Oldcastle BuildingEnvelope®

ArmorDefend™ Entrance

for ArmorDefend™ Storefront

installation & glazing 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 SUBMISSION 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 ALL STRUCTURAL SILICONE SEALANT AND WEATHER SEAL SILICONE SEALANT.

CUSTOMER / PROJECT QUALITY ASSURANCE PROCEDURES ARE SEPARATE DOCUMENTS AND ARE TO BE FOLLOWED IN CONJUNCTION WITH THIS MANUAL.

1-866-OLDCASTLE (653-2278) **OBE.com**

Version: 2024-0805

ArmorDefend™ Entrance Installation and Glazing Manual
(ArmorDefend™ Framing)

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IMPORTANT NOTICE

Completely read these instructions prior to beginning work. These recommendations are for general erection/installation procedures only. For actual job conditions, see shop drawings if applicable. For perimeter anchor types and spacing, refer to the approved shop drawings or consult structural engineer/project design professional.

GENERAL INFORMATION

Oldcastle BuildingEnvelope® ArmorDefend™ entrance system represents the latest in product development technology. This system was especially designed to meet the stringent requirements of ASTM E 2395, *Standard Specification for Voluntary Security Performance of Window and Door Assemblies with Glazing Impact*, for glass and glazing systems. Proper use of this system will assure optimal results in erection and long-term performance. ArmorDefend™ entrances were designed and tested to work in unison with ArmorGarde™ or ArmorGarde™ Plus glazing for delayed forced-entry security applications for schools, daycares, pharmacies, luxury brands, jewelers, wineries, restaurants, and other business where security is a priority.

Check all shop drawings and installation instructions to become familiar with the project before work begins. The shop drawings take precedence and include specific details for the project. The installation instructions are of a general nature and cover the most common conditions.

INSTALLER QUALIFICATIONS

These architectural framing systems are intended for fabrication, assembly, sealing, installation and glazing by professionals with appropriate knowledge and experience of the system(s) and their incorporation into various building conditions.

BUILDING CODES

Oldcastle BuildingEnvelope® does not control the application nor selection of its product configurations, sealant, or glazing materials, 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.

STRUCTURAL SEALANTS

DOWSIL™ 995 Silicone Structural Sealant was used on the ArmorDefend™ entrance test specimen for glass to metal adhesion.

The fabrication and installation of a structural silicone-glazed (SSG) or wet glazed system requires more technical knowledge and experience than is required for a conventional pressure-glazed or dry glazed system. The glazing contractor should take all steps as outlined and required by the structural silicone sealant manufacturer, glass fabricator, framing manufacturer, and the project professional engineer of record as well as follow local building code requirements and industry best practices to ensure the proper installation and safe performance of the SSG system.

The glazing contractor for each project needs to ensure compliance with each step, including, but not limited to, design reviews, formal adhesion testing, formal compatibility testing, project specification compliance, validating procedures, field testing, and quality control validation of installed product and surrounding conditions.

Testing of component materials for use in a SSG or wet glazed system is mandatory to fulfill project specifications and warranty requirements and must be submitted by the glazing contractor to the structural silicone manufacturer. All materials that comprise the structural silicone joint, such as the framing system (with the job-specific finish) and job-specific glass must be tested by the structural silicone manufacturer for compatibility and adhesion. All other accessory materials in contact with the structural silicone, such as setting blocks,

spacers, gaskets, sweeps, air seals and expansion joints, must also be submitted to the silicone sealant manufacturer for compatibility testing.
To ensure that nothing has changed in formulation or chemistry since the initial tests, subsequent testing during periodic time frames of the project is to be conducted to confirm continued acceptance of the material for use on the project.
To ensure the structural performance and integrity of the insulating glass unit (IGU), the glazing contractor must submit the project shop drawings to the glass fabricator to obtain approval for use of their product(s) in any 2, 3 or 4-sided SSG applications.
Quality control procedures for field glazing are to be increased beyond those required for shop glazing. Job conditions will normally have dust, dirt, and other construction debris on the surfaces where structural silicone is to be applied. Great care should be exercised in cleaning and preparing these surfaces for silicone application. The recommendations of the silicone sealant manufacturer are to be strictly enforced and followed. The fabrication and installation of the SSG system and its components, whether shop or field glazed, should be governed by a quality control program, and all steps, procedures, and test reports should be documented throughout the project.
Prior to installation of any SSG system, refer to industry documents (e.g., AAMA Curtain Wall Design Guide Manual, ASTM C1401-14, and AAMA SSGDG-17) for detailed instructions and recommendations.

THE GLAZING CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR ENSURING COMPLIANCE WITH THE ABOVE AND ASSUMES FULL LIABILITY FOR ANY ISSUES ARISING FROM NONCOMPLIANCE.

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 where adhesion is required, including other sealant surfaces. 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.

MATERIAL AND WORK ACCEPTANCE

OLDCASTLE BUILDINGENVELOPE® MATERIALS
Check all material upon arrival for quality and to assure against shipping damage. Any visible damage must be noted on the freight bill at the time of receipt. If a claim is required, then the receiving party must process a claim with the freight company.

OTHER TRADES WORK
Completely check construction that will receive your materials against contract documents. Notify general contractor by letter of any discrepancies before proceeding with work. Failure to do so constitutes acceptance of work by other trades.

MATERIAL HANDLING

Handle the material carefully. Do not drop from the truck. Stack with adequate separation so that the material will not rub together. Store material off the ground. Protect against the elements and other construction hazards by using a well-ventilated covering away from other trades. Remove material from package if it is wet or located in a damp area.

SHOP

- Cardboard wrapped or paper interleaved material must be kept dry.
- Check arriving materials for quantity and keep record of where various materials are stored.

JOB SITE

- Material at job site must be stored in a safe place well removed from possible damage by other trades.
- Cardboard wrapped or paper interleaved materials must be kept dry.
- Keep record of where various materials are stored.
- Protect materials after erection. Cement, plaster, and other alkaline solutions are very harmful to the finish.

CLEANING

Cement, plaster, terrazzo, alkaline and acid-based materials used to clean masonry are very harmful to finishes and should be removed immediately or permanent staining will occur. A spot test is recommended before any cleaning agent is used. Aluminum shall be cleaned with plain water containing a mild detergent or a petroleum product, such as white gasoline, kerosene, or distillate. No abrasive agent shall be used.

FABRICATION SUGGESTIONS

Oldcastle BuildingEnvelope® recommends the use of our EZ Punch tooling for faster and more accurate fabrication of wall systems. If hand fabricating the mullions, drill fixtures are available to improve accuracy.

GENERAL CONSTRUCTION NOTES

- Study these instructions, shop drawings, erection drawings, and architectural drawings before starting any work. Follow installation and glazing instructions.
- All materials are to be installed plumb and level.
- All work should start from an established benchmark and column centerlines established by the architect and the general contractor.
- Do not install if there is a walkway with a downslope towards an entrance or a storefront.
- Completely check construction which will receive your materials against contract documents. Notify the general contractor by letter of any discrepancies before proceeding with your work since this constitutes acceptance of work by other trades.
- Protect all aluminum to be placed directly in contact with uncured masonry or incompatible materials with a heavy coat of bituminous paint.
- Coordinate protection of installed materials with general contractors and other trades.

WARRANTY

A standard limited warranty for ArmorDefend™ entrance covers approved installation and standard product sizing. Obtain a copy of the product warranty for the approved jobsite from an Oldcastle BuildingEnvelope® sales representative. Warranty does not cover ArmorDefend™ entrance installed with unapproved or untested hardware.

MAINTENANCE RECOMMENDATIONS

Proper maintenance of the door and door hardware will ensure continued functionality. Failure to upkeep regular maintenance may result in loss of function and/or void warranty. Follow all maintenance guidelines provided.

WARNING

Chemicals used to melt ice should not make contact with aluminum threshold, bottom of door jambs or pivot hardware. These chemicals are very corrosive and may cause door failure and possible personal injury.

Lubrication

Every 3-4 weeks, the following items should be lubricated with STP Spray Silicone:

- Hinges
- Lock Cylinders

Reference manufacturer's lubrication guide for the following items:

- Exit Device
- Closer Arm

Door Closer

Refer to the maintenance guide included from the manufacturer with the Door Closer for complete maintenance schedule. In general, for proper Door Closer function, the Door Closer should be checked regularly and adjusted accordingly. Refer to the manufacturer's maintenance guide for more information.

- Adjust the Sweep Range as required. Adjustment is made by turning the "S" valve on the back of the closer.
- Adjust the Latch Range as required. Adjustment is made by turning the "L" valve on the back of the closer.
- Adjust the Back Check as required. Adjustment is made by turning the "BC" valve on the back of the closer.
- Tighten all screws as needed on the arm and main unit.

Exit Device

Proper clearances are essential for optimal operation of installed doors, which means the installed panic must be kept well maintained. Refer to the maintenance guide included from the manufacturer with the Exit Device for complete maintenance schedule.

PRODUCT OVERVIEW

Hardware Locations

Hardware locations may change region to region and may be controlled by local codes. The details provided below are general standards; entrances are factory-prepped for some hardware and all details should be verified with site-drawings and codes before ordering.

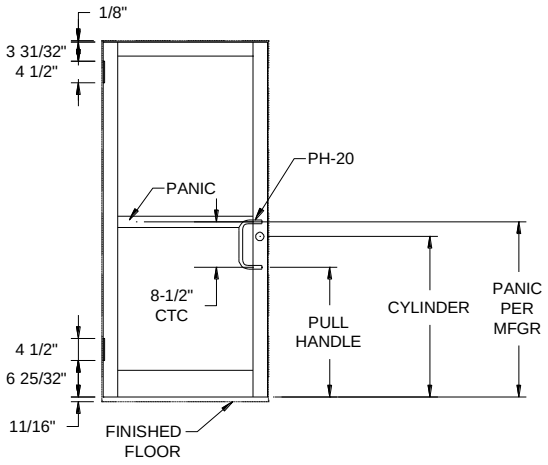

Figure 1: Standard Hardware Locations

Door Handing

In order to simplify the entrance ordering process, Oldcastle BuildingEnvelope® utilizes a short identifier that relies on Hinged-Side and Swing Direction as opposed to general Door Handing practices. To determine which entrance to order, stand on the outer side of the door and look toward the entrance. The outside of the door is the side that faces out of the building or is the weather-sealed side, if the door is not an exterior door. Take note of which side is the hinge side, which direction the door swings, and, for pairs, where the lock cylinder is located. Reference *Figure 2* for a visual aid on determining door types and verify the correct ArmorDefend™ entrance has been ordered prior to fabricating framing members and installing the door.

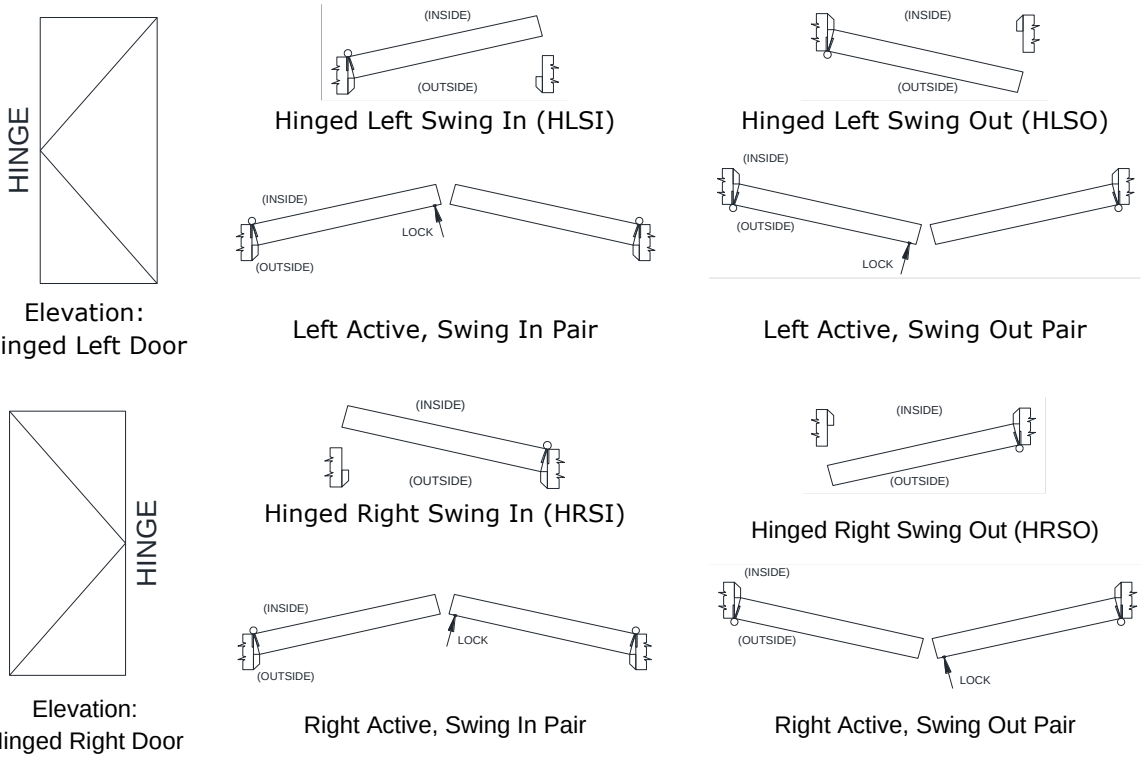

Figure 2: Door Identification Guide

MATERIAL INSPECTION

Inspect Door Materials Upon Receipt

Inspect all materials upon receipt to be sure that all items have been received and that no damage has occurred. If there is damage that is clearly due to improper handling or transit, it is up to the customer to settle claims with the freight company. If there is damage or missing/incorrect items due to Oldcastle BuildingEnvelope® error, notify your sales representative or Oldcastle BuildingEnvelope® within 7 days.

The following items are shipped in the **Door Box**:

- Assembled Door
  - Butt Hinge **or** Gear Hinges (installed on door)
  - Cylinder (installed in door)
  - Exit Device (installed on door **or** Door fabricated to customer provided template)
  - Glass Stops (taped in place)
- A smaller box containing:
  - Pull Handle

The following items are shipped in the **Frame Box**:

- Door Jambs
  - FG-3155 Door Jamb **or**
  - FG-3156 Door Jamb
- Door Header
  - FG-3160 Door Header (for COC) **or**
  - FG-3163 Door Header
- Door Stops
  - DS-104 Door Stop **or**
  - DS-108 Door Stop **or**
  - FG-2145 Door Stop **or**
  - FG-2170 Door Stop
- Threshold
  - TH-43 Threshold
- Transom
  - FG-3157 Sash **and**
  - FG-3158 Sash Stop **and**
  - FG-3220 Setting Block **or**
  - HP-17S Setting Block
- Screws, Clips, and Gaskets
  - Various Fasteners
  - FG-1133 Gasket
  - TH-FP-1 Threshold Clip

The following items are shipped in **separate boxes**:

- D-118 Sweep Retainer with D-120 Sweep (if required)
- Wet Glaze materials (must be ordered separately)
  - GP-147 Gasket
  - GP-149 Setting Blocks
  - V2108 Spacer Tape
- Surface Closer
- Concealed Closer

Doors factory installed with the following hinges:

- Regent 4001SS Butt Hinges (Frames factory prepped to match) **or**
- Hager Roton 780-224HD Continuous Gear Hinge (Frames must be field prepped)

ArmorDefend™ entrance is compatible with the following Exit Devices:

- Von Duprin 99xSNB Rim Panic with 4954 Steel Removable Mullion and 299 Strike
- Jackson 2086 Concealed Vertical Rod Panic with Panic Header Strike

ArmorDefend™ entrance may be installed with the following hardware:

- OBE PH-12 Pull Handle
- Cylinder (when required)

NOTE: The hardware listed above are the only options available per ASTM E 2395 testing. Any surface closer may be used. **No floor closers allowed.**

SITE CONDITIONS

Review and Prepare Opening

Prior to installation of a door and frame, it is important to consider the surrounding construction. If any of the following items are incorrect, contact the appropriate trade or the general contractor (in writing) and request a correction.

- Verify that the opening for the entrance is in the correct location.
- Make sure the opening is large enough to handle the door and frame that was ordered.
- Allow a minimum 1/4" shim space all around the perimeter of the frame and a minimum 3/8" joint at the Head.
- Remove any obstructions in the opening.
- Verify there is sufficient structure to anchor the frame.
- Verify the support is properly positioned.
- Verify whether the entrance will be installed with or without a sidelite.
    - If the entrance includes a sidelite condition, review all installation instructions for both the sidelite framing system and the entrance.
- Consult with an engineer or determine if floor anchors are required.
- Verify that the slab is level or sloped away from the building.
- Verify that there is proper clearance to install the threshold.
    - Entrance with ArmorDefend™ framing thresholds are 4" wide, 1/2" tall.

If all conditions are acceptable, the ArmorDefend™ entrance may be installed.

Floor Slab Slope Guidelines

In order to ensure proper operation and drainage of water from the face of door, the substrate at the exterior of the door much slope a minimum of 1-degree away from the building. If the substrate slopes towards the building, an outward-swinging door will not open and water will flow into the building.

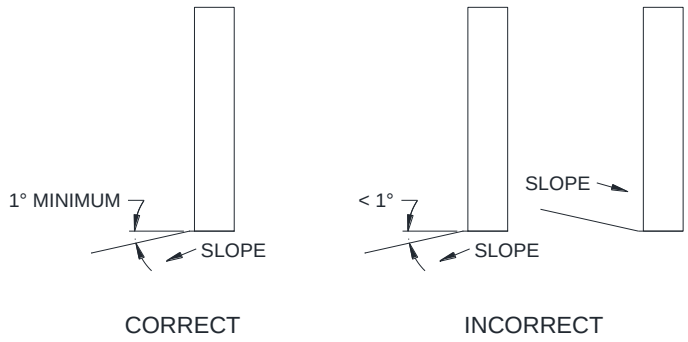

Figure 3: Floor Slab Slope Guide

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FRAME FABRICATION

1.0 Establish Material Size

ArmorDefend™ entrance can be installed in a variety of locations. It may be installed as a standalone product, retrofit in existing systems, with ArmorDefend™ sidelites, or included with complete ArmorDefend™ storefronts. In addition, it can be installed with or without a transom. Though the prep work for each location is similar, follow the appropriate installation manual and fabrication guide for the appropriate situation to ensure the proper fit and function of the entrance. **This installation manual and the following fabrication guide is for ArmorDefend™ entrance with or without ArmorDefend™ storefront.** For ArmorDefend™ entrance used in ArmorDefend™ Plus storefront systems, download the *ArmorDefend™ entrance for ArmorDefend™ Plus storefront* installation manual.

NOTE: *No matter the installation type, the entrance opening must be square and plumb.*

For all installation types, when measuring the rough opening, take multiple measurements and use the smallest dimension. This assures a proper fit of the ArmorDefend™ system. For the rough opening's width, measure the top, middle, and bottom of the opening. For the rough opening's height, measure the left, center, and right side of the opening.

Measure width of rough opening.

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

Measure height of rough opening.

A. Measure opening from top to bottom of left side.
B. Measure opening from top to bottom of middle.
C. Measure opening from top to bottom of right side.

When determining the Frame Width, allow a minimum of 1/4" and maximum of 3/4" for shimming and caulking at the jambs. Frame Height for ArmorDefend™ framing and storefront, at the head joint, requires a minimum of 3/8" and a maximum of 1/2" for shimming and caulking. A quick reference guide is below. All formulas displayed in this manual are calculated with a 1/2" joint at the jambs and a 3/8" joint at the head. For job specific installations, reference the shop drawings and approved site drawings and adjust material sizing and cut lengths as required.

Frame Width, Jamb Joints:

- Minimum: 1/4"
- Maximum: 3/4"

Frame Height, Header Joint:

- Minimum: 3/8"
- Maximum: 1/2"

For all installations, the Door Jamb framing should continue to the slab. Review all measurement guidelines carefully as the typical Sill perimeter seal at sidelites, if applicable, does NOT apply to Door Jambs. For all installations, the Door Jamb Mullions run all the way to the floor and bybass the Subsill where sidelites occur.

1.1 ArmorDefend™ entrance As Standalone

For standalone installations where the ArmorDefend™ entrance is to be installed directly against other substrate and not within a non-ArmorDefend™ storefront system, the entrance installation is straight-forward. Measure the rough opening and use the smallest width and smallest height dimension to verify the entrance system will fit.

Doors are provided at standard single or standard pair sizes, though the Door Jamb members may be provided long in the event a transom is required. For entrances with transoms, use the smallest rough opening height dimension to fabricate the Door Jamb members.

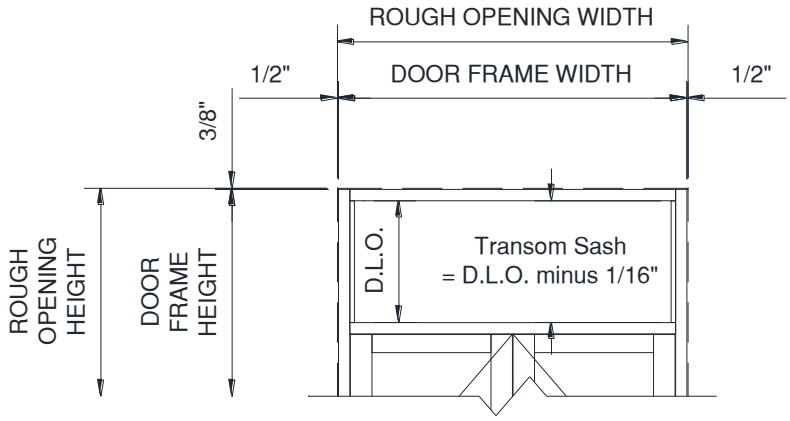


Figure 4: Standalone ArmorDefend™ Entrance Framing Guide with and without Transom

1.2 ArmorDefend™ entrance As Retrofit

In the event ArmorDefend™ entrance is used in a retrofit capacity, the existing framing members of the door and the sidelite will need to be replaced with the ArmorDefend™ entrance materials. This is to ensure full effectiveness of the product. Once the pre-existing door frame is removed, measure the ArmorDefend™ entrance Door Jamb to fit, leaving a minimum 3/8" space at the top. Any ArmorDefend™ entrance transom members will be sent to-length. See *Figure 5* for a general representation and verify all information with the job specific shop drawings prior to fabrication.

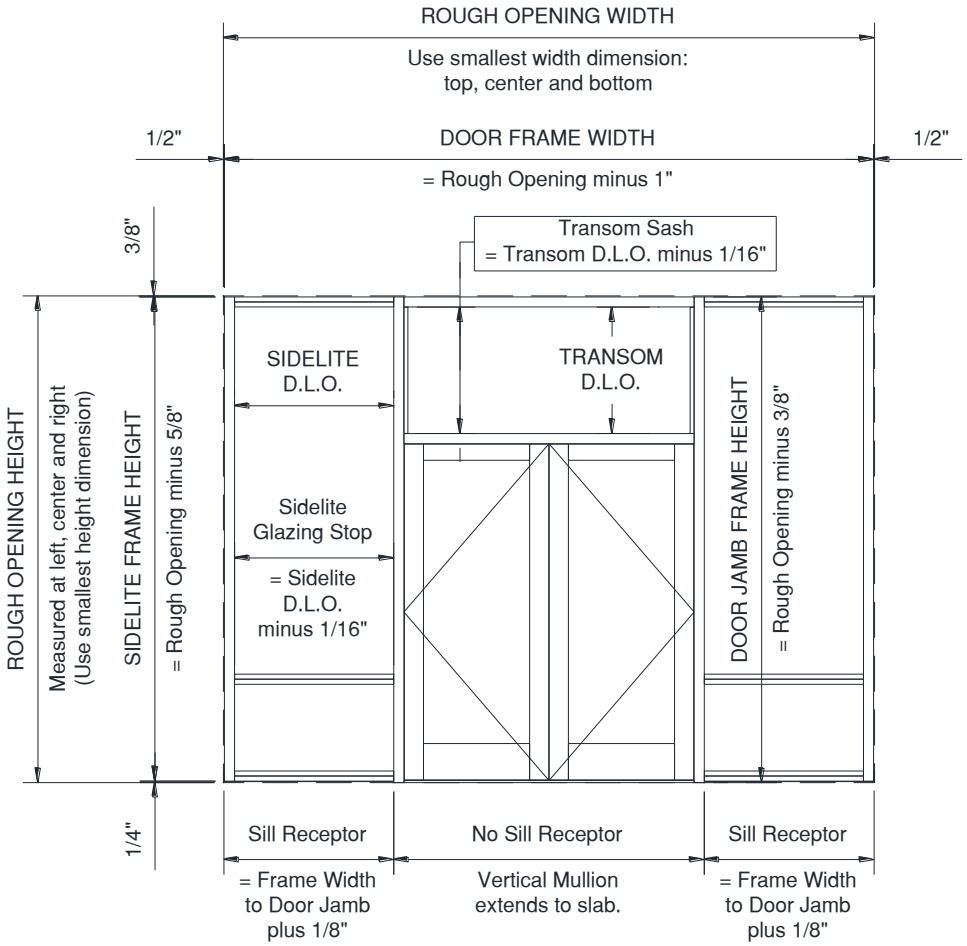


Figure 5: Retrofit ArmorDefend™ Entrance Framing Guide

1.3 ArmorDefend™ entrance in ArmorDefend™ storefront

For installations where the ArmorDefend™ entrance is to be installed alongside an ArmorDefend™, the rough opening will determine overall storefront frame size and the Door Jamb will be sized and fabricated to the Vertical at Door measurement. Typically, this is the Frame Height plus (+) 1/4" as the Door Jamb extends past the sill receptor to the slab or lower substrate. Verify the measurement with the associated storefront installation manual.

Doors are provided at standard single or standard pair sizes, though custom sizes may be requested and ordered. Verify all details with the job specific shop drawings prior to fabrication.

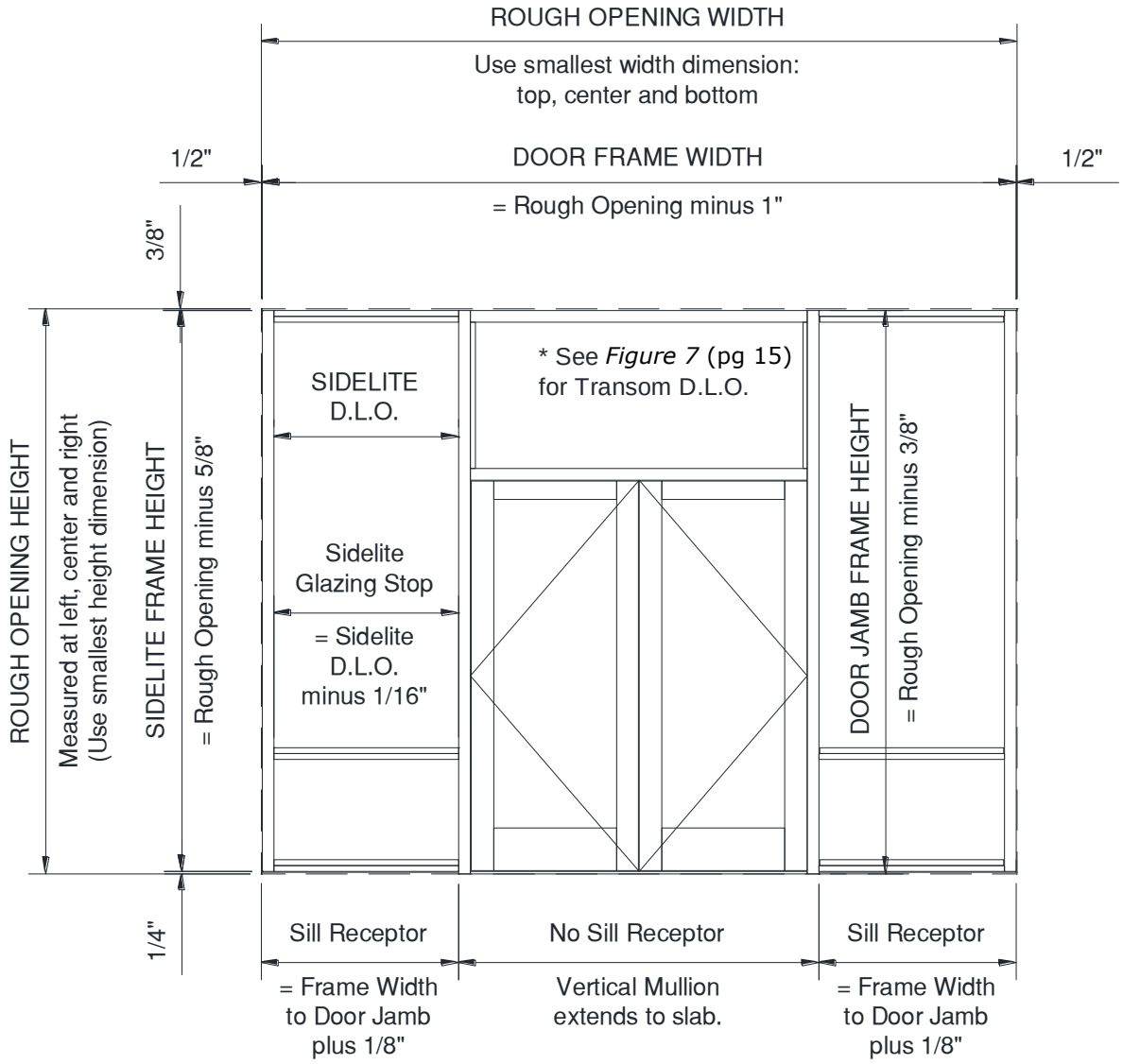


Figure 6: ArmorDefend™ Storefront Installation with ArmorDefend™ Entrance

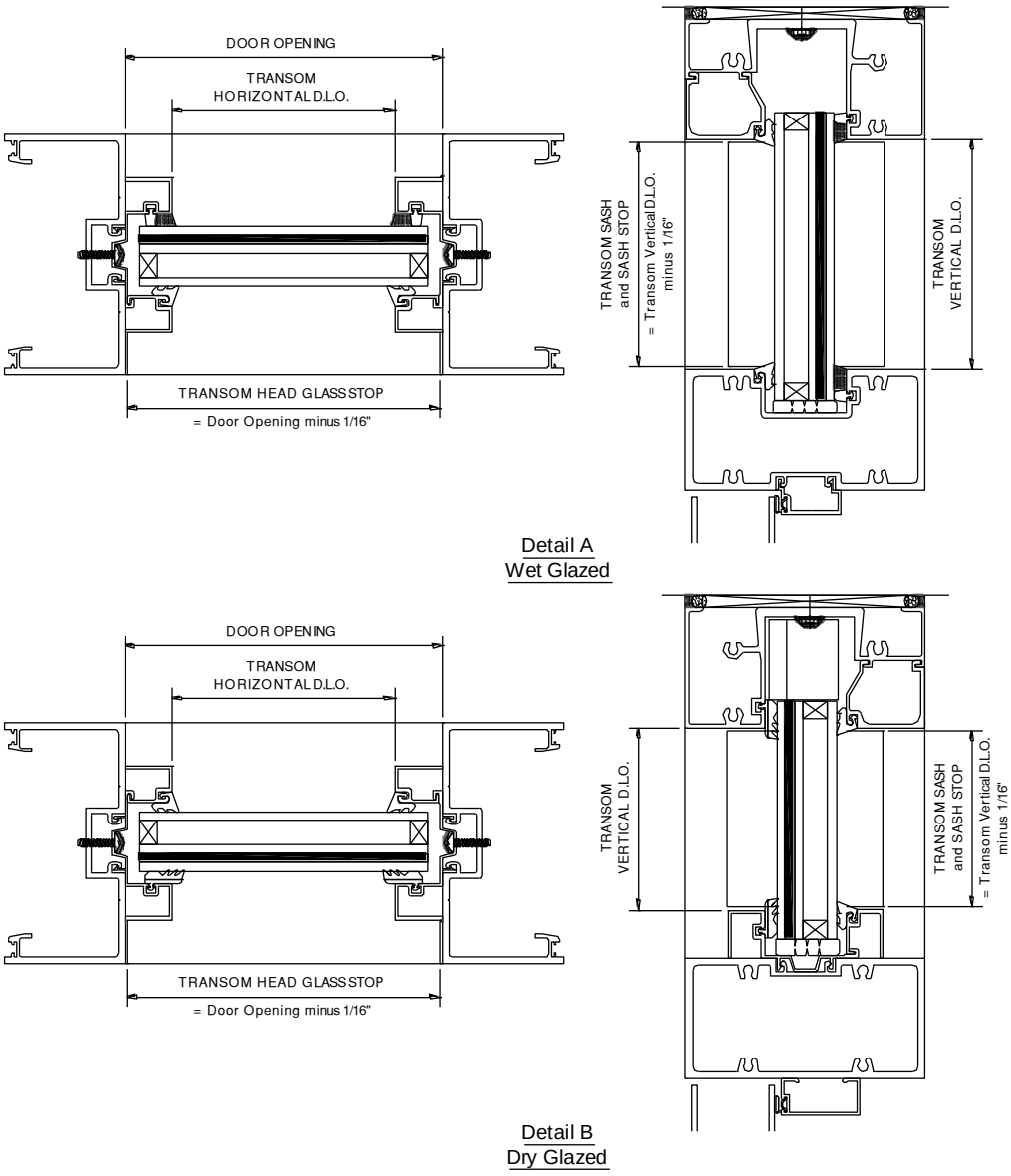


Figure 7: Transom D.L.O. for Wet and Dry Glazing at ArmorDefend™ Storefront Framing

2.0 Preparation of Door Frame for Installation

NOTES:

- All hardware backup plates are installed in the frame at the factory.
- Door Stops and Transom Sash are cut to length and prepped at the factory.
- Door Jamb and Threshold should be factory prepped for Threshold Clip. In the event they are not, follow Steps 2.3.4 and 2.3.5.

2.1 General Prep

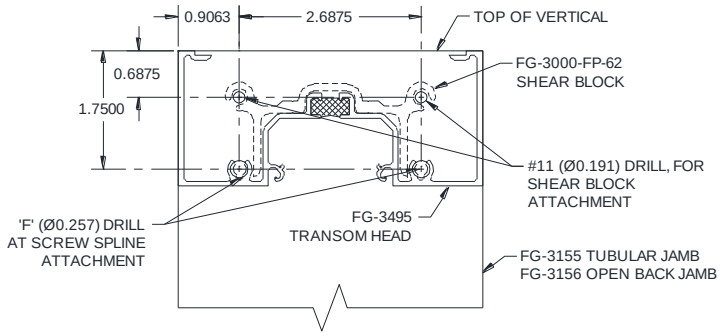
2.1.1 Stock Transom frames are fabricated for a vertical frame size of 120". If the intended opening is smaller, cut the Verticals and Sash down to the appropriate length; leave a minimum 3/8" and a maximum of 1/2" caulk joint at the Head.

2.1.2 Prep Door Jamb for the Door Head and/or Transom Head Horizontal. This should be made using either **DJ-8** drill fixture or EZ-Punch die set for the FG-3000 framing. Reference *Figure 8* for visual detail.

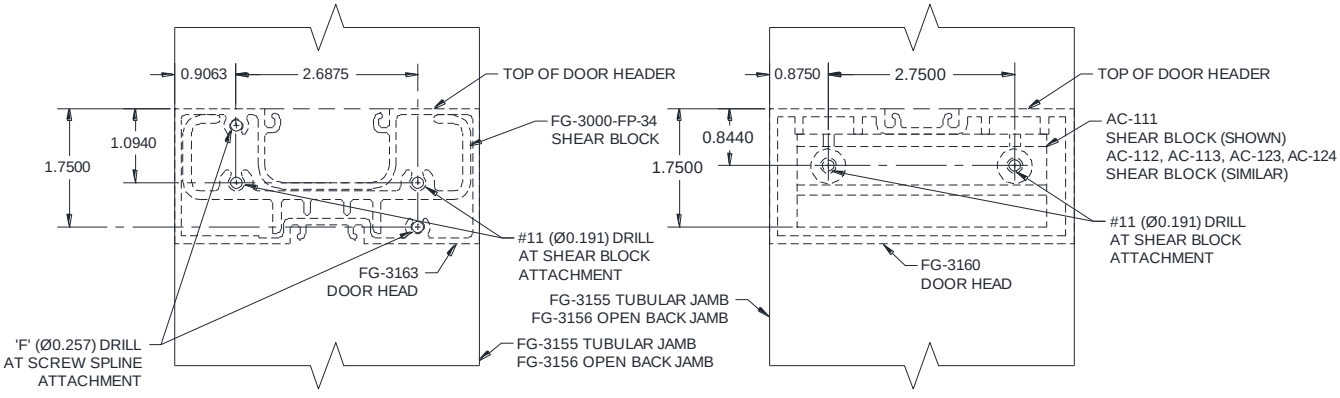
NOTE: *Some holes may be factory prepped; match-drill for Shear Blocks and Horizontals as needed.*

2.1.3 Align **TH-FP-1** Threshold Clip to Door Jamb and match-drill for **FS-256** Fastener. Threshold Clip should sit flush at the bottom of Door Jamb. See *Figure 9* for guide.

2.1.4 Prep the **TH-43** Threshold for the **TH-FP-1** Threshold Clip. At each end of Threshold, drill a 7/32" hole with a countersink for a #12 Flat Head fastener, per *Figure 9*.



Hole Locations at FG-3495 Transom Head



Hole Locations at FG-3163 Door Head
Shop Fabricated, Shown for Reference

Hole Locations at FG-3160 Door Head
Shop Fabricated, Shown for Reference

Figure 8: Fabrication for ArmorDefend™ Framing at Transom Head and Door Head

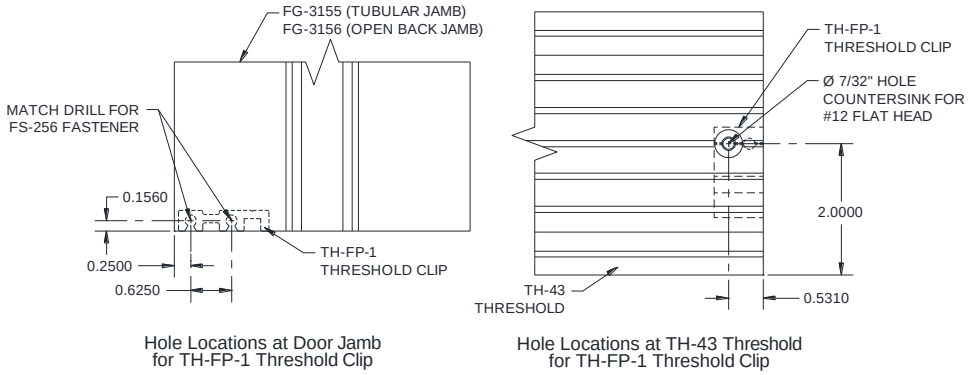


Figure 9: Fabrication for ArmorDefend™ Framing at Threshold Clip

2.2 Hinge Prep

- For Butt Hinge assembly, the frame will be factory prepped with back-up plates.
- For Continuous Gear Hinge, the Door Jamb will be sent "blank". Installation guide provided in *13.0 Hanging Gear Hinge Door*.

2.3 Anchor Prep

NOTE: *Anchors should be installed adjacent to the Vertical Mullion. If Shear Blocks are used, Anchors should be installed adjacent to the Shear Block.*

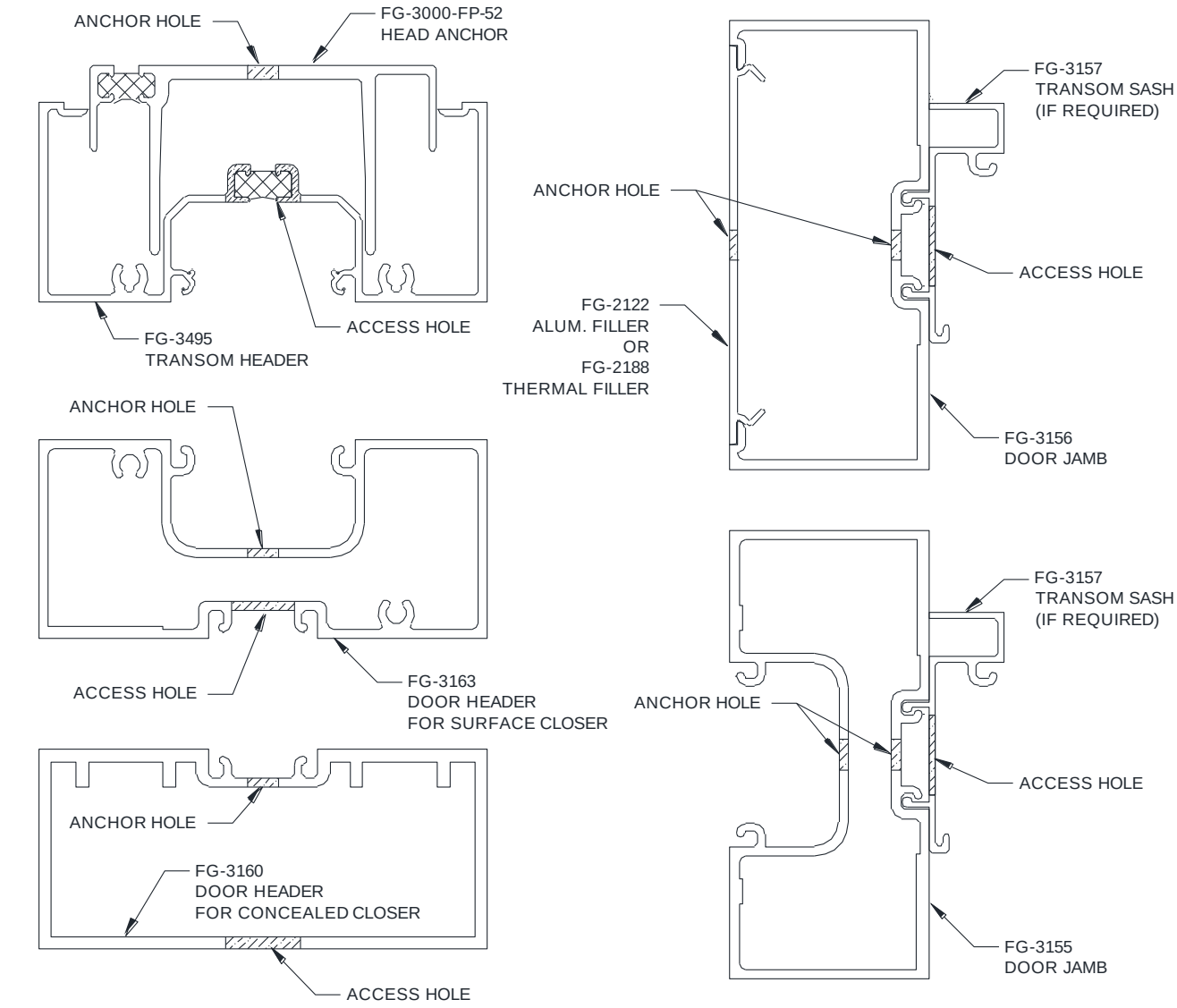
2.3.1 Review the frame anchor charts in the approved shop drawings for configuration and substrate for which the frame will be attached.

2.3.2 Drill an access hole in the Door Header or Door Transom at each anchor location indicated by approved shop drawings. Size the hole to allow clearance for socket used for anchor installation. Drill anchor hole into the Door Header as required. Reference *Figure 10*.

2.3.3 If **FG-3495** Transom Header is used, drill an anchor hole in the **FG-3000-FP-52** Head Anchor. See *Figure 10* for reference.

2.3.4 Drill anchor holes in **FG-3155** Door Jamb or **FG-3156** Door Jamb per ArmorDefend™ storefront manual. For **FG-3156** Door Jamb, drill a hole in the **FG-2122** Flat Filler and **FG-3157** Transom Sash (if required). See *Figure 10* for reference.

2.3.5 If anchor holes in Threshold are factory drilled, verify layout, quantity, and spacing per structural review. If not factory drilled, drill per approved shop drawings. If a Panic Rod is used for door pairs, anchor center of Threshold. See *Figure 10* for reference.



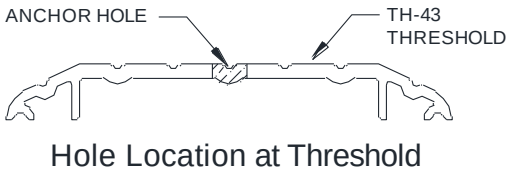


Figure 10: Anchor and Access Hole Locations

3.0 Reinforcement Fabrication for FG-3155 or FG-3156 Door Jamb.

Prepare Reinforcement by placing pilot holes centered in the width of the Reinforcement (**RS-10** Steel is designed for **FG-3156** Door Jamb) at 1" from ends and up to 24" maximum on center. Reinforcement is to be attached to the Intermediate Vertical with **FS-354** fasteners.

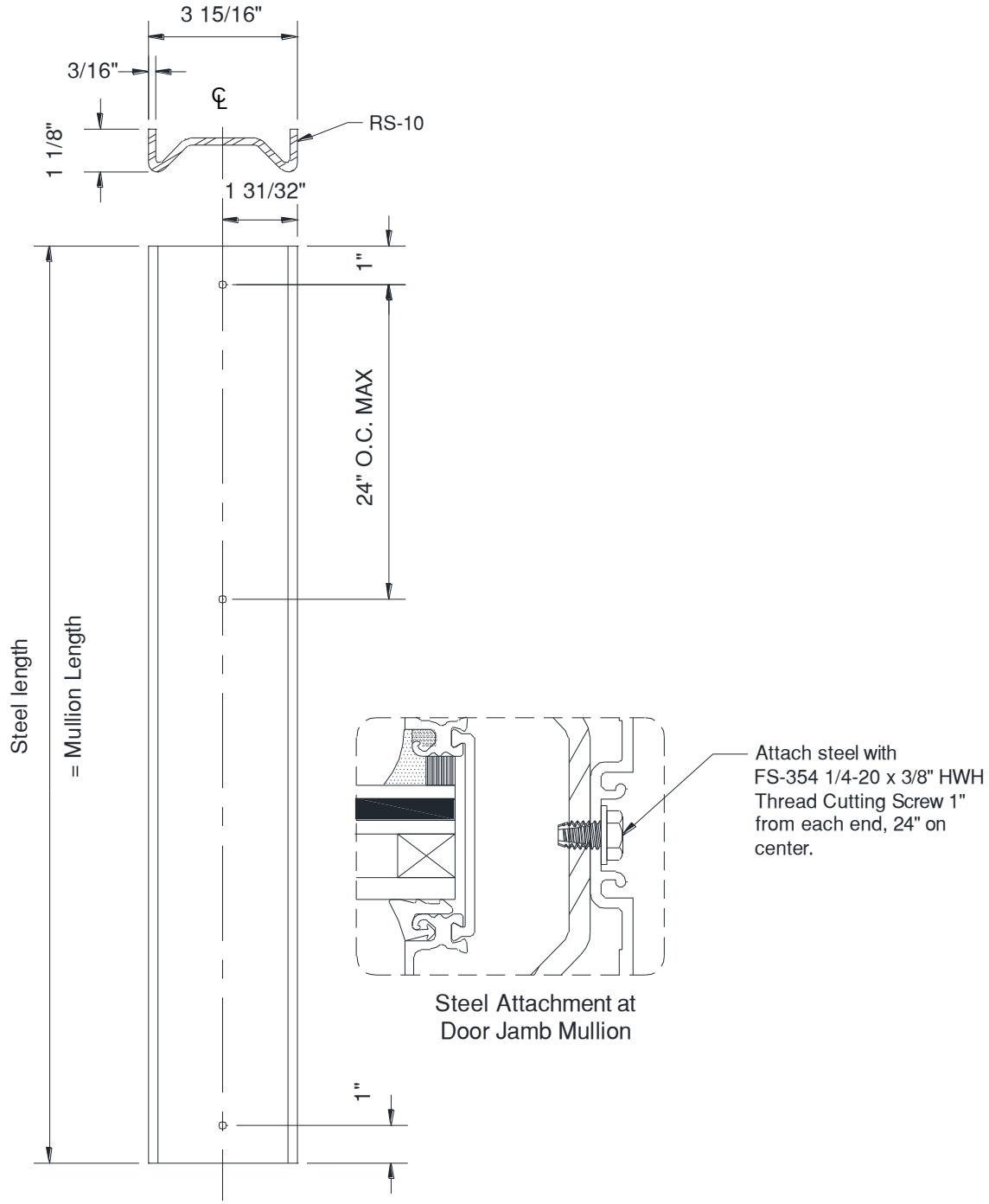


Figure 11: Hole Prep for Steel Fabrication

FRAME ASSEMBLY

4.0 Assembling Door Frame with ArmorDefend™ Frame

NOTE: *The Door Header will vary by Closer. Verify the correct Door Header using the below chart before frame assembly:*

Closer Type	Door Header
Concealed	***FG-3160***
Surface	***FG-3163***

4.1 Reference *Figure 12* and *Figure 13* to assemble Door Jamb to Door Head and Transom Head (if applicable).

- For screw spline assembly: Apply sealant to joint intersections as shown. Assemble Horizontals to Verticals with **FS-8** fasteners.
- For tubular Door Jamb: Attach Shear Blocks to Verticals using **FS-9** fasteners. Attach Horizontals over Shear Blocks and secure with fasteners. Apply sealant at joint intersections as shown.
- For COC Door Header: Attach **AC-111** shear block to Veritcals using **FS-255** fasteners. Attach Horizontals over Shear Blocks and secure with **FS-58** fasteners. Apply sealant to joint intersections as shown.
  Note: AC-112, AC-113, AC-123 or AC-124 *shear blocks may be provided based on closer and door swing.* ***FS-61*** *and* ***FS-121*** *included in shear block kit for closer installation.*

4.2 For open-back Door Jambs at installations without sidelites, snap or slide Filler into place.

4.3 Install **FG-3157** Transom Sash when applicable. Slide Transom Sash into Door Jamb and Horizontals and secure with Fastener per chart. Reference *Figure 14* for Fastener location.
Note: FG-3157 *must be installed during Frame Assembly and cannot be installed after Frame is anchored.*

- For Wet Glazed, the sash should be oriented with the gasket reglet on the exterior of the Door Jamb.
- For Dry Glazed, the sash should be oriented with the gasket reglet on the interior.

Door Jamb	Fastener	Horizontal	Fastener
FG-3155	***FS-7***	*FG-3495*	***FS-7***
FG-3156	***FS-7***	*FG-3163*	***FS-56***

4.4 Attach **TH-FP-1** Threshold Clip to the outer side each Door Jamb with (2) **FS-256** Fasteners. Reference *Figure 15*.

4.5 Set **TH-43** Threshold on top of the **TH-FP-1** Threschold Clips and secure with (1) **FS-42** Fastener in each. Reference *Figure 15*.

4.6 When the optional **D-121-2** Panic Stop is required for Concealed Vertical Rod Panics, attach with (2) **FS-56** Fasteners, as shown in *Figure 15*.

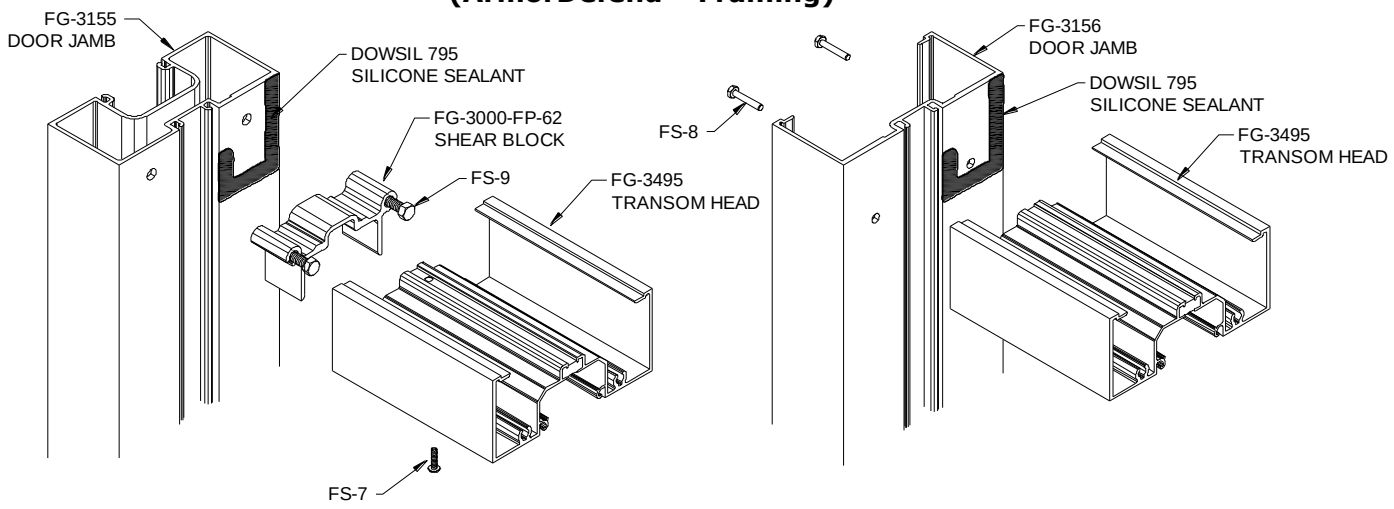


Figure 12: ArmorDefend™ Door Jamb to Transom Head Connections

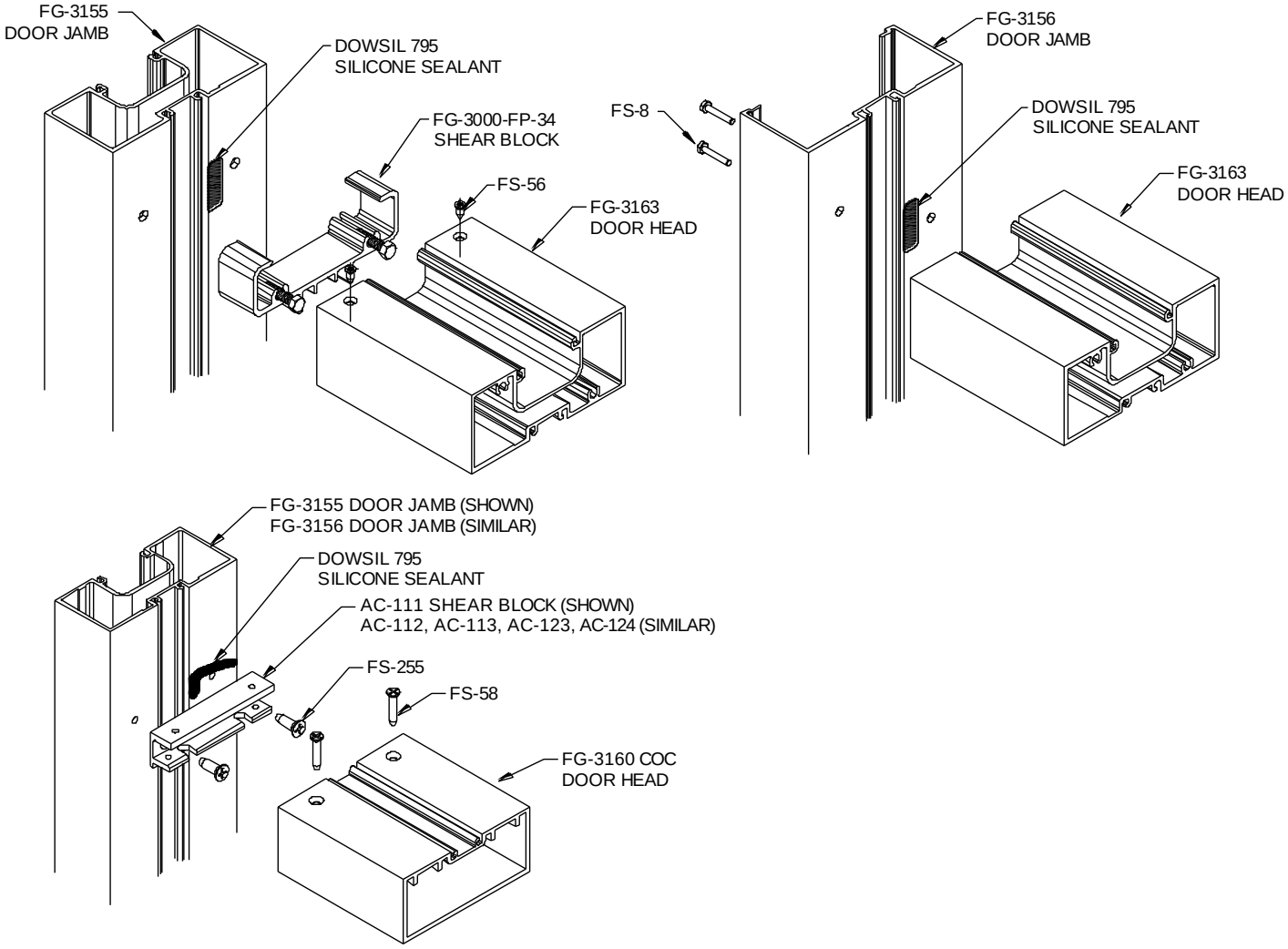


Figure 13: ArmorDefend™ Door Jamb to Door Head Connections

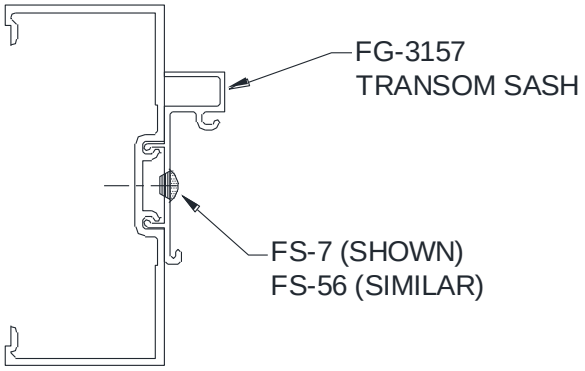


Figure 14: ArmorDefend™ Transom Sash Installation

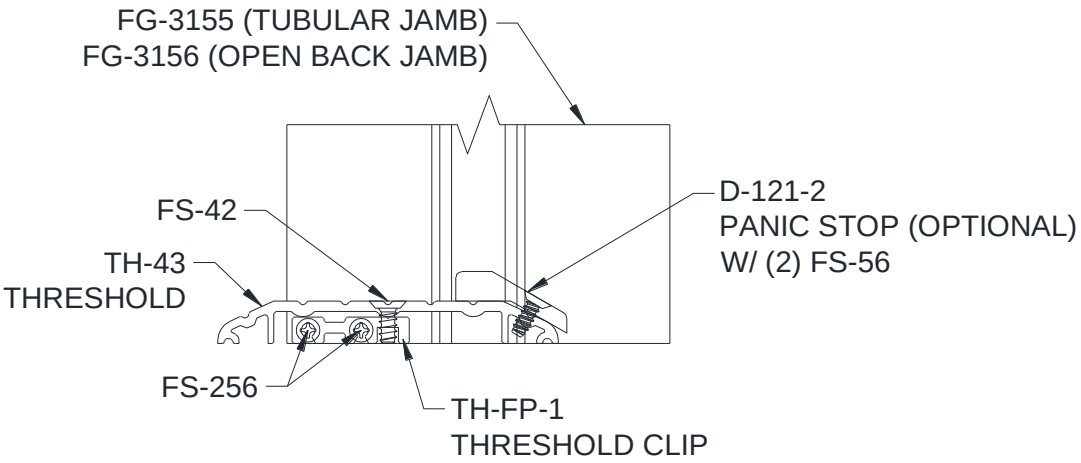


Figure 15: Attaching Threshold Clip to ArmorDefend™ Door Frame

FRAME INSTALLATION

NOTES:

- Thresholds are to be leveled at the high point in the slab, however it is preferable to not have a high point in the slab where entrances occur. Review *Floor Slab Slope Guidelines* in the *SITE CONDITIONS* section.
- The Door Frame is designed to have the Jambs run to the slab.
- Door Frame is anchored by fasteners through Threshold, Door Frame Header, and Door Jamb without Sidelite.
- For installations with abutting Sidelite, the inside of the Door Jamb Mullion must be sealed to the substrate and the end of the Subsill must also be sealed. Refer to *6.0 Installing Door Frame at ArmorDefend™ with Sidelite* for sealant locations.
- Door Frame must be anchored before installation of Door Stops.

5.0 Installing Door Frame at ArmorDefend™ without Sidelite

Door Frame and Threshold shall be completely assembled with joints neatly aligned and tight. Door Frame shall be installed square and plumb.

5.1 For Door Frame utilizing the **FG-3495** Head, carefully align the **FG-3000-FP-52** Head Anchors and **FG-2188** Thermal Filler in the top of the Head. Temporarily tape in place.

5.2 Just prior to installing the Door Frame, apply sealant to the Threshold and Door Jamb, if using **FG-3155** Door Jamb. At Threshold, fill the front and back of the underside of the Threshold with sealant, as shown in *Figure 16*. At **FG-3155** Door Jamb, apply sealant at sides and back of Door Jamb, leaving the front edge clear, just prior to installing Door Frame; reference *Figure 17*.

5.3 Slide assembled Door Frame into the rough opening.

5.4 Temporarily affix the Door Frame in position with clamps.

5.5 Level Threshold at the high point in the slab. Position shims between the framing and substrate to prevent members from bowing.

5.6 Measure Frame diagonally from corner to corner to check Frame squareness. Shim as needed until the door is square and plumb.

5.7 Anchor the Door Frame beginning with Door Jambs. Reference approved shop drawings for anchor size and locations. Reference *Figure 16* for installed section views.

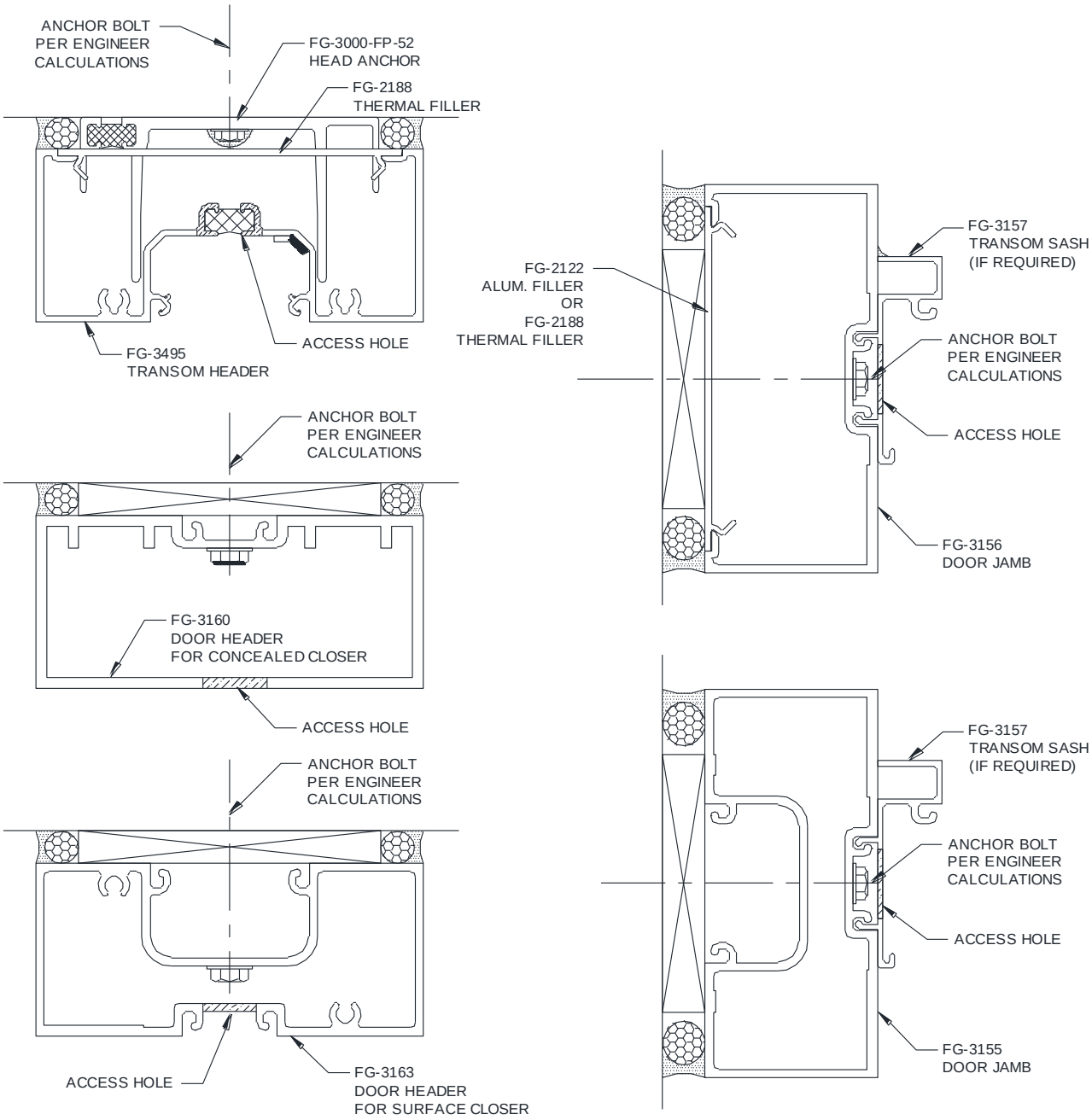
5.8 Anchor the Door Frame at the Frame's head. Gently remove any temporary tape as needed. Reference *Figure 16* for installed section views.

5.9 Anchor the Threshold last. **TH-43** Threshold requires a flat head anchor bolt along the length and at the Panic Rod at the center of pairs of doors. A maximum of 1/4" diameter Anchor Bolt may be used. Reference approved shop drawings and engineers calculations for exact locations.

5.10 For Frames with **FG-3156** Door Jambs, once door is square and anchored, seal the base of Door Frame to substrate at sides and interior-side of Door Jamb to prevent water leakage. See illustration in *Figure 17* for sealant locations.

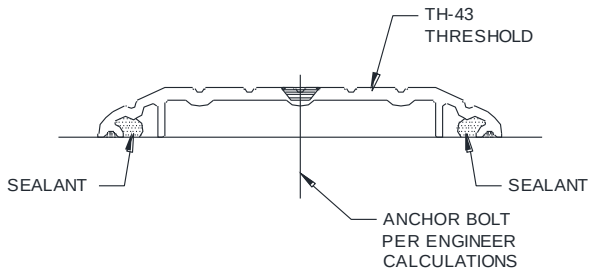
5.11 Install Door Stops per guide in *7.0 Installing Door Stops*.

5.12 For entrances with Transoms, install transom frames per *8.0 Securing Transom Sash*.



Anchoring at Transom & Door Heads

Anchoring at Transom & Door Jamb



Anchoring at Threshold

Figure 16: Door Frame Anchor Reference

6.0 Installing Door Frame at ArmorDefend™ with Sidelite

6.1 Install Door Frame per the instructions in *5.0 Installing Door Frame at ArmorDefend™ without Sidelite.*

6.2 Seal the inside of the Door Jamb to the substrate per *Figure 17*, leaving the front face unsealed for drainage.

6.3 Apply sealant to the Door Jamb where the Sill Receptor makes contact to provide complete seal. ***NOTE:*** *Do not install End Dam on Sill Receptor at Door Jamb.*

6.4 Set the sidelite Sill Receptor in a bed of sealant and butt Sill Receptor tight to Door Jamb, as shown in *Figure 17.*

6.5 When open-back Door Jamb is used, apply a minimum of 1" of sealant above the Sill Receptor before installing the Door Jamb Filler.

6.6 Connect sidelite horizontals to Door Jamb, referencing Frame Panel Assembly from ArmorDefend™ storefront installation manual. For tubular Door Jamb, use provided Shear Blocks.

6.7 Install Door Stops per guide in *7.0 Installing Door Stops*.

6.8 For entrances with Transoms, install transom frames per *8.0 Securing Transom Sash*.

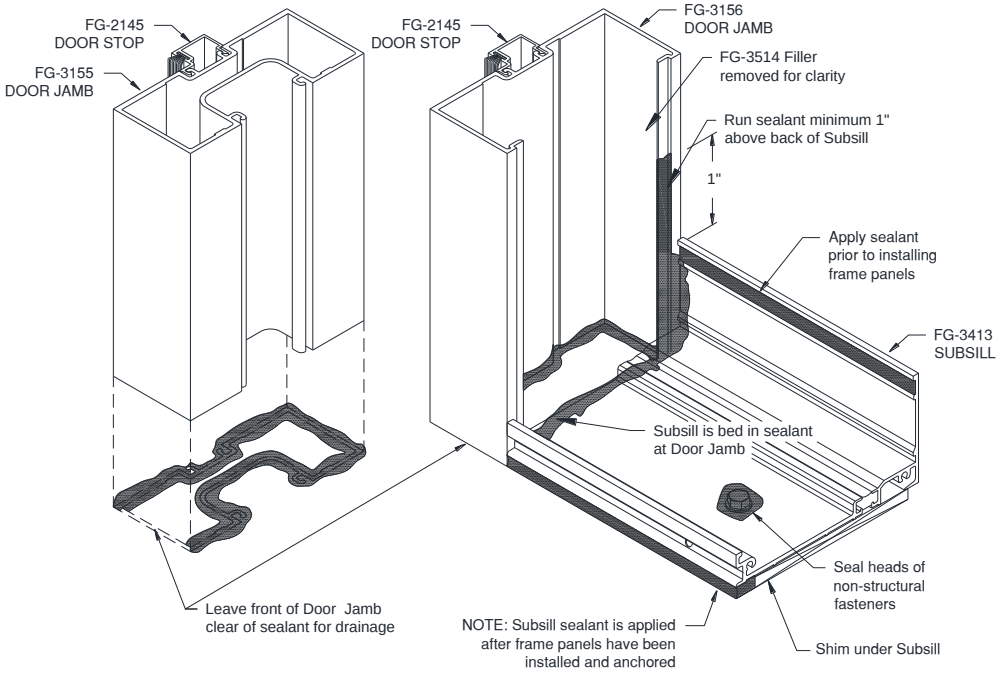


Figure 17: Door Jamb and Subsill Sealant Application at ArmorDefend™

7.0 Installing Door Stops

NOTES:

- Door Stops are determined by the Hinge type, Closer type, and Jamb condition. Verify the Door Stop received matches with the condition of the door segment to be installed.
- Door Stops are factory-installed with **WP-084** Pile (standard) or **D-125** Bulb Gasket (optional). If this has come loose or shipped separate, slide into the Door Stop before continuing.

Determining Factor	Door Stop Required
*Butt Hinge **or** Door Header at Surface Closer **or** Lock Jamb for Single Door*	*FG-2145 Door Stop*
Gear Hinge	*FG-2170 Door Stop*
Door Header at Concealed Closer	*DS-104 Door Stop **or** DS-108 Door Stop*

7.1 FG-2145 or FG-2170 Door Stops

The **FG-2145** and **FG-2170** Door Stops are the most basic Door Stop options to install. Make sure the required Bulb Gasket is inserted before installing the Door Stop.

7.1.1 Insert front leg into the front snap track and rotate Door Stop into the back snap.

7.1.2 Carefully, strike Door Stop with a dead-blow hammer to snap Stop into place.

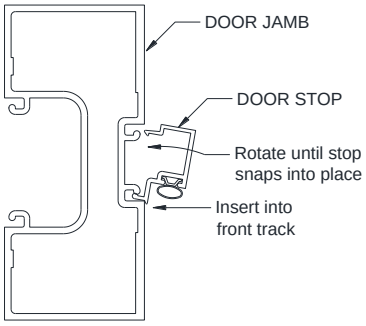


Figure 18: Inserting Rotating-Snap Door Stop

7.2 DS-104 or DS-108 Door Stops.

7.2.1 Install **SC-1** Clip using **FS-15** drive rivets in prefabricated holes along Door Header.

7.2.2 Snap **DS-104** or **DS-108** Door Stop onto **SC-1** Clip.

7.2.3 For pairs of doors, match-drill Door Header at center through prefabricated countersunk hole in Door Stop using #25 drill bit.

7.2.4 Secure Door Stop with **FS-201** Fastener, as shown in *Figure 19*, *Detail A*.

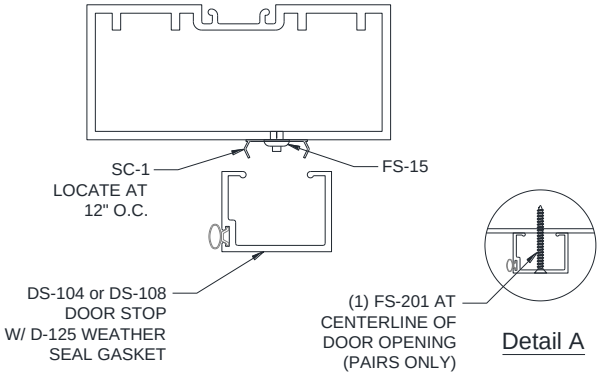


Figure 19: Inserting Rotating-Snap Door Stop

8.0 Securing Transom Sash

Entrance installations that require a transom will require sash in the transom area at Verticals to accommodate glazing. A horizontal sash may be required above the door header depending on which Door Header and Closer is being used. Transom Header does not require sash and may be ordered with or without a glass stop.

Transom Sash and Transom Sash Stops are cut to length and prepped at the factory. Verify the lengths required per *1.0 Establish Material Size*.

8.1 **FG-3157** Transom Sash should have been installed into the door stop pocket of the Door Jamb during Section 4.0. If it is not installed, carefully disassemble the unit and repeat Frame Assembly and Frame Installation as needed.

8.2 Secure Transom Sash with **FS-7** fasteners at 12" intervals on center.

8.3 Mask off Transom Sash and Door Jamb with with 1" wide (minimum) low-adhesion masking tape. Reference *Figure 20*, *Detail A* and *Detail B*, for masking tape application location.

8.4 Apply a thin bead of **DOWSIL™ 795** or equivalent sealant to the joint, taking care not to leave any voids or air bubbles. Immediately tool, creating a smooth and finished joint, *Figure 20*, *Detail C*.

8.5 Remove masking tape before sealant skins, taking care not to damage tooled sealant.

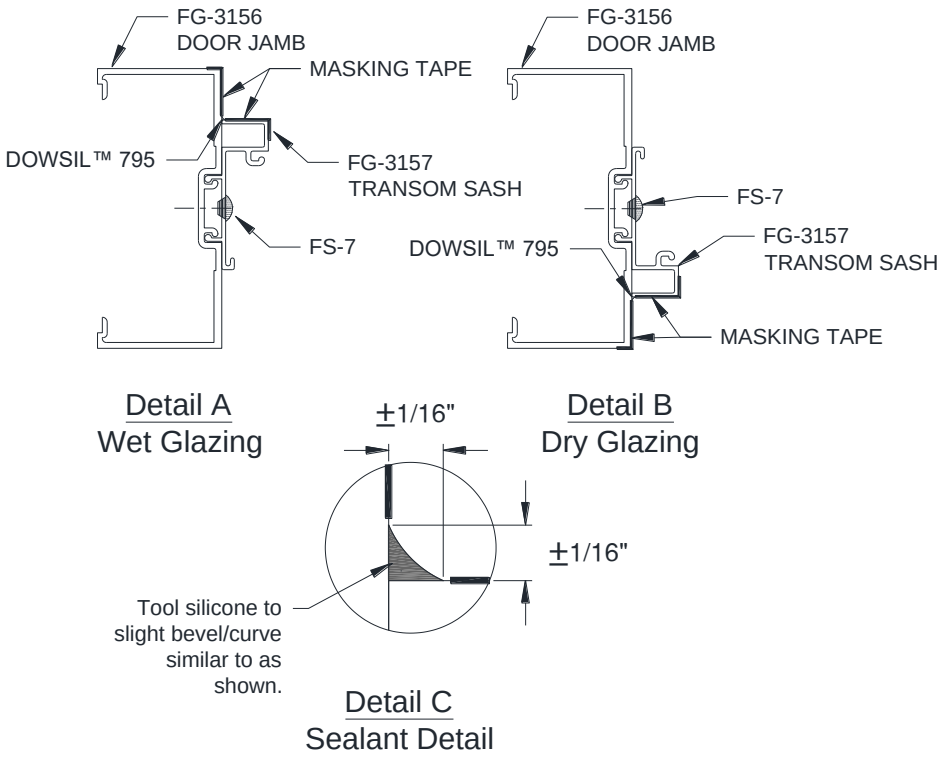


Figure 20: Sealing Transom Sash for ArmorDefend™

GLAZING

9.0 Glass Sizing

9.1 Door Glass Sizing

The ArmorDefend™ entrance is designed and tested for optimal performance and is designed for 7/16" ArmorGarde™ or ArmorGarde™ Plus security glazing in the door with ArmorDefend™ framing. Additional glass thicknesses are available, though the thickness of the glass may alter the gaskets and/or glass stops used in the door leaf. This manual is written to the standard 7/16" glazing thickness its respective glazing components. A chart of additional glazing thicknesses and parts is provided below:

Glazing Thickness	Interior Glass Stop	Interior Gasket
7/16"	S-83	FG-5125
1/2"	S-83	FG-1133
9/16"	S-83	FG-1134
5/8"	D-188	FG-5125

When ordering the desired ArmorGarde™ glass, reference *Figure 21* and use the following formulas:

- GLASS WIDTH: Glass Opening minus (-) 7/16"
- GLASS HEIGHT: Glass Opening minus (-) 7/16"

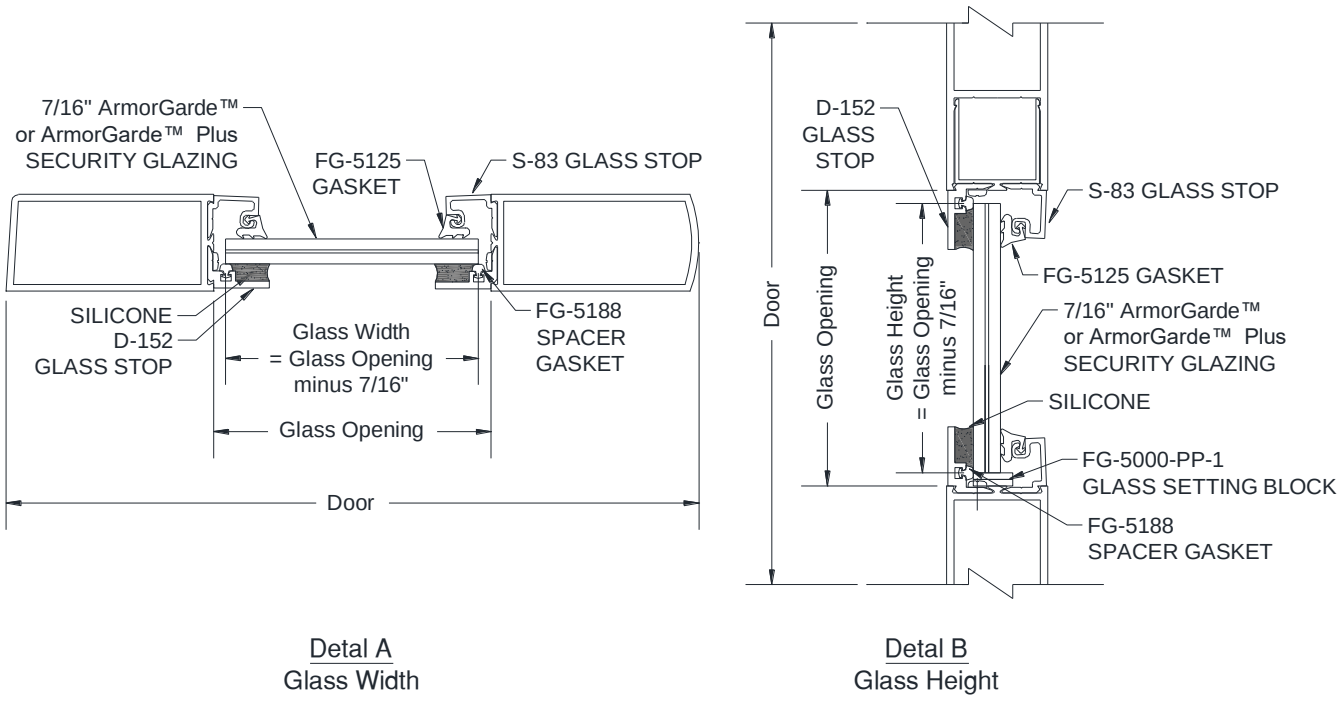


Figure 21: Determining Glass Size for Doors

9.2 Transom Glass Sizing

When the ArmorDefend™ entrance requires a transom, use 1" ArmorGarde™ or ArmorGarde™ Plus in transom opening. Reference *Figure 22* and the following formulas for glass sizing:
NOTE: *1" security glazing required*

- GLASS WIDTH: D.L.O plus (+) 7/8"
- GLASS HEIGHT: D.L.O. plus (+) 7/8"

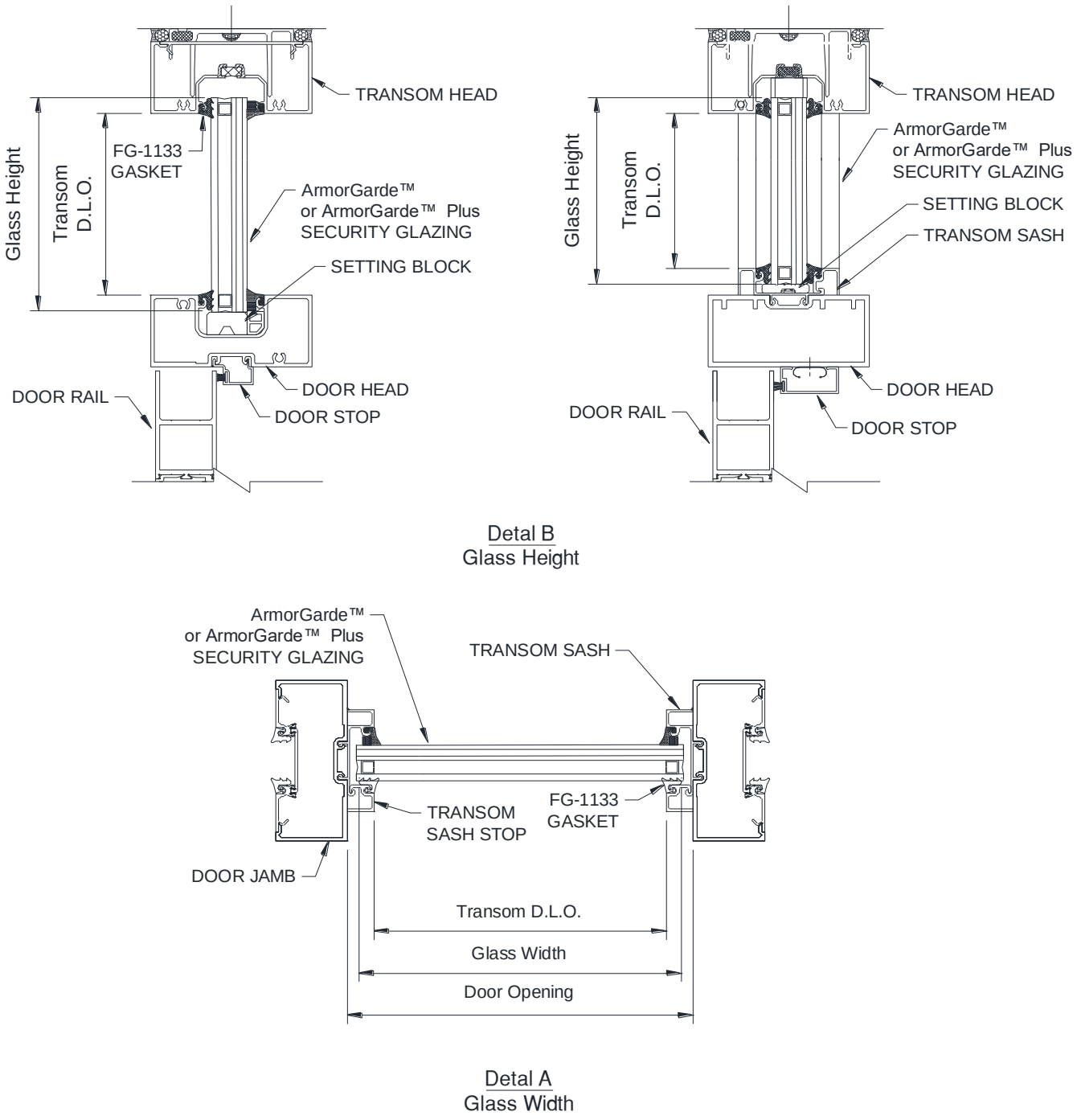


Figure 22: Determining Glass Size for Transom

10.0 Glazing the Door

NOTE: *Door glazing instructions are provided for the 7/16" ArmorGarde™ or ArmorGarde™ Plus security glazing. For other glazing thicknesses, follow the same steps but with alternate gaskets and/or glass stops as provided in* 9.1 Door Glass Sizing*.*

10.1 Glazing Practices

The air and water performance of the framing system is directly related to the completeness and integrity of the installation process, including but not limited to the assembly seals of the framing joinery, the installed glazing gaskets, and the alignment of the framing joinery glazing plane. Before glazing, verify the glazing pocket width and glazing infill thickness, as both must be in tolerance to assure adequate edge pressure and to achieve the desired air and water performance levels. (In general, framing systems utilizing 1" insulating glass are designed to accommodate a thickness variance of +/- 1/32"). Note: Excessive pressure can cause glass breakage and/or IGU failure. Consult the glass manufacturer for their recommended edge pressure per lineal inch.

To achieve the designed and tested air and water performance, best practices include:

- Glazing gaskets should be cut ¼" longer per foot, and lay flat, preferably for 24 hours
- Gaskets should be cut as single monolithic pieces and "crowded" during their installation to avoid corner gaps caused by post-installation relaxation
- The interior glazing gasket should be installed so as to avoid stretching, buckles, or tears
- Corners must be cut square, and at a slight angle when required to conform to the bevel on the intersecting gasket; sealed and butted together.
- Gasket corner joinery must also be crowded, and sealant applied onto the gasket contact frame surface and into gasket reglet raceway where applicable.
- Gasket corner seals are to be done just prior to installing glass, while the sealant is still wet and uncured, and ensure exterior gaskets are installed so as to place the glass into it's final in service condition and allow the sealant to conform to optimum configuration. Note: If the sealant cures prior to glazing, the cured sealant could create excessive edge pressure onto the glass and has the potential to cause glass breakage.
- The glass must be checked for squareness, size dimension, and thickness along the edges paying attention to any variances from center edge to corner edge
- Check the placement of the installed glass and verify there is proper edge bite into the pocket, and proper edge clearance from framing elements

After sealant has set and a representative amount of the wall has been installed and glazed (250 square feet or more) run a water hose test in accordance with AAMA 501.2 specifications to check installation. On large projects the hose test should be repeated during the glazing operation. Consult and follow NGA's GANA Manual and FGMA Glazing Manual for proper glazing technique and procedure.

10.2 Preparing Door for Glazing

All glazing materials are shipped separately in the Frame Box. Verify all required parts arrived. ArmorDefend™ entrance is designed to be secure with the **D-152** Glass Stop installed for wet glazing on the exterior of the entrance.

10.2.1 Door may have **D-152** Glass Stop factory installed. If it is not, match-drill the rails of the door with the factory-created pilot holes in **D-152**, taking care not to damage the pre-installed **FG-5188** Spacer Gasket, and attach the **D-152** Glass Stop to the door with **FS-114** Fasteners.

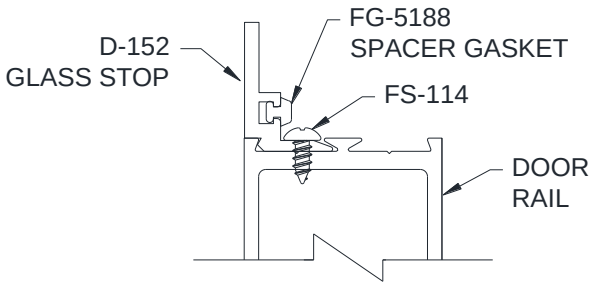


Figure 23: Installing D-152 Glass Stop

10.2.2 Install (2) **FG-5000-PP-1** Setting Blocks / Side Blocks per *Figure 23* at each location stacked to achieve the 1/4" required block height. The blocks are adhesive-backed for easy installation. (Blocks may be reduced to single block if glass is over-sized)

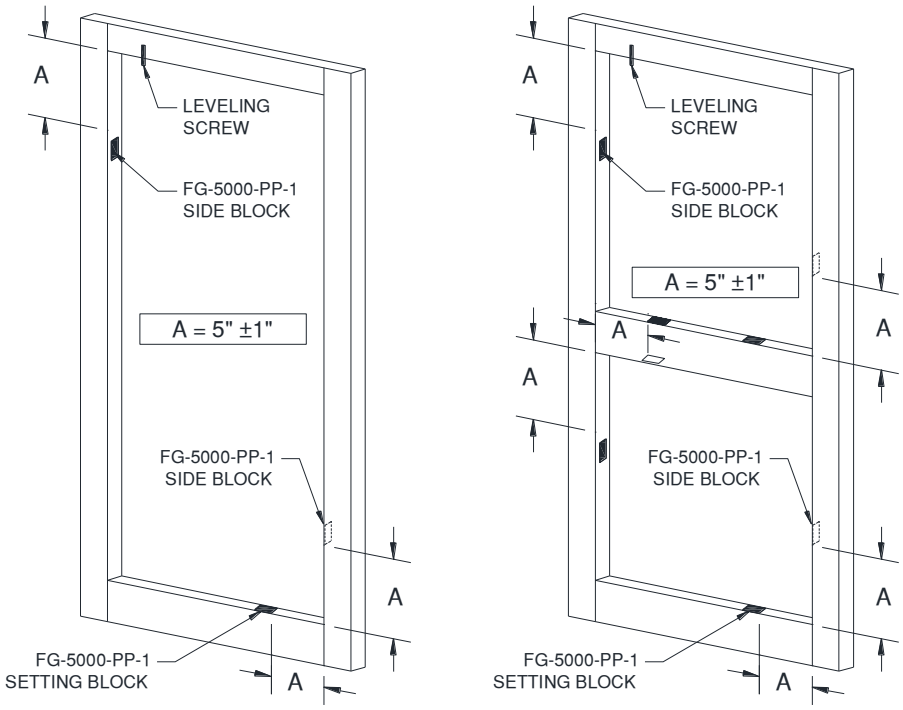


Figure 24: Locating Setting Blocks / Side Blocks

10.3 Cut Gasket to Length

10.3.1 Cut the **FG-5125** Gasket to a minimum length of Glass Opening plus (+) 1/4" per foot.

10.3.2 Miter the horizontal gaskets per *Figure 25*.

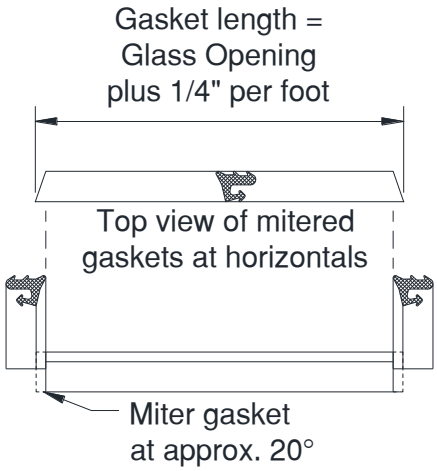


Figure 25: Gasket Cut Guide

10.4 Setting Glass

10.4.1 Center glass in the opening on the Setting Blocks and align with the Side Blocks.

10.4.2 Once the glass is in the correct position, tighten the Glass Leveling Screw down to the top of the glass just enough to hold the glass into place.

10.4.3 Square the door. Measure the door leaf in a diagonal corner-to-corner method and adjust the Glass Leveling Screw as needed until the door is square.

10.4.4 Install the **S-83** Glass Stop into the horizontals. Hook the stop into the dovetail on the door rail and rotate into place, as shown in *Figure 26*. A mallet may be used to drive the Glass Stop into place.

NOTE: *The top rail Glass Stops are notched to clear the Leveling Screw*

10.4.5 After the horizontal Glass Stops are installed, install the vertical stops.

10.4.6 Roll the **FG-5125** Gasket into the reglet in **S-83**.

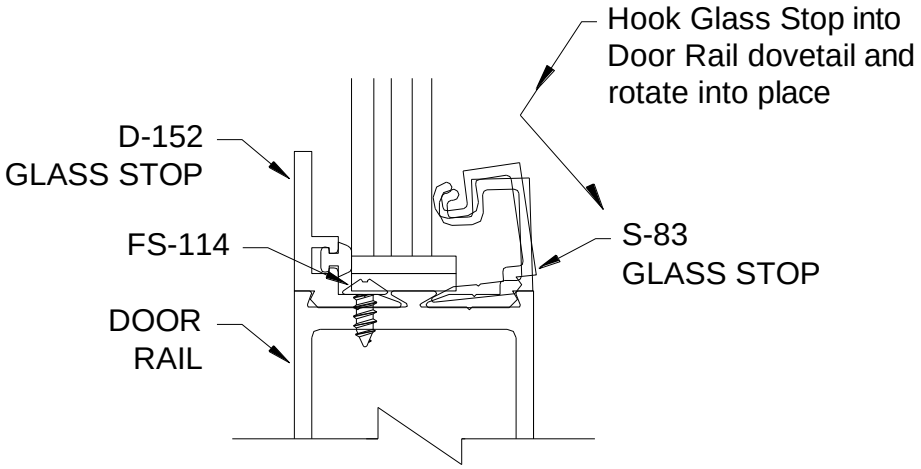


Figure 26: Installing S-83 Glass Stop

10.5 Application of Structural Sealant

10.5.1 Verify that the door is square. Measure the door leaf in a diagonal corner-to-corner method and adjust the Glass Leveling Screw as needed until the door is square.

10.5.2 Clean glass with isopropyl alcohol and mask off glass with 1" wide (minimum) low-adhesion masking tape. For masking tape application location, reference *Figure 27*.

10.5.3 Fill the cavity between the glass and the **D-152** Glass Stop with **DOWSIL™ 995** Silicone Structural Sealant, as shown in *Figure 27 Detail A*. Care should be taken not to leave any voids and to eliminate air bubbles in the sealant. Immediately tool, creating a finished joint with a slight beveled/curved joint surface.

10.5.4 Remove masking tape before sealant skins, taking care not to damage tooled sealant.

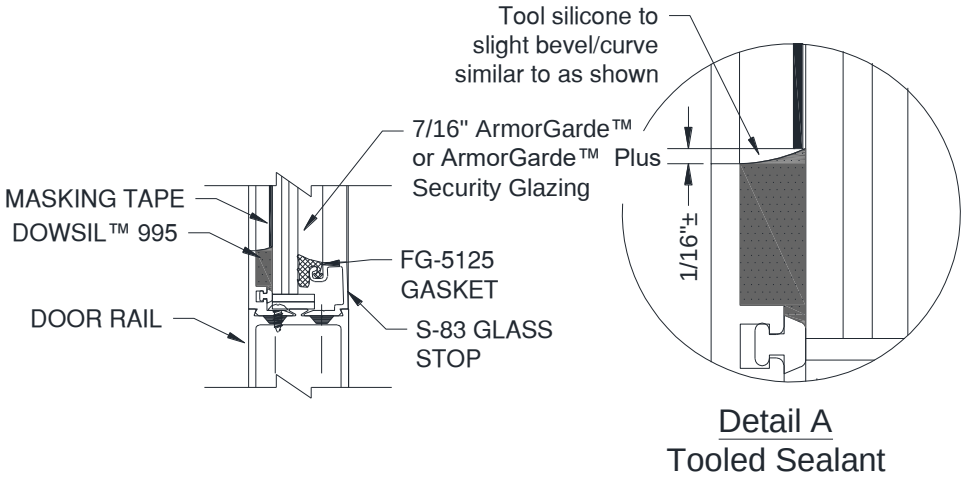


Figure 27: Wet Glazing Exterior of Door

11.0 Transom Glazing

When installing an ArmorDefend™ entrance with a transom reference the provided figures, the product section details, and the approved shop drawings and job specific details when glazing transoms.

11.1 Wet Glazing

11.1.1 Preparing and Installing Interior Gasket

11.1.1.1 Remove **GP-147** Spacer Gasket from roll and allow to relax in a protected location overnight.

11.1.1.2 Cut Gasket to length of the Door Head and Transom Head.

11.1.1.3 Install **GP-147** Spacer Gasket in the deep pockets of the **FG-3163** Door Head and the **FG-3495** Transom Head. **GP-147** will not be used around transom sash.

11.1.1.4 Install a 6" piece of **V2108** DSA Tape every 18" O.C. of all Vertical and Horizontal transom framing members.

11.1.1.5 Install **GP-149** or **HP-17S** Setting Blocks at quarter points of each lite of glass or as specified by glass manufacturer. A full Wet Glaze assembly is shown in *Figure 28* and *Figure 29*.

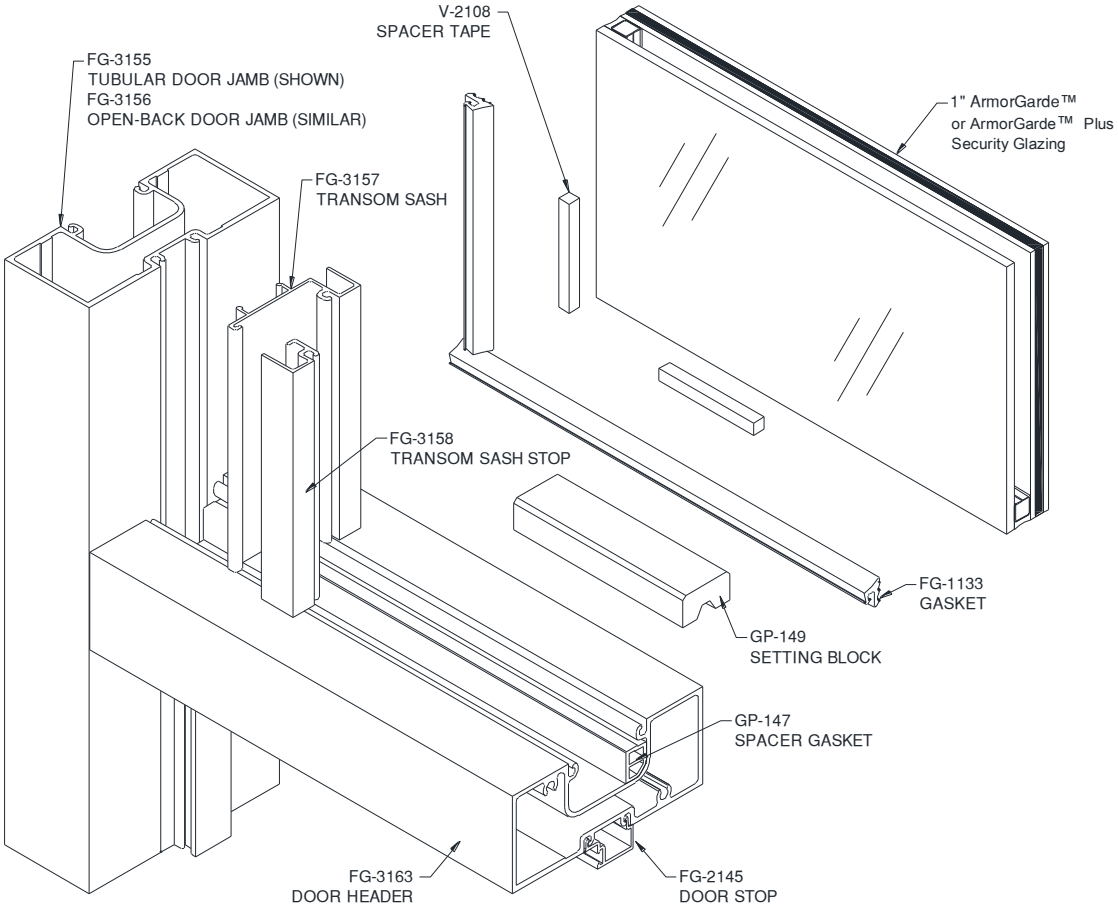


Figure 28: ArmorDefend™ Wet Glaze Assembly at FG-3163 Door Head

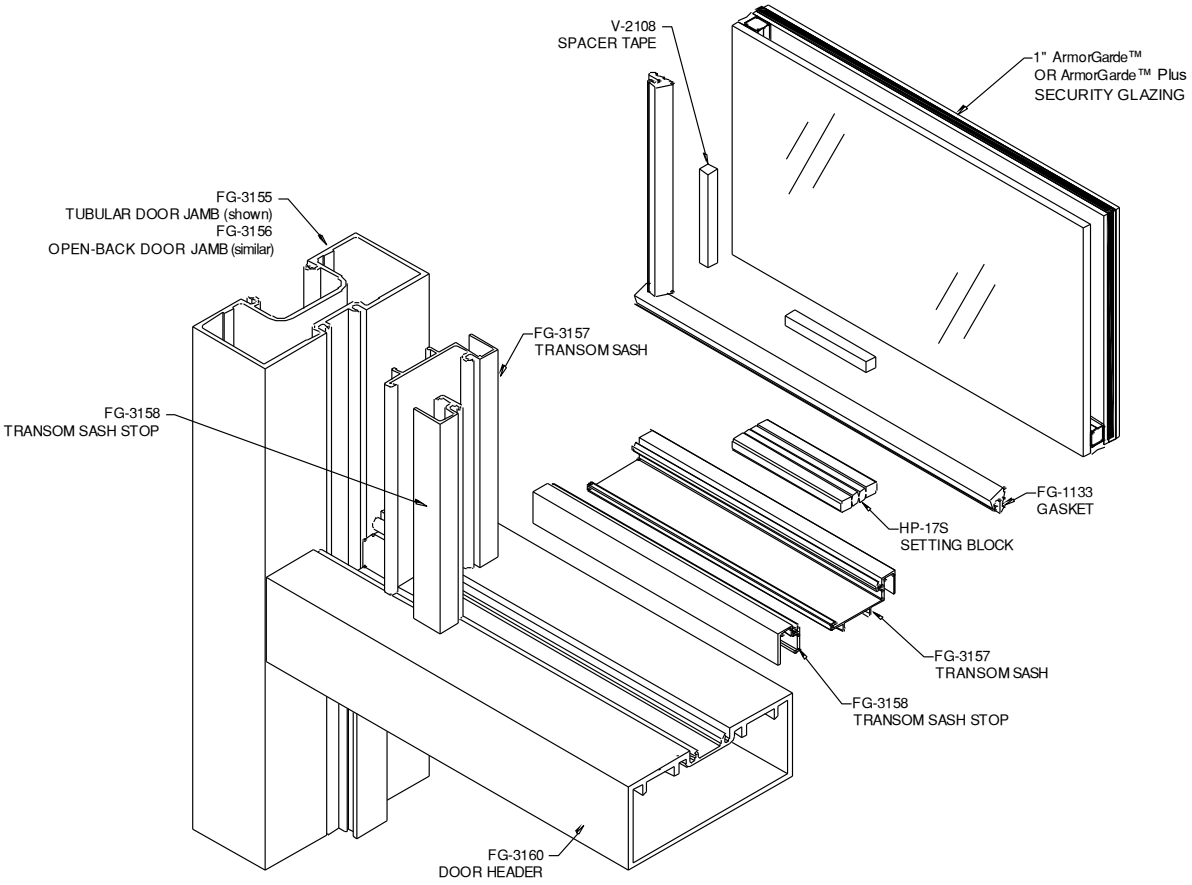


Figure 29: ArmorDefend™ Wet Glaze Assembly at FG-3160 Door Head

11.1.2 Setting Glass and Installing Exterior Gasket

11.1.2.1 Install ArmorGarde™ or ArmorGarde™ Plus Security Glazing into framing, pushing in to the deep pocket of the Transom Head first. After centering in the D.L.O., pull glass up and position the Setting Block.

11.1.2.2 Install the Sash Stop; insert Sash Stop by the glass and slide forward to hook the leg in the Sash. **FG-3156** Sash Stop installation is shown in *Figure 30* for ArmorDefend™ framing with wet glazing; the same process applies to ArmorDefend™ Plus wet glaze entrance configuration.

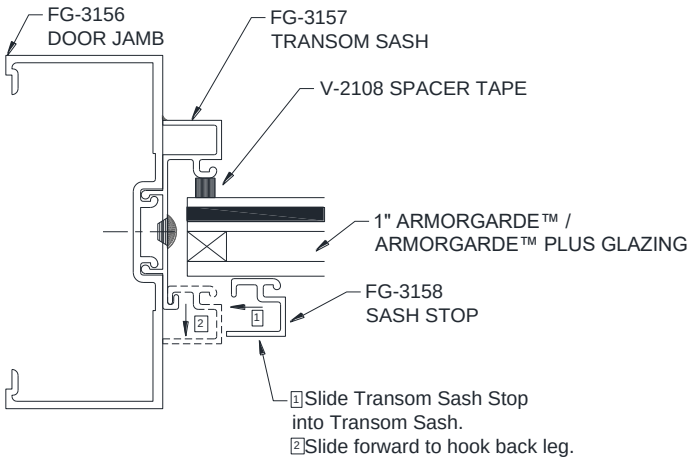


Figure 30: ArmorDefend™ Transom Sash Stop Installation

11.1.2.3 Cut the **FG-1133** Gasket a minimum of 1/4" per foot longer than the D.L.O., to provide adequate compression, and miter the ends of the gaskets at a 20° angle, as shown in *Figure 25* (page 32).

11.1.2.4 Install exterior **FG-1133** glazing gaskets starting at the middle of the glass.

11.1.2.5 After gaskets are pressed into place, pull gasket from pocket at corners as shown in *Figure 31*, *Detail A*. Clean glass and gaskets a minimum of 2" from each end with isopropyl alcohol.

11.1.2.6 Apply sealant and push Gasket into reglet, compressing from the corner first, *Figure 31*, *Detail B*. Clean squeeze out immediately.

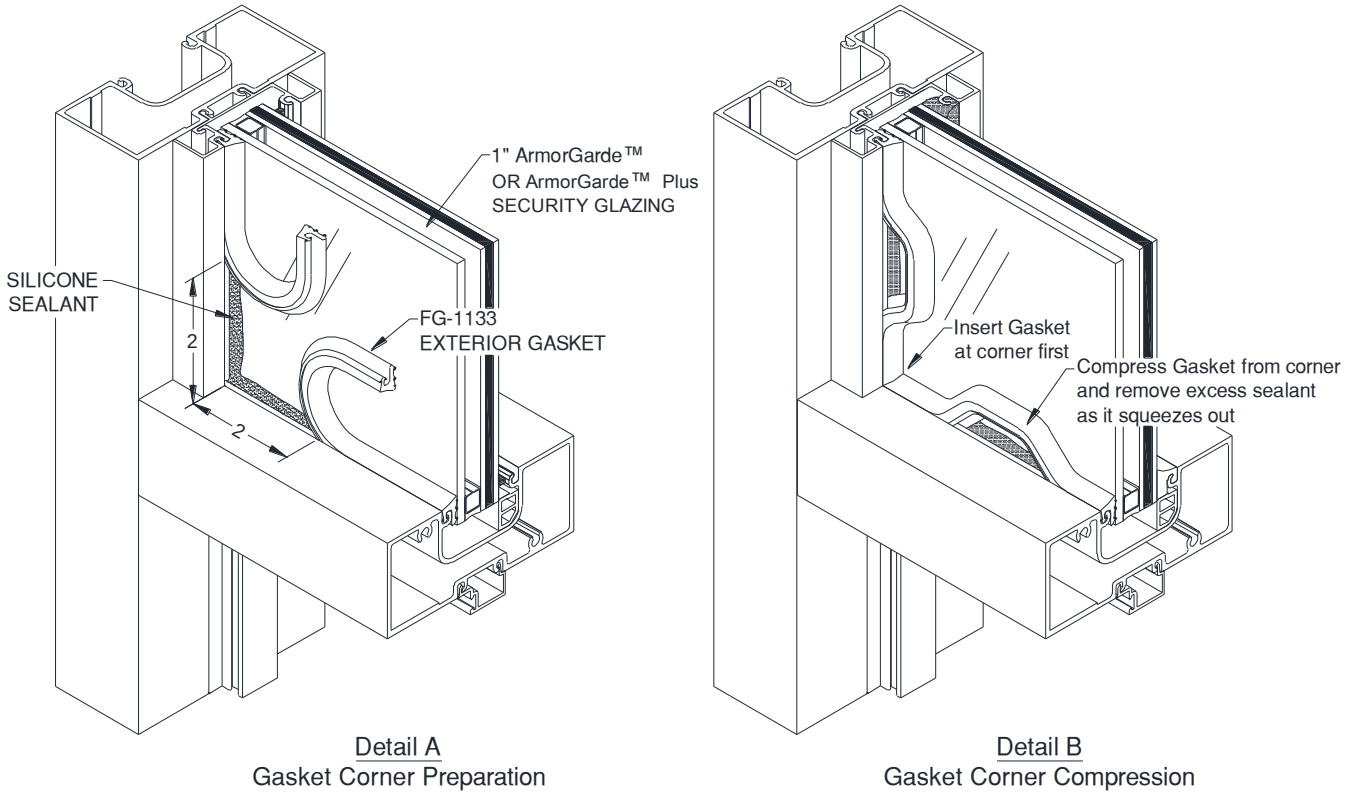


Figure 31: Exterior Gasket Installation, ArmorDefend™ Shown

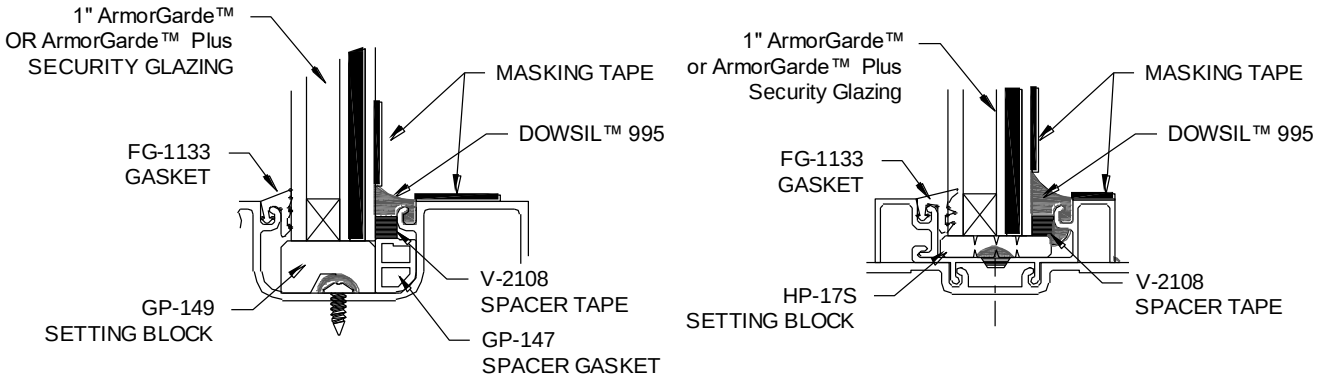
11.1.3 Application of Interior Structural Sealant

11.1.3.1 Verify the glass bite is 7/16" for ArmorDefend™. Remove Exterior Gasket and return to the steps in 11.1.2 Setting Glass and Installing Exterior Gasket and adjust to attain proper glass bite.

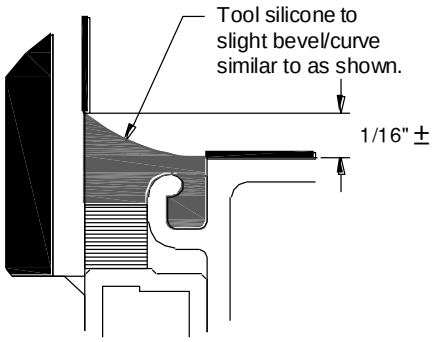
11.1.3.2 Clean glass and transom framing with isopropyl alcohol and mask off glass with 1" wide (minimum) low-adhesion masking tape. Reference *Figure 32*, *Detail A,* for masking tape application location.

11.1.3.3 Fill cavity around full perimeter of D.L.O. with **DOWSIL™ 995** Silicone Structural Sealant, as shown in *Figure 32*; care should be taken not to leave any voids and eliminate air bubbles in sealant. Immediately tool, creating a finished joint with a beveled/curved joint surface, *Figure 32*, *Detail B.*

11.1.3.4 Remove masking tape before sealant skins, taking care not to damage tooled sealant.



Detail A
Masking for Sealant at ArmorDefend™ Transom Framing



Detail B
Tooled Sealant at ArmorDefend™ Transom Framing

Figure 32: Wet Glazing Interior of Transom

11.2 Dry Glazed

11.2.1 Preparing Gasket and Installing Exterior Gasket

11.2.1.1 Remove Gasket from roll and allow to relax in a protected location overnight. Cut Gasket per material cut list below:

FG-1133 Horizontal Gasket ..... Horizontal D.L.O. plus (+) 1/4" per foot
FG-1133 Vertical Gasket ..... Vertical D.L.O. plus (+) 1/4" per foot

11.2.1.2 Remove all debris from glazing pockets to prevent blockage of weeps/drains.

11.2.1.3 When installed, vertical gasket runs the length of the Transom Sash and the horizontal gasket runs the length of the Door Head and Transom Head. The vertical gasket needs to be mitered to connect to the horizontal gasket. Miter the vertical **FG-1133** at 15° per *Figure 33*, *Detail A,* to accommodate this installation situation.

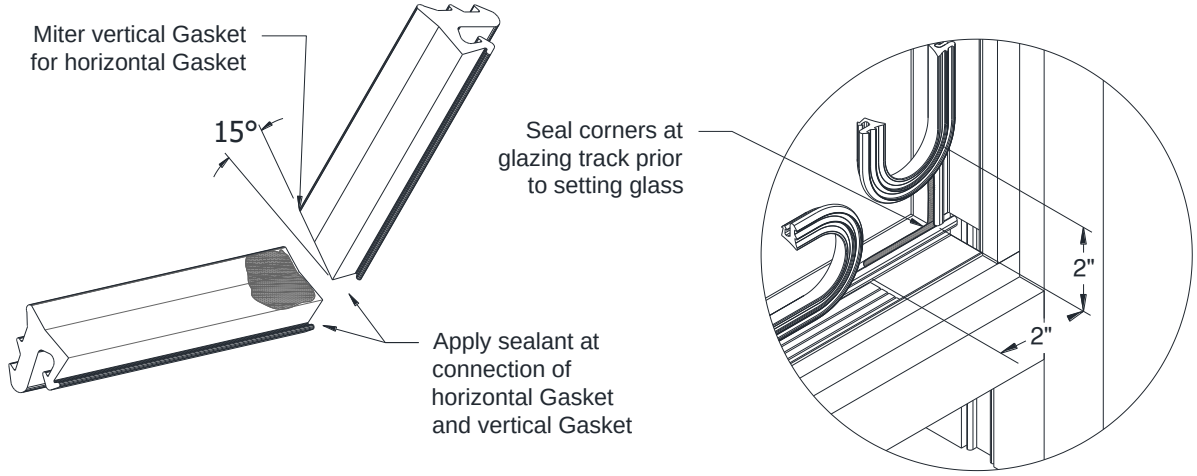


Figure 33: ArmorDefend™ Dry Glazing Exterior Gasket Corner Detail at Transom

11.2.1.4 Install exterior Gasket prior to glazing, starting gaskets at the corners and the middle of the reglet. Work in sections from the middle out toward the corners.

11.2.1.5 After Gasket is installed, pull Gasket from pocket at corner junctions a minimum of 2". Clean Gasket and framing surfaces with isopropyl alcohol.

11.2.1.6 Apply sealant in the Transom Stop raceway and horizontal raceways per the locations indicated in *Figure 33*, *Detail B*. Set the horizontal Gasket first. Apply sealant at the connection point of the horizontal Gasket and the vertical Gasket, *Figure 33*, *Detail A,* before setting vertical Gasket. Clean any squeeze out immediately.

11.2.1.7 Install **HP-17** or **FG-3220** Setting Blocks per shop drawings; depending on the glass size, Setting Blocks will be located at either 1/4 points or 1/8 points. A full Dry Glaze assembly is shown in *Figure 34*.

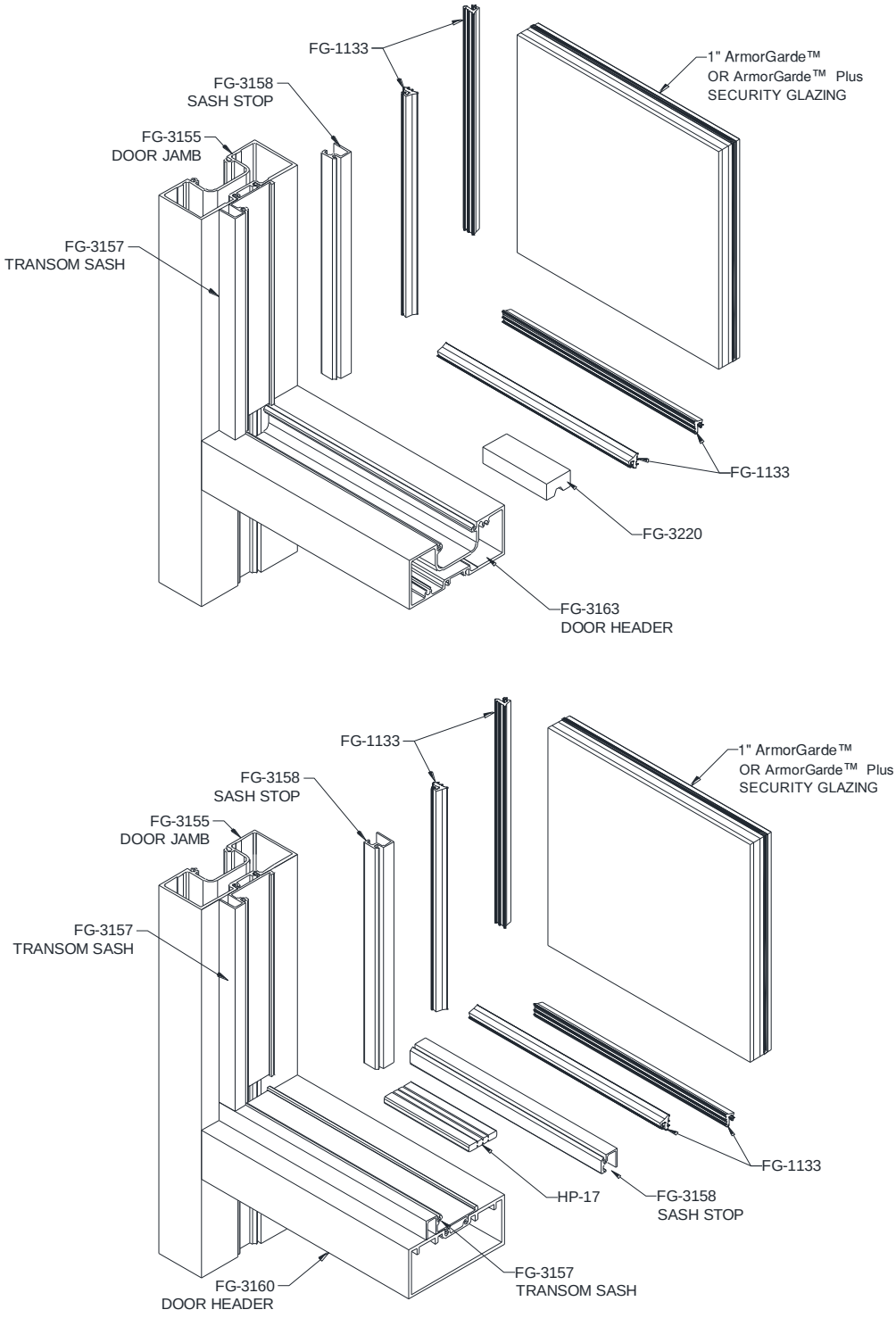


Figure 34: ArmorDefend™ Dry Glaze Assembly at Transom

11.2.2 Setting Glass and Interior Gasket

NOTES:

- The glass bite is 7/16" for ArmorDefend™.
- Transom Sash is located across the top of **FG-3160** Door Header and on each side of the opening. **FG-3157** Sash is pre-installed on the exterior of the framing.

11.2.2.1 Wet top of **HP-17** or **FG-3220** Setting Block with soapy water.

11.2.2.2 Install ArmorGarde™ Security Glazing of choice into framing from interior of elevation. After centering in the D.L.O., pull glass up and position the Setting Block.

11.2.2.3 Once glass is set in place, push glass against interior gasket at Setting Block area. **Failure to do so may cause diagonal cracks toward Setting Blocks due to glass bending while installing Gasket in corners.**

11.2.2.4 Install **GP-150** side block in transom header. *See* Figure 35*.*

11.2.2.5 Install **GP-114** sided block on each side of glass prior to installing sash stop.

11.2.2.6 Install the Sash Stop; insert Sash Stop by the glass and slide forward to hook the leg in the Sash. The **FG-3158** Sash Stop installation is shown in *Figure 36* for ArmorDefend™ framing with dry glazing.

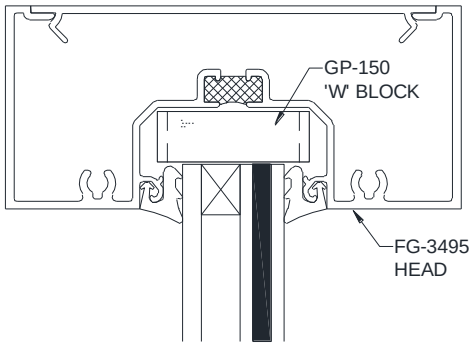


Figure 35: ArmorDefend™ Transom Header Side Block Installation

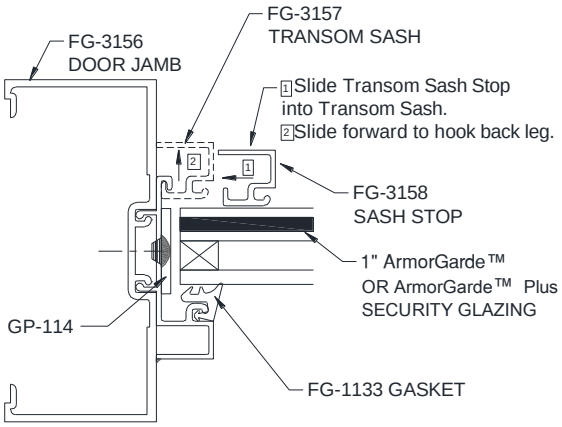


Figure 36: ArmorDefend™ Transom Sash Stop Installation

11.2.2.7 Once stops are in place install **FG-1133** gasket on interior of transom as shown in *Figure 37, Detail B*. Gasket should be installed in corners and the middle first and then worked into pocket in sections starting at center and moving towards the corners.

11.2.2.8 After gaskets are pressed into place, pull gaskets a minimum of 2” from each end and clean with isopropyl alcohol.

11.2.2.9 Apply sealant and push gasket into reglet, compressing from the corner first, as shown in in *Figure 37, Detail C*. Clean excess from corner immediately.

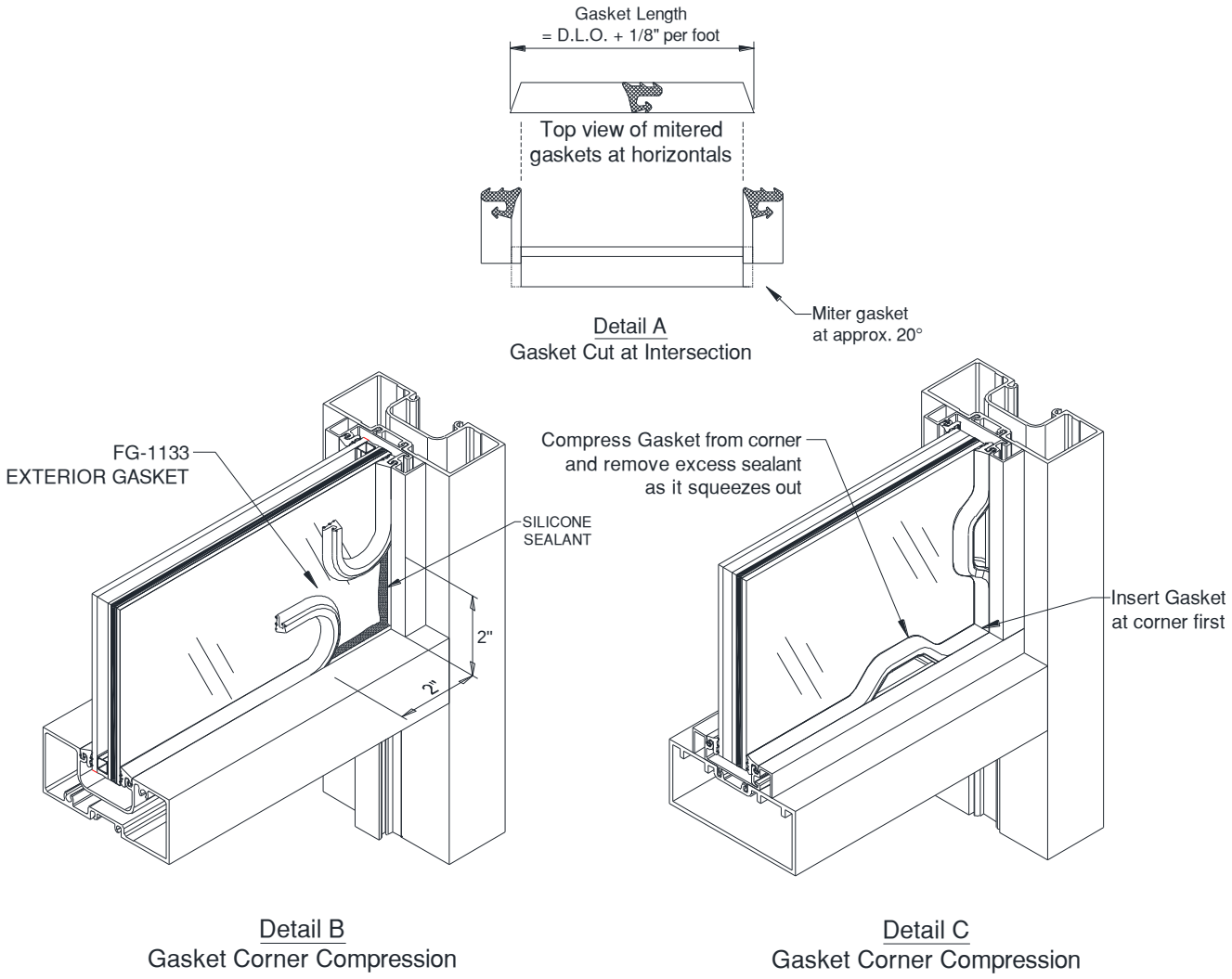


Figure 37: ArmorDefend™ Interior Gasket Installation at Transom

HANGING THE DOOR

NOTES:

- Some hardware may be factory installed for shipping purposes. Remove hardware as needed to facilitate glazing the door, taking care not to damage any parts or pieces. Re-install hardware once the door is glazed.
- Door may be glazed before or after attaching door to the frame. If the door is not pre-glazed, glaze the door before attaching hardware. It is recommended to have hardware installed before hanging.
- Back-up plates for Butt Hinges are factory installed in Frame and hinges are factory installed to Door.
- Continuous Gear Hinge is factory installed on Door. Door Jamb is not factory-prepped to receive the continuous hinge.

12.0 Hanging Butt Hinge Door

12.1 Lift Door until Butt Hinges align with hinge cut-out in Door Jamb.

12.2 Block under Door when hinge aligns with cut-out.

12.3 Attach hinges to the back-up plates in frame using **FS-22** (#12-24 x 1/2" UCPFH).

12.4 If the door mounted hinge and the frame slots are misaligned, back off the screws and re-adjust the door until it fits properly, then tighten down fasteners.

12.5 Continue on to *14.0 Installing Hardware* to complete hardware installation or *15.0 Final Adjustments to Door* to make final adjustments to the hardware.

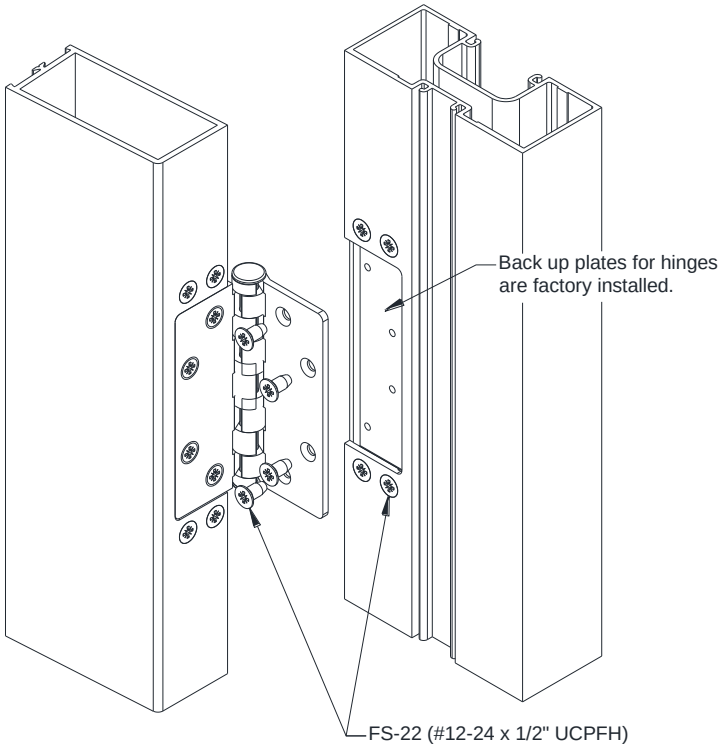


Figure 38: Hanging Door with Butt Hinges

13.0 Hanging Gear Hinge Door

13.1 Place a 1/8" shim at the top of the Door Jamb at the Header to locate the top of Door.

13.2 Align Continuous Gear Hinge to Door Jamb by using the Locator Leg as a guide. Locator Leg is identified in *Figure 39, Detail A*.

13.3 Block under Door to help maintain alignment of Door and maintain the 1/8" clearance provided by the shim.

13.4 Attach Continuous Gear Hinge to the Door Jamb using the Tek fasteners provided by the gear hinge manufacturer.

NOTE: Take special care when attaching the hinge to the frame. No adjustments can be made once the hinge is attached.

13.5 Continue on to *14.0 Installing Hardware* to complete hardware installation or *15.0 Final Adjustments to Door* to make final adjustments to the hardware.

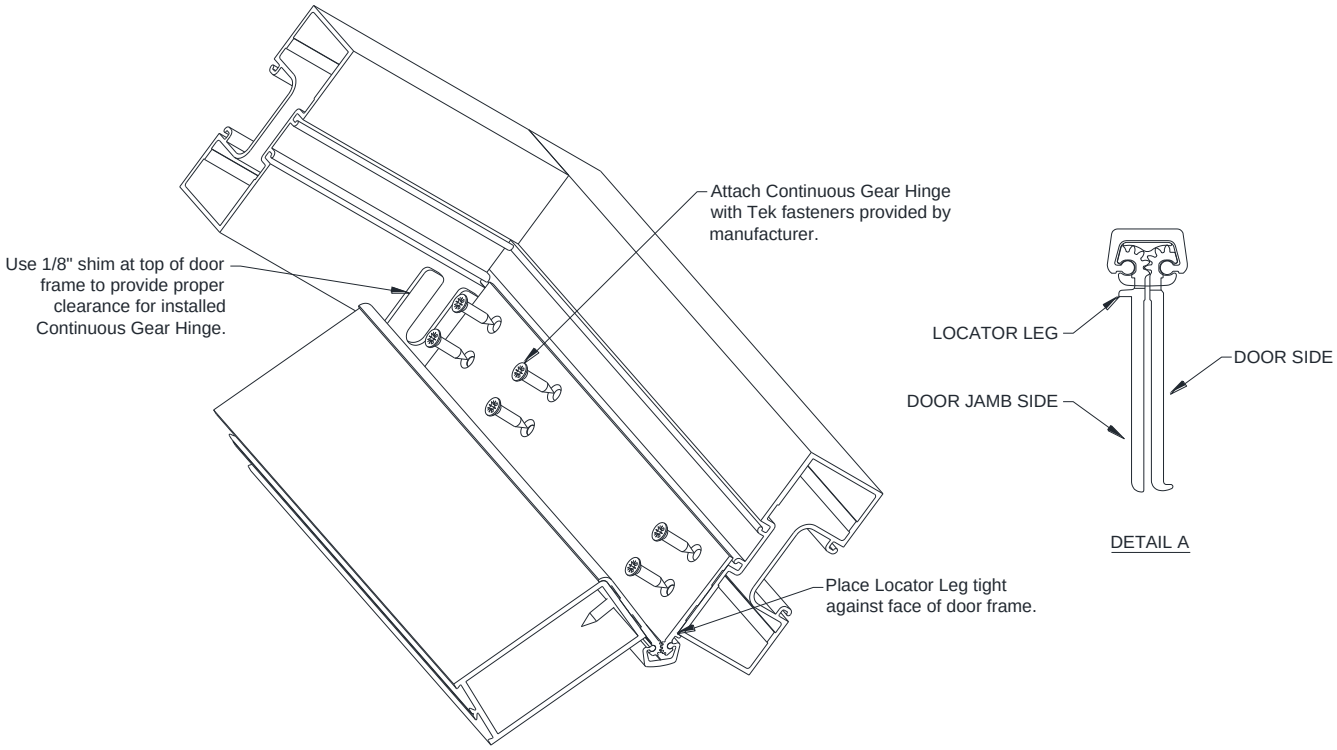


Figure 39: Hanging Door with Continuous Gear Hinge

14.0 Installing Hardware

14.1 Closers

Refer to the instructions included from the manufacturer with the Door Closer.

14.2 Panics

Refer to the instructions included from the manufacturer with the Panic.

14.3 Other Hardware

14.3.1 Cylinder

Doors requiring cylinders have locking cylinders factory installed. If changing the locking cylinder is required, follow all instructions from the manufacturer of the customer-provided cylinder.

14.3.2 Door Pull Handle

14.3.2.6 Holes for **PH-12** are factory drilled in Door.

14.3.2.7 Verify Door Pull kit includes through-bolts and washers. Contact OBE Sales Rep if anything is missing.

14.3.2.8 Place Washers over the Through-Bolts.

14.3.2.9 Align Door Pull with holes in Door on the exterior of Door.

14.3.2.10 Insert Through-Bolts into Door and into Door Pull from interior of Door.

14.3.3 Door Sweep

14.3.3.11 The **D-118** sweep retainer is shipped pre-fabricated. Cut **D-118** and **D-120** sweep to the disered length, adjust as needed to avoid interference with door stops and hardware. Maximum distance for attachment holes from edges is 1”. If necessary, drill an additional clear hole into the **D-118** 1” from edge and countersink for an **FS-2** Fastener (#8 flat head).

14.3.3.12 Align **D-118** so the top edge is located 1-1/8” from bottom edge of door rail. Match drill rail for an **FS-2** Fastener (#8 flat head).

14.3.3.13 Attach **D-118** to bottom rail with **FS-2** fasteners.

14.3.3.14 Slide **D-120** sweep into slot of **D-118** and stake at both ends to secure.

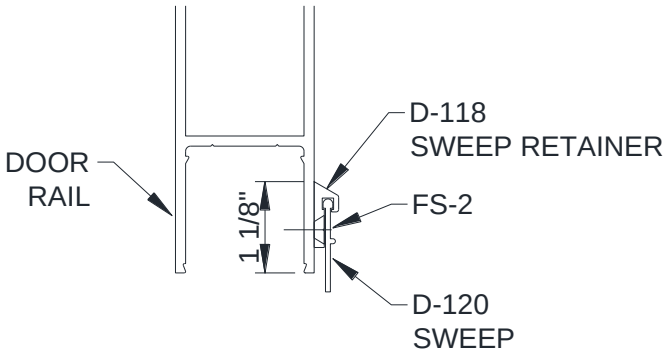


Figure 40: Installing the Door Sweep

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15.0 Final Adjustments to Door

After installation and hanging, the door needs to be checked and adjusted for proper clearances and functionality.

15.1 The top rail of Door should remain at 1/8" spacing below the Door Header. The bottom of Door should remain a consistent 3/16" above Threshold.

- If the gap is too large at the top rail, deglaze the door and verify Door is square before re-applying structural silicone sealant.

15.2 The hinge-side gap between Door and Door Frame should be as follows:

Butt Hinge: ..... 3/32"
Continuous Gear Hinge: .... 5/16"

The corrective action for doors out of compliance will vary by type:

- Butt Hinges may be shimmed out to adjust clearance when there is more than 3/32" at Lock Cylinder side of Door.
- Continuous Gear Hinge Doors out of alignment will need to be removed completely from the door frame and re-installed. This will compromise the stability and strength of the Door Frame.

15.3 The gap between door leafs should be approximately 1/8".

- Adjust the **AS-6** Astragal by loosening or tightening the **FS-49** fastner. Reference *Figure 41* as required.

15.4 To facilitate opening and closing of door, the strings in the **WP-085** Wool Pile may be removed. It is recommended to start with just the outer string of interior weathering and remove others as needed.

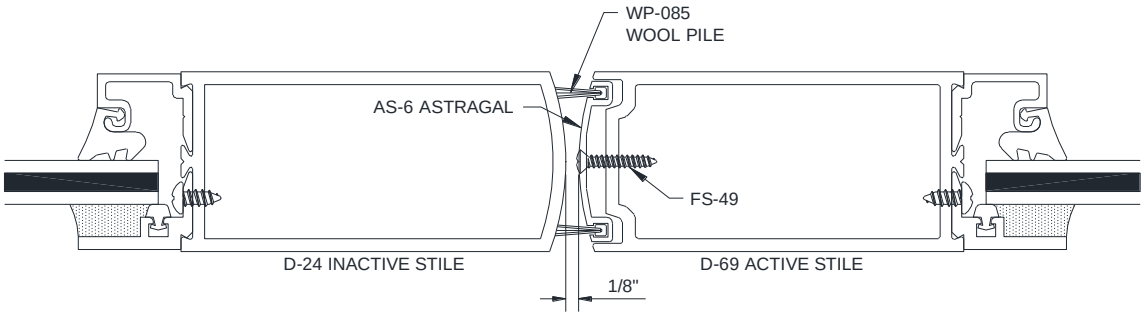

Figure 41: Astragal Adjustment

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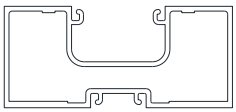
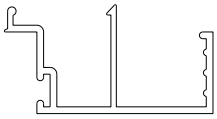
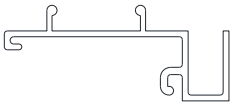
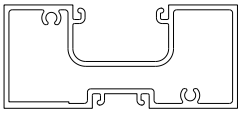
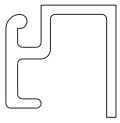
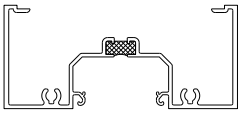
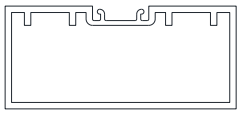
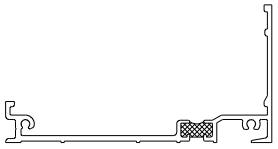
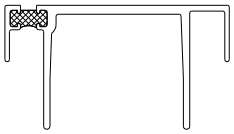
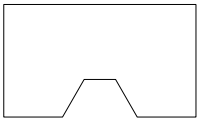
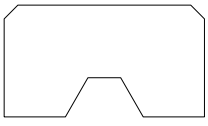
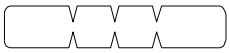
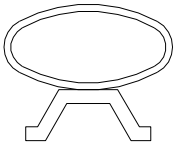
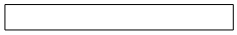
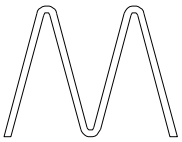
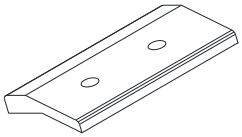
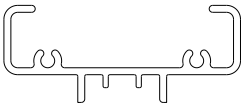
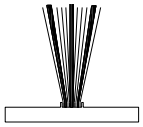
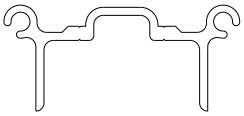
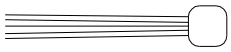
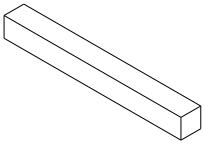
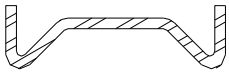
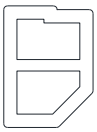
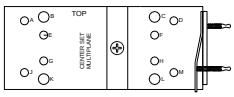
PARTS LIST

Parts not shown to scale.

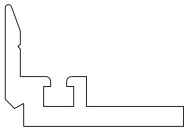
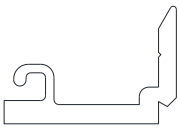
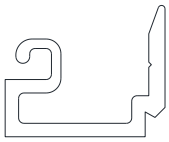
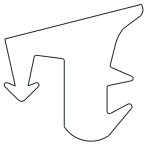
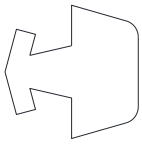
ArmorDefend™ Framing

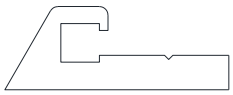
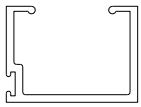
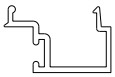
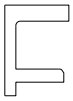
FG-3155 	TUBULAR DOOR JAMB	FG-2170 	DOOR STOP
FG-3156 	OPEN BACK DOOR JAMB	FG-3157 	TRANSOM SASH
FG-3163 	DOOR HEAD	FG-3158 	TRANSOM SASH STOP
FG-3495 	TRANSOM HEAD	TH-43 	THRESHOLD
FG-3160 	COC DOOR HEADER	FG-3413 	SUBSILL AT SIDELITE
FG-2122 	FLAT FILLER	FG3000-FP-52 	TRANSOM HEAD ANCHOR
FG-2188 	PVC FLAT FILLER	FG-3220 	SETTING BLOCK DRY GLAZED TRANSOM DOOR HEAD
FG-3514 	SIDELITE FILLER	GP-149 	SETTING BLOCK WET GLAZED TRANSOM DOOR HEAD

ArmorDefend™ Specific Parts Continued

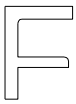
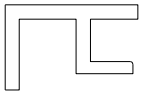
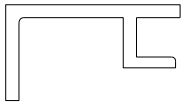
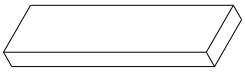
HP-17 (Dry Glazed) HP-17S (Wet Glazed) 	SETTING BLOCK FOR TRANSOM AT COC HEADER	D-125 	DOOR STOP BULB GASKET
GP-114 	SIDE BLOCK DRY GLAZED TRANSOM SASH	TH-FP-1 	THRESHOLD CLIP
GP-150 	'W' SIDE BLOCK	D-121-2 	PANIC STOP
FG-3000-FP-34 	SHEAR BLOCK (FOR FG-3163)	WP-084 	DOOR STOP WOOL PILE
FG3000-FP-62 	SHEAR BLOCK (FOR FG-3495)	WP-085 	ASTRAGAL WEATHERSTRIP
V2108 	¼" x ¼" DUAL SIDE ADHESIVE TAPE	RS-10 	STEEL REINFORCEMENT
GP-147 	SPACER GASKET	DJ-8 	DRILL JIG

Common Parts

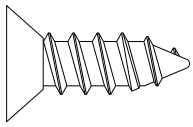
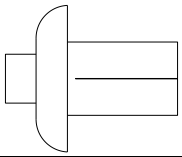
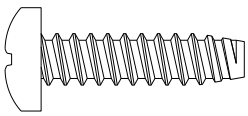
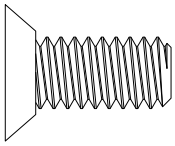
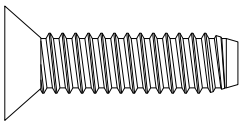
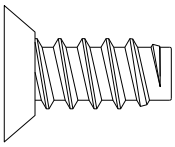
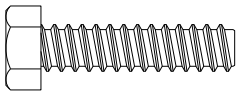
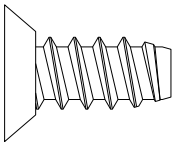
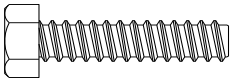
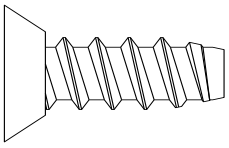
	Assembled Door Leaf
D-152 	DOOR GLASS STOP
D-188 	DOOR GLASS STOP
S-83 	DOOR GLASS STOP
FG-1133 	GLAZING GASKET
FG-1134 	GLAZING GASKET
FG-5125 	GLAZING GASKET
FG-5188 	SPACER GASKET

D-118 	DOOR SWEEP RETAINER
D-120 	DOOR SWEEP
FG-5000-PP-1 	DOOR SIDE BLOCK
SC-1 	SPRING CLIP
DS-104 	DOOR STOP COC HEADER
DS-108 	DOOR STOP COC HEADER
FG-2145 	DOOR STOP
AC-111 	COC HEADER SHEAR BLOCK

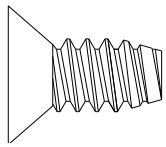
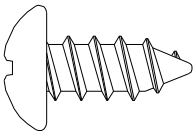
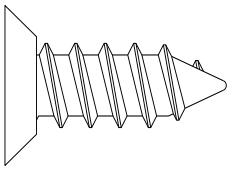
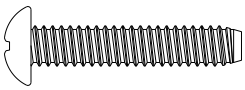
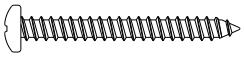
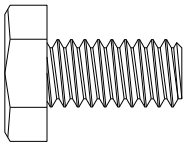
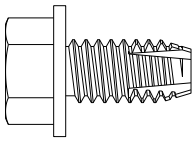
Common Parts Continued

AC-112 	COC HEADER SHEAR BLOCK	AC-124 	COC HEADER SHEAR BLOCK
AC-113 	COC HEADER SHEAR BLOCK	DOWSIL 995 	STRUCTURAL SIICONE SEALANT
AC-123 	COC HEADER SHEAR BLOCK	SM5601 	1/8″ X 1/2″ ISOCRYL TAPE

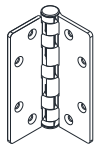
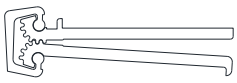
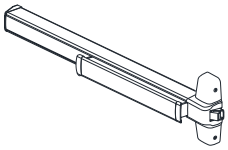
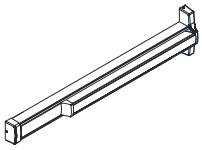
Fasteners

FS-2 	#8 x ½″ PHILLIPS FLAT HEAD A PT. SCREW	FS-15 	3/16″ X 1/4″ DRIVE RIVET
FS-6 	#10 x ¾″ PHILLIPS PAN HEAD B PT. SCREW	FS-22 	#12-24 X 1/2″ UCPFH
FS-7 	#10 x ¾″ PHILLIPS FLAT HEAD B PT. SCREW	FS-42 	#12 x ½″ PHILLIPS FLAT HEAD UNDERCUT B PT. SCREW
FS-8 	1/4 x 1″ HEX HEAD ASSEMBLY SCREW	FS-56 	#10 X 1/2″ PFH
FS-9 	1/4 x 1-1/2" HEX HEAD ASSEMBLY SCREW	FS-58 	#10 X 3/4″ PHILLIPS FLAT HEAD B PT.

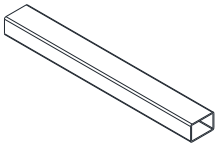
Fasteners Continued

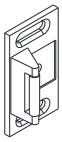
FS-61 	#10-24 X 3/8" PHILLIPS FLAT HEAD MACHINE SCREW	FS-201 	#10 X 2" PFH
FS-114 	#8 x 3/8" PHILLIPS PAN HEAD A PT. SCREW	FS-255 	#14 X 3/4" PHILLIPS FLAT HEAD UNDERCUT A PT SCREW
FS-115 	#10 x 1" PHILLIPS PAN HEAD B PT. SCREW	FS-256 	#8 x 1-¼" PHILLIPS ROUND HEAD A PT. SCREW
FS-121 	1/4"-20 X 1/2" HEX HEAD MACHINE SCREW	FS-354 	1/4"-20 x 3/8" HEX WASHER HEAD TCS

Available Hardware

4001SS 	BUTT HINGES REGENT		CYLINDER
780-224HD 	GEAR HINGE HAGER ROTON	PH-12 	PULL HANDLE
	SURFACE CLOSER	99xSNB 	RIM PANIC VON DUPRIN
	CONCEALED CLOSER	2086 	CONCEALED VERTICAL ROD PANIC JACKSON

Available Hardware Continued

4954 / 9954 	REMOVEABLE MULLION FOR 99xSNB

299 	STRIKE FOR 99xSNB