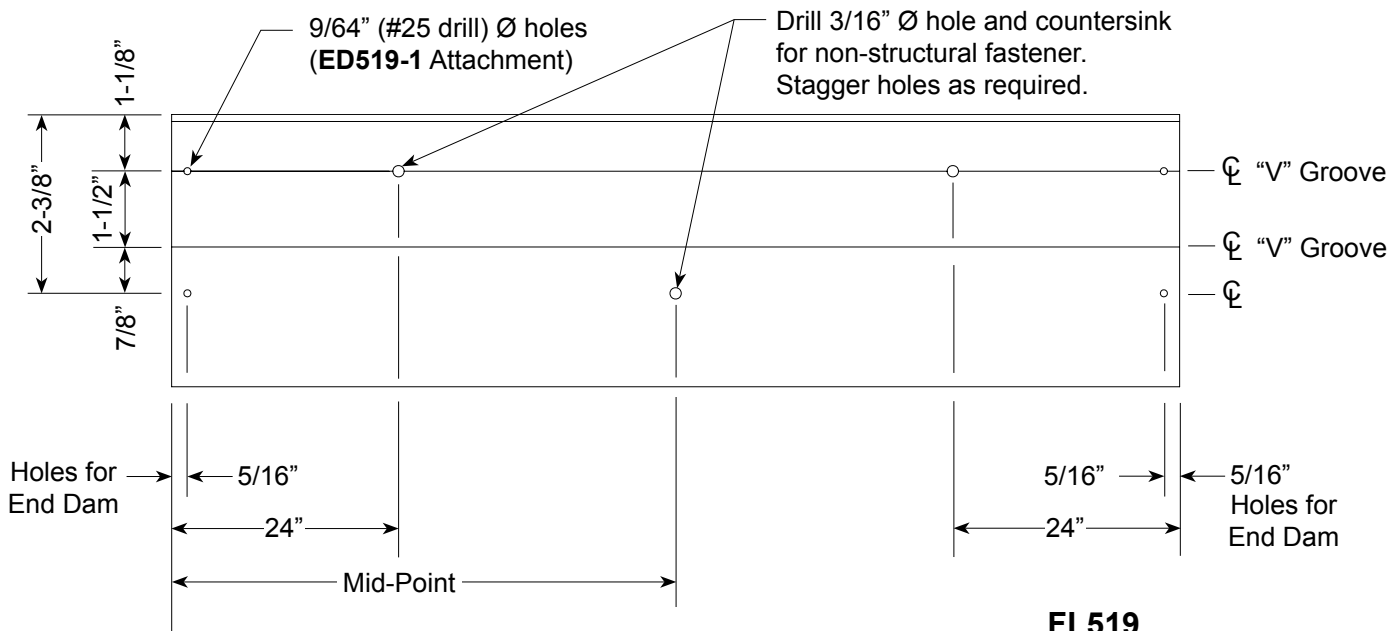
Note: Locate anchors as close to charted dimensions as possible.

Wall Jamb

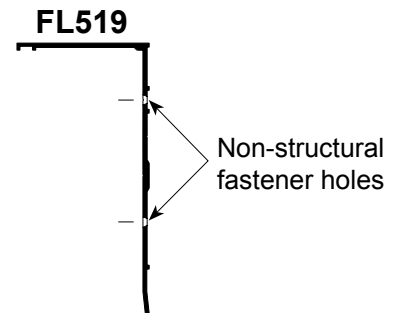
FRAME FABRICATION Subsill Flashing

STEP 7.

Fabricate **FL519** subsill flashing for end dams and non-structural fastener holes. Hole location dimensions for non-structural fasteners in subsill are approximate.



See **Page 30** for subsill abutting door jamb.



1. Drill 3/16" dia. hole for non-structural fasteners used for temporarily attaching subsill to substrate as shown. Repeat this hole pattern for each additional 12'-0" of length or as required until structural fasteners are installed.
2. Drill two each 9/64" dia. holes (#25 drill) at each end (except end abutting at door jamb) for attaching **ED519-1** end dams. **Note:** Subsill terminates at door jamb. Reference **Page 30**.

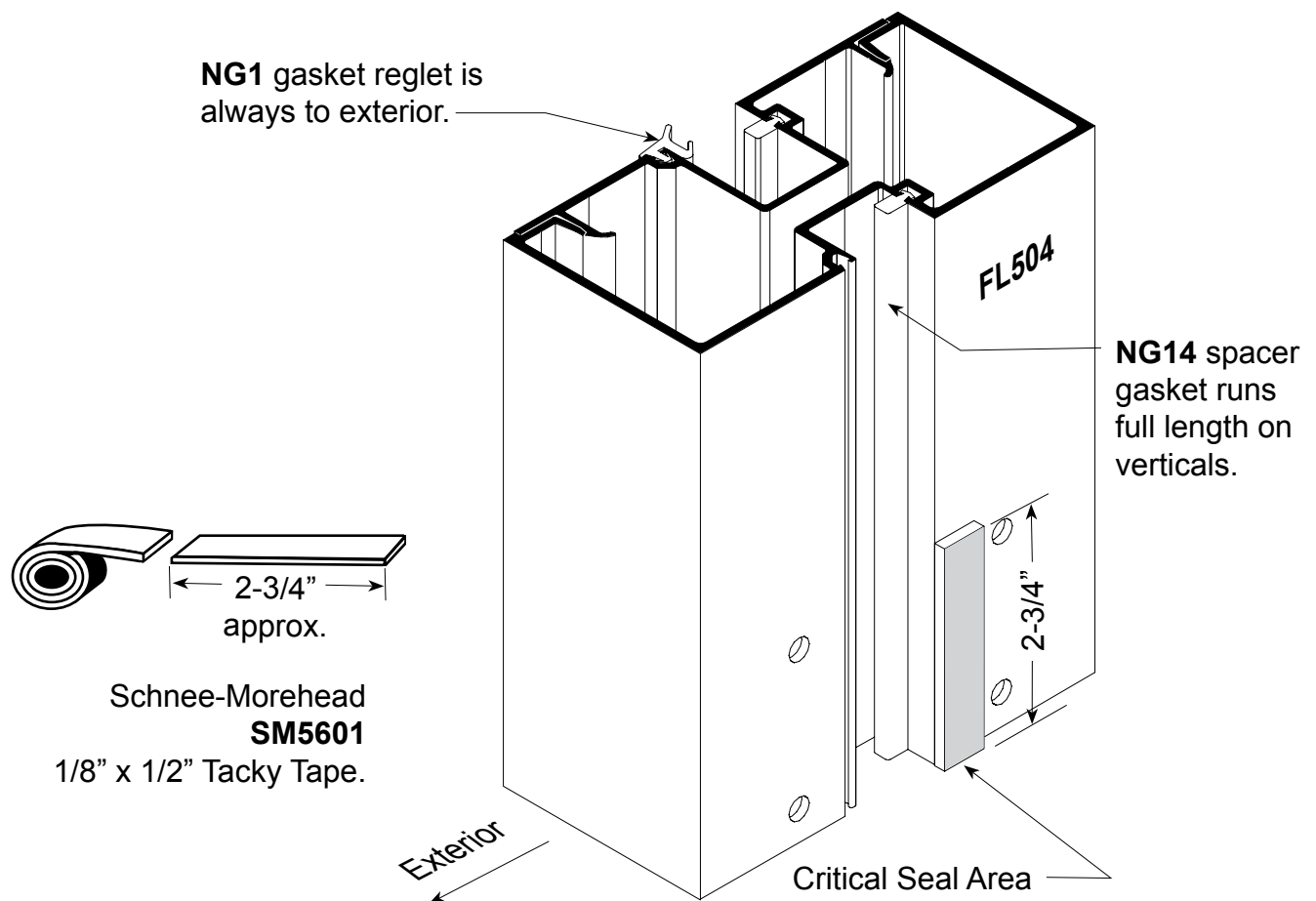
FRAME ASSEMBLY Joinery Tape Application

STEP 1.

GLAZING TAPE INSTALLATION PROCEDURES:

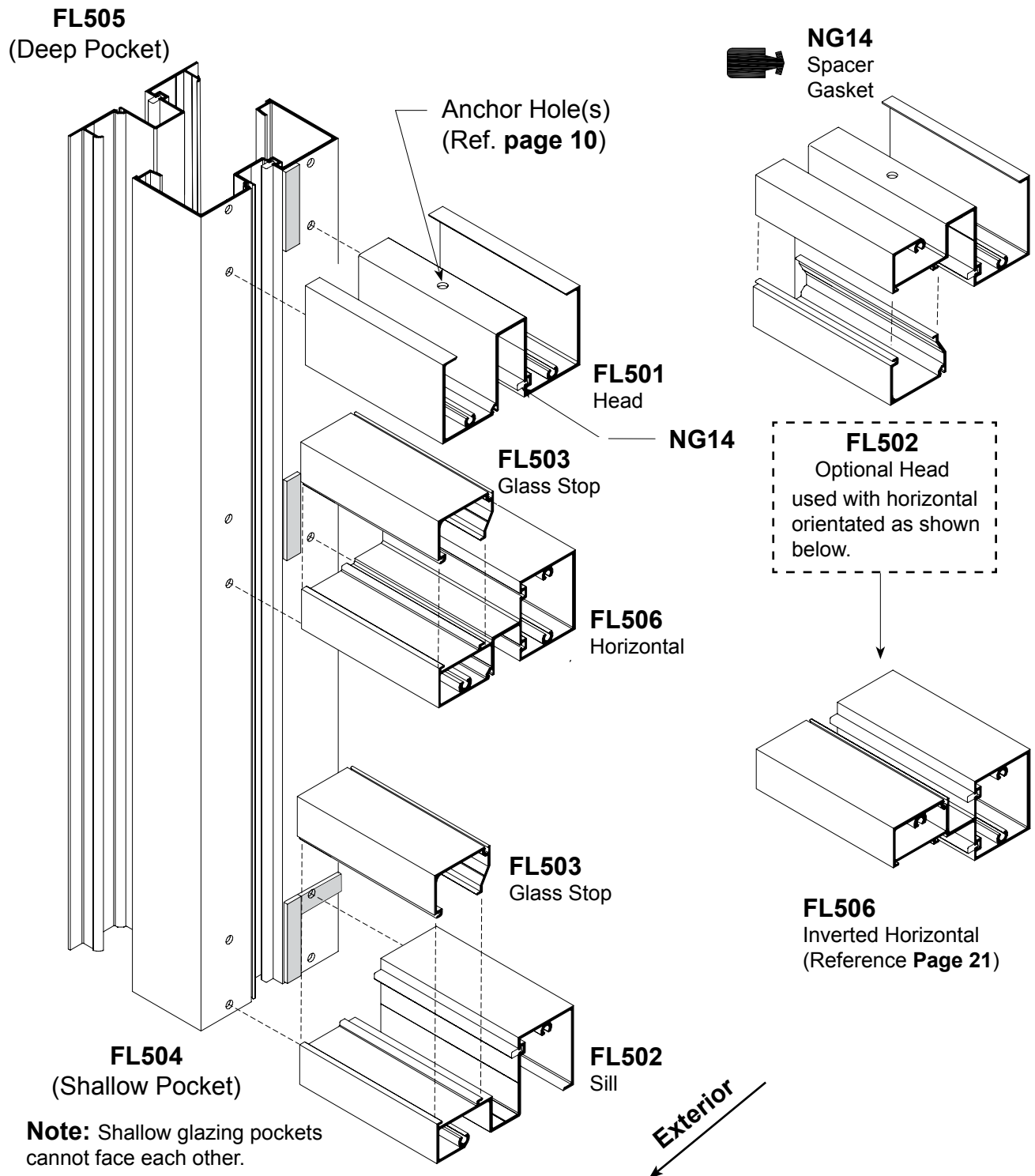
Ref. Step 2 for location.

1. Cut **SM5601** 1/8" x 1/2" Tacky Tape approximately 2-3/4" long.
2. Clean surfaces where tape is to be applied with isopropyl alcohol or solvent to remove all dirt and cutting oils. Allow surface to dry before applying tape.
3. Position tape on vertical mullions at horizontal joint intersections, as shown on **Page 14**.
4. Just prior to frame assembly, remove protective cover and screw joints together.
5. Use a box knife to trim excess sealant tape where exposed. Do not pull tape to trim.



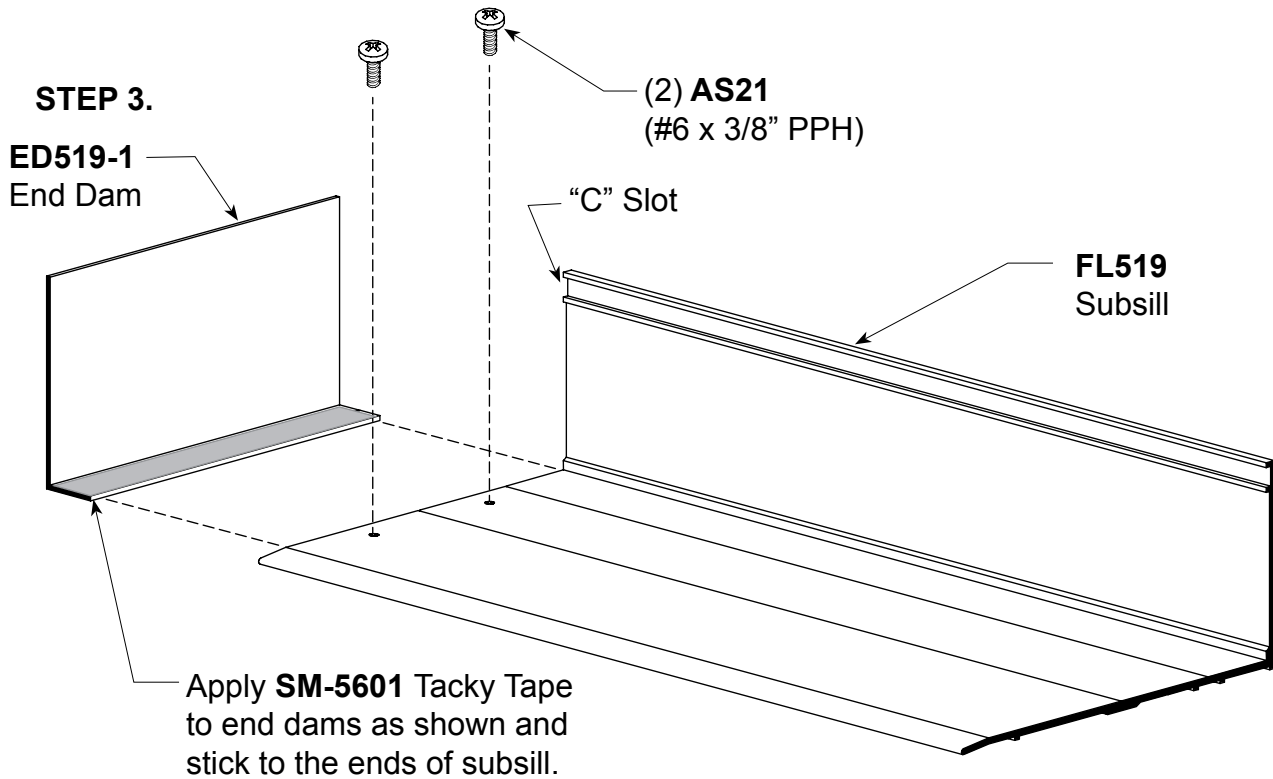
CAPTURED FRAME ASSEMBLY Vertical to Horizontal Joinery

STEP 2. Install **NG14** interior spacer gaskets into vertical and horizontal members prior to frame assembly. Cut spacer gaskets to D.L.O. dimensions.

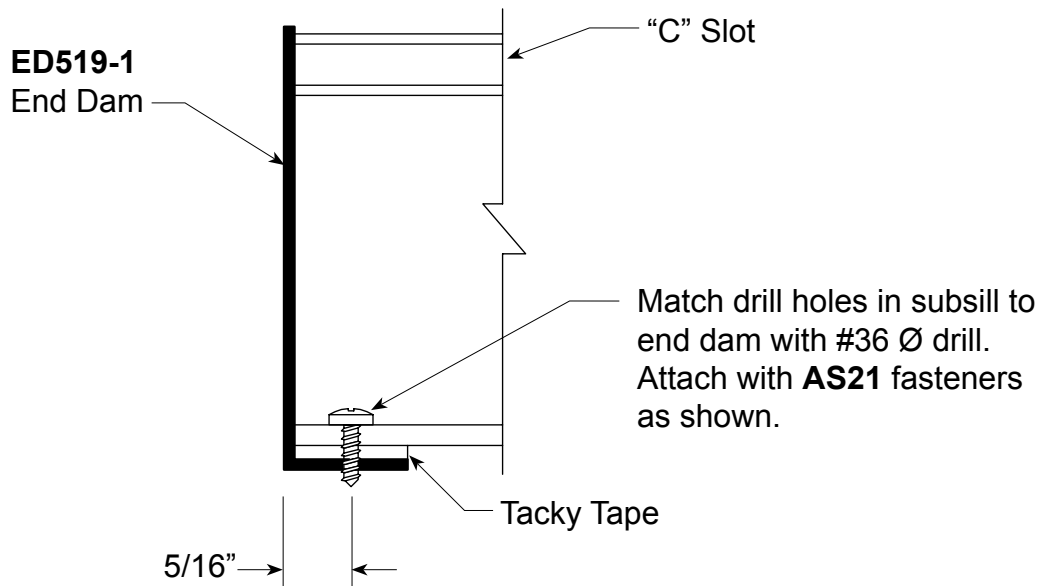


Note: Shallow glazing pockets cannot face each other.

FRAME ASSEMBLY End Dam Attachment to Subsill



Note: Reference **Page 30** for subsill abutting the door jamb where entrance doors occur.

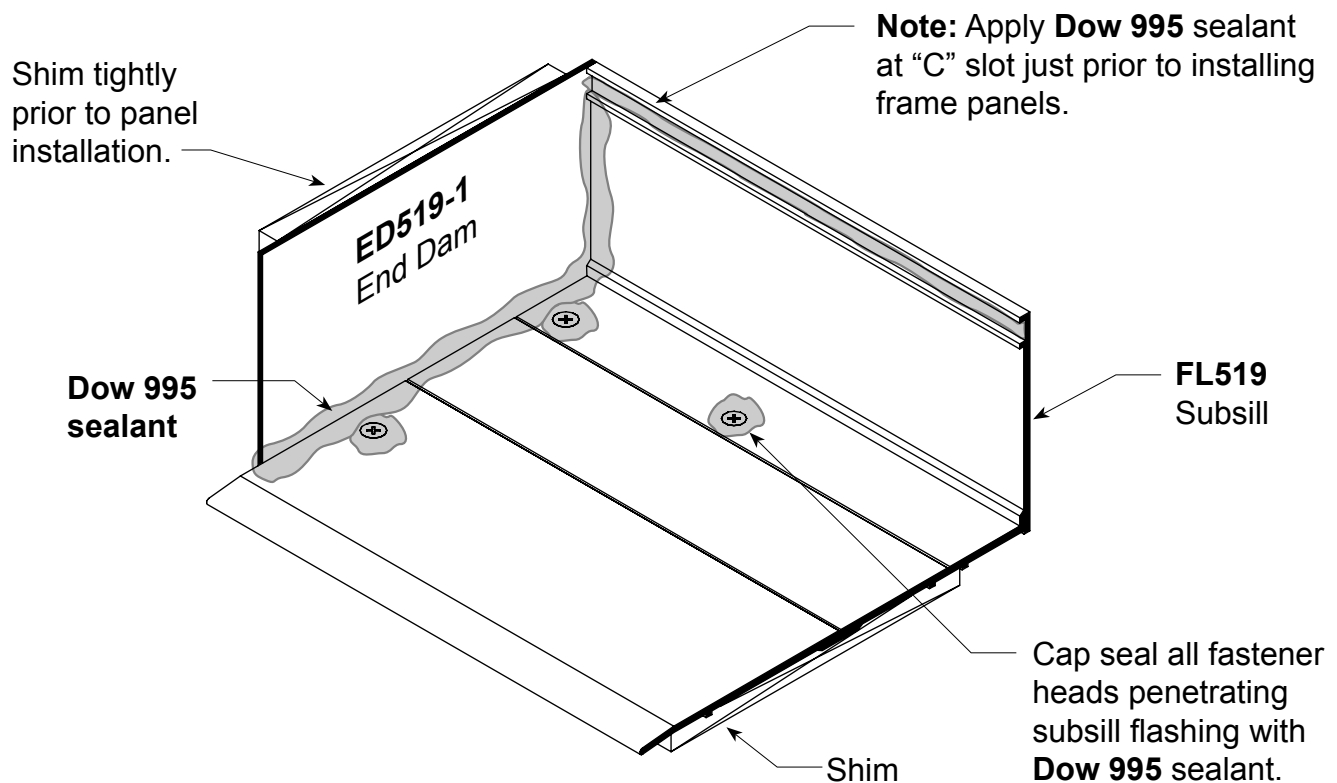


FRAME INSTALLATION

Subsill Installation and Sealant Application

STEP 1.

Position fabricated subsill with end dams into opening. Center into opening allowing shim space at jambs. (See **Page 30** for openings with entrance frames).



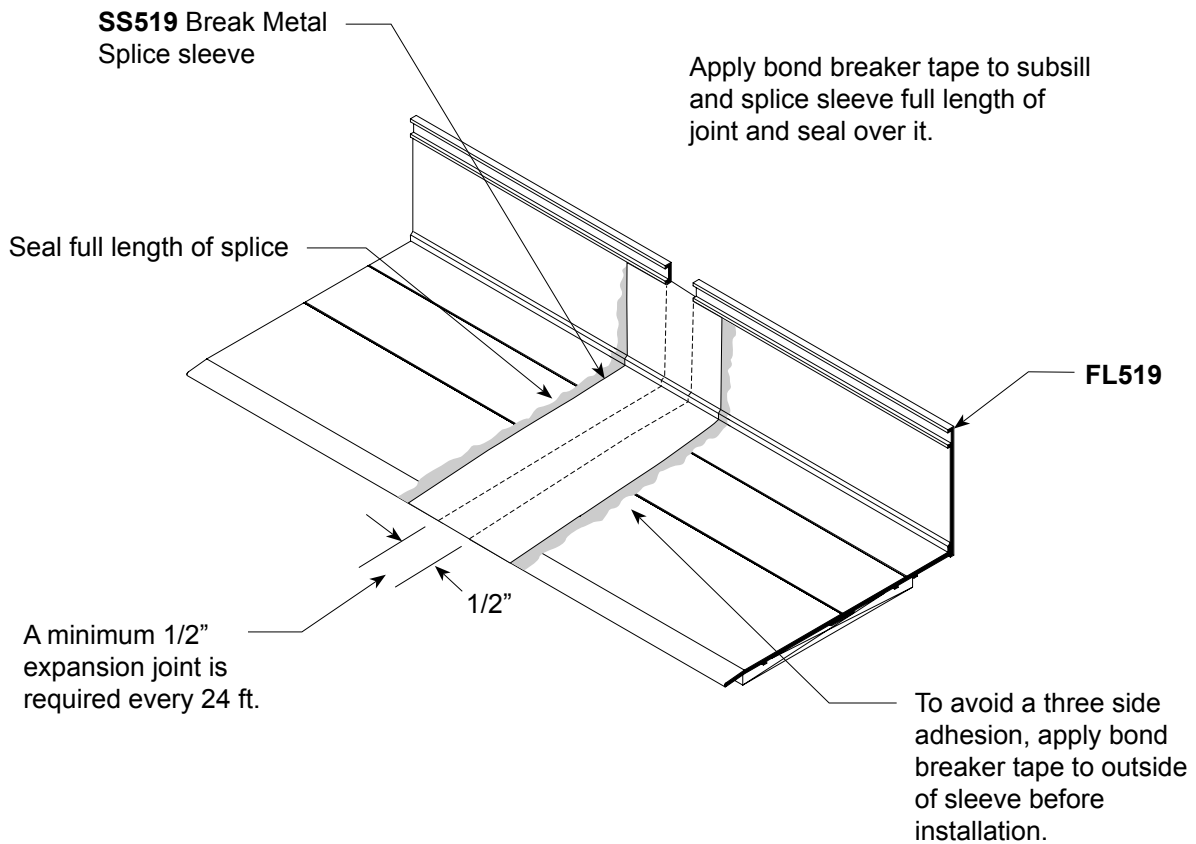
Shim beneath subsill to be a maximum of 1/4". Attach subsill flashing to structure with non-structural fasteners using attachment holes shown on **Page 12**.

Wedge shims tightly between end dams and jamb substrate at each end prior to installing frame panels. These shims prevent the end dams from being dislodged while frame panels are being installed. Completely seal end dams as shown.

Run a continuous bead of **Dow 995** sealant along the full length of the subsill "C" slot as shown above just prior to installing frame panels. Do not allow sealant to harden prior to installing frame panels. Remove excess sealant after panels are installed.

SPECIAL CONDITIONS SPLICE SLEEVE AT SUBSILL

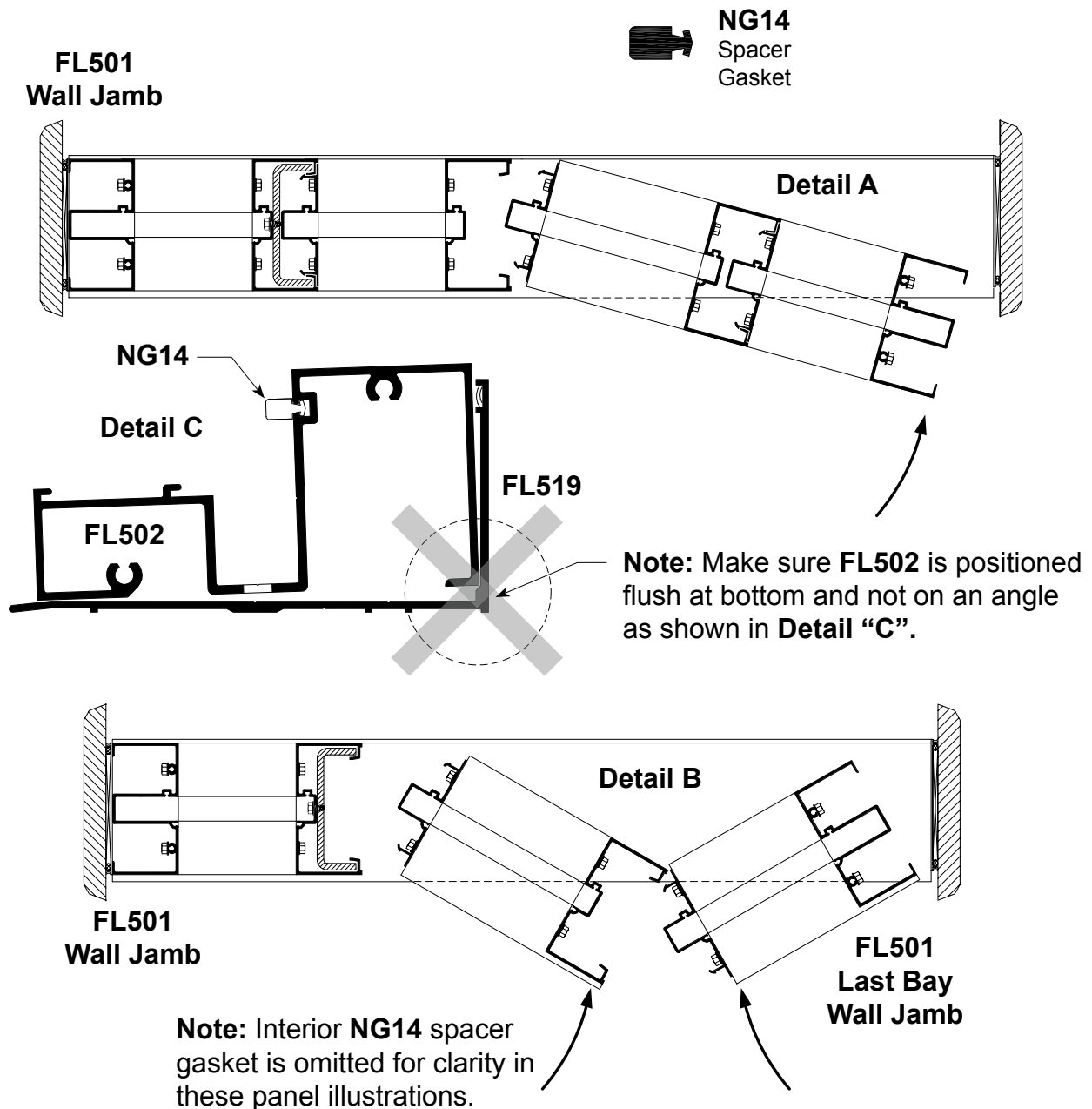
STEP 1. Locate splice sleeves near center of D.L.O. at panel positioned over splice.



FRAME INSTALLATION Panelized Assembly

STEP 1.

Install assembled frame panels into opening starting with jamb and continue working toward the last bay. Reference illustrations shown below. Use option “A” or “B” as required. **Caution: SR504** steel slide fits into **FL504** and must be inserted and attached prior to installing panels.



FRAME INSTALLATION

Panelized Frame Attachment to Substrate

STEP 2.

Shim beneath subsill as required at fasteners. Match drill lead holes through sill into substrate for perimeter fasteners. Match drill lead diameter holes in head and wall jamb into substrate. Shim and anchor panels to substrate.

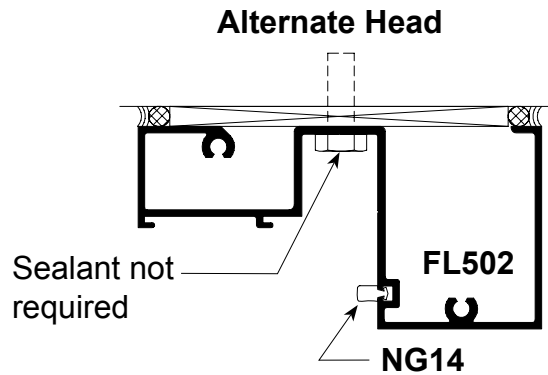
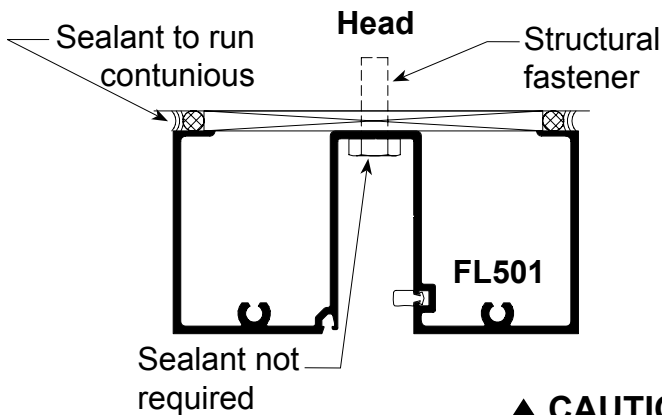
NOTE: The lead diameter hole is determined by fastener manufacturer for each different substrate material.



NG14
Spacer
Gasket

STEP 3.

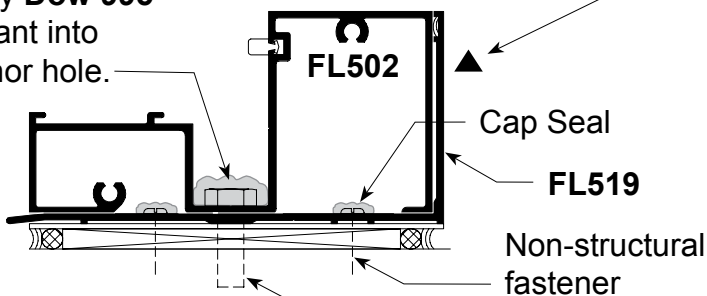
Completely seal exterior and interior perimeter with a continuous bead of **Dow 795 sealant**.



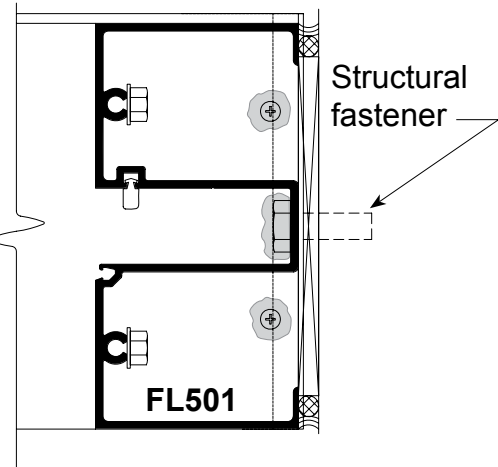
▲ CAUTION

Do Not Penetrate back of subsill flashing with a fastener

Apply **Dow 995** sealant into anchor hole.

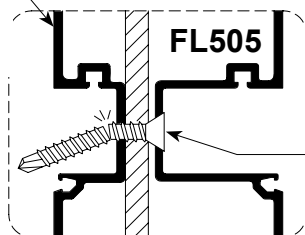


Wall Jamb



FL504 or FL516 without steel

Detail A



Lead diameter hole varies based on fastener type used for each different substrate. (Typ.)

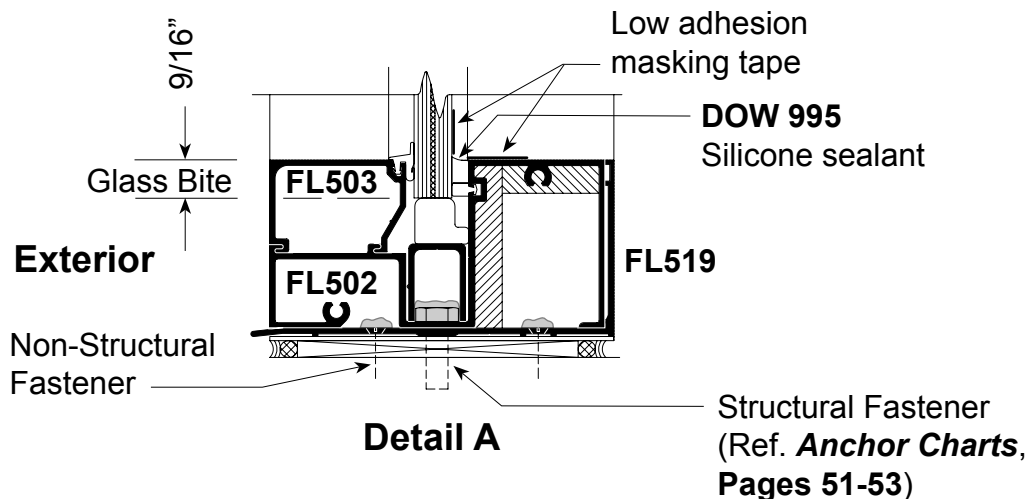
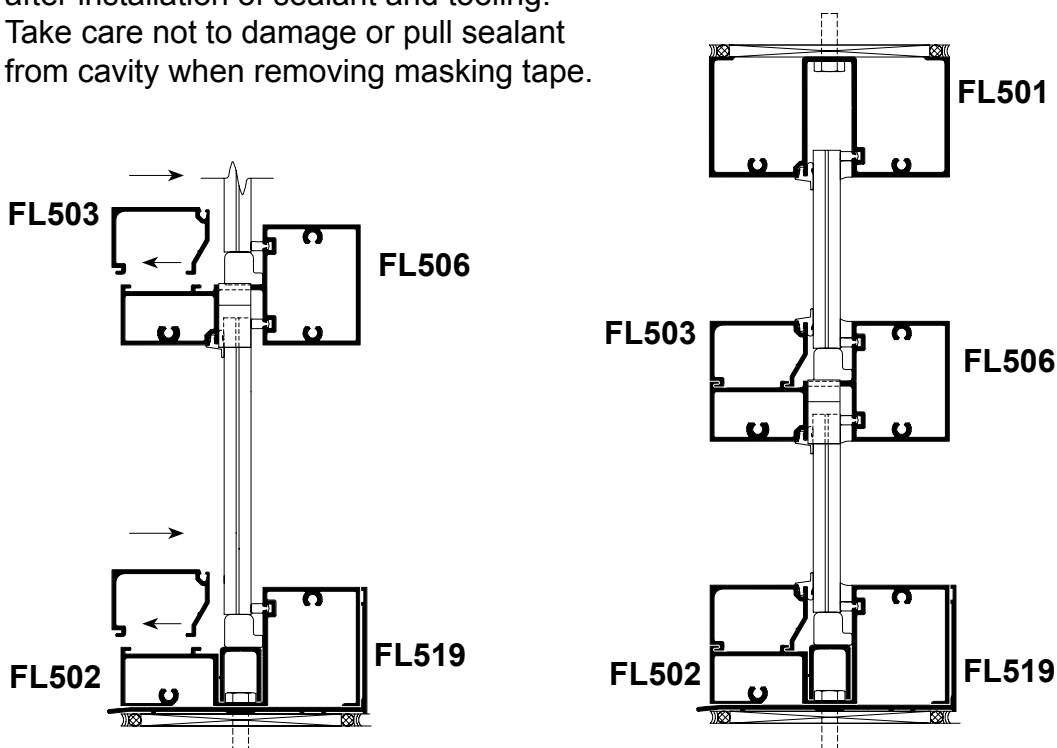
For D.L.O. heights 72" or greater, attach **FL505** to vertical mullion filler at midpoint and 18" above and below midpoint with **AS27** (#12 x 1-1/2" #3 PFH self drill) and snap off excess using pliers.

GLAZING

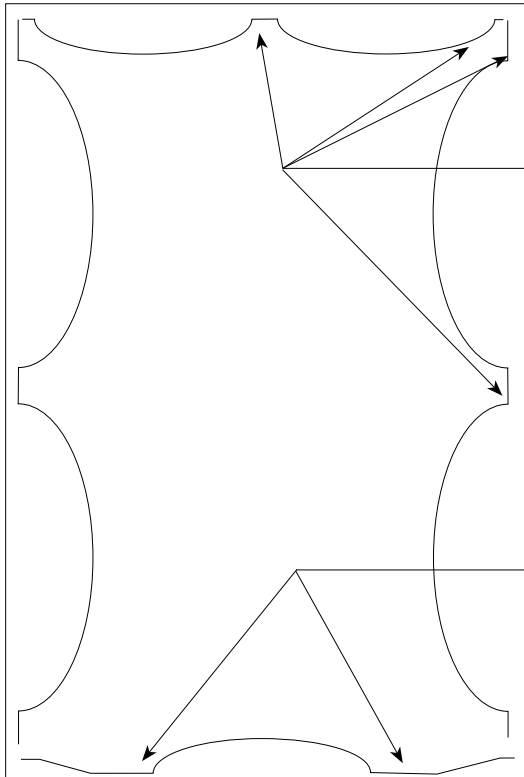
6. Continue glazing following the four step procedure.
7. Install **FL503** hook-in glass stops as shown.
8. Prepare **NG1** top load gaskets and install as instructed on **Page 23**.
9. Mask off glass and aluminum with 2" wide low adhesion masking tape. Fill cavity with **Dow 995** sealant as shown, **Detail "A"** and tool. Remove masking tape immediately after installation of sealant and tooling. Take care not to damage or pull sealant from cavity when removing masking tape.



NG1
(Actual Size)



INSTALLATION OF TOP LOAD GLAZING GASKETS



Detail A

Start jamb and head gaskets at corners and center.

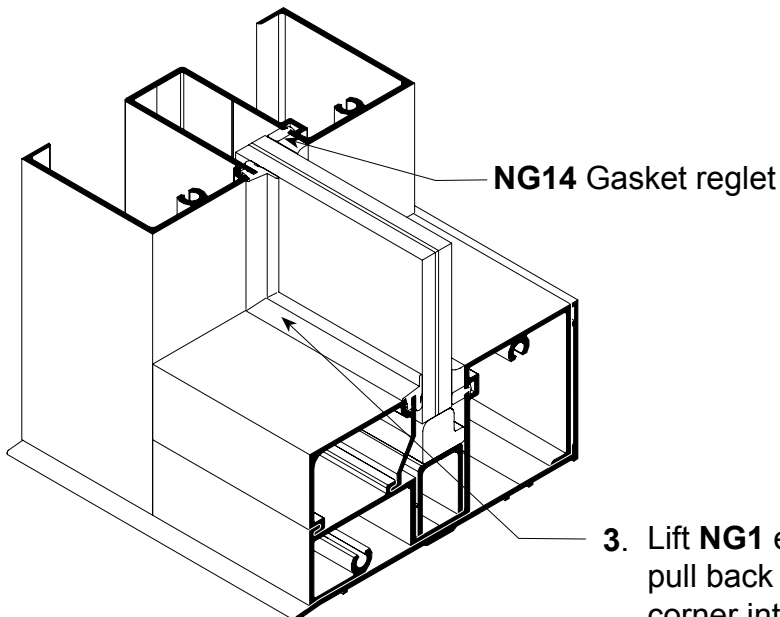
Start gaskets at setting blocks



NG1
(Actual Size)

1. Cut **NG1** gaskets a minimum of 3/16" longer per foot than aluminum extrusion.
2. Do not stretch gaskets to make them fit.

It is very important that gaskets are installed correctly as shown in **Detail "A"**, to prevent shrinkage at corners.



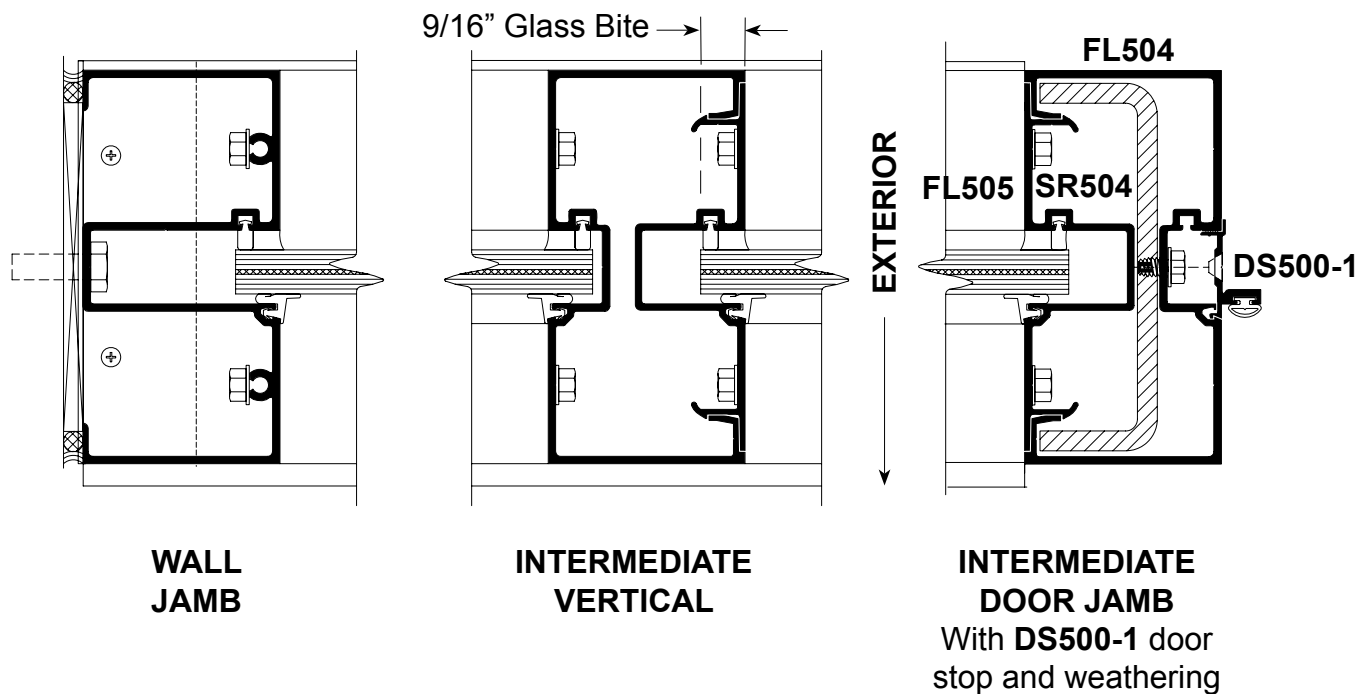
3. Lift **NG1** exterior gaskets and pull back 2" in both directions at corner intersections & seal with **DOW 795** silicone.

GLASS SIZE FORMULAS

Glass Sizes for FL500 System:

Glass Width and Height = D.L.O. + 1-1/8"

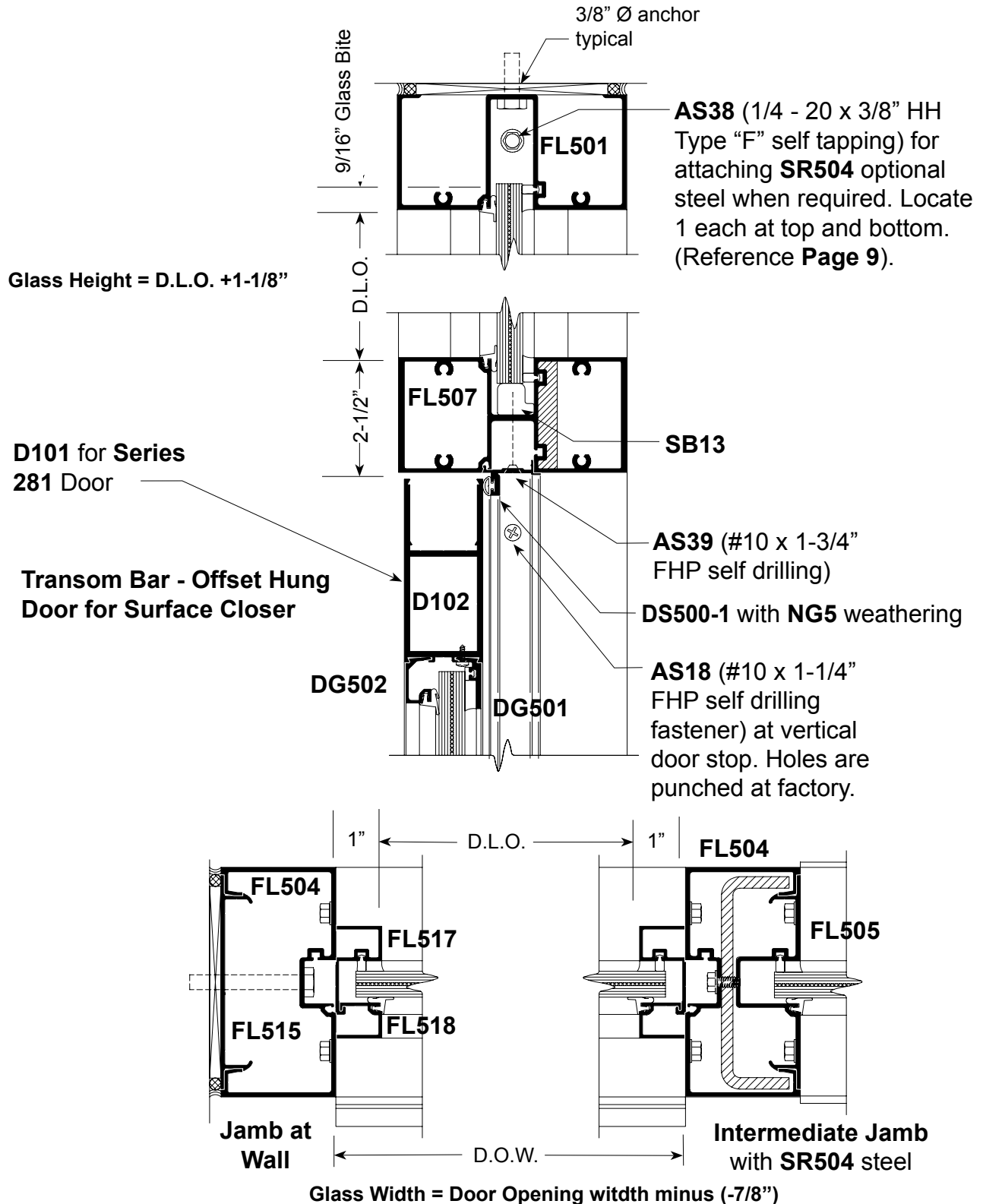
Note: Glass tolerances are not addressed in the above formula.
 Consult glass manufacturer for glass tolerances prior to ordering.



TRANSOM GLASS SIZE FORMULA

FT5 Frame for Offset Hung Door for Surface Closer

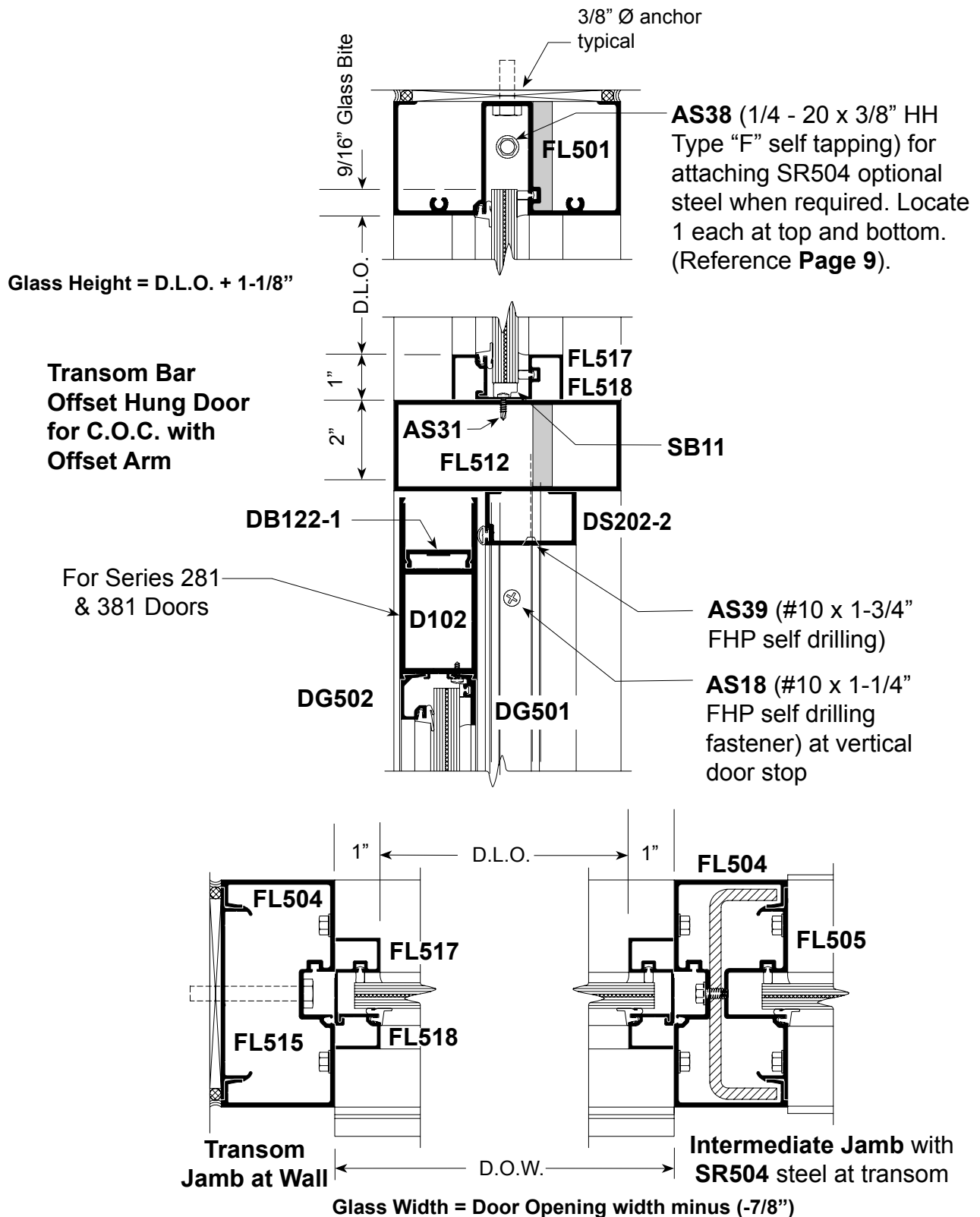
(See Glazing for Glass Installation)



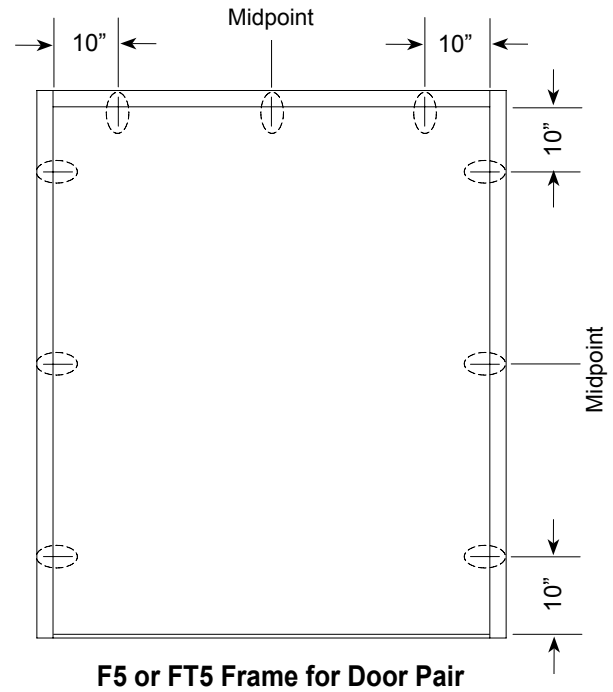
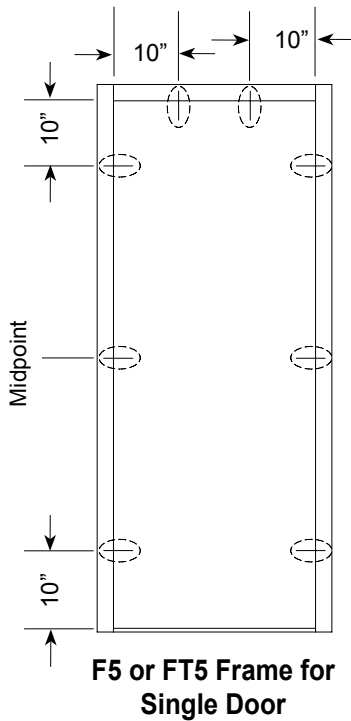
TRANSOM GLASS SIZE FORMULA

FT5 Frame for Offset Hung Door with C.O.C.

(See Glazing for Glass Installation)

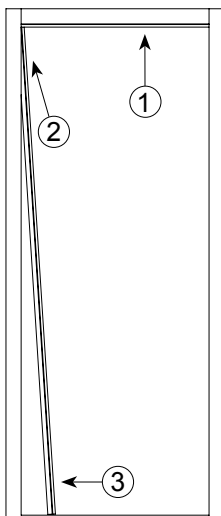


DS500-1 Door Stop ATTACHMENT LOCATIONS For 84" or 96" Door Height

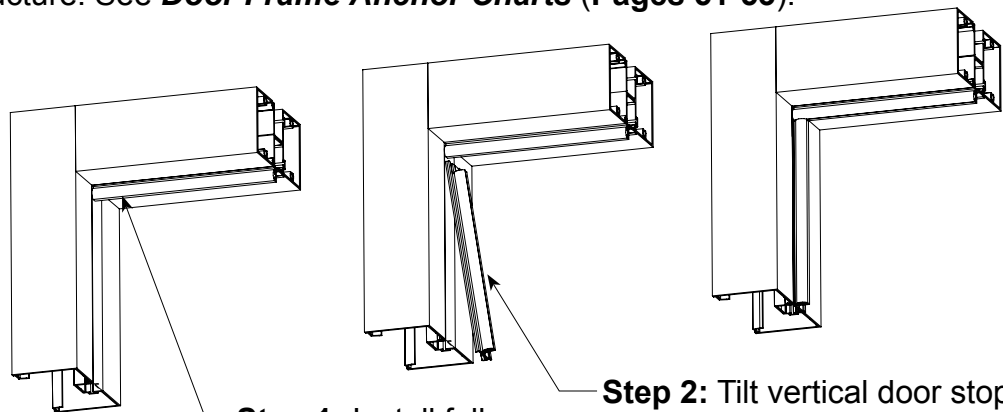


DS500 Door Stop INSTALLATION

Caution: Do not attach DS500-1 until frame has been anchored to structure. See *Door Frame Anchor Charts (Pages 51-53)*.



Detail A



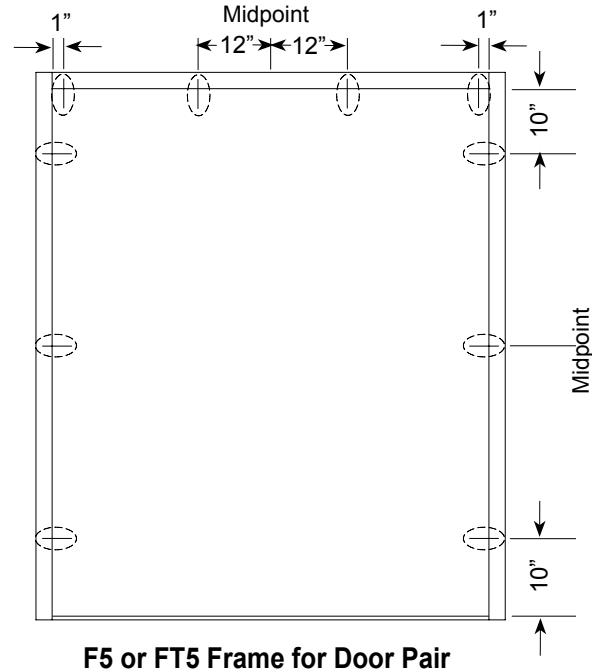
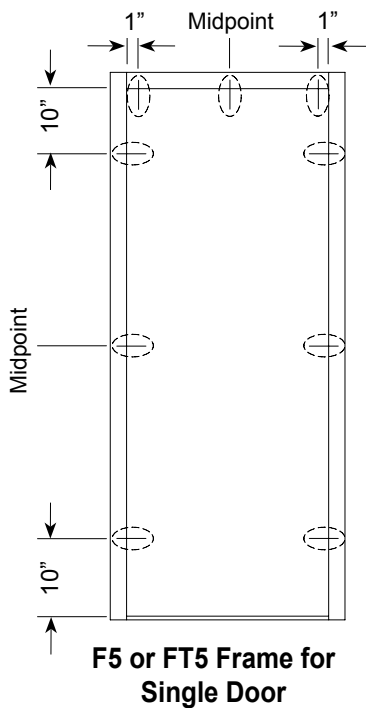
Step 1: Install full length at header with **AS39** (#10 x 1-3/4" FHPUC self drill) fasteners in factory punched holes.

Step 2: Tilt vertical door stop as shown in **Detail "A"** and push up into slot.

Step 3: Push in at bottom. Attach with **AS18** (#10 x 1-1/4" self drill) fasteners in factory punched holes.

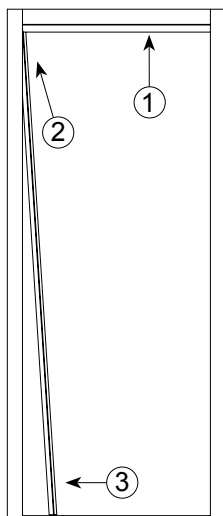
Step 4: Repeat steps 2 and 3 on opposite side.

DS202-1 Offset Arm Door Stop at Head and DS500-1 at Jambs For 84" or 96" Door Height

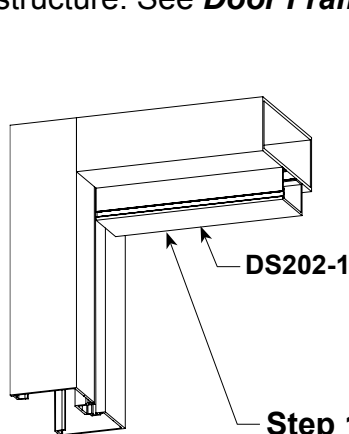


DS202-1 Door Stop at Head with DS500-1 at Jambs

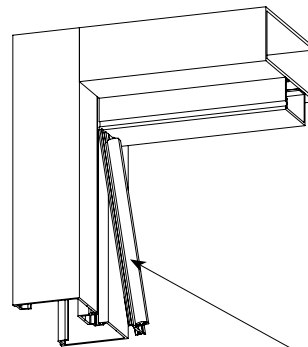
Caution: Do not attach until frame has been anchored to structure. See *Door Frame Anchor Charts (Pages 51-53)*.



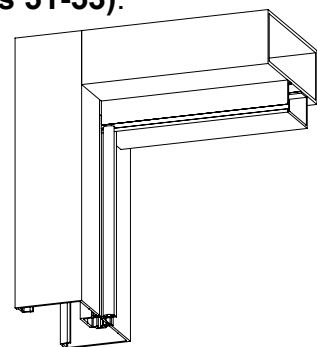
Detail A



Step 1: Install full length at header with **AS39** (#10 x 1-3/4" FHPUC self drill) fasteners in factory punched holes.



Step 2: Tilt vertical door stop as shown in **Detail "A"** and push up into slot.



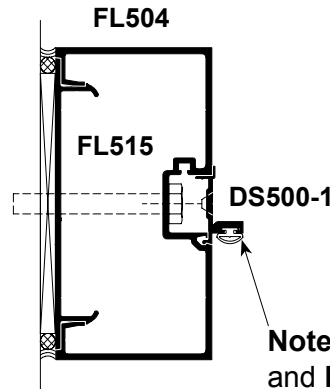
Step 3: Push in at bottom. Attach with **AS18** (#10 x 1-1/4" self drill) fasteners in factory punched holes.

Step 4: Repeat steps 2 and 3 on opposite side.

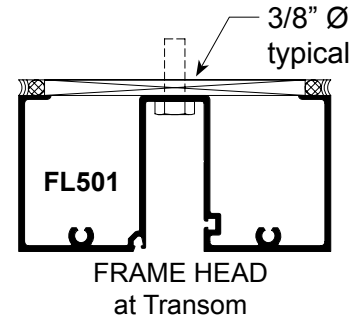
TYPICAL ASSEMBLY & INSTALLATION For F5 or FT5 Door Frames

ASSEMBLY:

1. Verify opening size. Allow for 1/4" minimum sealant space at jambs and frame head.
2. Reduce frame transom height when required. Use drill jig for drilling spline hole locations for frame head.
3. Attach **TH403** threshold clips to jambs using **AS24** fasteners.
4. Assemble head and transom bar to jambs as shown.
5. Install **FL517** sash with **NG14** gasket in transom.



TYPE "FT" FRAME



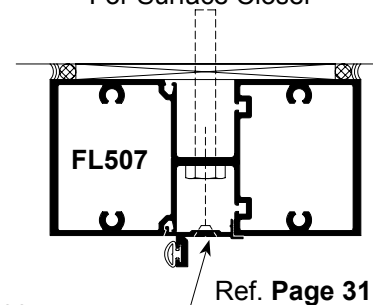
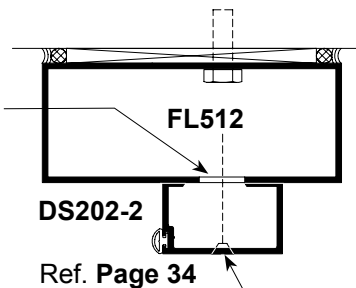
Note: Do not attach **DS500-1** door stop and **FL567** transom sash until frame has been anchored to substrate.

TYPE "F" FRAMES

For C.O.C. with offset arm

For Surface Closer

3/4" Ø Access Hole for 3/8" Ø fastener

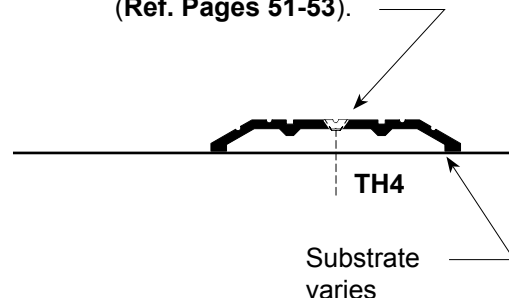


INSTALLATION:

1. Drill 3/8" Ø anchor holes in wall jamb and frame head as shown on **Anchor Charts**, (**Pages 51-53**), prior to assembly.
2. Set frame plumb and square into opening.
3. Anchor frame to substrate with fastener types as shown in anchor charts.
4. Attach **DS500-1** door stop with **NG5** weathering to jambs and transom bar or door header.
5. Position setting blocks in door header at quarter or eighth points as required and glaze transom. Glazing sash is required in transom. See details on **Pages 25 and 26**.

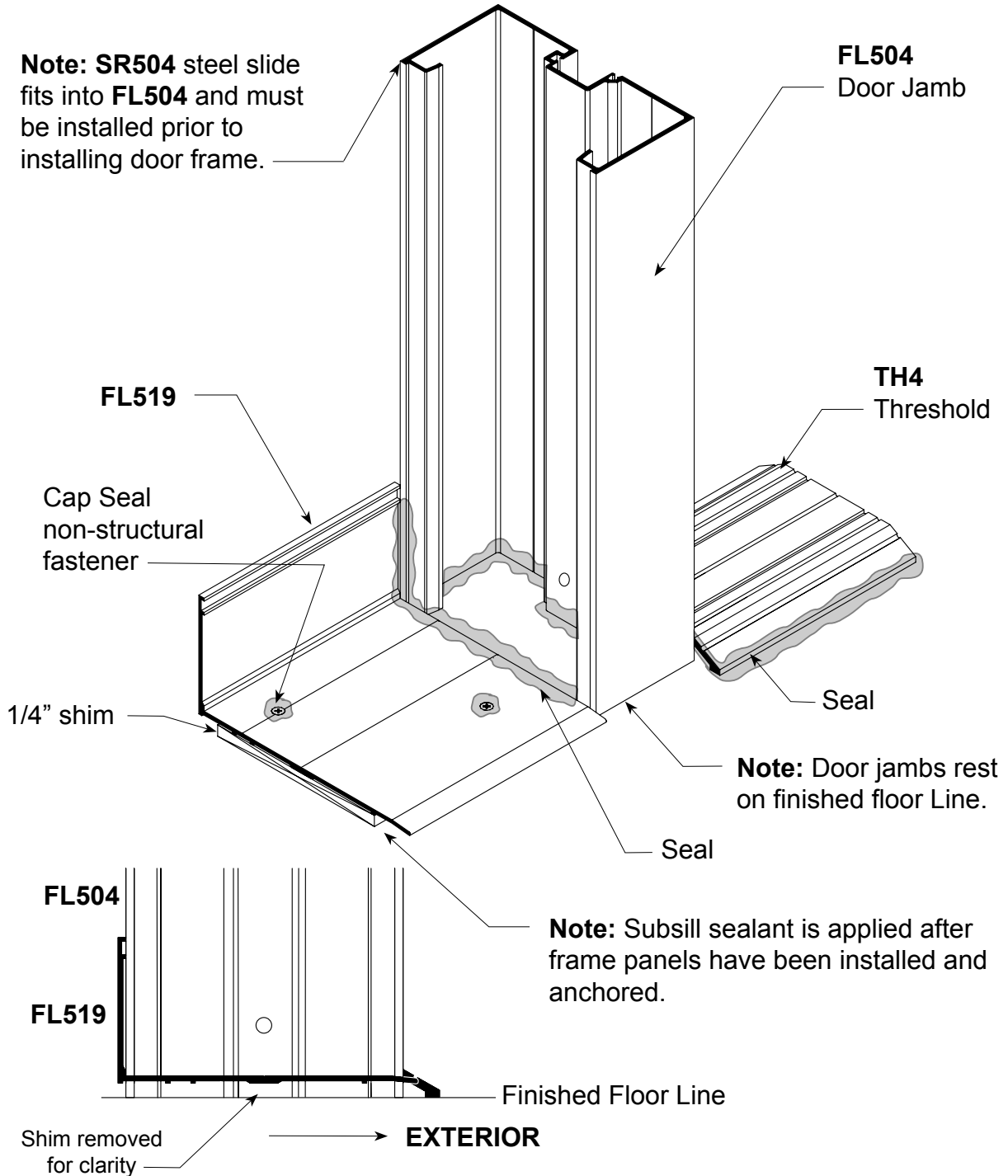
AS39
(#10 x 1-3/4" FHP self drilling)

Field fabricate holes in locations as shown in anchor charts and anchor threshold to substrate. (**Ref. Pages 51-53**).

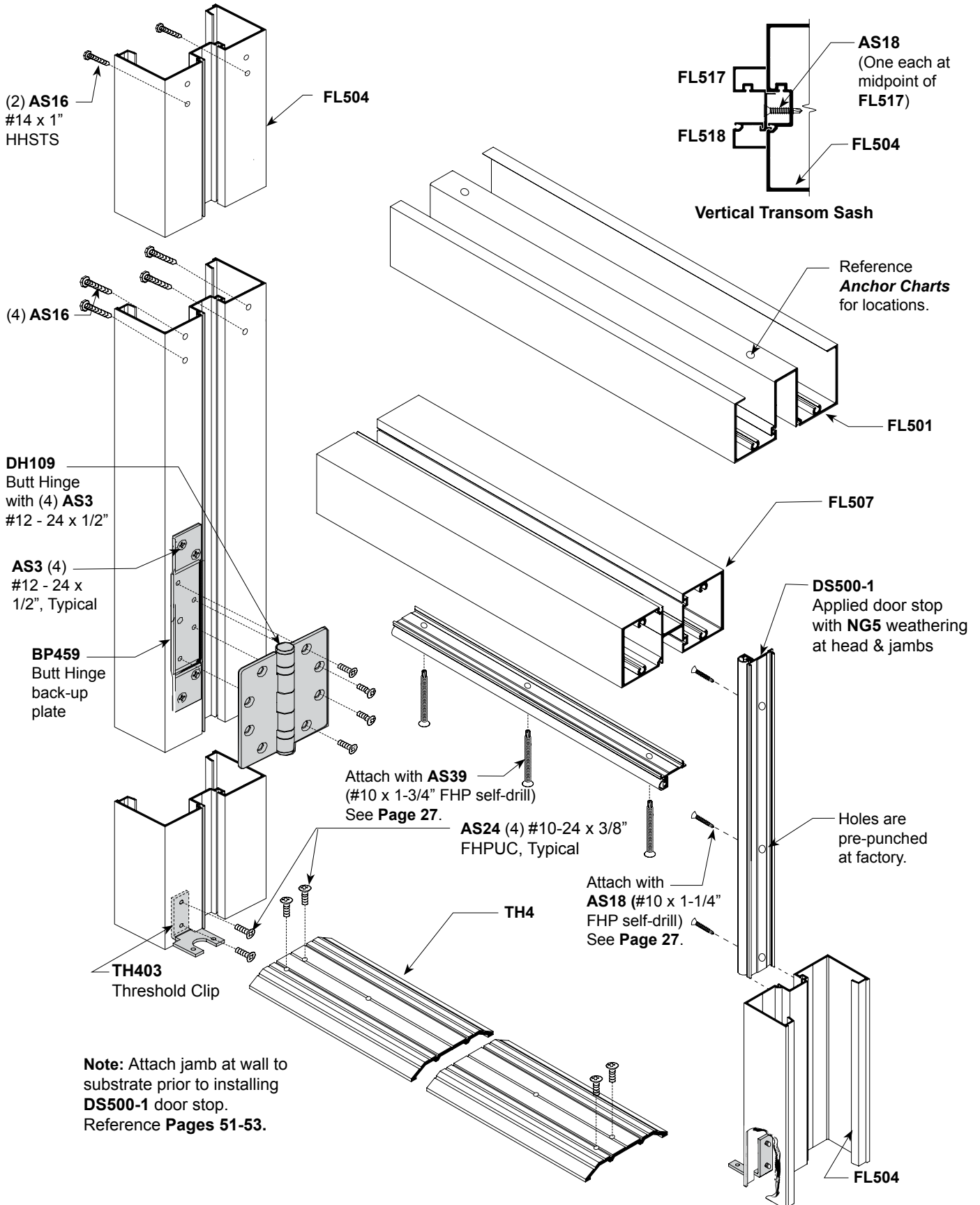


ENTRANCE DOOR FRAME INSTALLATION With Subsill for Sidelights

When entrances occur, install entrance frames first. Subsill butts against door jamb(s). The subsill abutting the door jamb does not require an end dam.



F5 or FT5 FRAME with Transom - Butt Hung Door - for Surface Closer

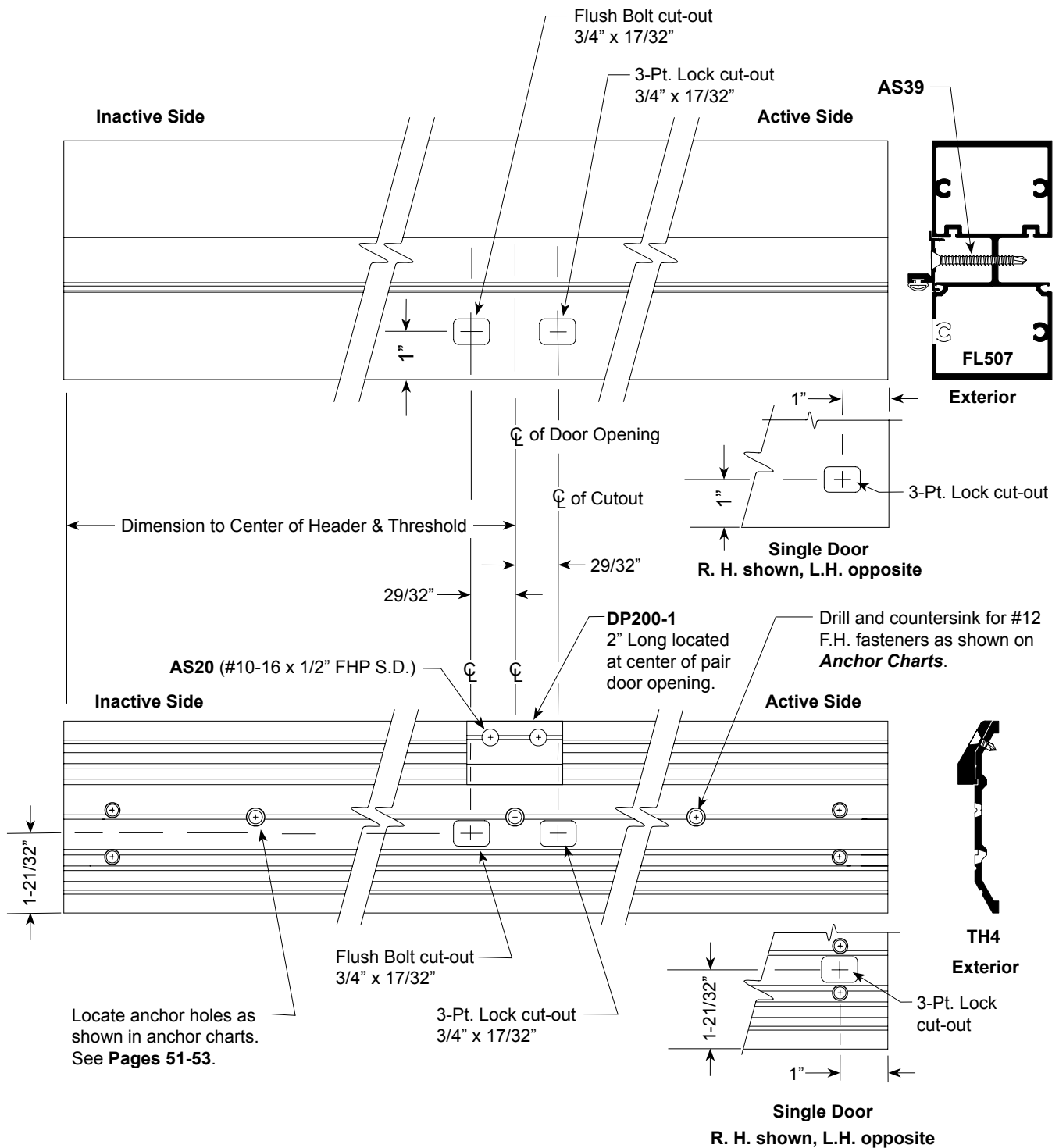


FLUSH BOLT & 3 PT. LOCK STRIKE LOCATIONS

F5 or FT5 Open Back Frame - Butt Hung Door - For Surface or Concealed Overhead Closer

FL507 Header Fabrication Shown for Surface Closer.

FL512 Header Fabrication Similar for C.O.C.

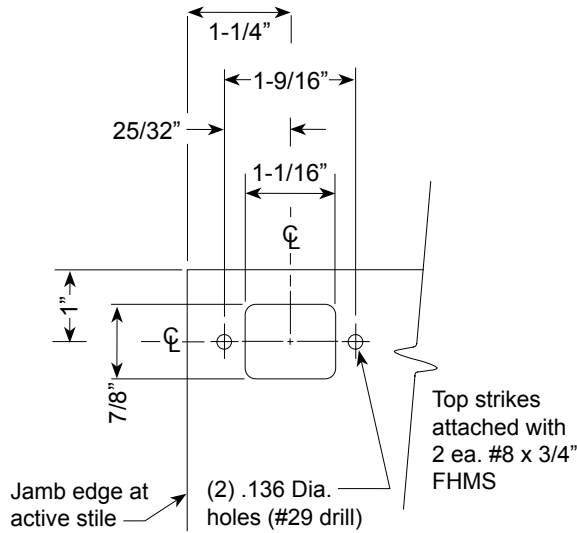


STRIKE LOCATIONS

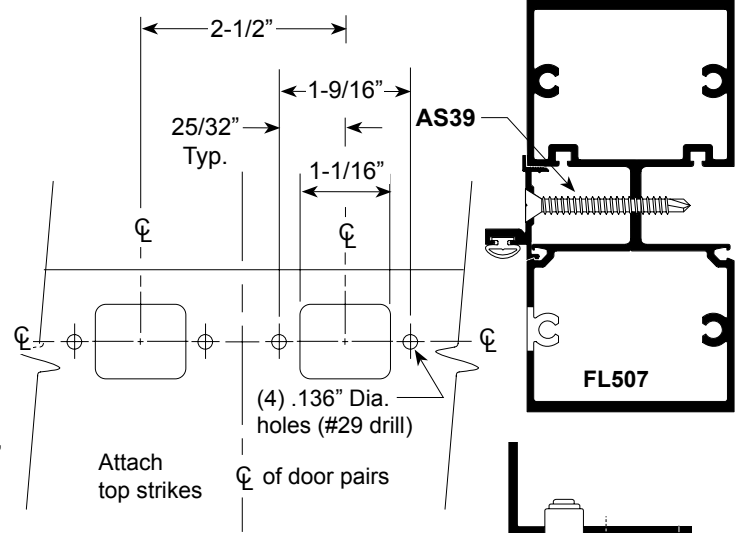
At Door Header and Threshold

For DH2086HR Concealed Panic

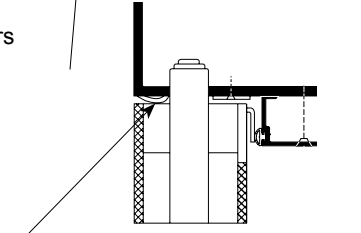
(Top and bottom strikes must be installed)



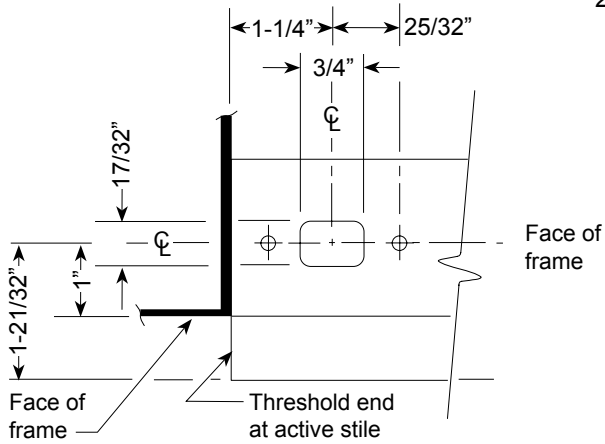
HEADER AT SINGLE DOOR



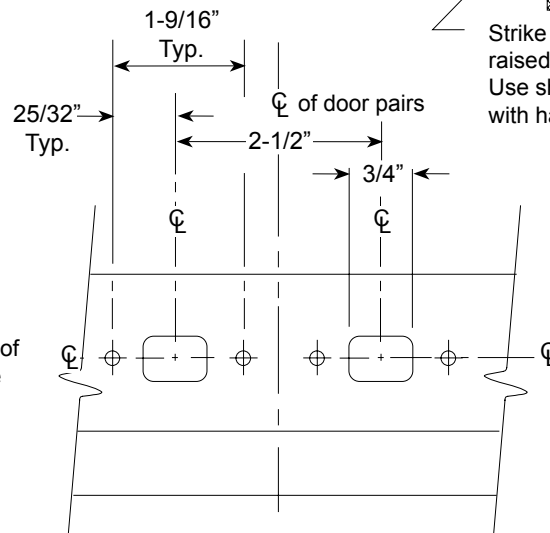
HEADER AT DOOR PAIRS



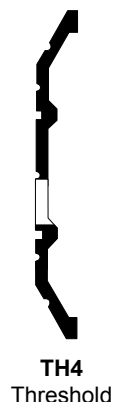
Strike to be installed with raised portion to exterior. Use shim plate, included with hardware kit, if required.



THRESHOLD AT SINGLE DOOR



THRESHOLD AT DOOR PAIRS

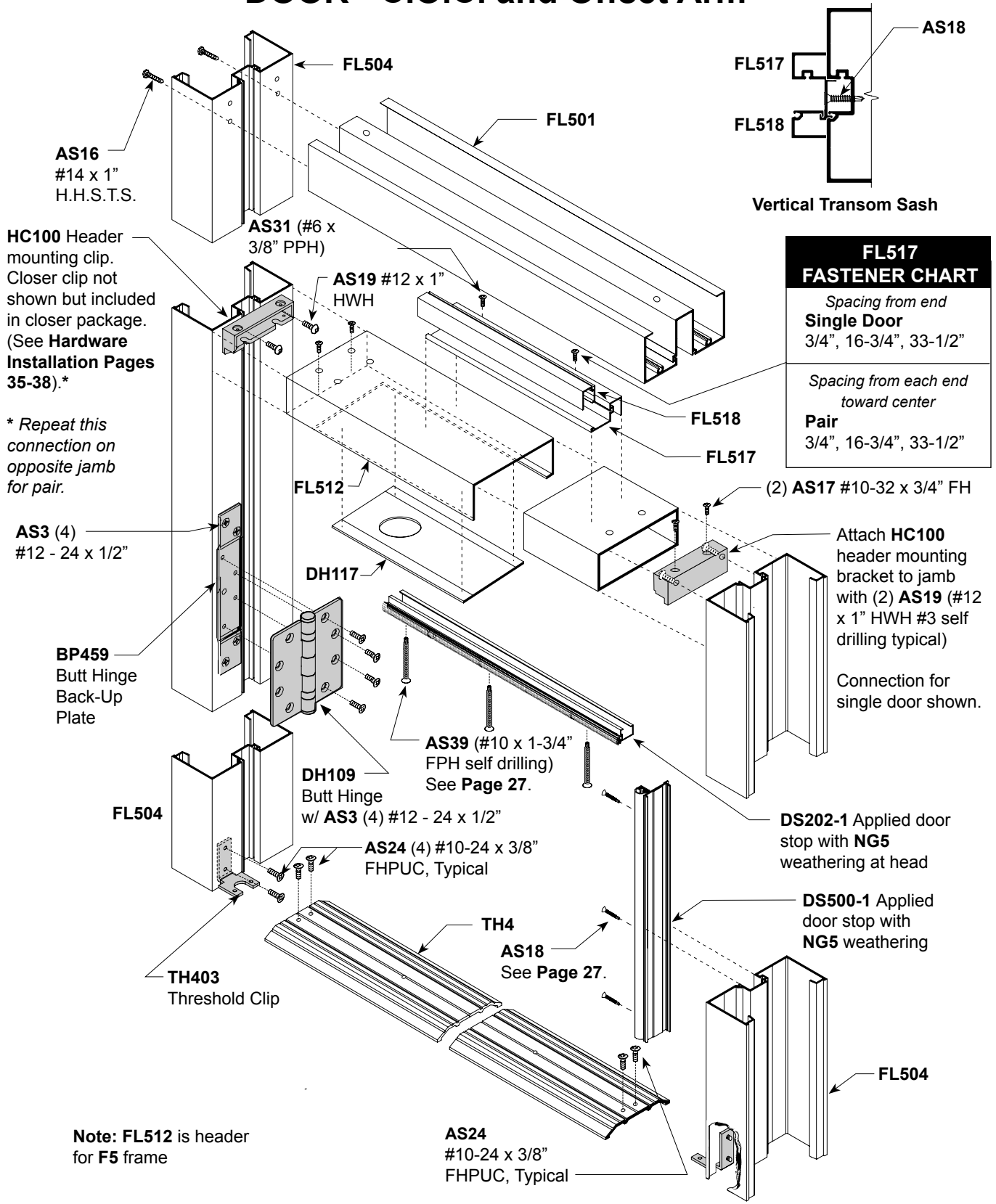


DH2086HR concealed panic device is factory installed in "Panic doors".

Panic is shipped in dogged position and must be undogged. This can be done with the use of flat head screwdriver.

Note: FL507 header for surface closer shown. FL512 header for C.O.C. similar.

F5 or FT5 FRAME - OFFSET BUTT HUNG DOOR - C.O.C. and Offset Arm

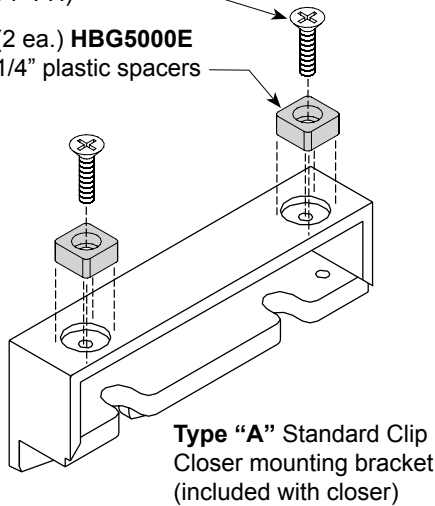


FT5 FRAME WITH FL512 HEADER for C.O.C. with Offset Arm

To mount closer into **FL512** headers, **HBG5000E** 1/4" plastic spacers are required.
For balance of header installation, see **pages 36-38**.

Secure closer mounting clip to header with (2) **AS17** fasteners (#10-32 x 3/4" FH)

(2 ea.) **HBG5000E** 1/4" plastic spacers

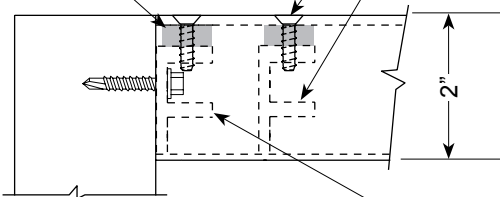


Note: **HC100** header mounting clip is identical to **Type "A"** standard clip. **HC100** is used as a header / frame joinery clip.

(4) **AS17** fasteners (#10-32 x 3/4" FH)

(4) **HBG5000E** 1/4" spacers

Closer type "A" Mounting Clip

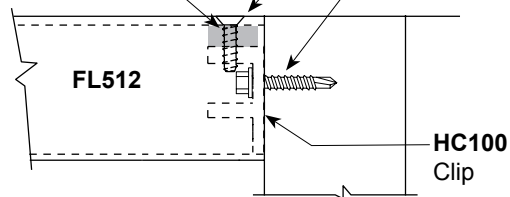


Attach **HC100** header mounting clips with (2) **AS19** (#12 x 1") self drilling fasteners (Repeat on opposite jamb for door pair)

(2) **HBG5000E** 1/4" spacers

(2) **AS17**

(2) **AS19** (#12 x 1" HWH #3 Self Drill)



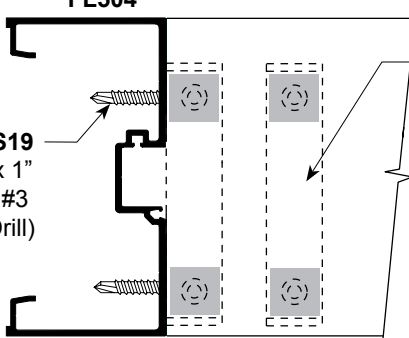
Header / Jamb for Single Door
Opposite end from closer

FL504

(2) **AS19** (#12 x 1" HWH #3 Self Drill)

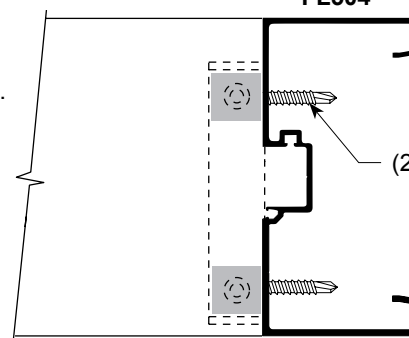
See **Page 35** for clip location.

105° swing for butt hung door



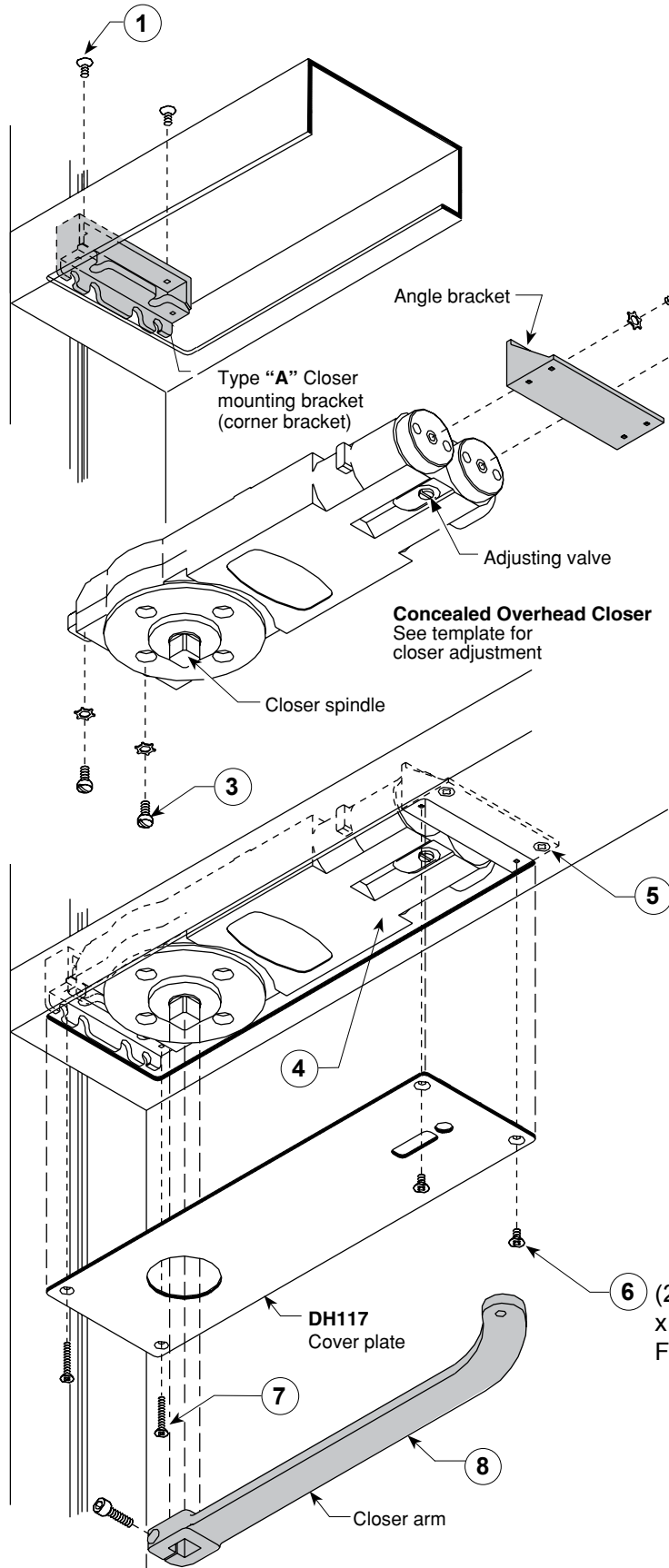
FL504

(2) **AS19**



C.O.C. FOR BUTT HUNG DOOR With 105° Swing for F5 or FT5 Frame

For door preparation and slide channel installation, see **Pages 38-39**.

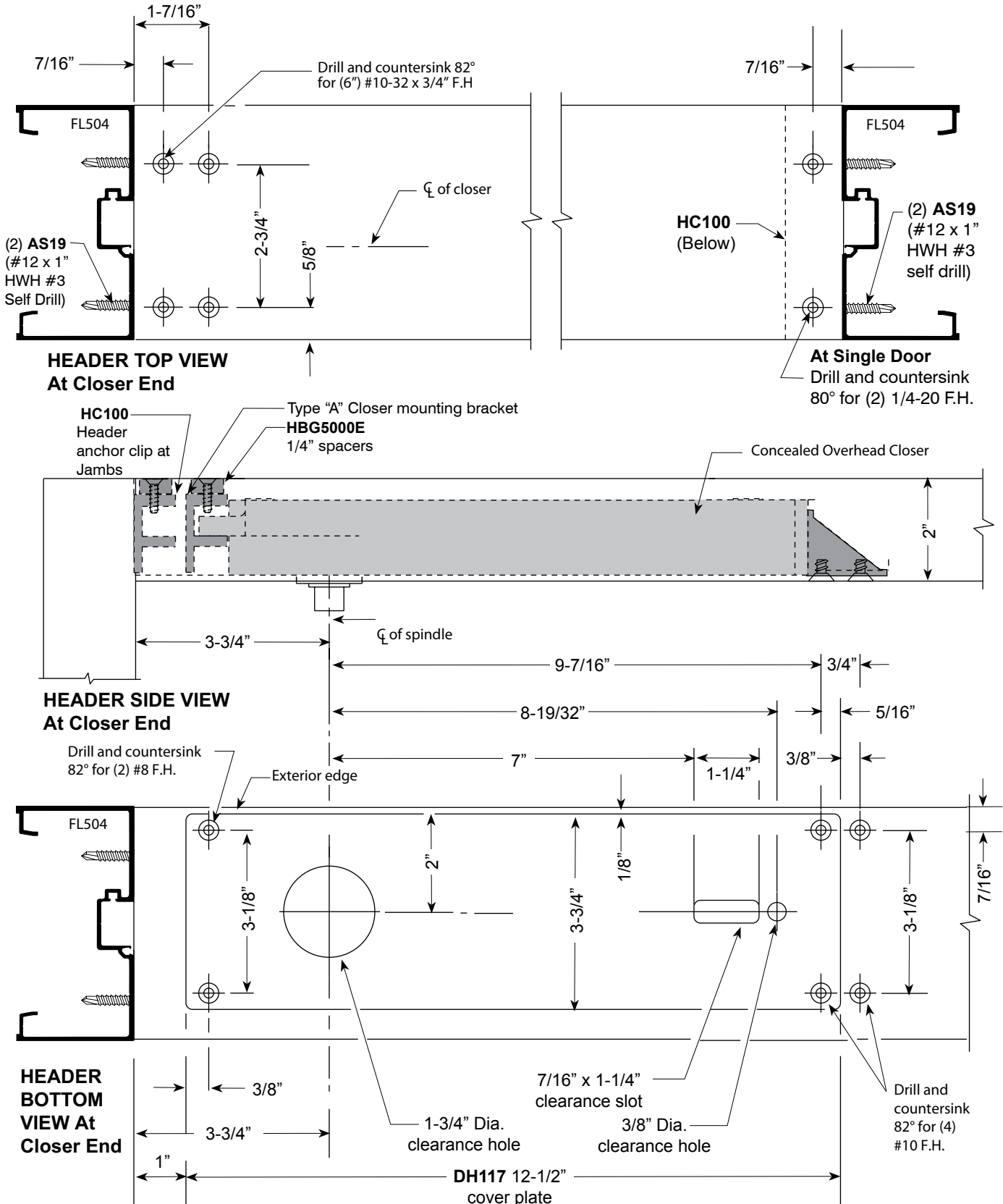


Note: Corner clips at jambs are attached prior to installing header.

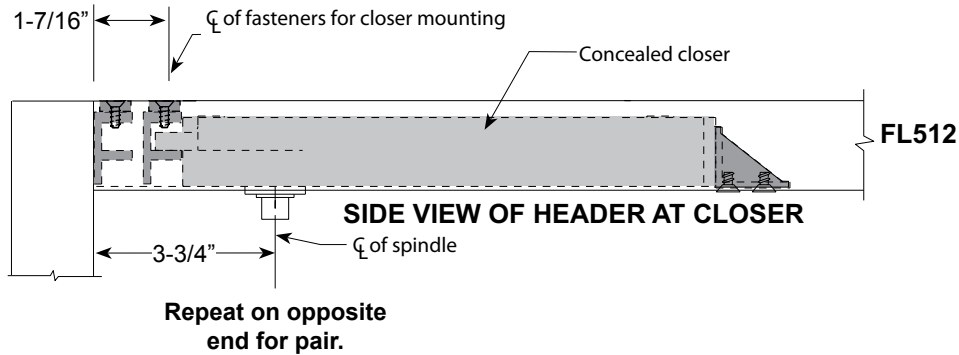
1. Mount corner clip into header with (2) **AS17** 10-32 x 3/4" FHMS. See **Page 37** for clip location.
2. Mount angle bracket to closer with (2) 1/4-20 x 1/2" Hex Head M.S. and washers.
3. Install (2) 1/4-20 x 1/2" Fillister Head M.S. with washers into lugs of closer. Do not tighten screws.
4. Set closer onto header and align angle bracket holes with holes in header. Closer lugs shall rest on corner bracket.
5. Fasten angle bracket to header with (2) 10-24 x 3/8" FHMS. Tighten Fillister Head screws.
6. Install cover plate and secure to angle with (2) #8-32 x 1" FHP.
7. Attach cover plate to closer at hinge side with (2) #8-32 x 1" FHMS fasteners included with cover plate.
8. Mount arm on spindle and secure with 1/4-20 x 7/8" Socket Head Cap Screw.

HEADER FOR C.O.C. - Butt Hung Door - with 105° Swing

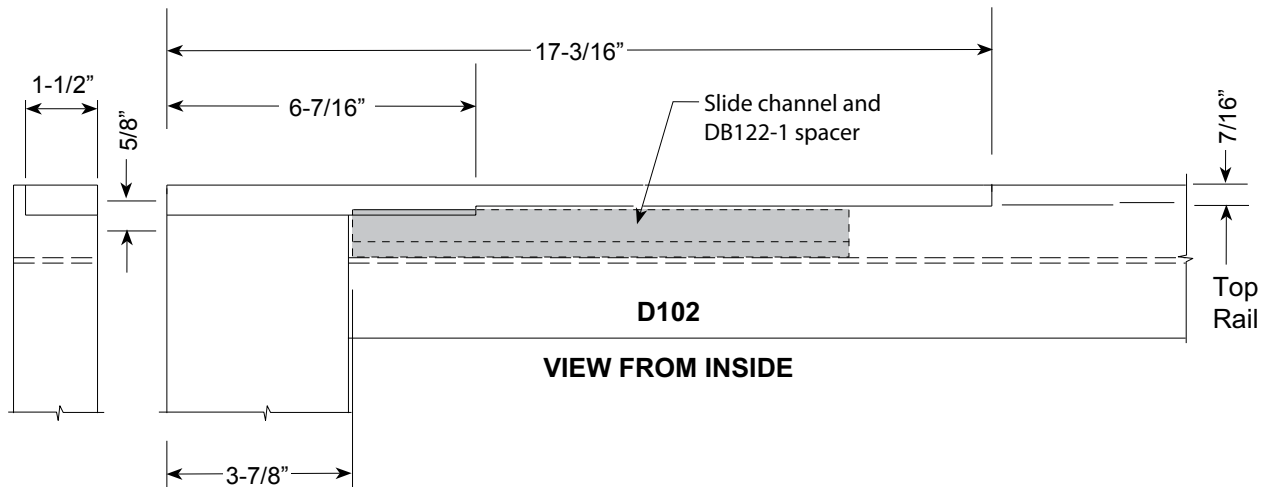
FL512 Header Preparation
Header requires **HBG5000** 1/4" spacers.



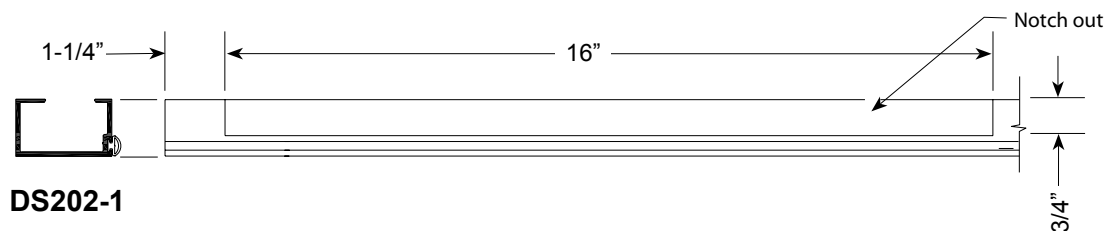
C.O.C. Closer Location in FL512 Header for 105° Swing



SLIDE CHANNEL LOCATION IN DOOR TOP RAIL FOR OFFSET ARM



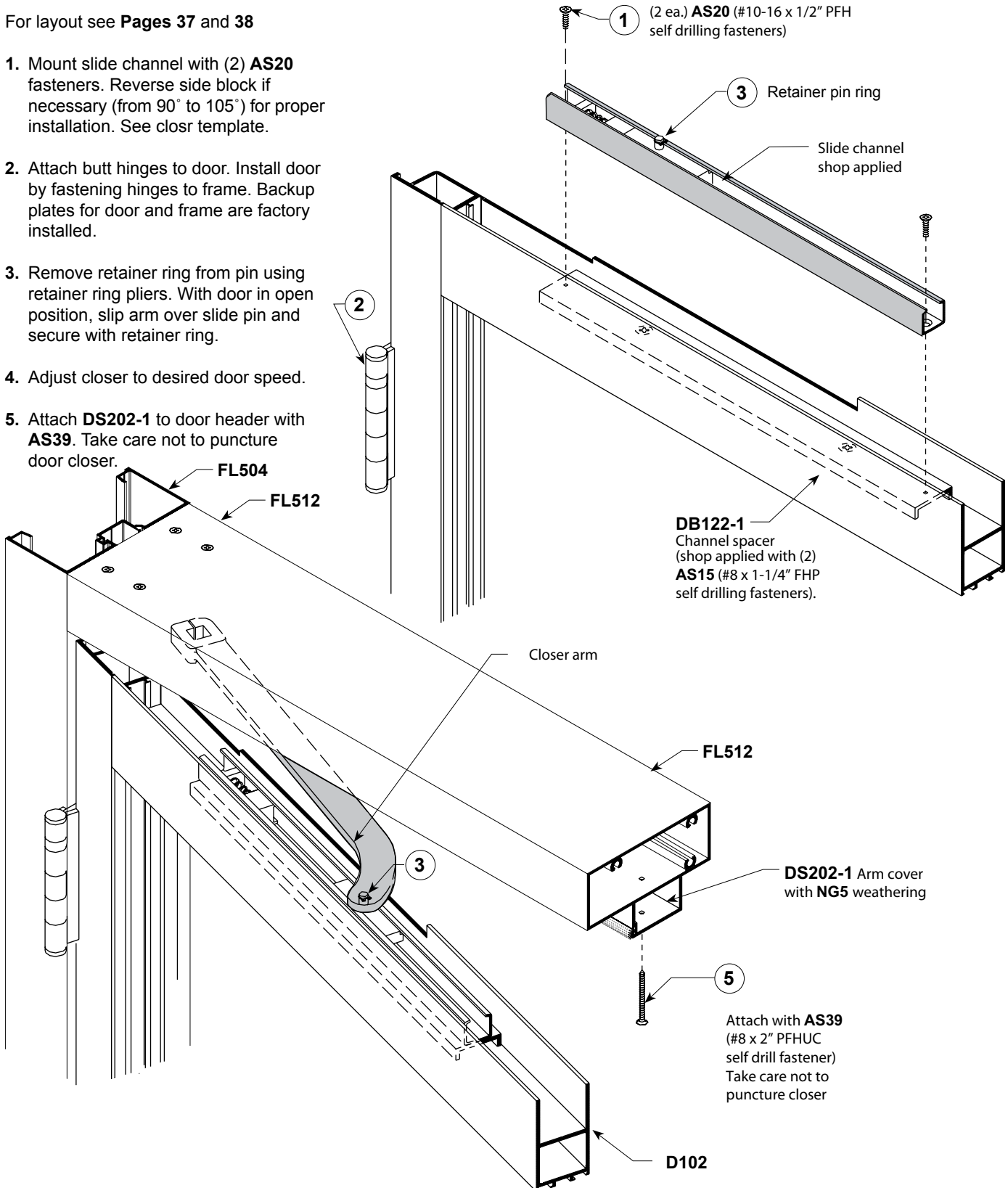
OFF-SET ARM COVER CHANNEL LEFT HAND SHOWN RIGHT HAND OPPOSITE



BUTT HINGE DOOR WITH JACKSON C.O.C. FOR 105° SWING

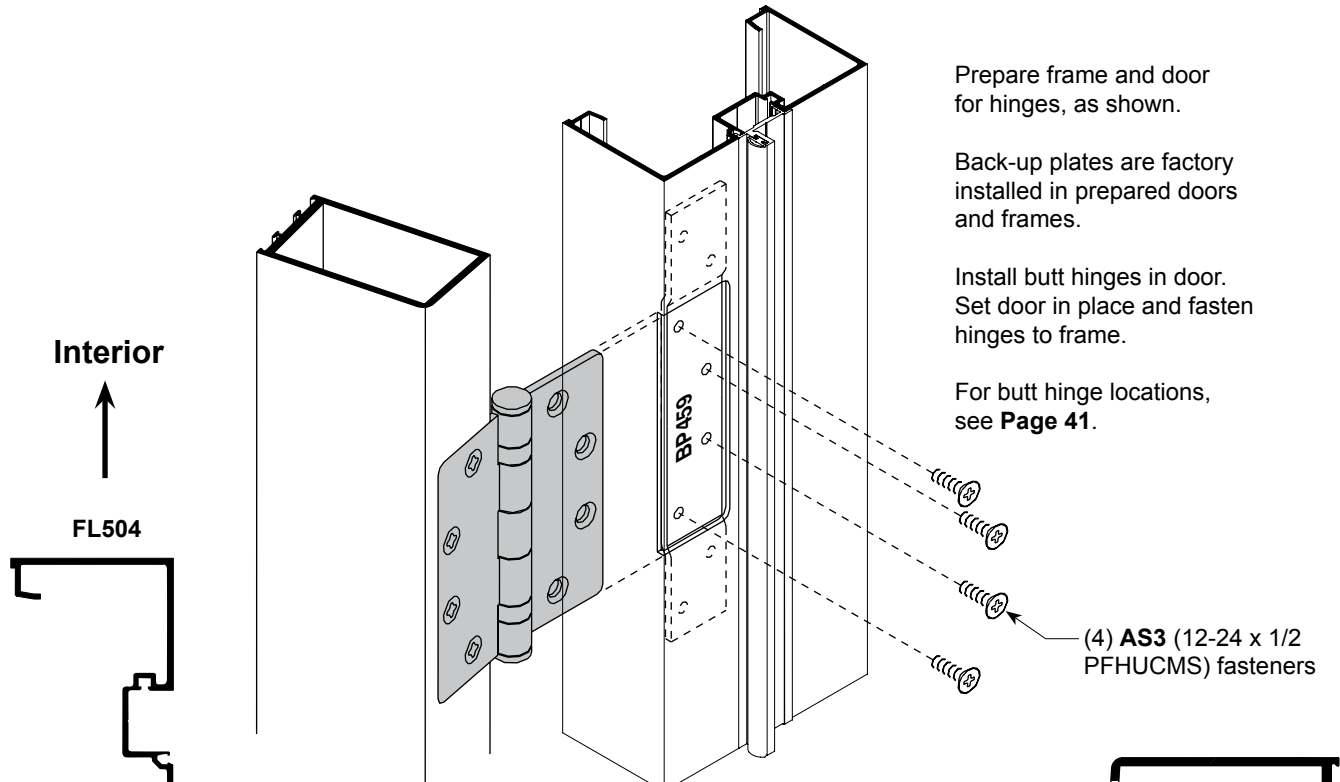
For layout see **Pages 37 and 38**

1. Mount slide channel with (2) **AS20** fasteners. Reverse side block if necessary (from 90° to 105°) for proper installation. See closer template.
2. Attach butt hinges to door. Install door by fastening hinges to frame. Backup plates for door and frame are factory installed.
3. Remove retainer ring from pin using retainer ring pliers. With door in open position, slip arm over slide pin and secure with retainer ring.
4. Adjust closer to desired door speed.
5. Attach **DS202-1** to door header with **AS39**. Take care not to puncture door closer.



BUTT HINGE INSTALLATION

Door and Frame



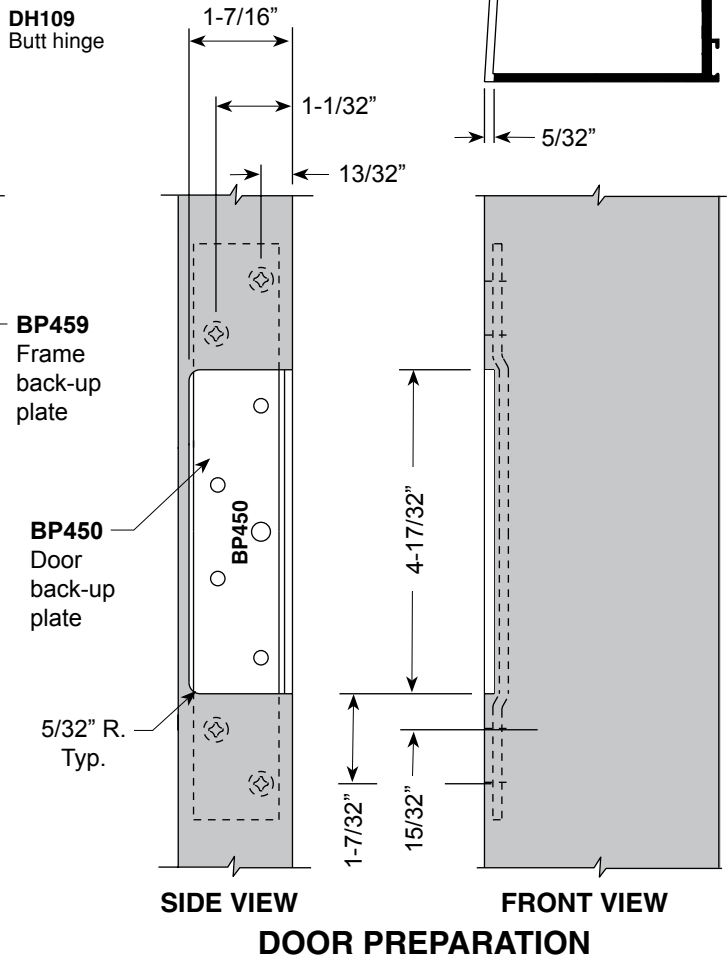
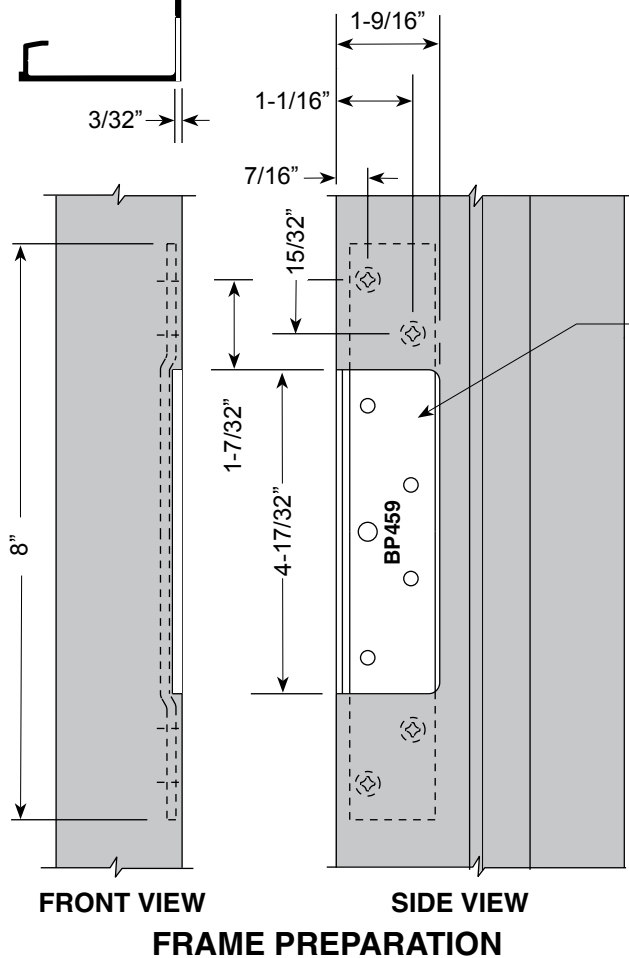
Prepare frame and door for hinges, as shown.

Back-up plates are factory installed in prepared doors and frames.

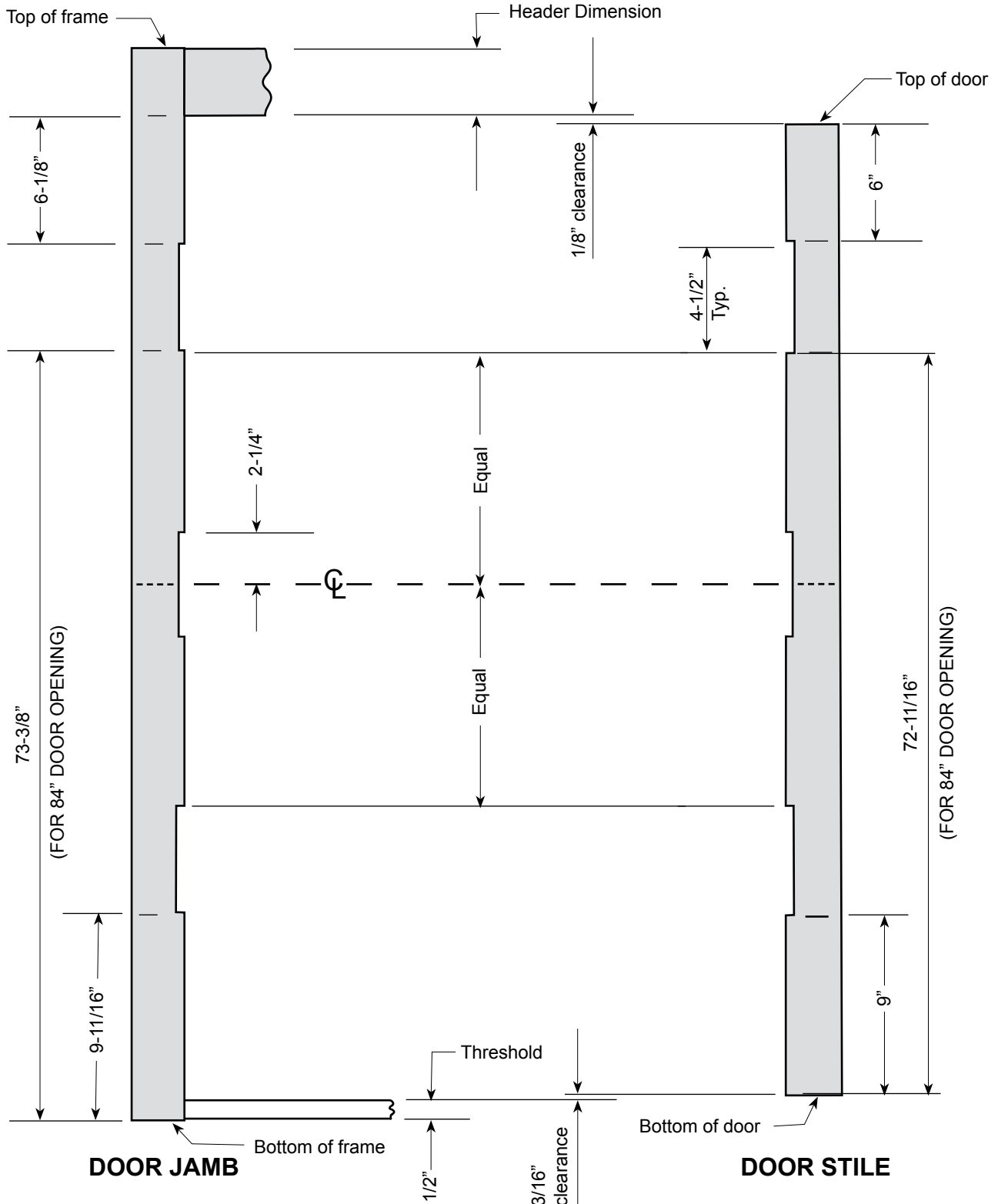
Install butt hinges in door. Set door in place and fasten hinges to frame.

For butt hinge locations, see **Page 41**.

(4) **AS3** (12-24 x 1/2 PFHUCMS) fasteners



STANDARD DH109 BUTT HINGE LOCATION For F5 Frame and Series 381 Door

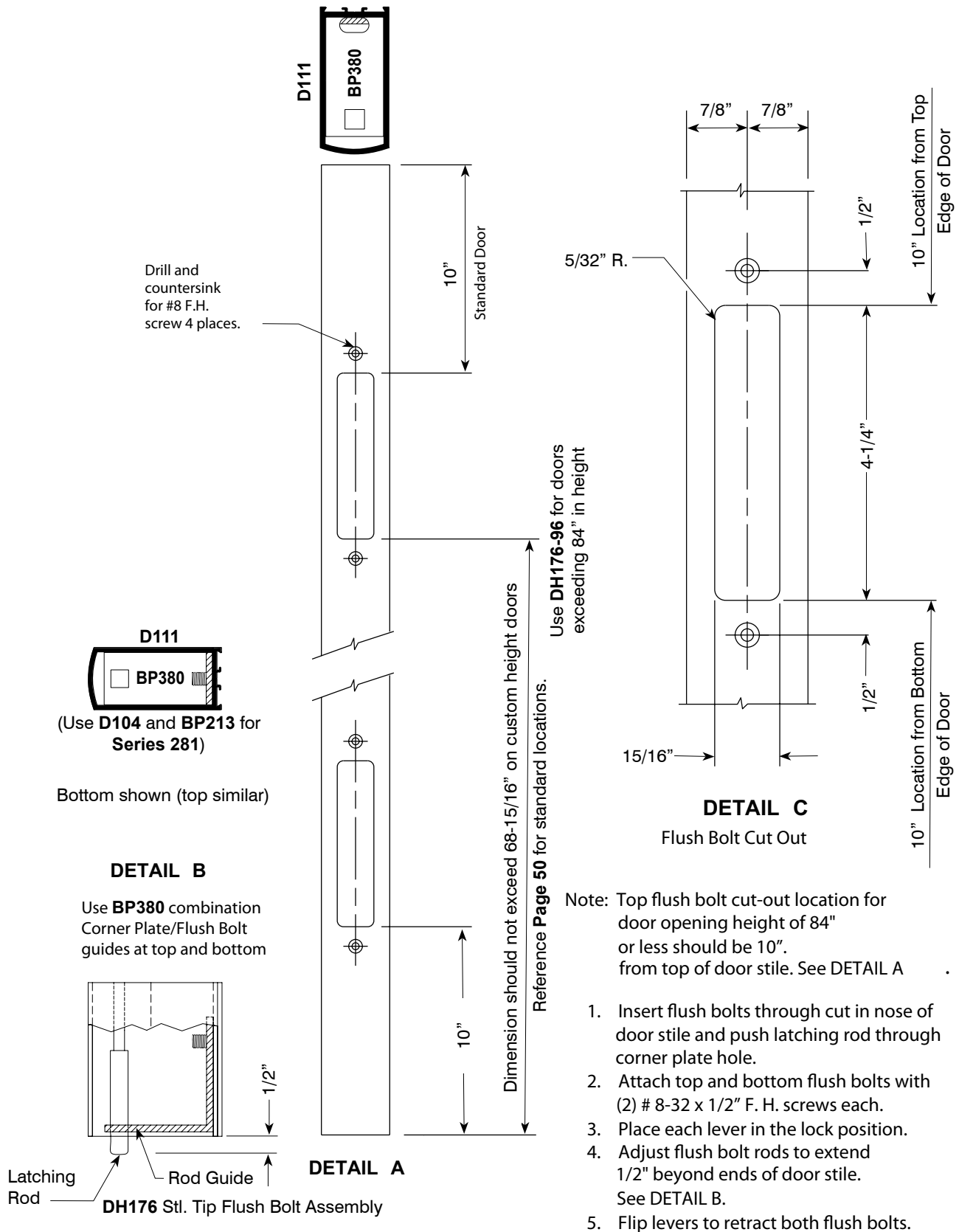


Note: Reference **Page 50** for other standard hardware locations.

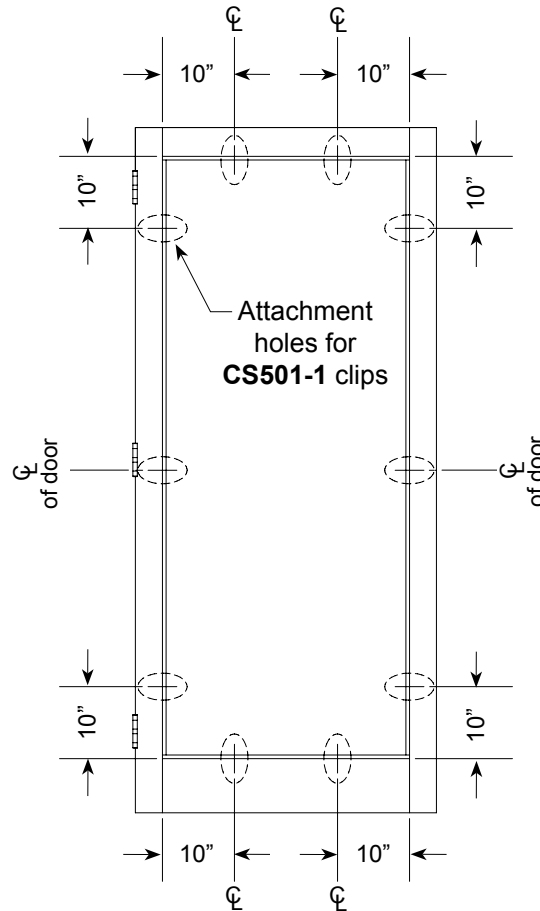
FLUSH BOLTS

Series 381 Inactive Leaf Shown

Series 281 Similar



Series 281 and 381 Doors ATTACHMENT LOCATIONS For CS501-1 Glass Stop Clip



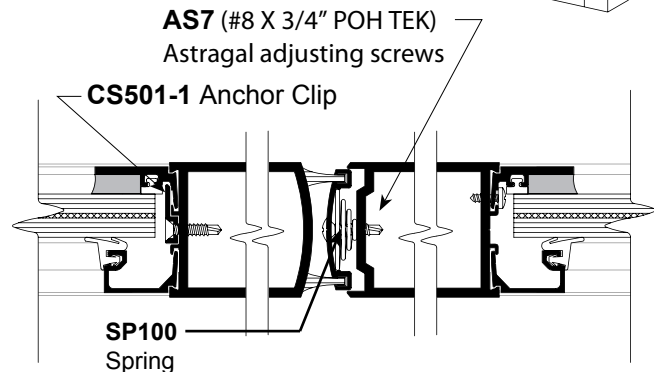
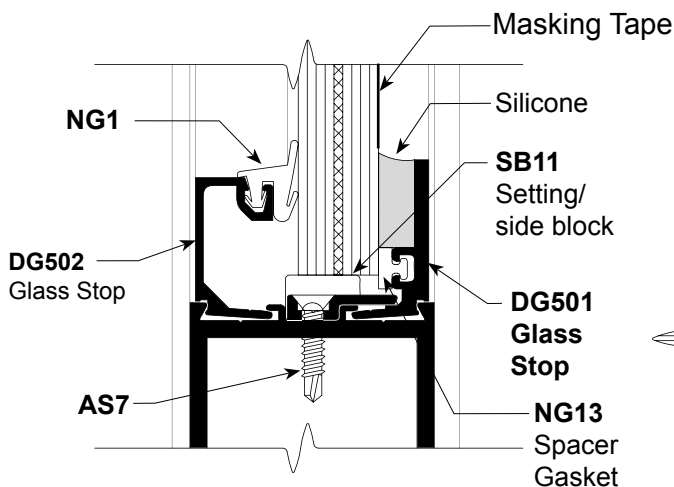
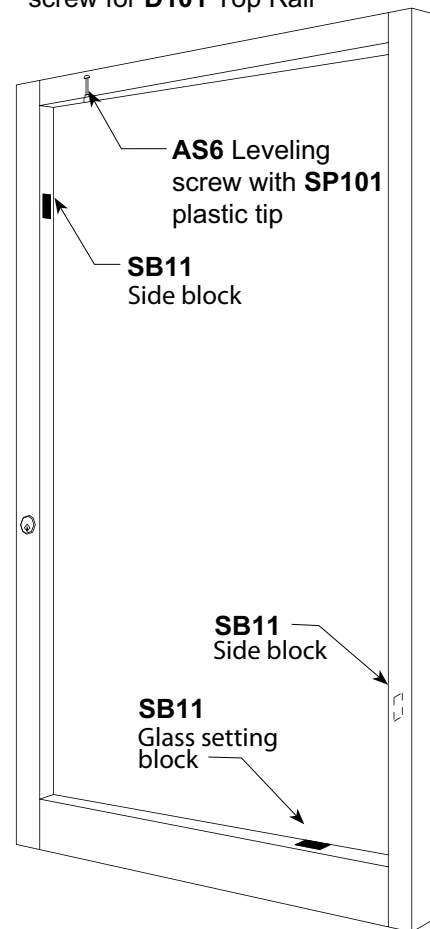
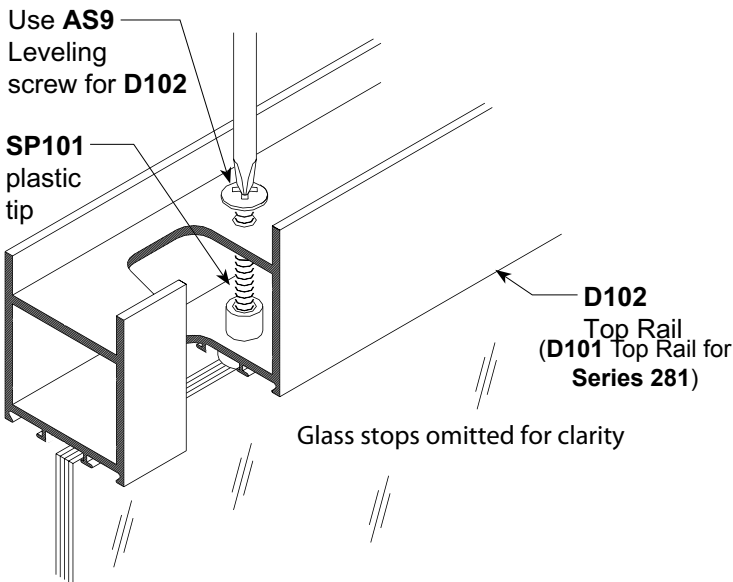
**CS501-1 Glass Stop Clip Attachment
 for 84" or 96" Door Height**

1. Position **DG501-1** with **NG13** spacer gasket as instructed on **Page 44**.
2. Positon **CS501-1** clips as shown above and attach with **AS7** fasteners. Reference **Detail A** on **Page 44**.

SERIES 381 DOOR GLAZING INSTRUCTIONS

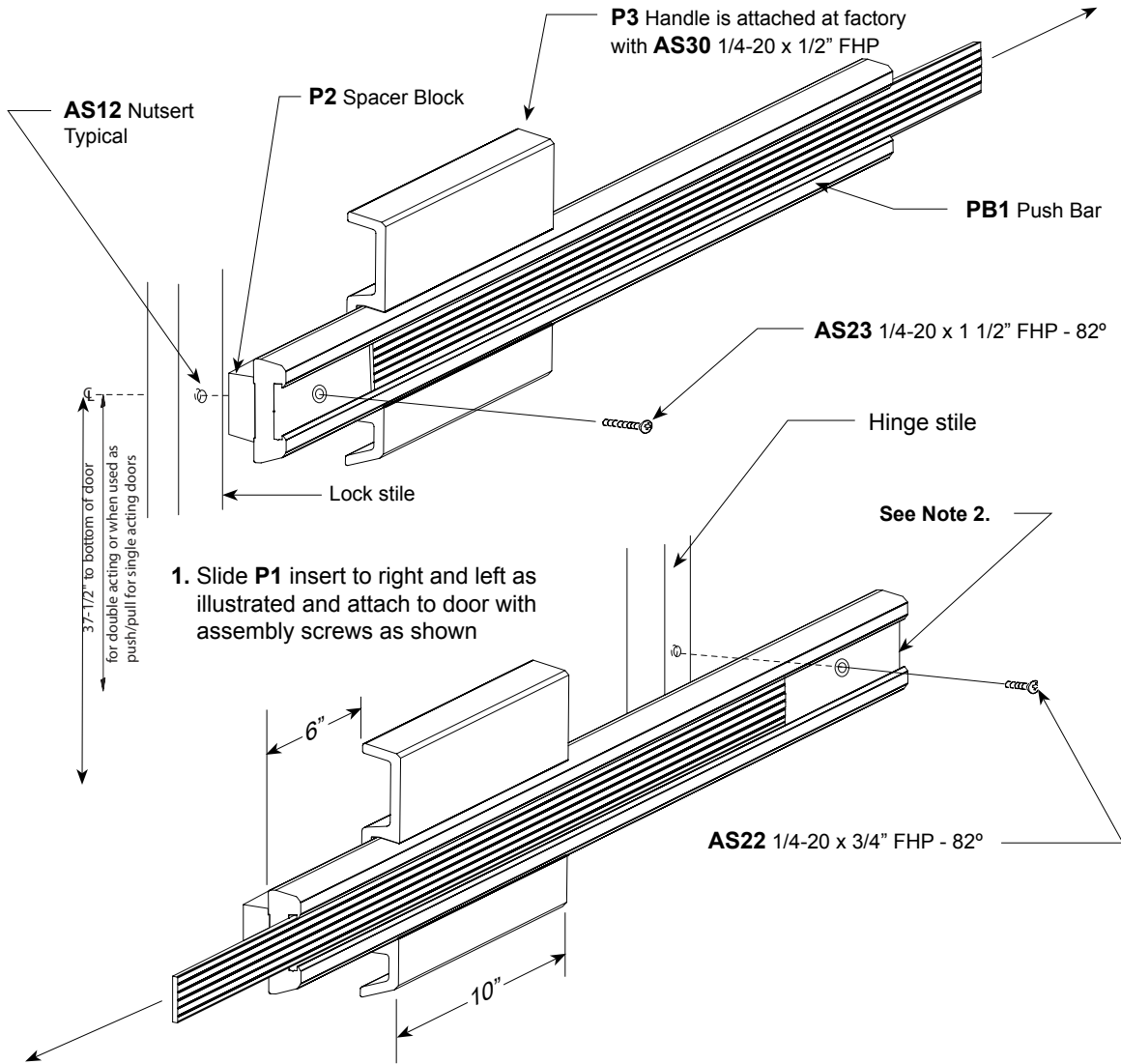
1. Raise leveling screw to maximum retracted position.
2. **DG501** glass stop may be installed on either interior or exterior side of door. It is recommended that **DG501** be installed on the interior side of doors receiving panic devices to allow for re-glazing without removing the panic bars.
3. Determine side of door you desire to place **DG501** and secure with **CS501-1** anchor clips. Match drill holes in stop into door and attach as shown below in **Detail "A"** with **AS7**.
4. Position **SB11** setting/side blocks in locations as shown.
5. Center glass into opening on setting blocks and align with side blocks.
6. Once the glass is in the correct position, lightly screw the glass jack down on top of the glass to create a uniform clearance between the top rail and header.
7. Adjust astragal screws for proper clearance between meeting stiles.
8. Install horizontal **DG502** glass stops first. Now install the vertical **DG502** glass stops.
9. Roll **NG1** gasket into **DG502**.
10. Mask off glass with 2" wide low adhesive masking tape and apply Dow 995 sealant into the cavity between the glass and **DG501** glass stop. Remove masking tape immediately after installation of sealant taking care not to damage or pull sealant from the cavity.

NOTE: Use **AS6** Leveling screw for **D101** Top Rail



CAPSTYLE CLASSIC

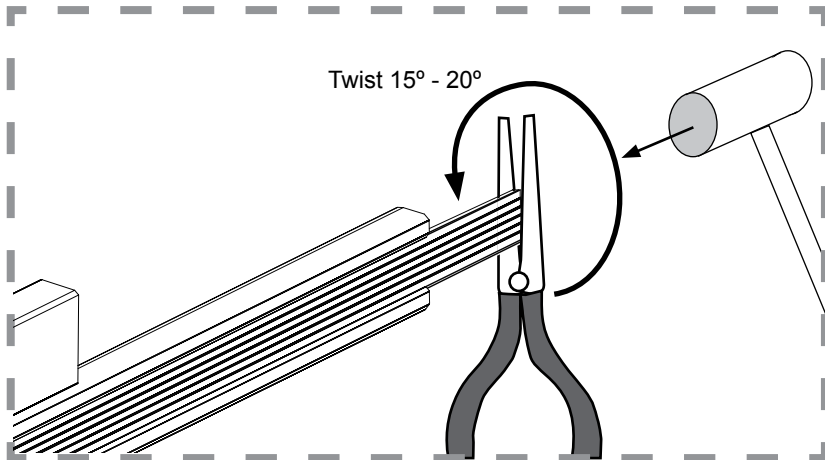
**INSTRUCTIONS FOR ATTACHING DH300 SERIES
PUSH BAR WITH P1 INSERT TO DOOR**



1. Slide **P1** insert to right and left as illustrated and attach to door with assembly screws as shown

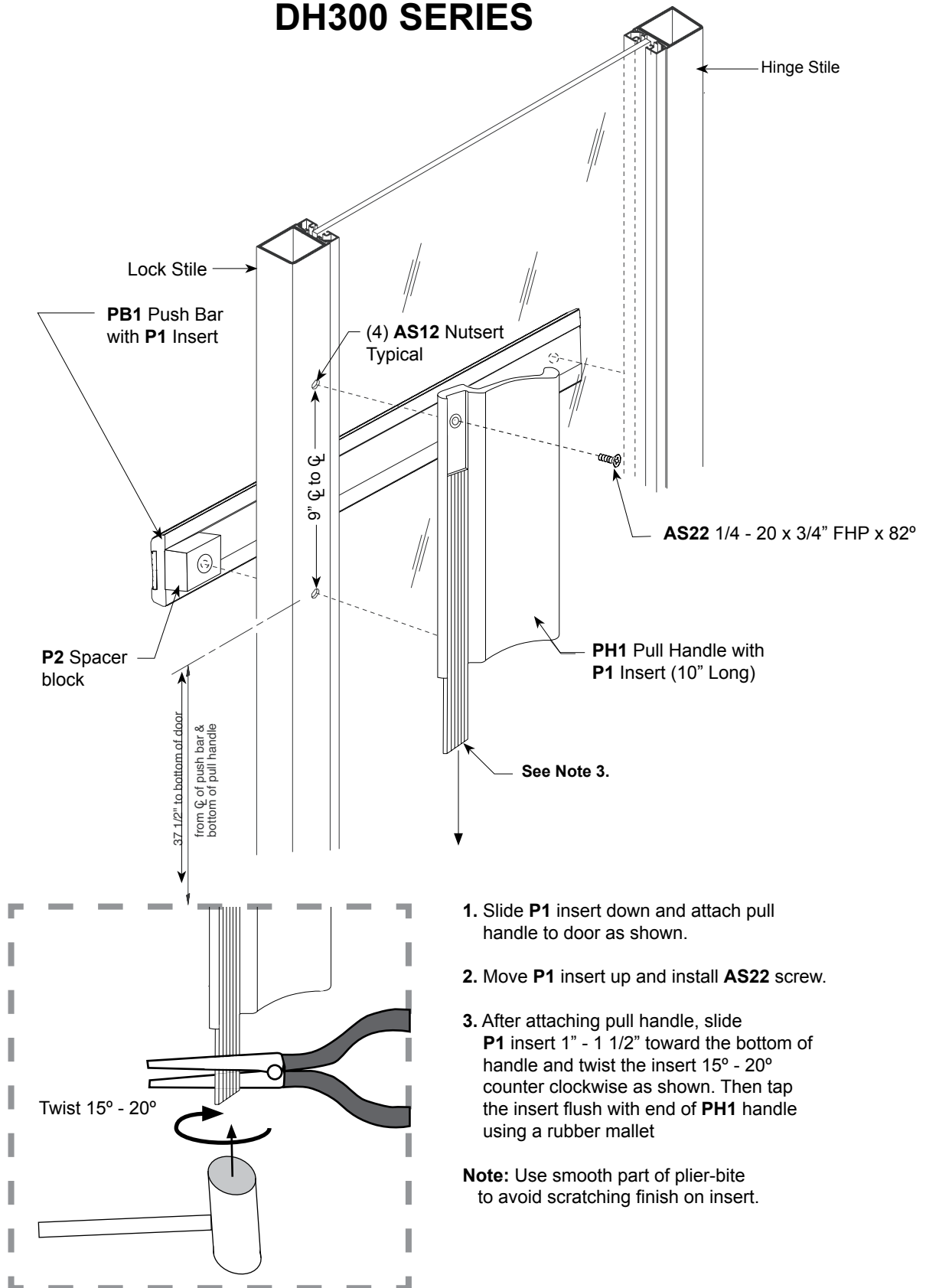
2. After attaching push bar, slide **P1** insert 1" - 1 1/2" toward the hinge stile and twist the insert 15° - 20° counter clockwise as shown. Then use a rubber mallet to tap the insert flush with end of **PB1** bar.

Note: Use smooth part of plier-bite to avoid scratching finish on insert.



CAPSTYLE CLASSIC

**STANDARD OFFSET HUNG HARDWARE SET
DH300 SERIES**



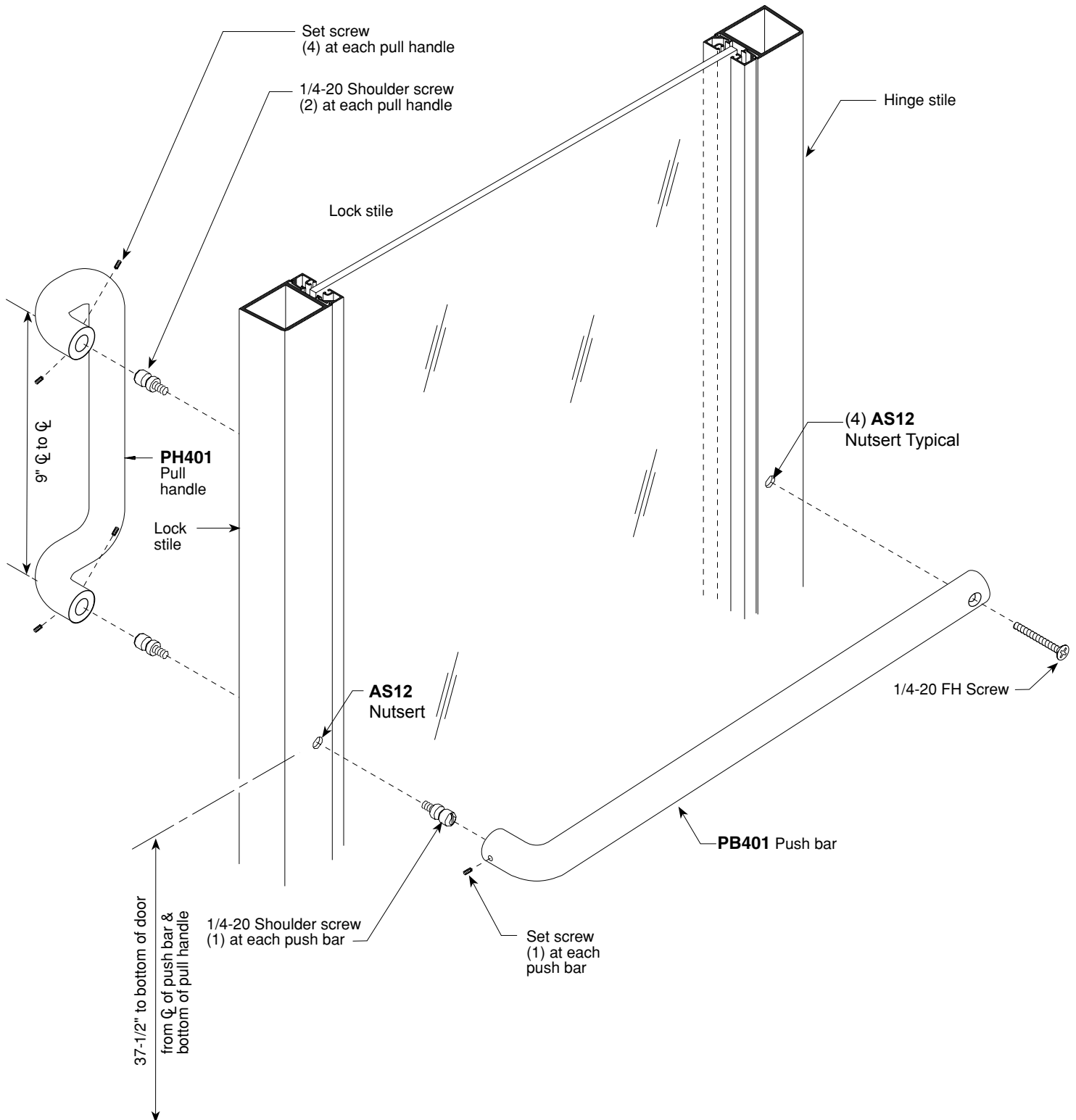
1. Slide **P1** insert down and attach pull handle to door as shown.
2. Move **P1** insert up and install **AS22** screw.
3. After attaching pull handle, slide **P1** insert 1" - 1 1/2" toward the bottom of handle and twist the insert 15° - 20° counter clockwise as shown. Then tap the insert flush with end of **PH1** handle using a rubber mallet

Note: Use smooth part of plier-bite to avoid scratching finish on insert.

CAPSTYLE[®] TRADITIONAL

OFFSET HUNG DOOR HARDWARE SET

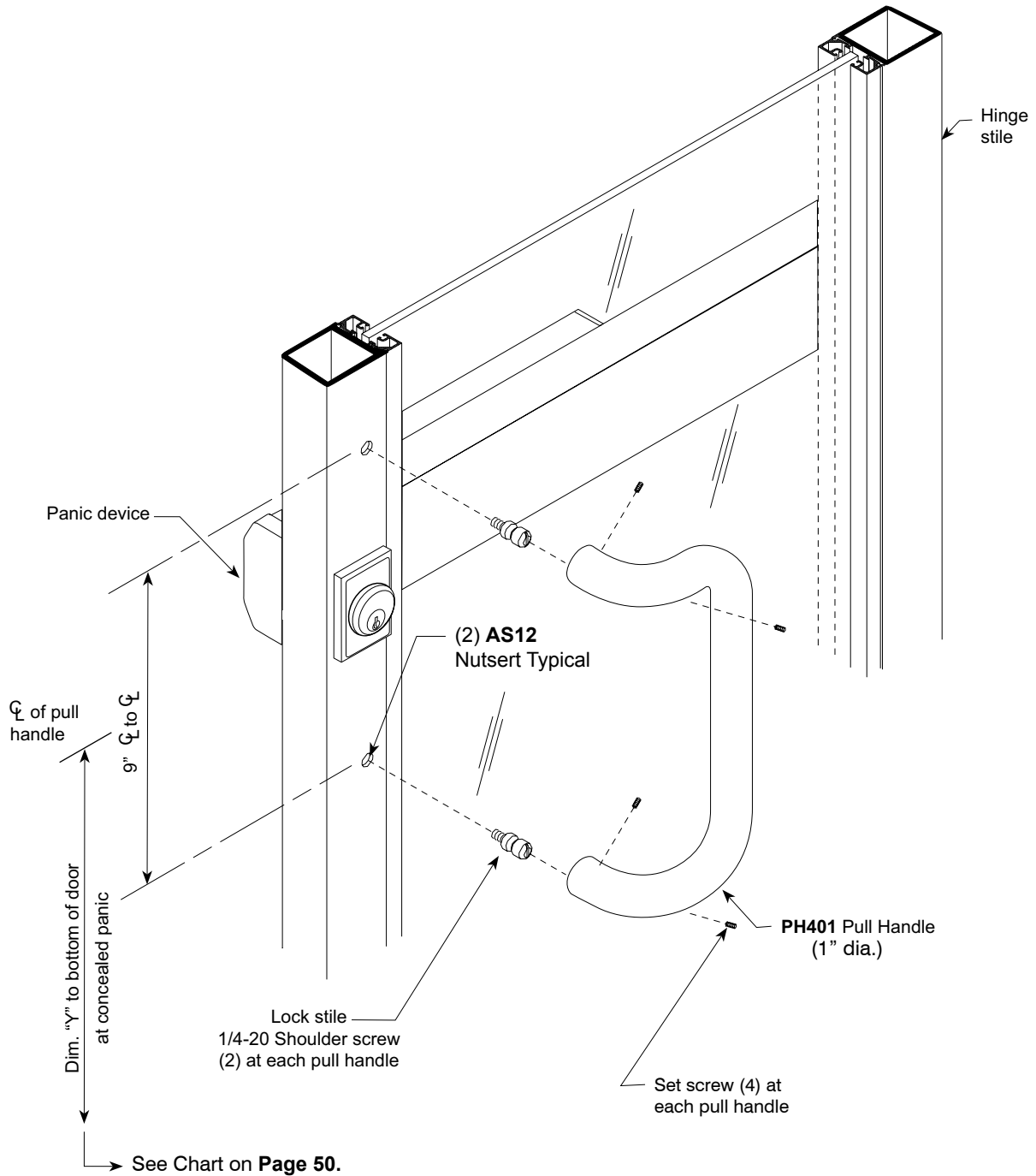
DH400 (OPTIONAL)



CAPSTYLE TRADITIONAL

PULL HARDWARE SET FOR PANIC DOOR

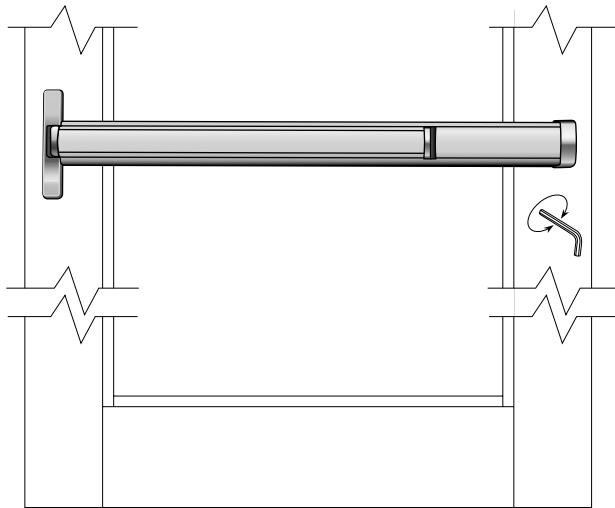
DH40P (STANDARD FOR PANIC DOORS)



PANIC DOORS WITH DH2086HR PUSH PAD EXIT DEVICE with Optional Dogging Feature

Concealed panic device is factory installed with Hurricane-Impact rod guides.

Panic is shipped in dogged position and must be undogged. This can be done with the use of an allen wrench (supplied) or the cylinder key.



Dogging Instructions:

- To dog:** Depress panic bar, hold down and turn dogging key 1/4 clockwise.
- To undog:** Turn dogging key counterclockwise.

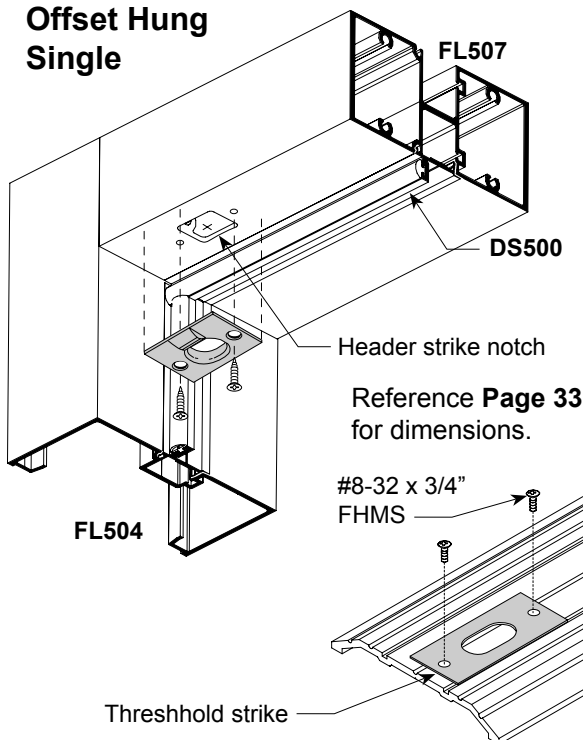
Installation Procedure

1. Hang door, as required. The clearance between top of door and bottom of header **must not exceed 1/8"**.
2. Undog panic.
3. **Note:** Panic devices are preset at the factory. Due to various field conditions, they may require minor adjustment.

Outside Key Functions

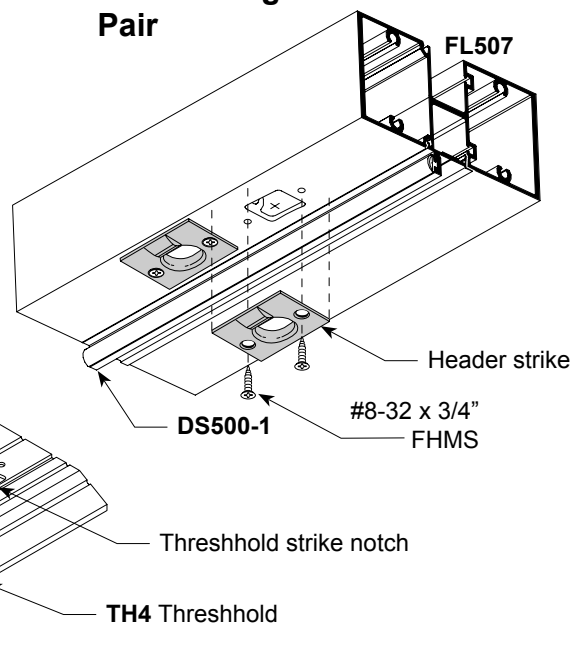
The DH2086HR panic is factory installed for key entry with dogging key option. To key dog device for continued outside entry, hold bar in fully depressed position and turn key approximately one quarter turn clockwise; then, return key to vertical position and remove. To lock door again, fully depress bar and turn key approximately one quarter turn counter clockwise; then return key to vertical position and remove.

Offset Hung Single



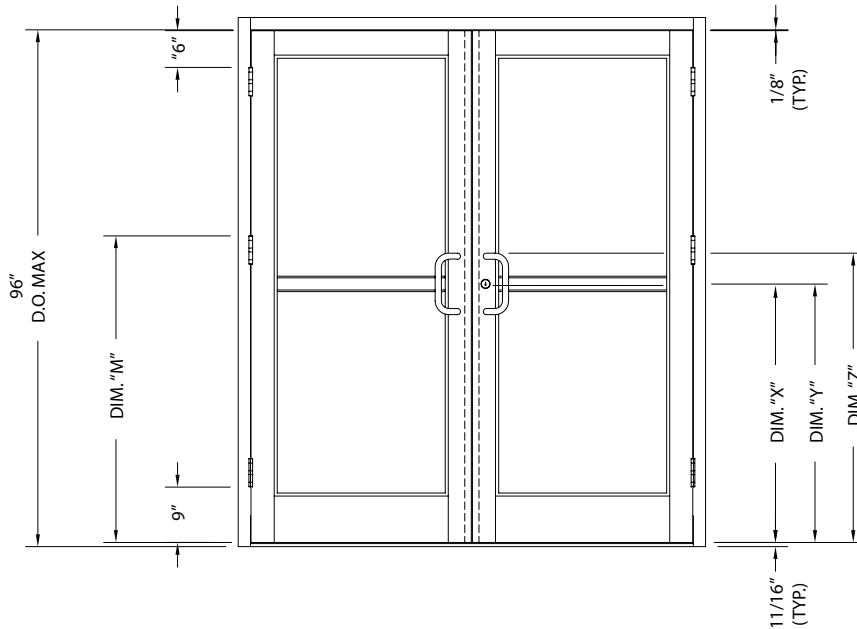
Reference **Page 33** for dimensions.

Offset Hung Pair



STANDARD HARDWARE LOCATIONS

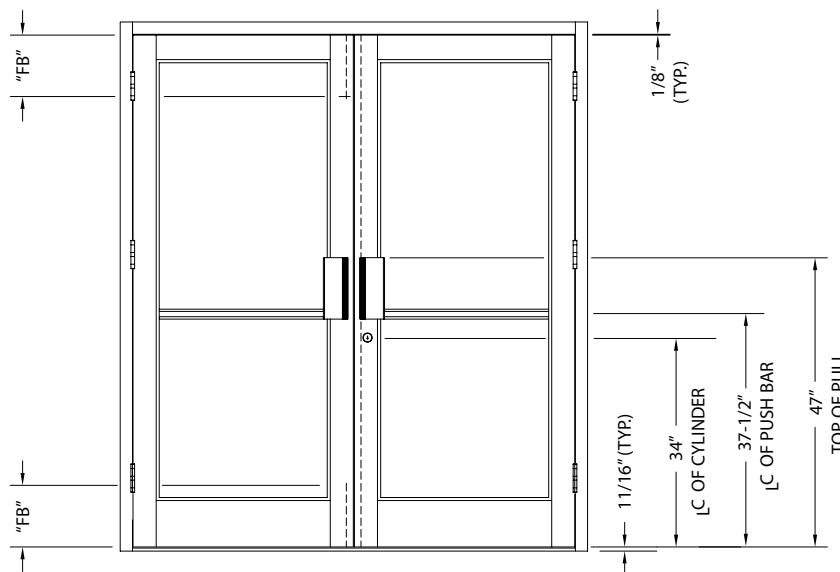
Series 381 and 281 Hurricane Impact-Resistant Doors



INTERMEDIATE HINGE	
D.O. HEIGHT	DIM. "M"
	BUTT HUNG
84"	45-11/32"
96"	51-11/32"

Note: All doors require an intermediate hinge.

HARDWARE LOCATIONS FOR PANIC DOORS				
MANUFACTURER	PANIC DEVICE	DIM "X" C OF CYLINDER	DIM "Y" C OF PANIC	DIM "Z" TOP OF PULL
JACKSON	2086 C.V.R.	37 - 7/8"	38 - 5/32"	42 - 7/8"



STANDARD HARDWARE LOCATIONS, LOCK & FLUSH BOLT		
PART NO.	DESCRIPTION	DIM. "FB"
DH176-96	TOP FLUSH BOLT (FOR 96" DOOR)	22"
DH176	TOP FLUSH BOLT (FOR 84" DOOR)	10"
DH176	BOTTOM FLUSH BOLT (FOR 84" / 96" DOOR)	10"

PERIMETER FASTENER LOCATIONS

**TYPICAL INSTALLATION INTO:
CONCRETE SUBSTRATE MIN. 2,500 P.S.I.**

PERIMETER FASTENER LOCATIONS

DOOR OPENING HEIGHT	ANCHOR LOCATIONS FOR "LETTER" DIM.					
	"A"	"B"	"C"	"D"	"E"	"F"
84"	45"	51"	76"	82"	89"	95"
96"	45"	51"	88"	94"	100"	106"

**TYP. INSTALLATION INTO:
2,500 PSI CONCRETE SUBSTRATE**

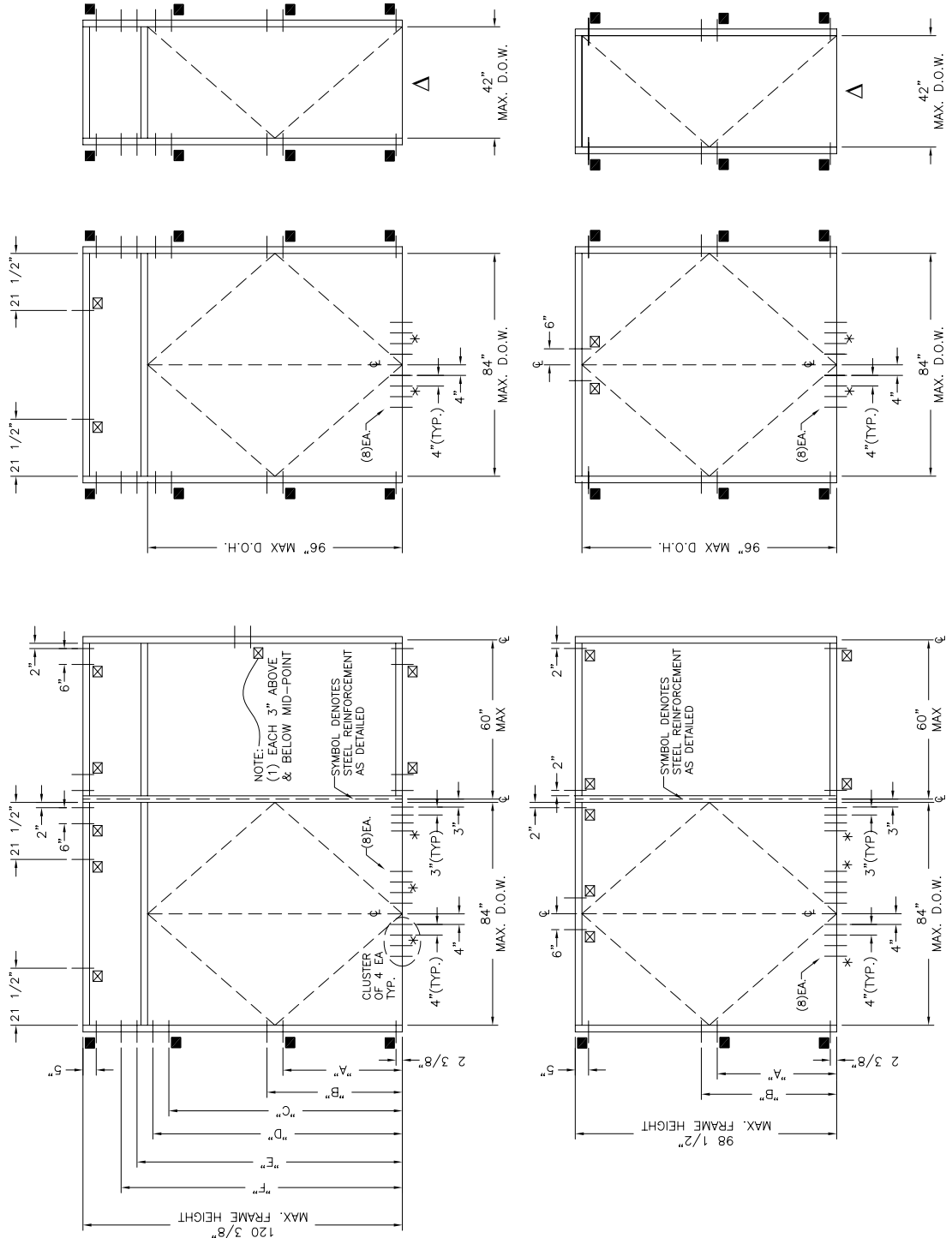
■	3/8" X 4-1/2" LDT, 2" MIN. EMBEDMENT WITH FILLER PLATE FULL LENGTH OF MULLION
☒	3/8" X 2-1/2" LDT, 2" MIN. EMBEDMENT
*	1/4" X 2-1/2" PFH TAPCON, 1-3/4" MIN. EMBEDMENT
	6" MIN. SPACING @ 3/8" TAPCON
	3" MIN. SPACING @ 1/4" TAPCON

**MAX. DESIGN PRESSURE:
+70/80 P.S.F.**

NOTES:

Δ = STRUCTURAL FASTENERS NOT REQUIRED AT THRESHOLD.

LEGEND



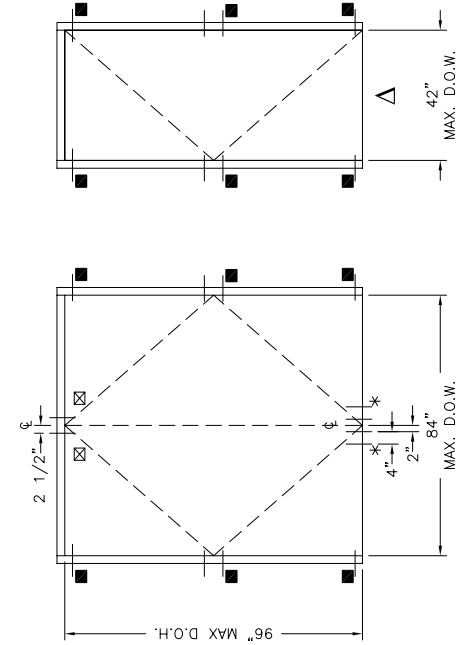
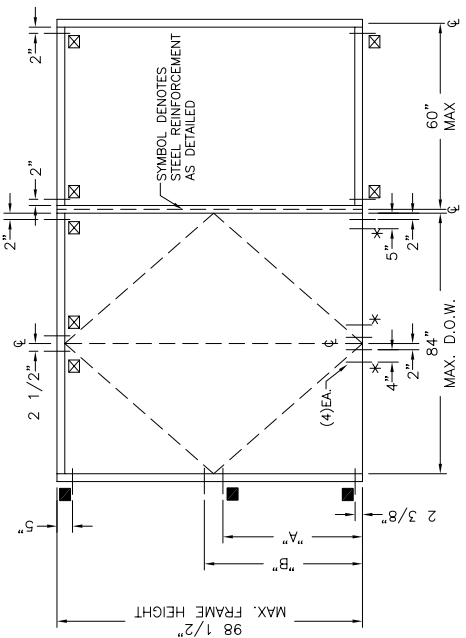
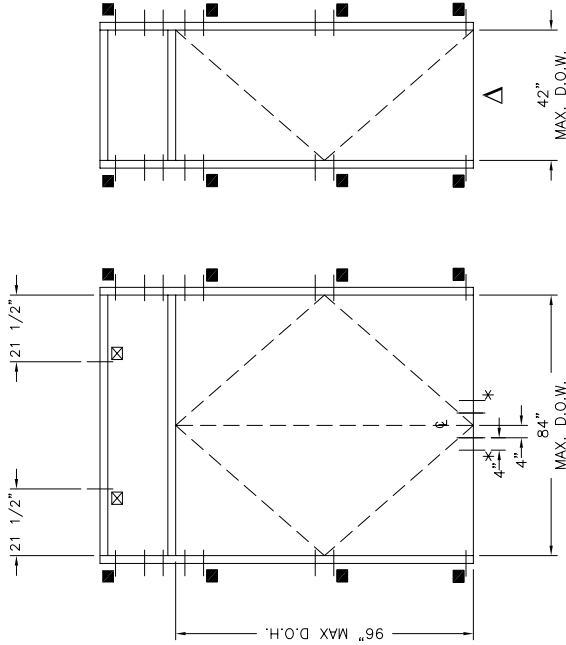
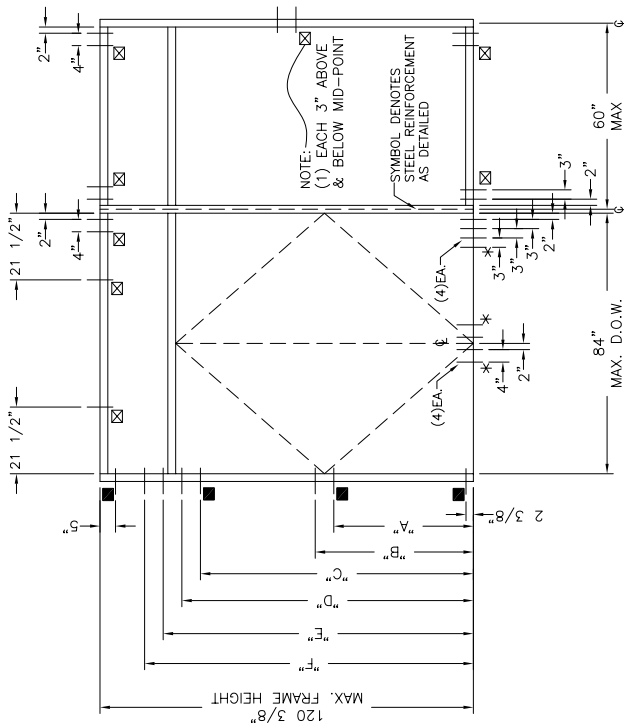
PERIMETER FASTENER LOCATIONS
TYPICAL INSTALLATION INTO:
1/4" MIN. THICK STEEL SUBSTRATE

PERIMETER FASTENER LOCATIONS

DOOR OPENING HEIGHT	ANCHOR LOCATIONS FOR "LETTER" DIM.				
	"A"	"B"	"C"	"D"	"E"
84"	45"	51"	76"	82"	89"
96"	45"	51"	88"	94"	106"

TYP. INSTALLATION INTO:
STEEL SUBSTRATE

■	3/8"-16 X 3 1/2" HWH TYPE "F" TCS FILLER PLATE FULL LENGTH OF MULLION
☒	3/8"-16 X 1 1/2" HWH TYPE "F" TCS SCREW
*	1/4"-12 X 1 1/2" PFH #3 TEK SCREW 2" MIN SPACING



MAX. DESIGN PRESSURE:
+70/80 P.S.F.

NOTES:

Δ = STRUCTURAL FASTENERS NOT REQUIRED AT THRESHOLD.

LEGEND



PERIMETER FASTENER LOCATIONS

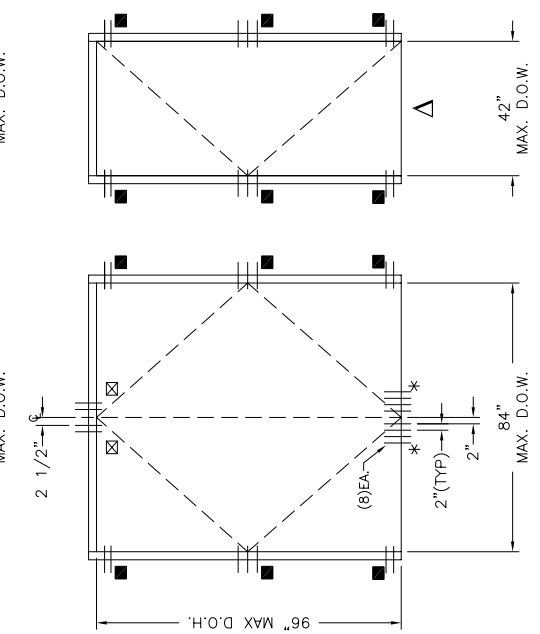
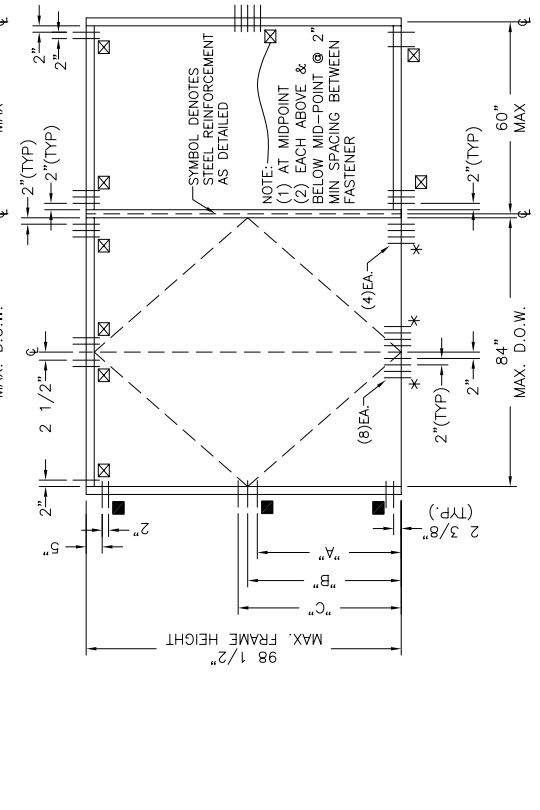
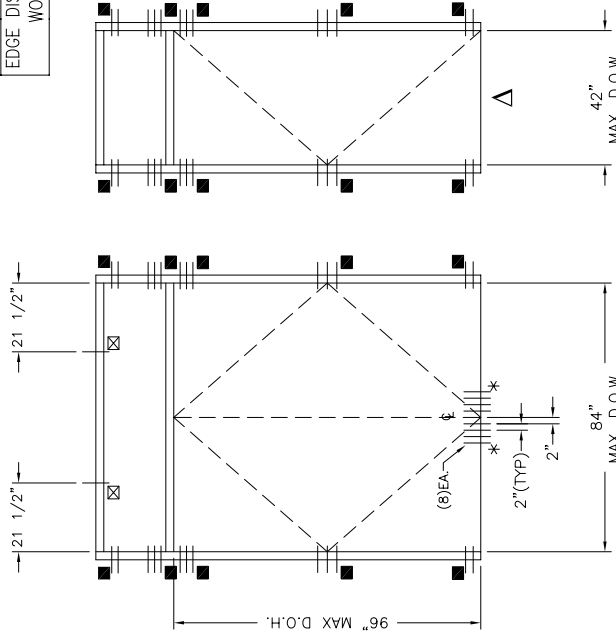
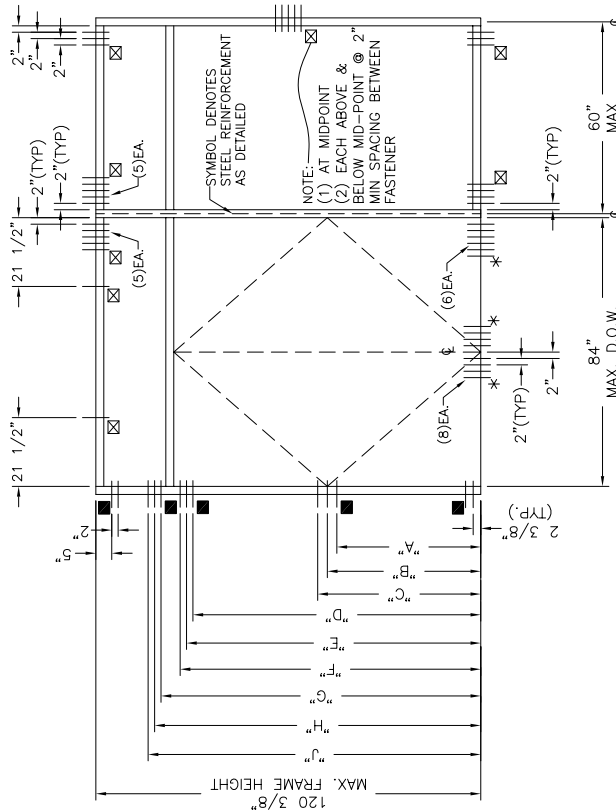
**TYPICAL INSTALLATION INTO:
MIN. #2 SYP WOOD SUBSTRATE**

PERIMETER FASTENER LOCATIONS

DOOR OPENING HEIGHT		ANCHOR LOCATIONS FOR "LETTER" DIM.									
"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"	"J"		
84"	48"	51"	78"	80"	82"	89"	91"	93"			
96"	48"	51"	90"	92"	94"	100"	102"	104"			

TYP. INSTALLATION INTO: WOOD SUBSTRATE	
■	3/8" LAG BOLT WITH FILLER PLATE FULL LENGTH, 3" MIN. EMBEDMENT
☒	3/8" X 3-1/2" LAG BOLT, 3" MIN. EMBEDMENT
*	#14 X 2-1/2" WOOD SCREW

EDGE DISTANCE 1 1/2", MIN. SPACING IS 2", WOOD STRUCTURE IS MIN. #2 SYP



MAX. DESIGN PRESSURE:
+70/80 P.S.F.

NOTES:

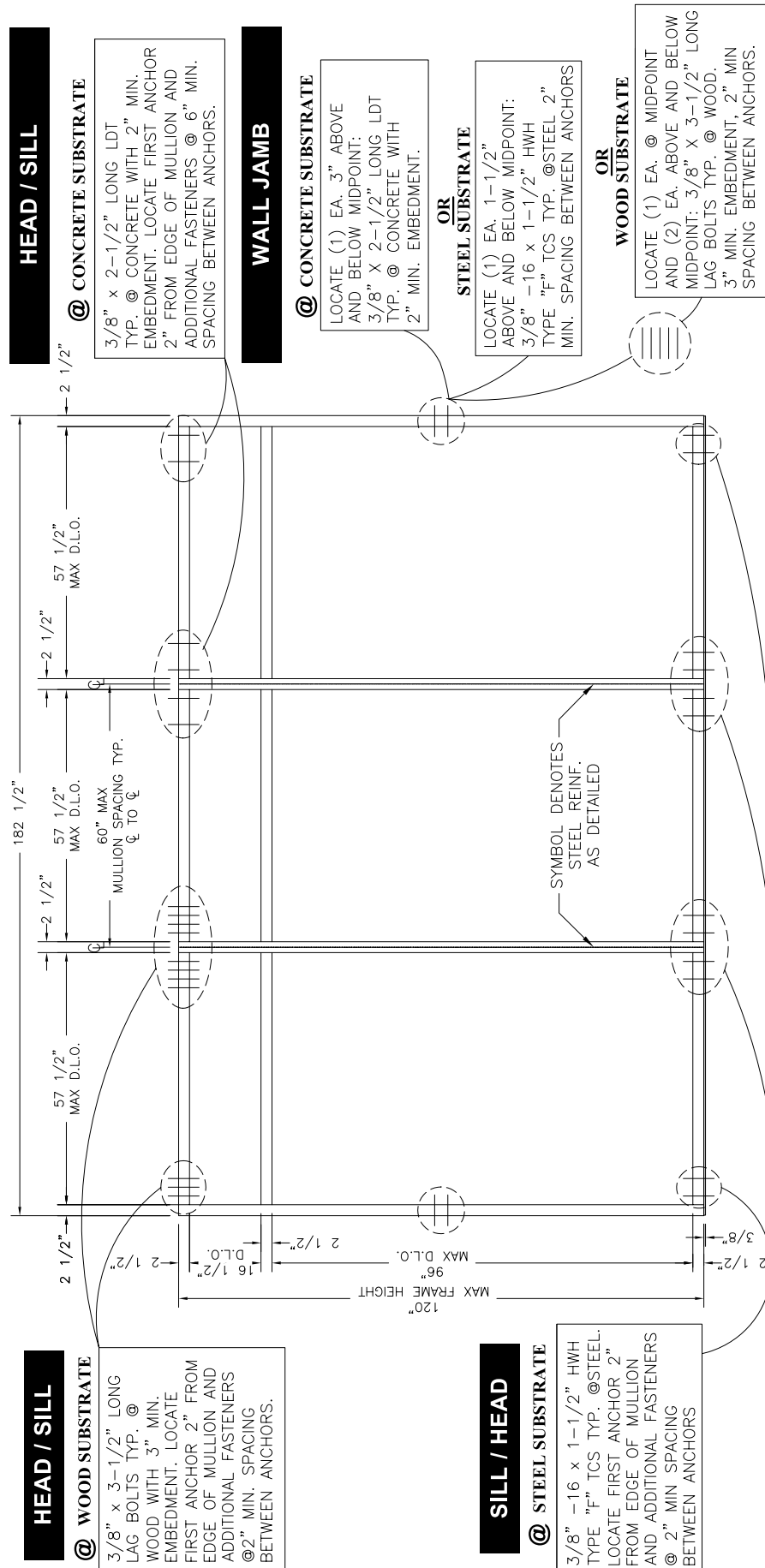
Δ = STRUCTURAL FASTENERS NOT REQUIRED AT THRESHOLD.



PERIMETER FASTENER LOCATIONS

**TYPICAL ATTACHMENT TO:
WOOD/STEEL/CONCRETE SUBSTRATE**

BASED ON 2500 P.S.I. CONCRETE



**TYPICAL ELEVATION LIGHT ALUM. MULLION
WITH STEEL REINFORCEMENT-LONG SPAN**

LEGEND



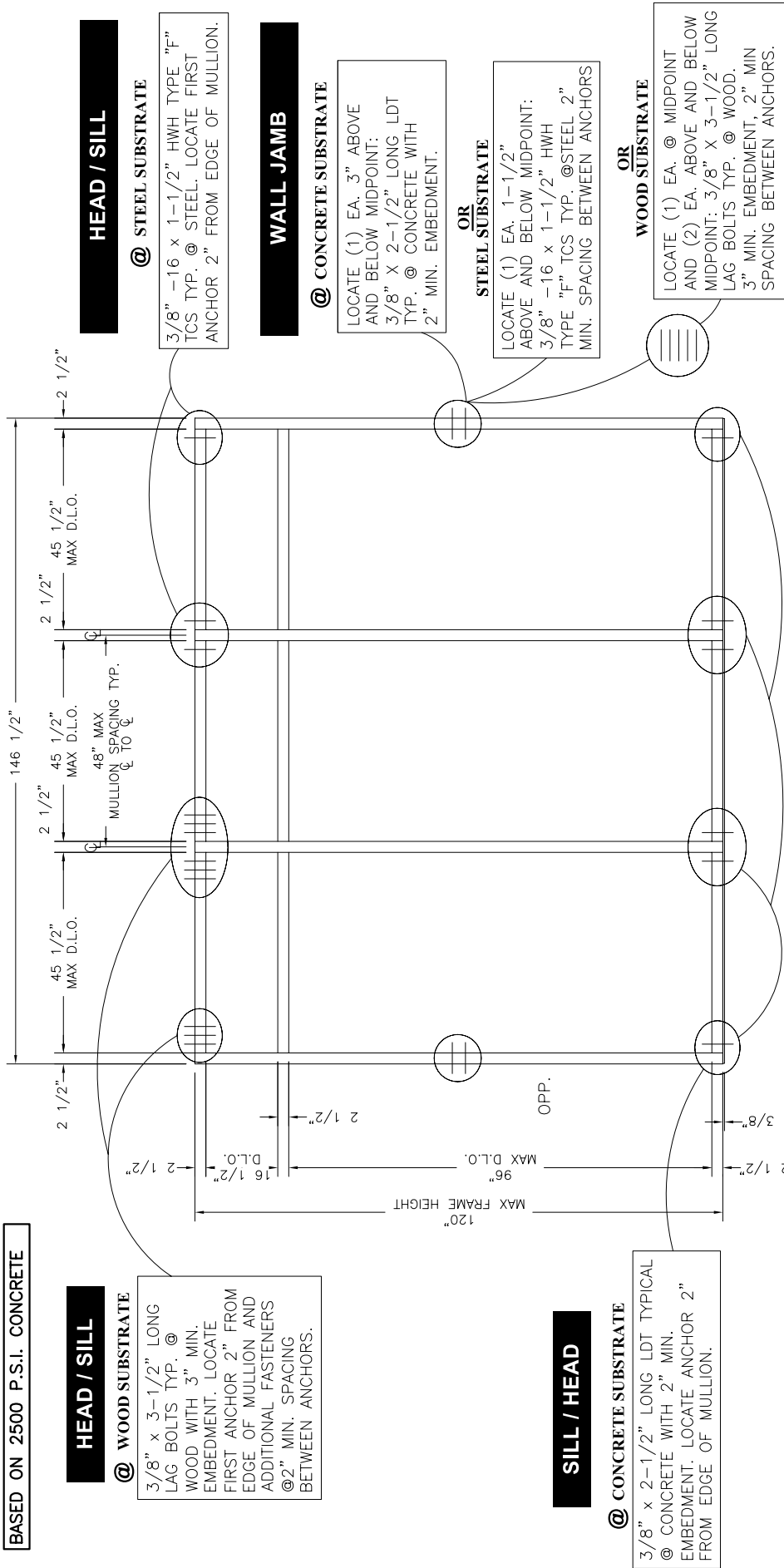
NOTE: WOOD STRUCTURE: MIN. #2 SYP.

DESIGN PRESSURE
+70/-80 PSF

PERIMETER FASTENER LOCATIONS

**TYPICAL ATTACHMENT TO:
WOOD/STEEL/CONCRETE SUBSTRATE**

BASED ON 2500 P.S.I. CONCRETE



HEAD / SILL

@ WOOD SUBSTRATE
3/8" x 3-1/2" LONG LAG BOLTS TYP. @ WOOD WITH 3" MIN. EMBEDMENT. LOCATE FIRST ANCHOR 2" FROM EDGE OF MULLION AND ADDITIONAL FASTENERS @2" MIN. SPACING BETWEEN ANCHORS.

SILL / HEAD

@ CONCRETE SUBSTRATE
3/8" x 2-1/2" LONG LDT TYPICAL @ CONCRETE WITH 2" MIN. EMBEDMENT. LOCATE ANCHOR 2" FROM EDGE OF MULLION.

HEAD / SILL

@ STEEL SUBSTRATE
3/8" -16 x 1-1/2" HHW TYPE "F" TCS TYP. @ STEEL. LOCATE FIRST ANCHOR 2" FROM EDGE OF MULLION.

WALL JAMB

@ CONCRETE SUBSTRATE
LOCATE (1) EA. 3" ABOVE AND BELOW MIDPOINT: 3/8" X 2-1/2" LONG LDT TYP. @ CONCRETE WITH 2" MIN. EMBEDMENT.

OR
STEEL SUBSTRATE

LOCATE (1) EA. 1-1/2" ABOVE AND BELOW MIDPOINT: 3/8" -16 x 1-1/2" HHW TYPE "F" TCS TYP. @STEEL 2" MIN. SPACING BETWEEN ANCHORS

OR
WOOD SUBSTRATE
LOCATE (1) EA. @ MIDPOINT AND (2) EA. ABOVE AND BELOW MIDPOINT: 3/8" X 3-1/2" LONG LAG BOLTS TYP. @ WOOD. 3" MIN. EMBEDMENT, 2" MIN SPACING BETWEEN ANCHORS.

LEGEND



NOTE: WOOD STRUCTURE. MIN. #2 SYP.

DESIGN PRESSURE
+60/-60 PSF

**TYPICAL ELEVATION HEAVY ALUM. MULLION WITHOUT STEEL
- LONG SPAN -**

PERIMETER FASTENER LOCATIONS

**TYPICAL ATTACHMENT TO:
WOOD/STEEL/CONCRETE SUBSTRATE**

BASED ON 2500 P.S.I. CONCRETE

HEAD / SILL

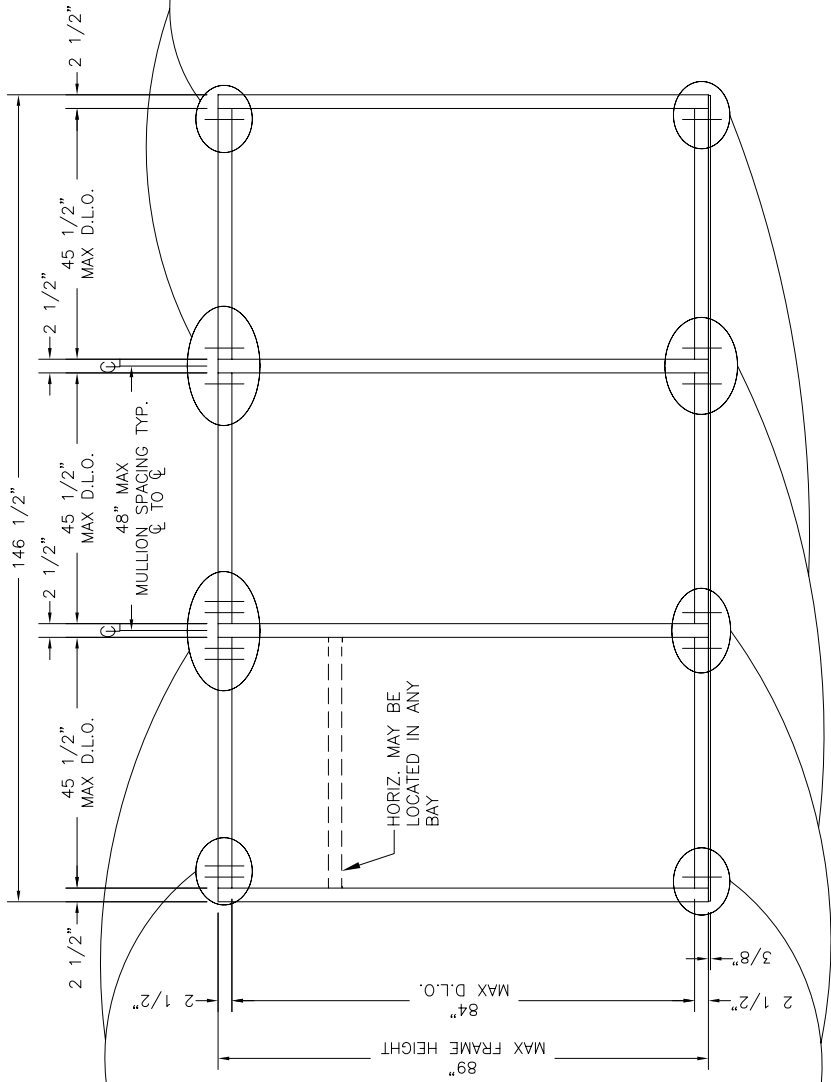
@ WOOD SUBSTRATE

3/8" x 3-1/2" LONG LAG BOLTS TYP. @ WOOD WITH 3" MIN. EMBEDMENT. LOCATE FIRST ANCHOR 2" FROM EDGE OF MULLION AND ADDITIONAL FASTENERS @ 2" MIN. SPACING BETWEEN ANCHORS.

HEAD / SILL

@ STEEL SUBSTRATE

3/8" -16 x 1-1/2" HWH TYPE "F" TCS TYP. @STEEL. LOCATE FIRST ANCHOR 2" FROM EDGE OF MULLION.



SILL / HEAD

@ CONCRETE SUBSTRATE

3/8" x 2-1/2" LONG LDT TYPICAL @ CONCRETE WITH 2" EMBEDMENT. LOCATE FIRST ANCHOR 2" FROM EDGE OF MULLION.

**TYPICAL ELEVATION LIGHT ALUM. MULLION WITHOUT STEEL REINFORCEMENT
-SHORT SPAN-**

LEGEND



NOTE: WOOD STRUCTURE: MIN. #2 SYP.

DESIGN PRESSURE
+65/-65 PSF