

INSTALLATION INSTRUCTIONS

SERIES 375TC AND 500TC THERMAL COMPOSITE DOORS



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TABLE OF CONTENTS

Introduction 3

General Information/Product Use..... 4

Door and Frame Checklist..... 5

Door Glass Fabrication 6

Standard Hardware Locations..... 7

Door Frame Assembly.....8-9

Door Frame Installation 10-13

Door Glass Installation 14

Installation of Offset Hung Door on Butt Hinges/Pivots/Gear Hinges..... 15

Final Adjustments to Door 16

Adjustments to Pairs of Doors..... 17

Parts List 18

375TC, 500TC Thermal Composite Door Installation Manual

Note:

The installation details found in this package are generic and are for representation only with the intent of giving the installation team a visual representation as to how the assemblies typically install. The shop drawings and details are the governing documents and as such this package is to be used only as a resource.

Follow sealant manufacturers recommendations for use and application of structural silicone sealant and weather seal silicone sealant.

Note: Customer / Project quality assurance procedures are separate documents and are to be followed in conjunction with this manual.

GENERAL INFORMATION

PRODUCT USE

The 375TC and 500TC Thermal Composite Doors are intended for installation by glazing professionals with appropriate experience. Subcontractors without experience should employ a qualified person to provide field instruction and project management.

The manufacturer does not control the application or selection of its product configurations, sealant or glazing material and assumes no responsibility thereof. It is the responsibility of the owner, architect and installer to make these selections in strict compliance with applicable laws and building codes. Consult sealant manufacturer for review and recommendation of sealant application. Follow sealant manufacturer's recommendations and literature for proper installation.

The air and water performance of the Thermal Composite Door system is directly related to the completeness and integrity of the installation process of both the seal installed at the horizontal to vertical connections the glazing gasket installed at the interior side of the glass. To insure top performance of this system, particular attention should be given to the following procedures:

1. Surfaces to be sealed should be cleaned with isopropyl alcohol or solvent and dried as recommended by sealant manufacturer to remove dirt and cutting oils. Sealant at horizontal to vertical connections should be a minimum 3/16" diameter bead on surfaces where horizontal abuts vertical per glazing instructions herein. No gaps should be visible in the sealant. Exposed surfaces should be cleaned after installing the horizontal. Inspect joint for complete sealant contact, especially where the horizontal meets the face of the vertical member. Repair joint as required.
2. The glazing gasket should be installed so as to avoid stretching, buckles or tears. Corners must be cut to form a tight joint. To avoid damage to gasket and corner joints during glazing, glass should be level and straight during installation.

Variations on the details shown are inevitable and are not the responsibility of the manufacturer when drawn by others.

Consult glass manufacturer for correct setting block location and length for glass sizes in excess of 40 sq.ft.

PROTECTION AND STORAGE

Handle all material carefully. Do not drop from the truck. Stack with adequate separation so the material will not rub together. Store material off the ground, protecting against the elements and other construction hazards by using a well ventilated covering. Remove material from package if wet or located in a damp area. For further guidelines consult AAMA publication "Care and Handling of Architectural Aluminum From Shop to Site."

PREPARATION OF OPENING

Prior to installation of a door and frame, it is important to consider your surrounding construction.

Is the opening large enough to handle the door and frame that was ordered?

Allow for at least 1/4" shim space all around the frame.

Are there any obstructions present within the opening?

Is there sufficient structure to anchor the frame?

Is the support in the proper location?

What is the sill condition?

Is there a ledge?

Is there enough space to get anchorage into the floor slab?

Is the floor slab sloping away from the door so that it may operate properly?

Be sure the slab is level from side to side at door area.

Threshold will be a thermal composite 4 1/2" wide, 1/2" tall sloped from back to front.

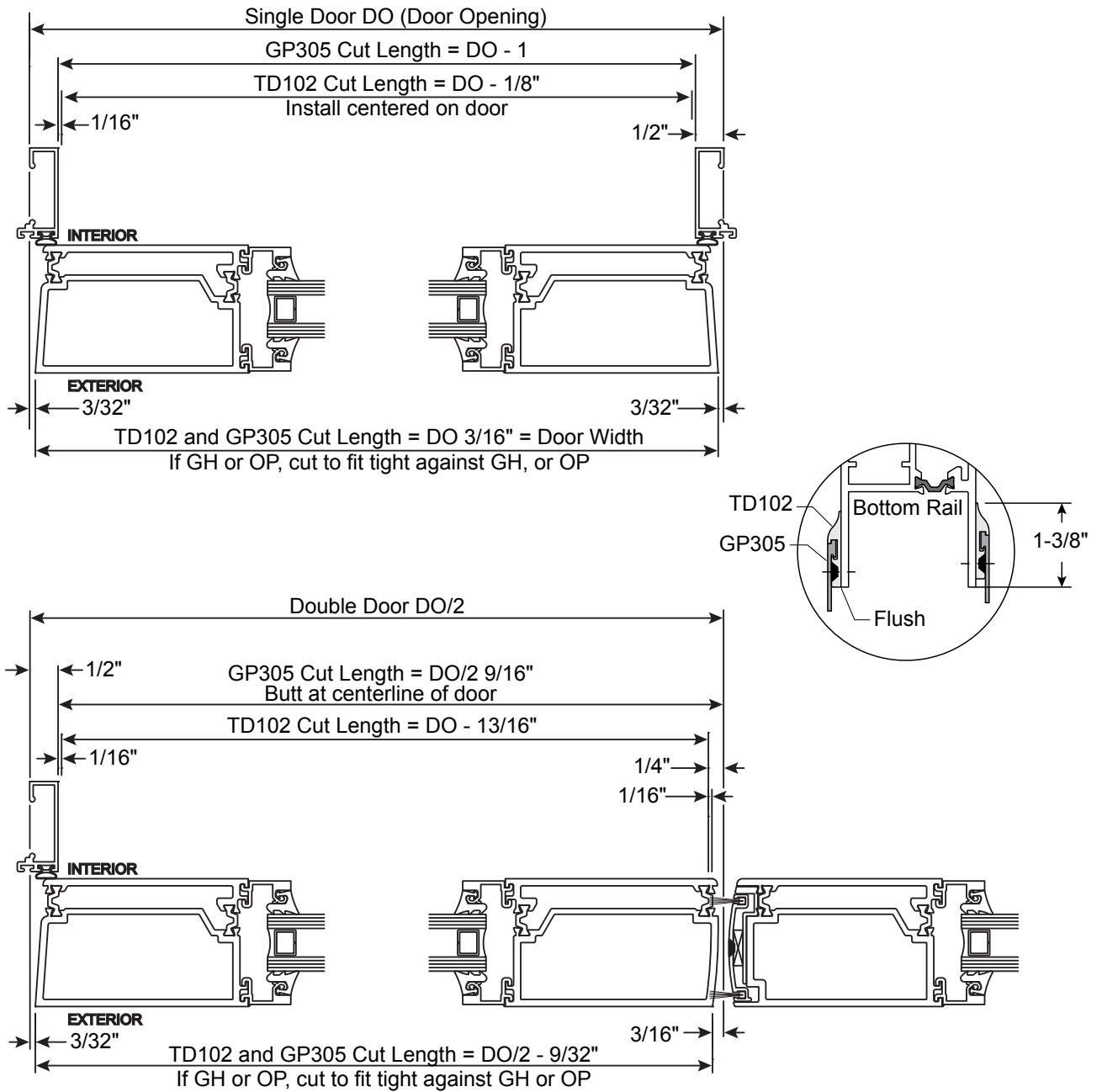
If there is a problem with location of opening or slab level, please contact your general contractor, in writing requesting a correction. DO NOT begin installation until conditions are resolved.

375TC/500TC THERMAL COMPOSITE DOOR

DOOR AND FRAME CHECKLIST

Inspect door to make sure no damage occurred in shipping. TD102 sweeps with GP305 gasket will be shipped loose and sent long for cutting to size in the field by customer. See instructions below for cutting and installation. The door packing should also contain the door glass stops, a roll of 45A1133 gasket, and hardware pertaining to your project.

Remove door frame from package and inspect for damage. The frame package should contain a package of Shear Blocks and fasteners for frame assembly. There will also be a Threshold, a Threshold Clip package, and various fasteners for attachment of Threshold to frame. Additional installation screws/anchor are by customer. Cut length formula for both interior and exterior bottom rail sweeps, TD102/GP305, are provided below.



375TC/500TC THERMAL COMPOSITE DOOR

DOOR GLASS FABRICATION

Thermal doors are available as a single, a pair, or sets of single doors. Two optional Bottom Rails are available: 8" or 10". There are 4" and 8" Muntins available for the Thermal Door. Standard glass sizes are listed below.

GLASS SIZE FOR STANDARD SINGLE DOOR								
	DOOR OPENING SIZE		NET DOOR SIZE		GLASS SIZE			
	Width	Height	Width	Height	Width		Height	
					Medium	Wide	8" Bottom Rail	10" Bottom Rail
BUTT HINGE / OFFSET	36" (914 mm)	84" (2134mm)	35 13/16" (910 mm)	83 3/16" (2113 mm)	27 13/16" (707 mm)	25 5/16" (643 mm)	70 39/62" (1794 mm)	68 39/62" (1744 mm)
	36" (914 mm)	96" (2438 mm)	35 13/16" (910 mm)	95 3/16" (2418 mm)	27 13/16" (707 mm)	25 5/16" (643 mm)	82 39/62" (2099 mm)	80 39/62" (2048 mm)
	42" (1067 mm)	84" (2134mm)	41 13/16" (1063 mm)	83 3/16" (2113 mm)	33 13/16" (859 mm)	31 5/16" (796 mm)	70 39/62" (1794 mm)	68 39/62" (1744 mm)
	42" (1067 mm)	96" (2438 mm)	41 13/16" (1063 mm)	95 3/16" (2418 mm)	33 13/16" (859 mm)	31 5/16" (796 mm)	82 39/62" (2099 mm)	80 39/62" (2048 mm)
GEAR HINGE	36" (914 mm)	84" (2134mm)	35 13/16" (910 mm)	83 3/16" (2113 mm)	27 13/16" (707 mm)	25 5/16" (643 mm)	70 39/62" (1794 mm)	68 39/62" (1744 mm)
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GLASS SIZE FOR STANDARD DOUBLE DOOR								
	DOOR OPENING SIZE		NET DOOR SIZE		GLASS SIZE			
	Width	Height	Width	Height	Width		Height	
					Medium	Wide	8" Bottom Rail	10" Bottom Rail
BUTT HINGE / OFFSET	72" (1829 mm)	84" (2134mm)	35 13/16" (910 mm)	83 3/16" (2113 mm)	27 13/16" (707 mm)	25 5/16" (643 mm)	70 39/62" (1794 mm)	68 39/62" (1744 mm)
	72" (1829 mm)	96" (2438 mm)	35 13/16" (910 mm)	95 3/16" (2418 mm)	27 13/16" (707 mm)	25 5/16" (643 mm)	82 39/62" (2099 mm)	80 39/62" (2048 mm)
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GLASS SIZE FOR CUSTOM SINGLE DOOR								
Width			Height with 8" Bottom Rail			Height with 10" Bottom Rail		
Door Opening Width minus 8-3/16"			Opening Height minus 13-3/8"			Opening Height minus 15-3/8"		
GLASS SIZE FOR CUSTOM DOUBLE DOOR								
Width			Height with 8" Bottom Rail			Height with 10" Bottom Rail		
Door Opening Width divided by 2 minus 8-3/16"			Opening Height minus 13-3/8"			Opening Height minus 15-3/8"		

All doors shall use a minimum of 1-1/2 pair of Butt Hinges or 1 Intermediate Offset Pivots or FM-SLI Continuous Gear Hinge.

Doors up to 90" in height using Offset Pivots should have one Intermediate Offset Pivot. Any additional 30" in height warrants another Intermediate Pivot. Doors using Butt hinges that are over 84" in height require 4 Butt hinges.

ROUGH OPENING WITH 375T450 1" SUBFRAME:

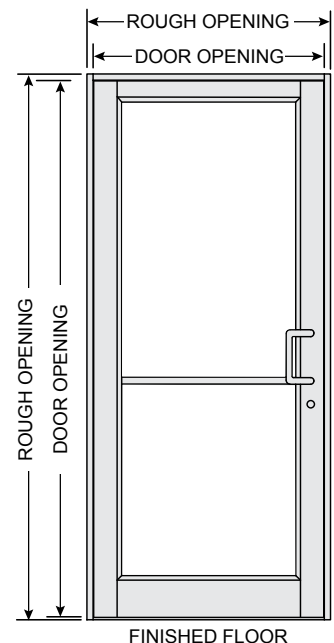
Width: Door Opening plus 2-1/2" (64 mm)

Height: Door Opening plus 1-1/4" (32 mm) Minimum

ROUGH OPENING WITH 375T454 2" SUBFRAME FOR 45X STOREFRONT:

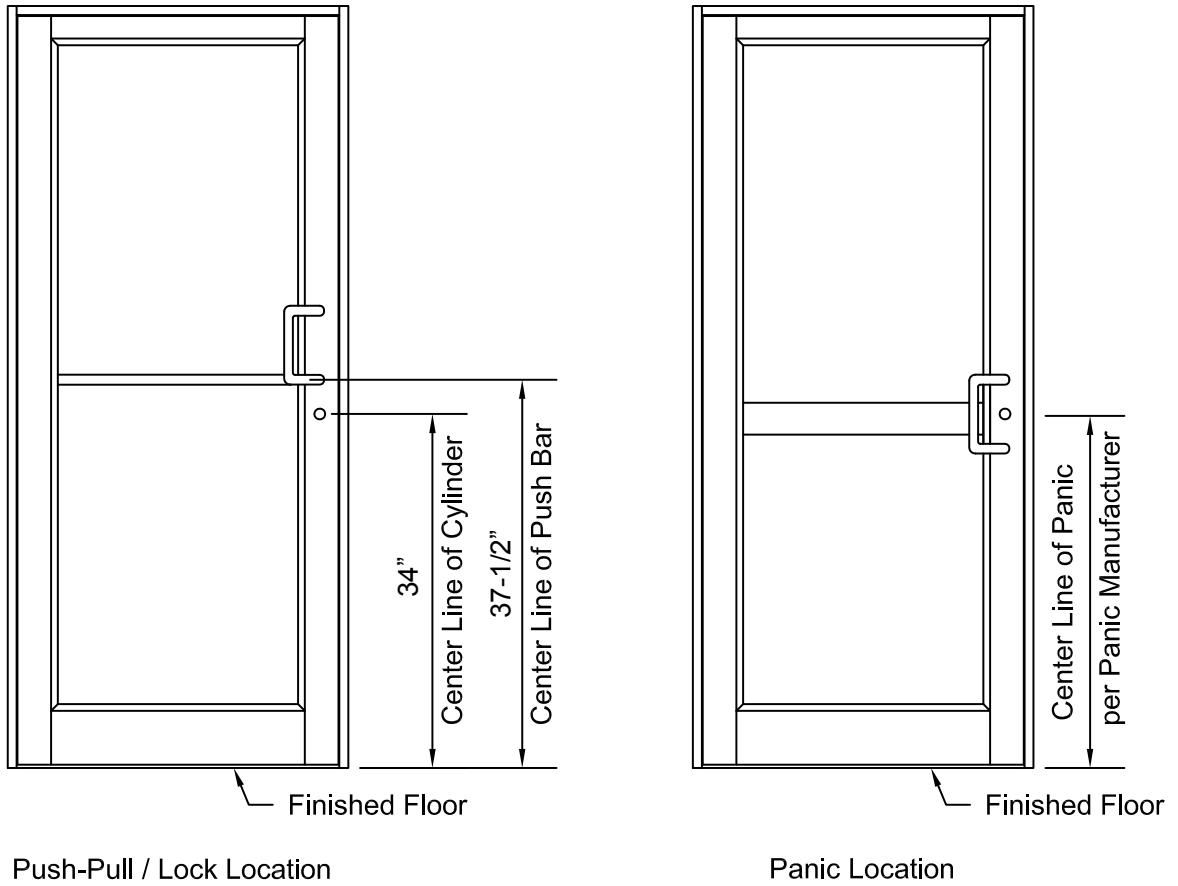
Width: Door Opening plus 4-1/2" (114 mm)

Height: Door Opening plus 2-1/4" (57 mm) Minimum

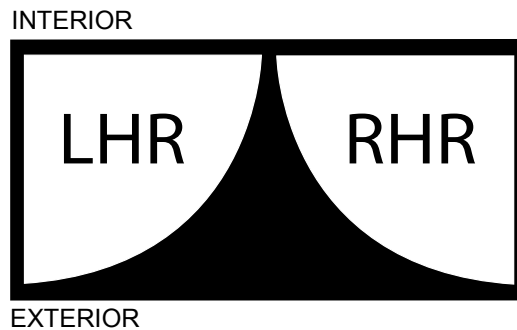


375TC/500TC THERMAL COMPOSITE DOOR

STANDARD HARDWARE LOCATIONS



DOOR HANDING



DOOR FRAME ASSEMBLY

1. Attach (2) AC13401 shear blocks to top end of door jambs using (4) 14X112HHSTS hex head fasteners. See FIGURE 2.
2. Attach TH6401 threshold clips to bottom of door jamb using (2) 8X2PHPSMS316 round head screws. See FIGURE 4, pg 9.
3. Apply sealant along exterior and interior faces of shear blocks as shown in FIGURE 3, pg 9.
4. Assemble door header to jambs by sliding header over shear blocks and attaching using (2) MS17211 flat head screws. Clean excess sealant from exposed surfaces after assembly.
5. Attach threshold to clips using (1) MS17211 undercut flat head fasteners, See FIGURE 5, pg 9.

NOTE: Threshold will be removed once frame is installed into opening to seal and drill for anchors.
All dimensions are for reference only. Frame components are fabricated by CRL.

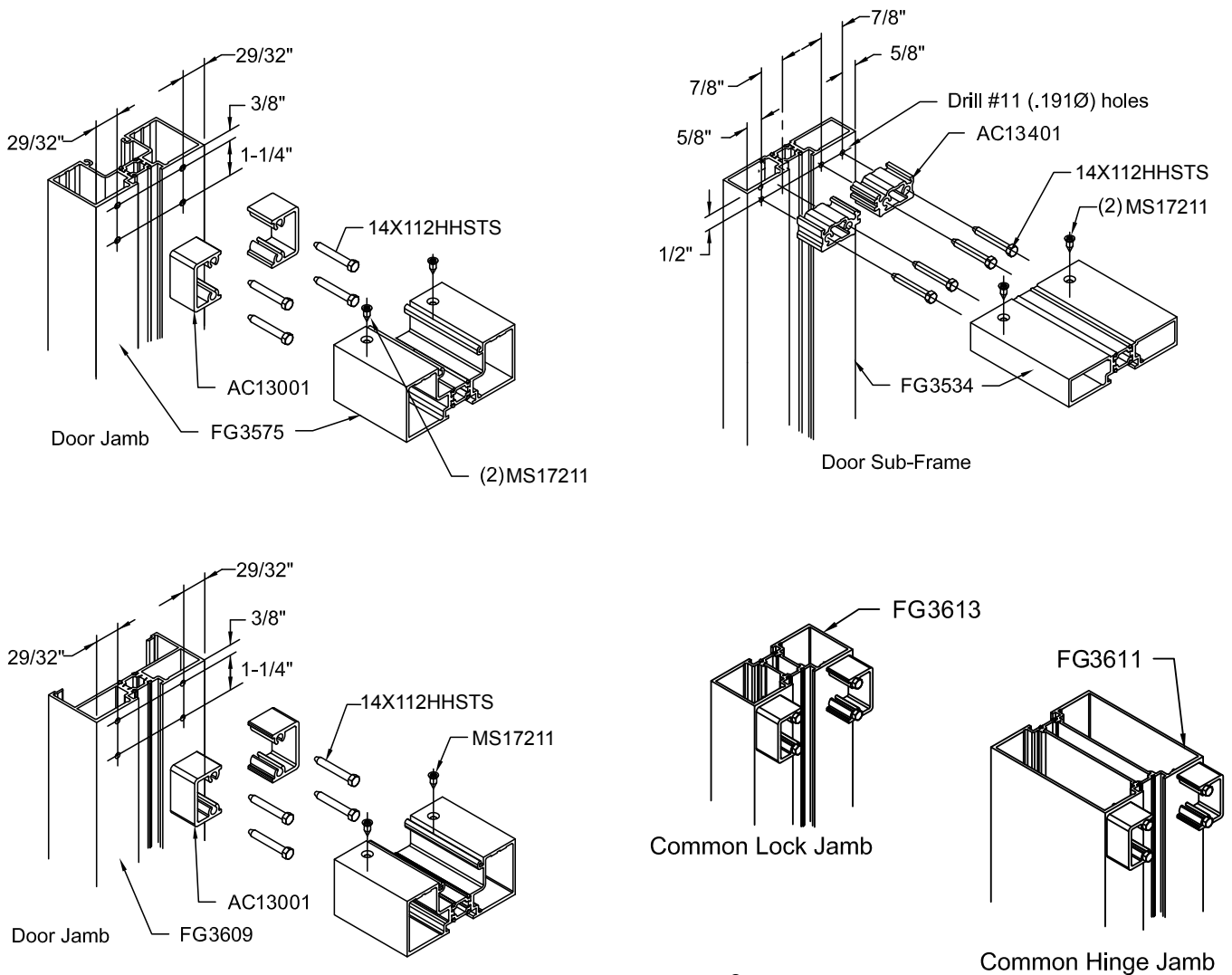


FIGURE 2
Shear block installation

DOOR FRAME ASSEMBLY

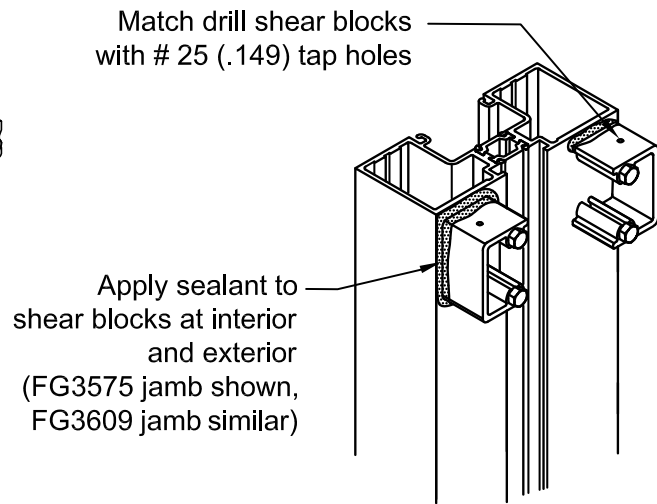
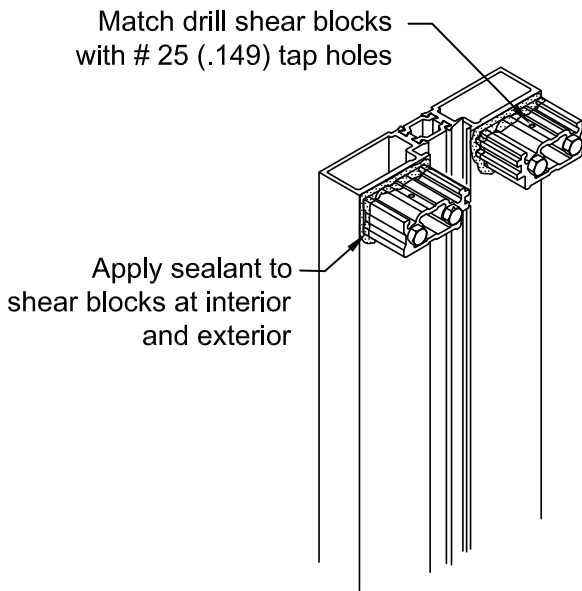
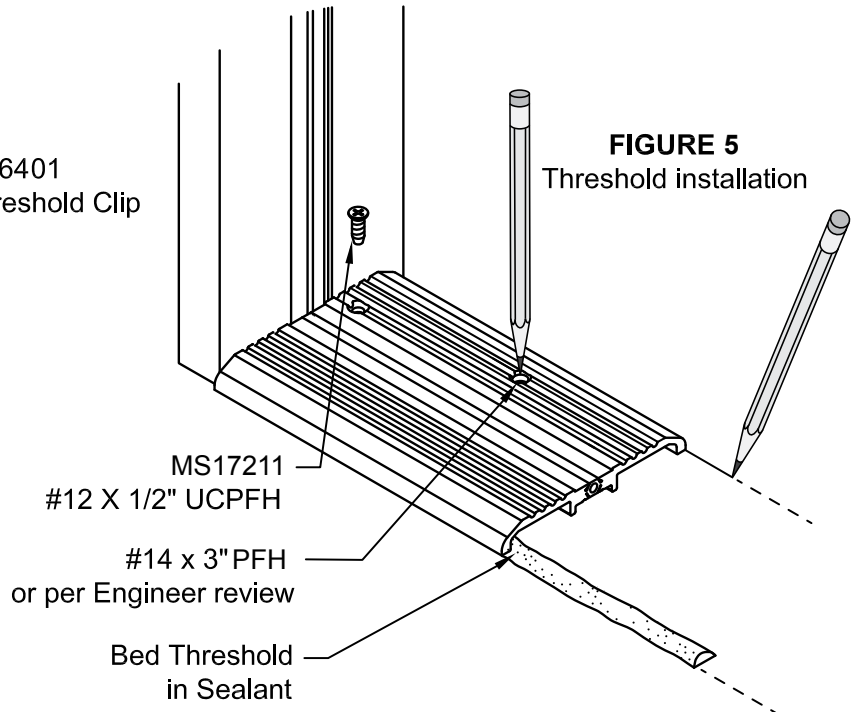
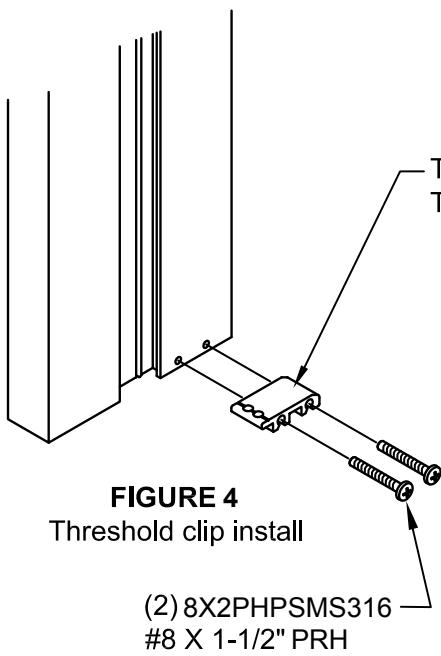


FIGURE 3
Shear block sealant



DOOR FRAME INSTALLATION

1. Door frame shall be completely assembled, including threshold; with all joints neatly aligned and tight. See pages 7 thru 9 for assembly guidelines.
2. Door frame shall be installed square and plumb. FIGURE 6 & 7, below.
3. Level the door frame at the Threshold at the highest point in the slab. It is preferable to not have a high point in the slab. The door frame is designed to have the jambs run to the slab.
4. Frame must be securely anchored in place. Solidly shim at all anchor points so as not to bow or distort framing.
5. Mark the concrete through the countersunk holes in the Threshold and along front and back edges of Threshold. See FIGURE 5, pg 9.
6. Remove Threshold from frame at Threshold Clips. Use masonry bit to drill holes in slab for inserts or anchors.
7. Run bead of sealant along front and back edges beneath Threshold using lines marked along front and back. See FIGURE 8, pg 11.
8. Re-install Threshold to the frame with the Threshold Clips at each end. Inject sealant into each anchor hole and then install anchors into prepared holes. See FIGURE 9, pg 11.

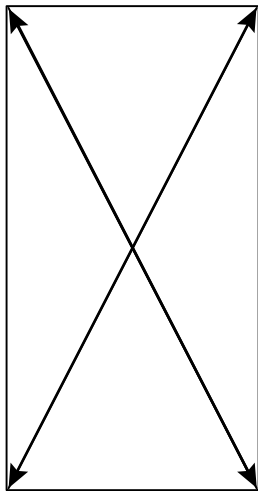


FIGURE 6

Measure diagonals to check squareness
Measurements should be within 1/8"

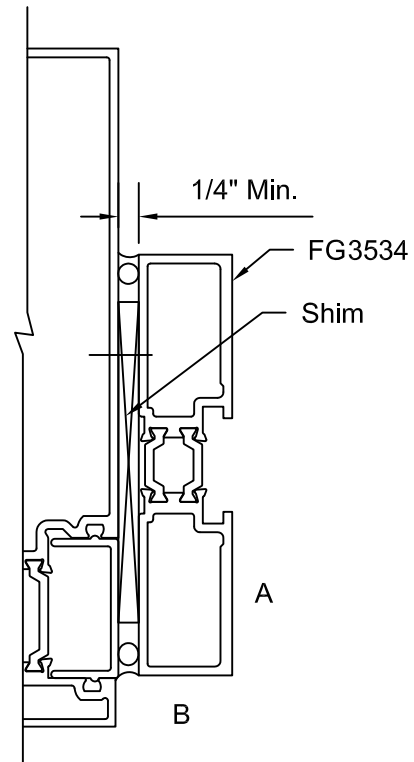
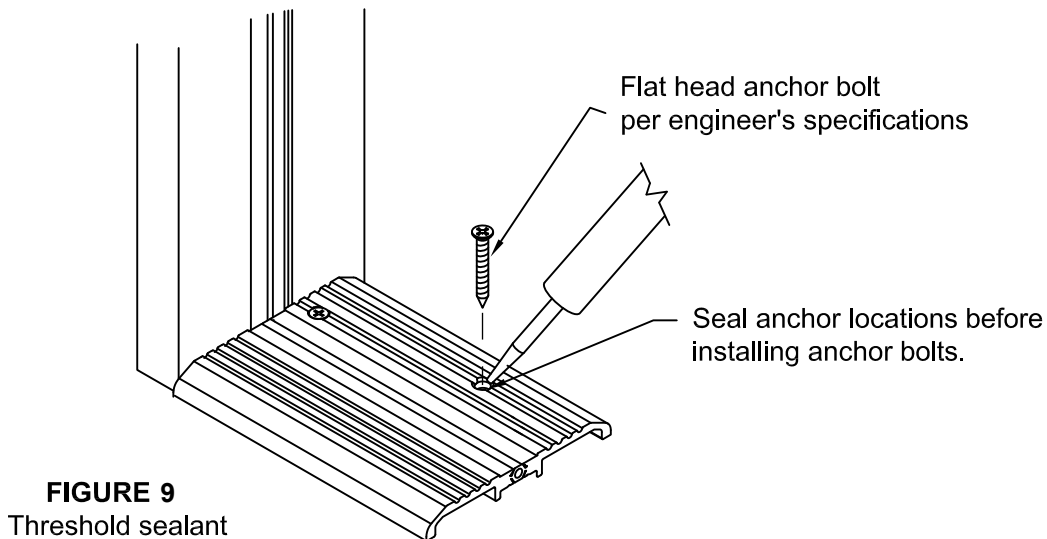
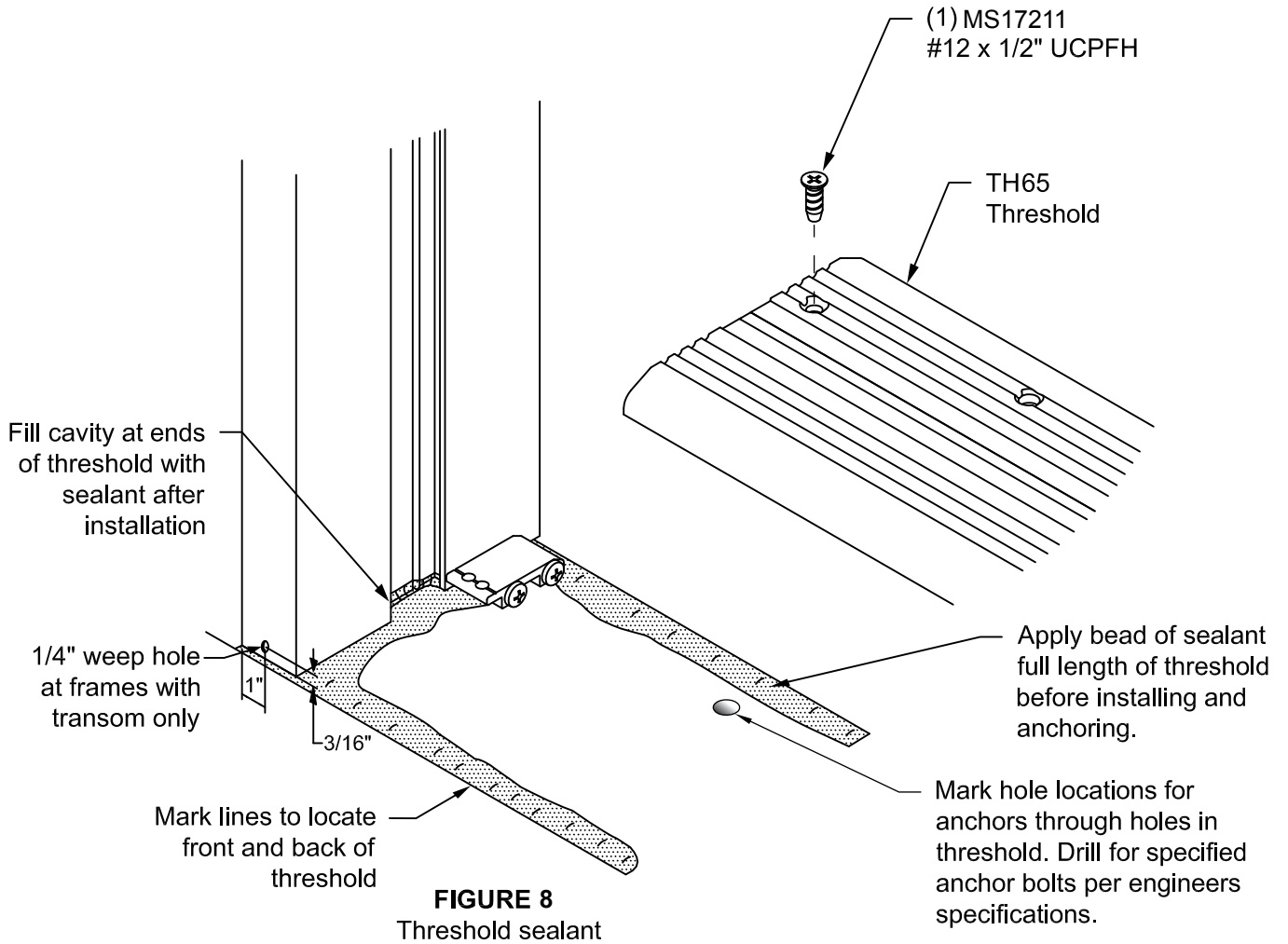


FIGURE 7

Use 4 ft level to check plumb at points A & B.

DOOR FRAME INSTALLATION



DOOR FRAME INSTALLATION

1. TD105 vertical door stop to be cut to run between threshold and door stop at header. Length to be door opening minus 1-1/16". Install GP300 insert full length.
2. TD105 head door stop will be cut door opening minus 1/16". The GP302 insert should be cut to extend into cavity on either side of door opening for overall length of door opening plus 5/8".
3. 375TD125 gasket must be installed prior to installation of door stops.
4. Door stops to have small bead of sealant applied at back of stop. This seal should be married into seal at threshold and a small bead also applied between vertical and head stops at corner. See FIGURE 10.
5. Ends of door stop at door header / GP302 to be sealed as show in FIGURE 11, page 13.
6. Seal door stop at threshold. See FIGURE 12, page 13.

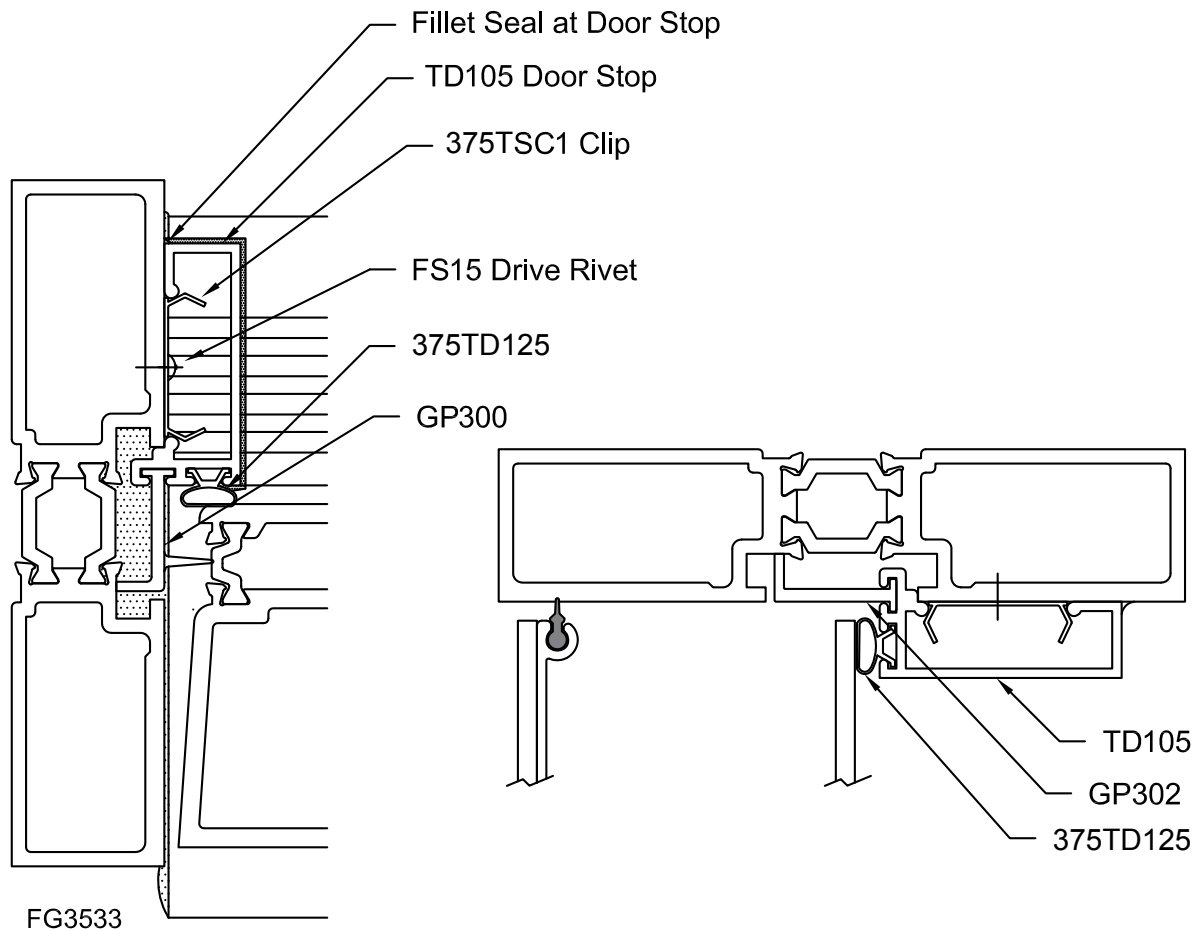
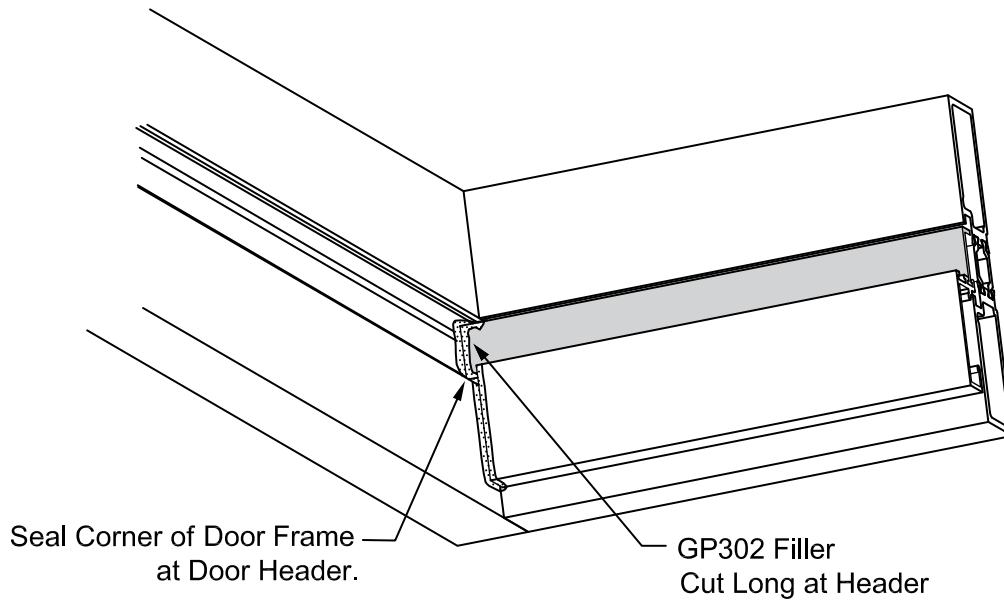


FIGURE 10
Door stop install
& gasket seal

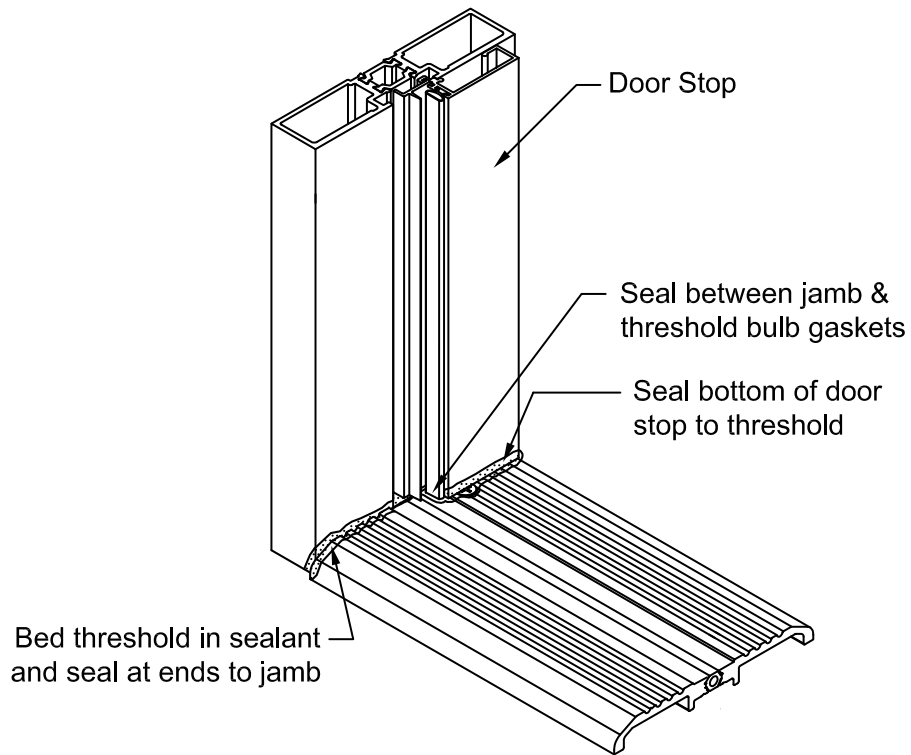
DOOR FRAME INSTALLATION



Seal Corner of Door Frame
at Door Header.

GP302 Filler
Cut Long at Header

FIGURE 11
TD305 / GP302
Seal at Door Head



Door Stop

Seal between jamb &
threshold bulb gaskets

Seal bottom of door
stop to threshold

Bed threshold in sealant
and seal at ends to jamb

FIGURE 12
Threshold seal

DOOR GLASS INSTALLATION

Glass setting blocks are installed in their proper positions at the factory. Glazing prior to installation is possible (step 1). If the decision is made to glaze after door is installed, skip step 1.

1. Lay door flat across two saw horses (easiest) or on protected floor (care must be taken not to damage finish on door.)
2. If glazing door after it is installed, lock door to prevent swinging.
3. Install interior 45A1133 gasket into interior glass stops cutting horizontal gasket ends at angle to form a tight joint in each corner. Gaskets should be cut length of stop plus 1/4" per foot extra to allow for relaxing of gasket.
4. Turn glass jack at top rail counter-clockwise until it is in the retracted position.
5. Be sure that interior stops are in securely prior to installing glass.
6. Place glass on the stops and against the setting blocks. If you are glazing the door in the installed position, it is important to push glass firmly against the interior glass stops.
7. Adjust for gaps at stiles.
8. Once the glass is in the correct position, screw down the glass jack to press lightly against the top of the glass. See FIGURE 13.
9. Install the exterior glass stops. Stops will hook into place. Horizontals are installed first, followed by verticals. Horizontal glass stops will fit behind trim leg of vertical stiles. See below.
10. Once exterior stops are in place. Install 45A1133 gasket into opening. Use cut lengths established in step #4 cutting gaskets to form tight corners.

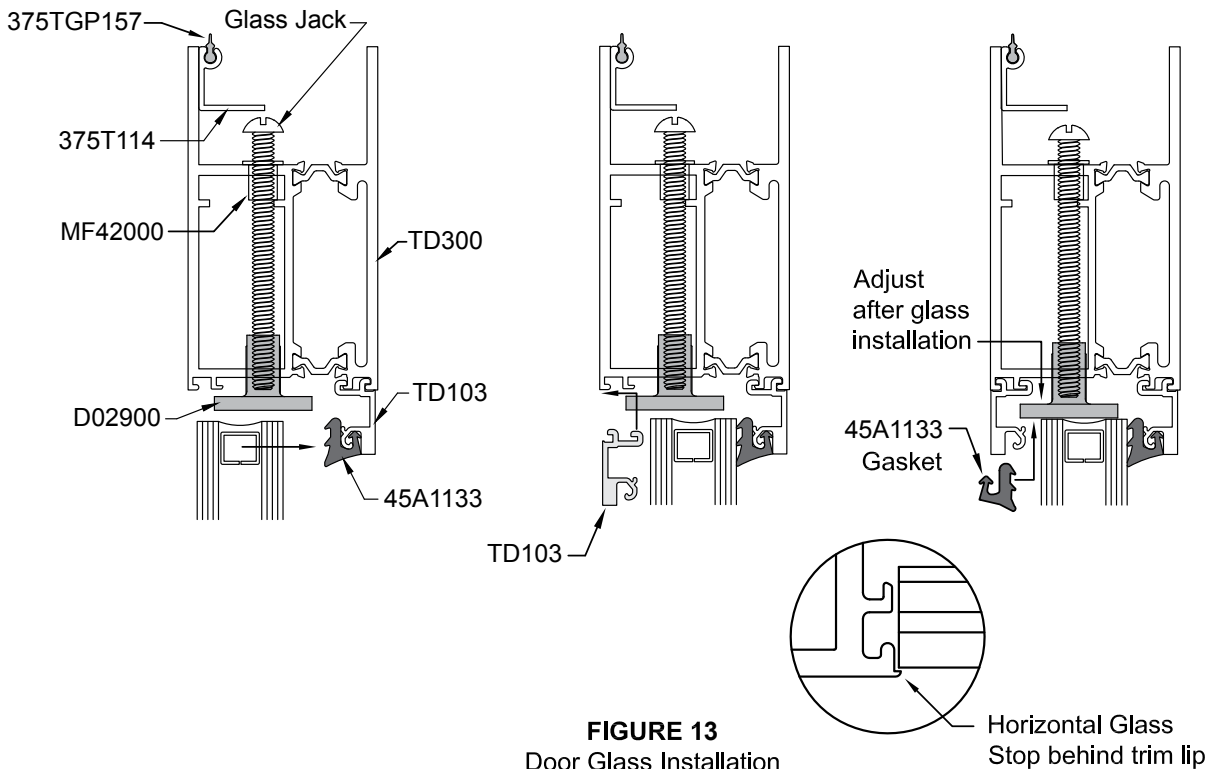
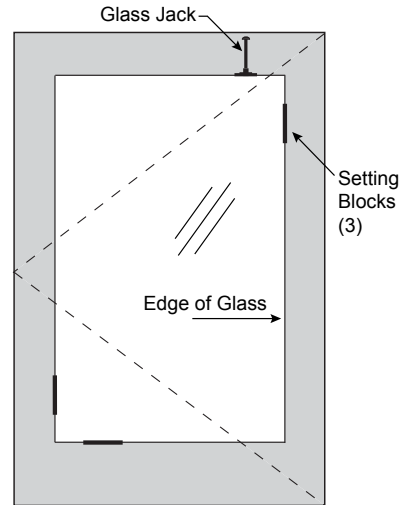


FIGURE 13
Door Glass Installation

INSTALLATION OF OFFSET HUNG DOOR ON BUTT HINGES

Back-up plates are installed in the door and the frame at the factory. Butt hinges should be installed on the door using 1224X12PFSS fasteners. The door may or may not be glazed prior to the installation of door.

1. Lift door upwards until butt hinges align with hinge cutout in frame.
2. Block under door when hinge and cutout are aligned.
3. Attach hinges to frame back-up plates using 1224X12PFSS fasteners (included). There is a slight adjustment available if location of door prep and frame cut out is off slightly. Back off on screws slightly and adjust door to proper position; then, tighten down screws.
4. Now that the door is hung, it is time for final adjustments and attachment of hardware.

NOTE: If you have not pre-glazed the door; glaze the door before attachment of hardware or further adjustments.

INSTALLATION OF OFFSET HUNG DOOR ON OFFSET PIVOTS

Back-up plates are installed in the door and the frame at the factory. Frame portion of pivots should be on the frame and door portion of pivots should be installed on the door. The door may or may not be glazed prior to installation of door.

1. Lift door upward and tilt in open position. Place door portion of bottom pivot on frame portion of bottom pivot.
2. Depress the pivot pin in the door portion of the top pivot.
3. Slide door portion of top pivot under the frame top pivot.
4. Jiggle door until the pivot pin slides into the frame top pivot.

Note: To remove door, take the 3 screws out of the top portion of the top pivot and let drop. Then tip the door out of the frame.

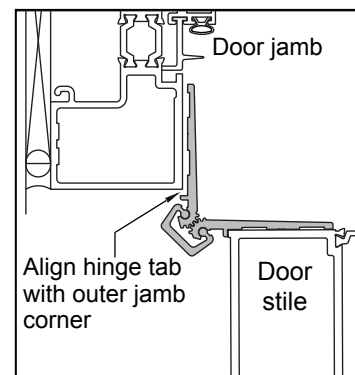
5. Now that the door is hung, it is time for final adjustments and attachment of hardware.

Note: If you have not pre-glazed the door, glaze the door before attaching hardware.

INSTALLATION OF OFFSET HUNG DOOR ON FRAME

The Door will be pre-drilled for Pemko FMSLI gear hinge. Gear hinge should be installed onto door using supplied fasteners. The door may or may not be glazed prior to installation.

1. Lift door leaf into frame opening and shim top of door 1/8" below the header to allow for door clearance. Pencil mark the hinge jamb with top of the door leaf.
2. Open door and position it at 90 degrees to the frame. Wedge or shim the door bottom to proper height. Open gear hinge to the open door position.
3. Align the short tab on the jamb portion of the hinge with the outer corner of the door frame as shown. Mark jamb for installation holes at top and bottom of hinge.
4. Drill two hole in the jamb at the top and two at the bottom and attach hinge with fasteners. Remove wedge/shim and check for proper swing and clearance. Door may sag slightly when shims are removed. Note the amount of adjustment needed to bring door back into alignment. Door must operate properly.
5. Drill remaining hole locations and secure the hinge with fasteners.



375TC/500TC THERMAL COMPOSITE DOOR

FINAL ADJUSTMENTS TO DOOR

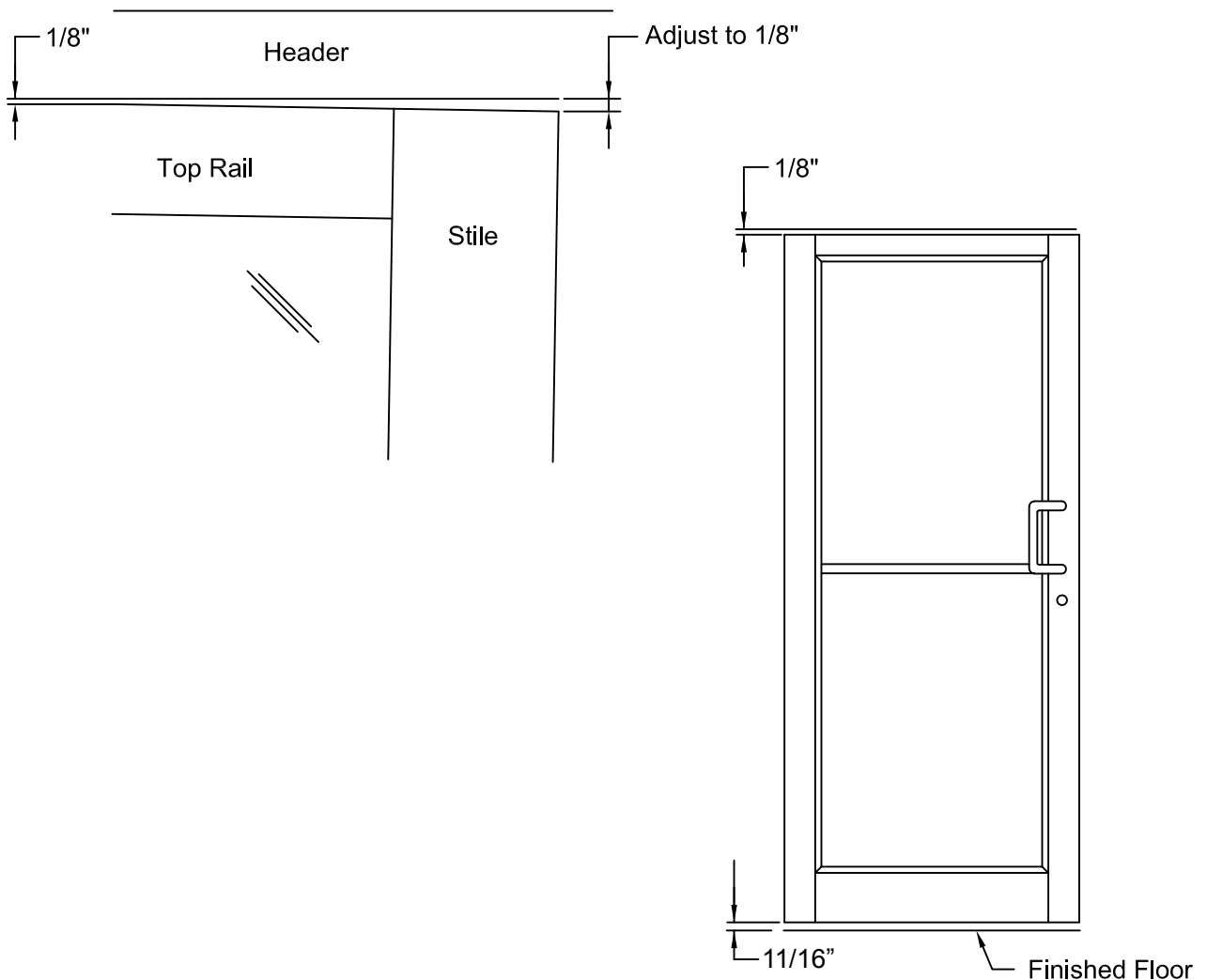
After door is installed, check clearances. The top rail should be a consistent 1/8" below the header. The bottom of door should be a consistent 5/8" above finished floor. The gap between door and jambs should be 3/32" from top to bottom.

If the gap between the top rail and header is too large at the top of the lock stile, loosen glass jack and lift up on the door until gap is corrected. Tighten down the glass jack to the top of glass.

If the gap is too tight at top of lock stile, turn glass jack counter-clockwise (dropping door) until proper gap is attained.

DO NOT raise door by only tightening the glass jack against the glass. Glass breakage could occur.

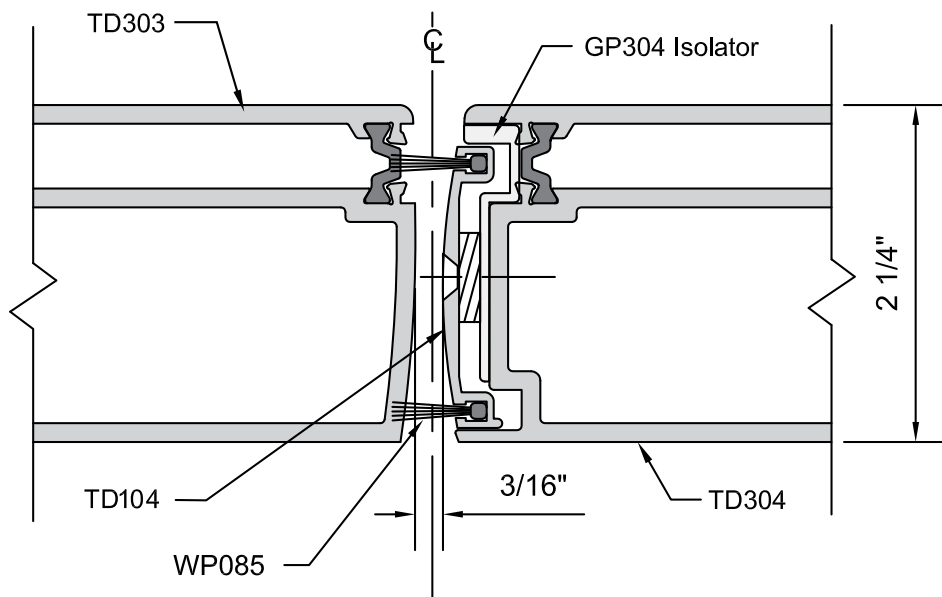
On butt hung doors, butts may be shimmed out to adjust clearance when there is too much gap at the lock stile.



ADJUSTMENTS TO PAIRS OF DOORS

Located at the meeting stile of the pair of the thermal doors is an adjustable astragals. Beneath the astragal is an ABS isolator. Spring clips will be located at 12" on center and astragal attached with a FS4 (#8 x 1" poh) fasteners. See instructions below for proper adjustment.


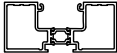
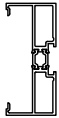

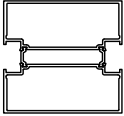



1. Adjust astragals so that there is a $3/16$ " gap between doors. The pile will make contact with inactive door stile at this setting. If pile is not making good contact adjust as needed.
2. Remove string from interior wool pile and re-adjust as needed.






375TC/500TC THERMAL COMPOSITE DOOR

PARTS LIST














Door Frame Members

 FG3534	1" Subframe
 FG3575	2" Door Header
 FG3609	2" Door Jamb Mullion
 FG3613	2-1/2" Common Lock Mullion
 FG3611	5 1/4" Common Hinge Mullion
 S73	Transom Sash
 TD105	Door Stop w/ 375TD125 Gasket
 TH65	Thermal Threshold










Door Members

 TD103	1" Door Glass Stop
 375T114	Top Rail Seal w/375TGP157 Gasket
 TD102	Bottom Rail Front Sweep w/GP305 Gasket

Standard Accessories

 45A1133	Door Gasket
 375TGP159	1" Door Setting Block
 GP302	Door Head Stop Isolator
 GP304	Astragal Isolator
 WP085	Wool Pile for Meeting Stiles
 AC13001	Shear Block for FG-3575
 AC13401	Shear Block for FG-3534
 AC13501	Shear Block FG-3575 at Offset Pivots
 TH6401	Threshold Clip Kit
 375TSC1	Spring Clip for DS-1 Door Stop
 375TGP157	Gasket for 375T114
 GP300	Jamb Door Stop Isolator
 375TD125	Bulb Gasket

Standard Fasteners

 8X34FHPSMS	#8 x 1/2" Undercut Phillips Flat Head
 10X12PHFHMS	#10 x 1/2" Undercut Phillips Flat Head
 14X112HHSTS	#14 x 1-1/2" Phillips Hex Head - Horizontals to Verticals at Head Anchors
 45AFS15	3/16" x 7/16" Drive Rivet Fastens SC-1 Clip
 1224X12PFSS	#12-24 x 1/2" Phillips Flat Head
 MS17211	#12 x 1/2" Undercut Phillips Flat Head
 45AFS55	#10 x 1/2 PRH
 8X2PHPSMS316	#8 x 1-1/2" PRH
 MF42000	Rivet Nut for Glass Jack