



Technical Glass Products Architectural Specification Manual

TGPROTECT® FR SYSTEM

The TGProtect® FR System features a die-rolled steel profile swinging door with sidelite(s) and is the first fire-rated full-lite door system certified to forced entry standards in North America. The attack-resistant system has the appearance of a narrow-profile aluminum storefront door and is ideal for school applications, detention centers, institutional buildings and anywhere a security-rated door system is required. A sleek alternative to typical hollow metal doors, TGProtect FR System features precise edges, professional finish, and the narrowest sightlines available with a fire rating. Pre-hung, pre-finished and easy to install, TGProtect FR System complements adjacent non-fire-rated doors and provides a high level of forced entry attack resistance and security.

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System Exploded View

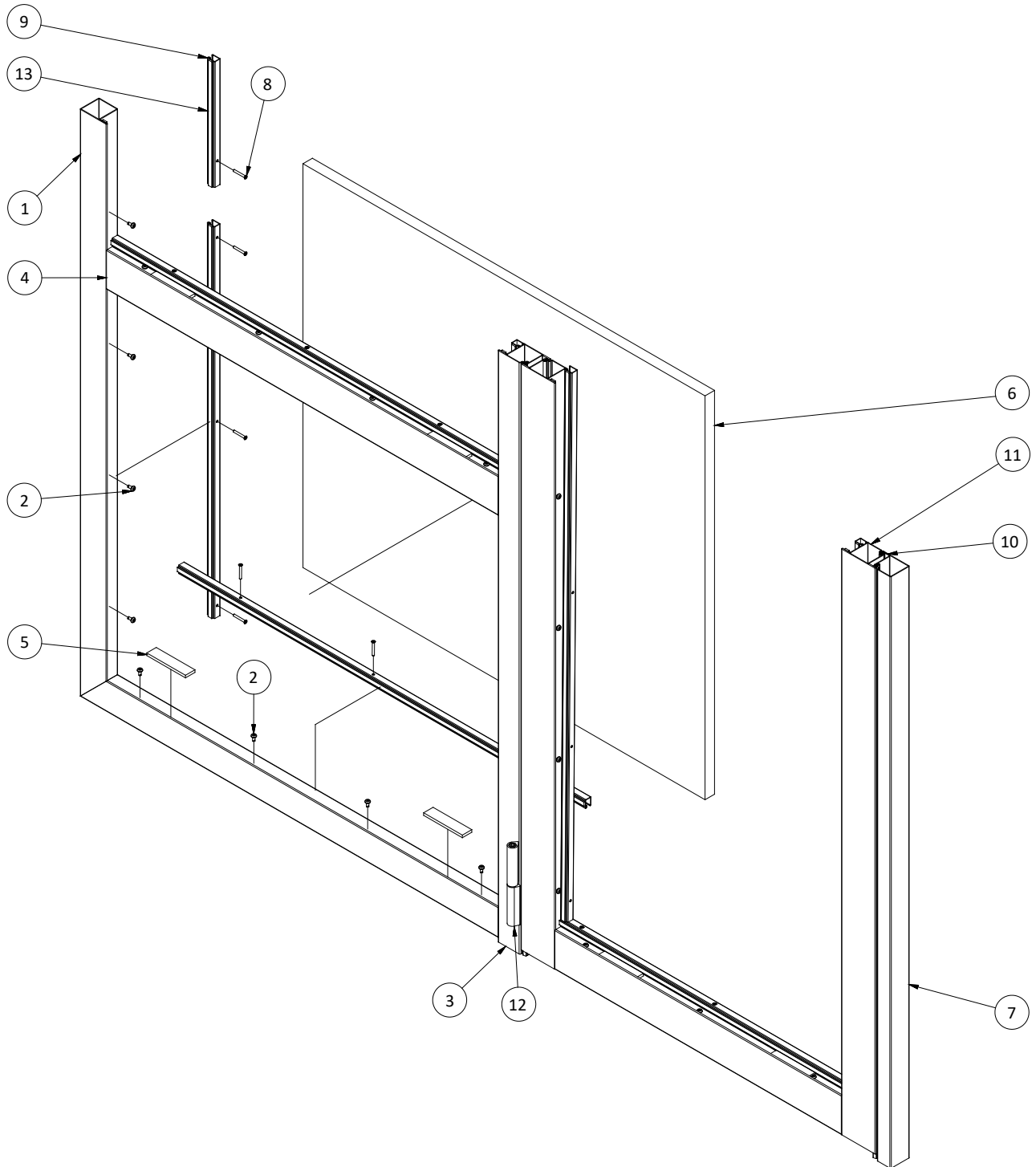


Figure 1 - System Exploded View

Material Key Chart

Item(s)	Material	Required Material NOT PROVIDED With TGProtect FR System
-	FINISH SEALANT	Sealant installed into the interior and exterior perimeter cavity. Select color for sealant to match frame or as directed by project architect.
-	CAP SEAL	REQUIRED on all applications. Use a continuous silicone sealant. Select color to match frame.
-	GLAZING SEALANT	REQUIRED on all applications, must be Dow Corning 995 Silicone Structural Sealant.
-	ANCHOR FASTENER	As wall constructions vary widely in design, TGP does not provide perimeter fasteners (anchors). All frames are factory drilled to receive #12 flat head perimeter screws at approximately 18" on center.
-	FIRESAFING	Intumescent sealant or firmly packed mineral wool must be installed in a continuous fashion between frame assembly and wall construction, being interrupted only by the perimeter anchor shims. Sealant manufacturers such as Tremco, Pemko and many others supply intumescent sealants.
-	FLASHING	Exterior sill flashing, if required, may be stainless steel, galvanized steel, or aluminum.
13	GLAZING TAPE	Single or double sided adhesive, closed cell PVC glazing tape of any common brand available from your local glazing supply house. Refer to Glazing Specifications for glazing tape sizes, and Glazing Installation Instructions.
-	SHIMS	Perimeter shims at anchor locations are to be of hardwood (oak) or non-combustible (steel) materials. Plastic shims may not be used. TGP recommends a 3/8" (9.5 mm) caulk joint between frame and all wall conditions.
-	WALL CONDITION	Rated wall construction by other trades.
Item(s)	Material	Fasteners Provided With TGProtect FR System
8	BEAD LOCK SCREW	8-32 X 1" Flat Head Screws. The glazing beads and frames are factory fabricated to receive lock screws. The screws are supplied with screw heads painted to match frames. Bead lock screws are not used on non-rated applications.
2	BEAD STUD	Glazing beads snap onto factory installed, steel bead studs at approximately 12" on center.
Item(s)	Material	Components Provided With TGProtect FR System
1, 3, 4, 7 & 11	PROFILES	Cut to size and pre-machined. "L", "Z", "T" styles for wall jamb, door jamb, and intermediate locations, respectively.
5	SETTING BLOCKS	6 mm calcium silicate setting blocks shipped loose for field installation. Refer to Glazing Installation Instructions.
6	FIRE-RATED GLAZING MATERIAL	Refer to the Fire-Rated Glazing Options and Specifications, and Glazing Installation Instructions.
9	GLAZING BEAD	Snap-on glazing bead to hold glass in system.
10	DOOR GASKET	Neoprene door stop gasket used on Fireframes TGProtect FR System doors.
12	PIVOT ASSEMBLY	Steel, standard three (3) per door panel.

Figure 2 - Material Key Chart

General Information

This document is meant as a general description of typical installations. As such, it is the responsibility of the installer to ensure the doors are installed per the conditions that exist on any given project in accordance with these instructions and project drawings. TGP project drawings may detail modifications to the surrounding conditions required for a given project, (if architectural details or sketches were provided to TGP) and should be used in conjunction with these instructions. In the event of any conflict between these instructions and TGP project drawings, the TGP project drawings shall govern. TGP does not accept any warranty and / or liability for installations not in compliance with this document or other non-conforming use of the TGP products and / or system. Contact TGP with questions concerning these details as they apply to the particulars of a given project.

FEATURES

- Fire ratings for 20-60 minutes with required hose stream test
- Intertek certified system tested to **ASTM E2395**
- Meets **HP White 5-aa10**
- Impact safety-rated – meets **ANSI Z97.1** and **CPSC 16 CFR1201** (Cat. I and II)
- Single door and sidelite(s) assembly
- Narrow steel profiles provide a seamless aesthetic with adjacent non-fire-rated doors in a given project
- Durable welded steel construction of door
- Pre-hung, prefinished with system specific hardware included
- Finish powder coating at the factory to match desired color scheme
- Installs into a finished opening
- Glazing consists of FireLite Plus® Forced Entry IGU. If you are looking for fire-rated security glass, please visit FireLite Plus® Forced Entry

Note: This product is not intended for use in locations requiring a barrier to radiant heat. This product does not meet test standards **ASTM E-119** or **UL 263**. If your jurisdiction requires “barrier to heat” framing, please contact Technical Glass Products regarding **Fireframes® Heat Barrier Series**.

LISTINGS

Underwriters Laboratories Listings

UL Classified and labeled by Underwriters Laboratories, Inc. ® (UL) and Underwriters Laboratories of Canada (ULC). File numbers R25229 (Fire Protection Rating) and R19207. Tests performed in accordance with: **ASTM E2010; ASTM E207; UL 9; UL 10B; UL 10C; NFPA 80; NFPA 252; NFPA 257; CAN4 S-104; CAN4 S-106; MEA 426-04-M; LARR2578**

Intertek Listings

Frame and Door tests for Forced Entry Certified (Spec ID 62659) W/N 22992 with Intertek I Warnock Hersey to: **AAAM 1304; ASTM E1886; ASTM E1996; ASTM E2025, ASTM E2395; ASTM F476**

General Information

SIZING GUIDELINES

GLASS SIZES

Product	Application	Rating Minutes	Max. Exposed Area		Max. Exposed Width		Max. Exposed Height	
			Square Inches	Square Meters	Inches	Millimeter	Inches	Millimeter
FireLite Plus® Forced Entry IGU	Doors	20 - 60	2,618	1.69	29-1/2	749	88-3/4	2,254
	Sidelites	45 - 60	3,312	2.14	36	914	92	2,339

- Note:**
1. Individual lite sizes cannot exceed "Maximum Exposed Area" shown above.
 2. The International Building Code (IBC) states that 20 minute fire-rated products that fail to pass a hose stream test may not be used outside of doors.

ASSEMBLY AND DOOR SIZES

DOORS: Singles	Max. Rating (Minutes)	Max. Width (Inches)	Max. Width (Millimeters)	Max. Height (Inches)	Max. Height (Millimeters)	Max. Area (Sq. Feet)	Max. Area (Sq. Meters)
Glazed with FireLite Plus® Forced Entry IGU							
Max single door leaf size:	20 - 60	36-3/4	933	95-7/8	2,435	-	-
Max door opening, single:	20 - 60	35-15/16	913	96	2,438	-	-
Max DLO glass:	20 - 60	29-1/2	749	88-3/4	2,254	-	-
FRAME ASSEMBLY							
Overall Assembly – Single Sidelite	45 - 60	79-1/2	2,019	98	2,489	-	-
Overall Assembly -Multiple Sidelites	45 - 60	162	4,114	98	2,489		

- Note:**
1. When using more than one sidelite, individual sidelites cannot be wider than the door.
 2. Individual lite sizes cannot exceed "Maximum Exposed Area" shown above.
 3. The International Building Code (IBC) states that 20 minute fire-rated products that fail to pass a hose stream test may not be used outside of doors.
 4. The maximum dimensions are based on the lesser of the UL (fire) and Intertek (attack) allowable sizes.
 5. The daylight opening is abbreviated by DLO.

In accordance with California Prop 65, products received from TGP may contain the required warning label (below) indicating that they may contain door hardware or other components known to cause cancer and reproductive harm. For more information, go to www.P65Warnings.ca.gov.

In accordance with California PROP65 -
⚠️WARNING: Cancer and Reproductive Harm-www.P65Warnings.ca.gov
⚠️ADVERTENCIA: Cáncer y Daño Reproductivo-www.P65Warnings.ca.gov
⚠️AVERTISSEMENT: Cancer et Troubles de l'appareil reproducteur-
www.P65Warnings.ca.gov P518-742

General Information

AMERICANS WITH DISABILITY ACT STANDARDS ON FIRE PROTECTION DOORS

If fire doors were required to meet A.D.A. (Americans with Disability Act) Standards, many would not open or close with adequate force to prevent passage of flames and smoke. Recognizing this special fire safety need, NFPA 101 (National Fire Protection Association) allows operational features for fire doors (opening forces, closing speeds, etc.) that are different than for non-fire-rated doors. These fire “protective” steel doors carry ratings from 20-60 minutes for fire protection. Heat transfer through the door is not an issue, so they are constructed without interior insulation.

FIRE-RATED GLAZING OPTIONS

Technical Glass Products provides a complete line of fire-rated glazing options to complement the TGProtect FR System. Alternatively, refer to your Technical Glass Products SpeciFIRE® Selection Guide, available from your sales representative or online at www.fireglass.com.

Please consult your Technical Glass Products sales representative to determine the best option for your application.

Glazing Product	Available Fire Rating (minutes)	Offers High Impact Safety	Passes Hose Stream Test	Temperature Rise	Complies with Energy Codes	Compatible with TGP Framing	Provides Acoustic Barrier	Advantages / Disadvantages
FireLite Plus Forced Entry IGU	20/45/60	•*	•		•	•	•	+ Energy efficient + Forced Entry Protection + Wide choice of appearances

Note: * Meets CPSC 16CFR1201: Category I and II

General Information

GLAZING SPECIFICATIONS

Closed cell 1/2" wide single or double sided adhesive PVC glazing tape of any common brand (available from your local glazing supply house) is recommended. See "Glazing Tape" on the Material Key Chart. Refer to table below for glazing tape thickness required for specific glazing products.

Glazing Product	Weight (Approx.) Pounds per Sq. Ft.	Glazing Thickness	Glazing Tape Thickness Used	Glazing Tape Thickness Used (Wide Stile)
FireLite Plus® Forced Entry IGU	7.6	31/32" 25 mm	3/16" 5 mm	3/16" 5 mm

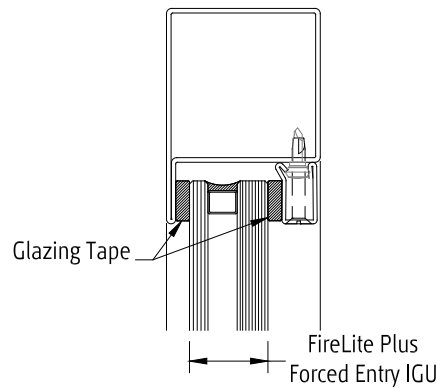


Figure 3 - Typical Glazing Options

HOW TO DETERMINE DOOR HANDING

Doors are always viewed and identified by the secure (lockable) side of the door (except for double egress). The non-lockable side is not secured and always available for emergency egress (panic exit).

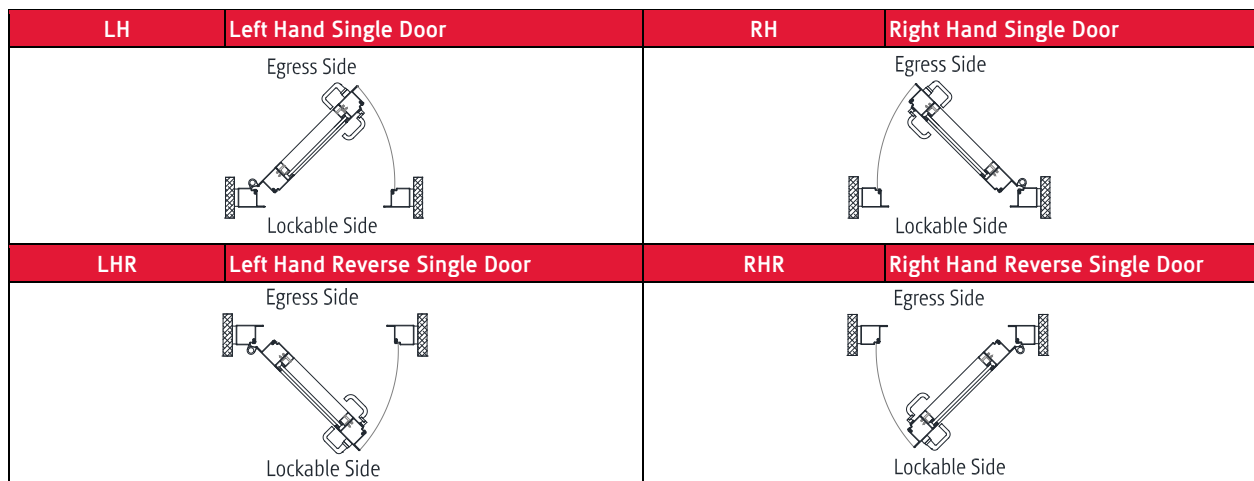


Figure 4 - Door Handing Chart

General Information

DOOR HARDWARE CONFIGURATIONS AND HARDWARE OPTIONS

The TGProtect FR System has been developed with narrow steel profiles which exceed traditional fire-rated frame systems in aesthetics and performance. TGP offers a complete line of select hardware options which have been fit- and function-tested for use with these profiles. Not all fire-rated hardware components available are compatible with this certified Fireframes multi-functional system. Should you request an item of hardware not standardly supplied by TGP, please forward all relevant information (manufacturer, model number, fabrication template and if required physical sample) to TGP for evaluation to determine if it can be supplied by TGP for use. Use of non-standard hardware will incur additional cost, lead time, and review by the certification agency with no guarantee of approval.

Compare door swing types (LH, RH, LHR, etc.) from the Door Handing Chart (Figure 4) to the chart's types to see available hardware standards and options for each door swing combination. For detailed hardware information refer to individual cut sheets available from Technical Glass Products.

Required: ● Required Option: ⊙ Optional: ○ Not Available: Blank

Door Swing Type	LH	RH	LHR	RHR	Manufacturer - Notes
Door Bottom Smoke Seal	●	●	●	●	Pemko – Automatically seals to floor when door is closed.
Perimeter Gaskets	●	●	●	●	TGP – Double overlapping seal system provide effective seal against weather and smoke.
Weld-On Pivot	●	●	●	●	TGP – Three pivots standard.
Closer	⊙	⊙	⊙	⊙	LCN – 4040XP Surface Mounted, Pull Side standard.
Latching	⊙	⊙	⊙	⊙	TGP – Mortise Lock and Lever Handle Trim. With panic function for emergency egress.
Profile Lock Cylinder	⊙	⊙	⊙	⊙	TGP –Schlage C Keyway (with mortise locks only).

Figure 5 - Hardware Configuration Chart

Recommended Guidelines

1. REVIEW CONTRACT DOCUMENTS

Review architectural drawings, specifications, and approved TGP project drawings, installation instructions, and shipping lists to become thoroughly familiar with the project. The TGP project drawings take precedence and include specific details for your installation. These installation instructions are of a general nature and cover most conditions.

2. BUILDING CODES

Due to the diversity in local, state / provincial, or federal laws and the codes that govern design and application of architectural products, it is the responsibility of the individual architect / owner and installer to ensure that products selected for use on projects comply with all the applicable building codes and laws. Technical Glass Products exercises no control over the use or application of its products, glazing materials, and operating hardware and assumes no responsibility thereof. Compliance of TGP project drawings with applicable codes for a given project shall be the responsibility of the Buyer.

3. COORDINATION WITH OTHER TRADES

Coordinate with the general contractor any sequence with other trades which impact installation (i.e. fire proofing, back-up walls, partitions, ceilings, mechanical ducts, converters etc.) or in which installation may impact the work of adjacent trades.

4. INSTALLATION

All materials are to be installed plumb and level.

5. BENCH MARKS

All work should start from bench marks and/or column lines as established by the architectural drawings and the general contractor with guaranteed accuracy. Using these datum points and lines, determine:

- a. The plane of the wall in reference to offset lines provided on each floor;
- b. The finish floor lines in reference to bench marks on the outer building columns; and
- c. Mullion spacing from both ends of openings to prevent dimensional build-up of daylight opening.

6. SURROUNDING CONDITIONS

- a. Coordination of adjacent material and construction tolerances to TGP' s systems may be facilitated by TGP as part of preparing project drawings, and these drawings may indicate acceptable tolerances for critical dimensions. The installer should verify that surrounding construction is in accordance with the approved project drawings. Do not accept rough opening dimensions less than shown on project drawings. It is assumed that the minimal joint dimensions shown on the TGP project drawings match the field conditions. A frame may fit within a given opening but sealants may not perform as detailed if a smaller sealant joint is installed. Expansion / contraction issues may also be compromised. **IF THE JOINTS ARE SMALLER THAN THAT SHOWN ON THE TGP PROJECT DRAWINGS, DO NOT PROCEED.** Notify the General Contractor that the conditions are not as detailed and wait for corrective work to be completed before starting this work.

Recommended Guidelines

- b. The installer **MUST** notify and receive approval from TGP and the general contractor when conditions are not in accordance with approved project drawings and/or change any aspect of the structural performance of the Fireframes system before making any modifications to the TGP-furnished material or making changes which are different from those shown on the TGP project drawings. These conditions include, but are not limited to, anchor placement/location, changes in adjacent materials the anchor is being connected to or changes to dimensional relationships between framing, anchors and connection to adjacent materials.
- c. TGP must review and approve any changes required prior to the subcontractor installing any “corrective” work. These reviews may incur additional charges, which must be approved by the TGP customer prior to TGP’s review.

7. FASTENING

Within the body of these instructions, “fastening” means any method of securing one part to another or to adjacent materials by means other than welding, adhering or using a mechanical fastener as shown on the approved details. Only those fasteners used within the system are specified in these instructions. **Due to the varying perimeter conditions and performance requirements, perimeter and anchor fasteners are not specified in these instructions and are the responsibility of the installer.**

8. SEALANTS

- a. Sealants must be compatible with all materials they are in contact with, including other sealant surfaces. Consult with sealant manufacturer for recommendations relative to joint size, shelf life, compatibility, cleaning/priming, tooling, adhesion, etc.
- b. The chemical compatibility and/or adhesion of all glazing materials and framing sealants with each other and with like materials used in glass and frame fabrication must be established by the installer. This is required on every project.
- c. If required by the project specifications, it is the responsibility of the glazing contractor to submit any documentation or samples from the sealant manufacturer indicating that glass and glazing material has been tested for chemical compatibility and / or adhesion with glazing sealants. **This applies to all TGP materials in contact with any sealant.** TGP will furnish samples of these materials upon request.
- d. The implementation of the test results is the responsibility of the installing contractor, and includes material performance and recommendations for primers and substrate preparation required to obtain adhesion.

9. PERIMETER JOINTS

Perimeter seals and/or expansion joints shown in these instructions and in the TGP project drawings are shown at nominal size. Actual dimensions may vary due to perimeter conditions and / or difference in metal temperature between the time of fabrication and the time of installation. Design and detailing have been based on a fabrication / installation temperature of 70° F (21° C). If extreme temperatures exist at time of installation, gaps between expansion members may require slight adjustment.

Sample Elevations – Single Doors

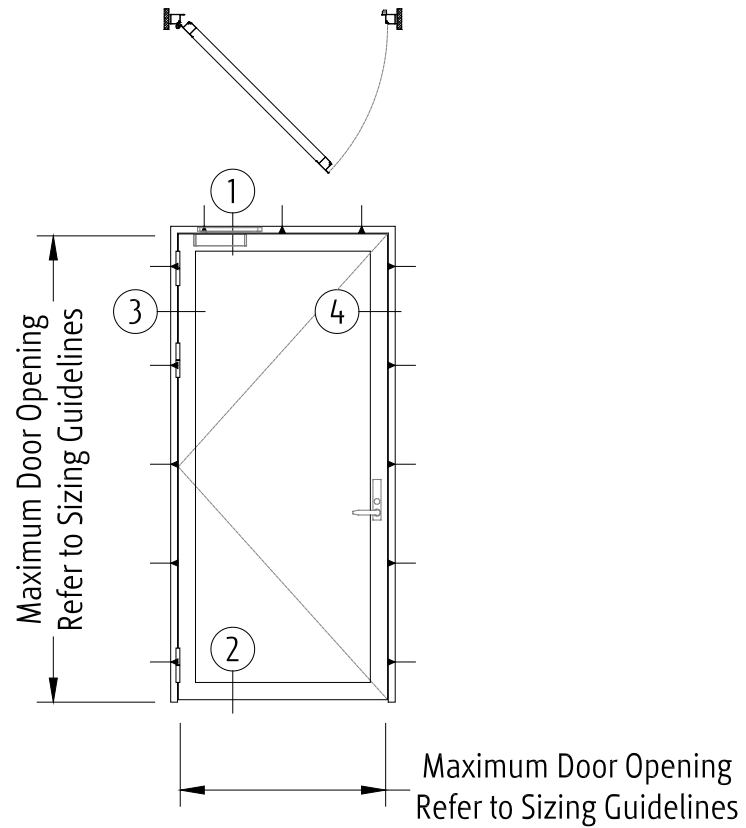



Figure 7 - Standalone Door

Perimeter Anchors - 
Approximate anchor hole location

Sample Elevations – Single Door with Sidelite

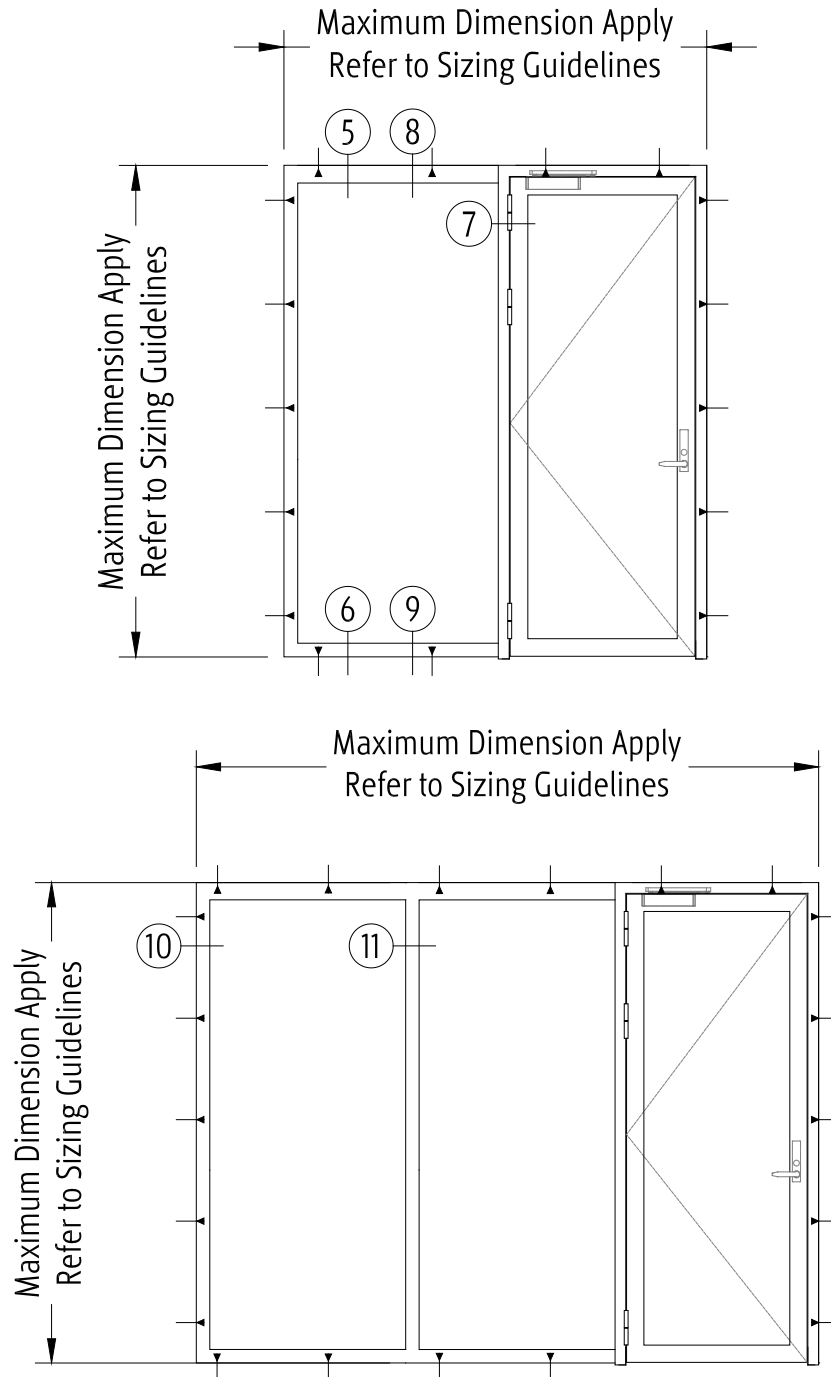


Figure 8 Single Door with Sidelite(s)
NOTE: Sidelite Permitted on Pivot Side of Door Only

Sample Elevations – Wide Stile Doors

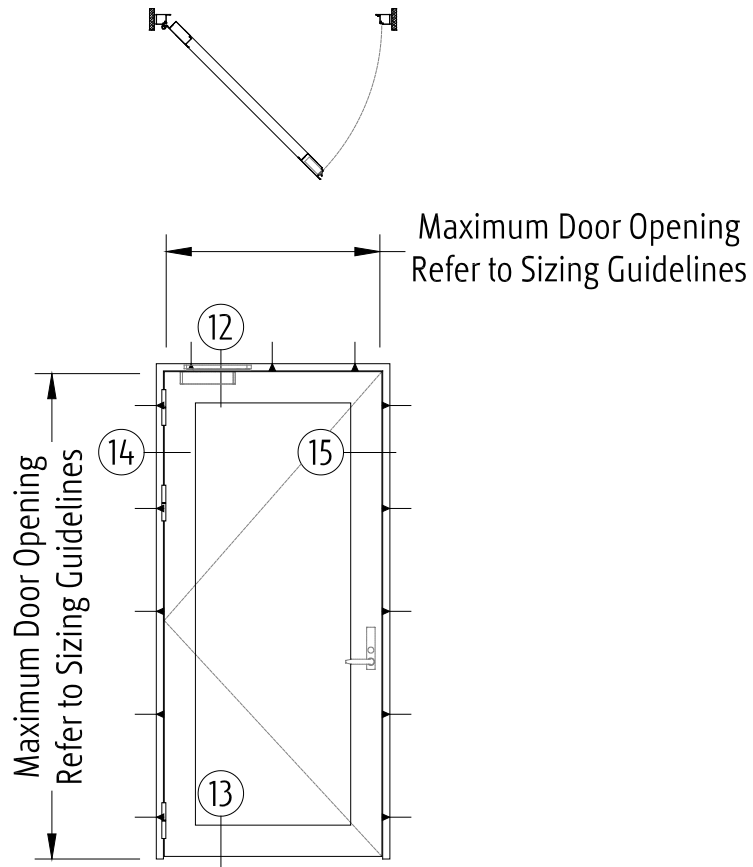



Figure 9 - Standalone Wide Stile Door

Perimeter Anchors - 
Approximate anchor hole location

Sample Section Details – Doors

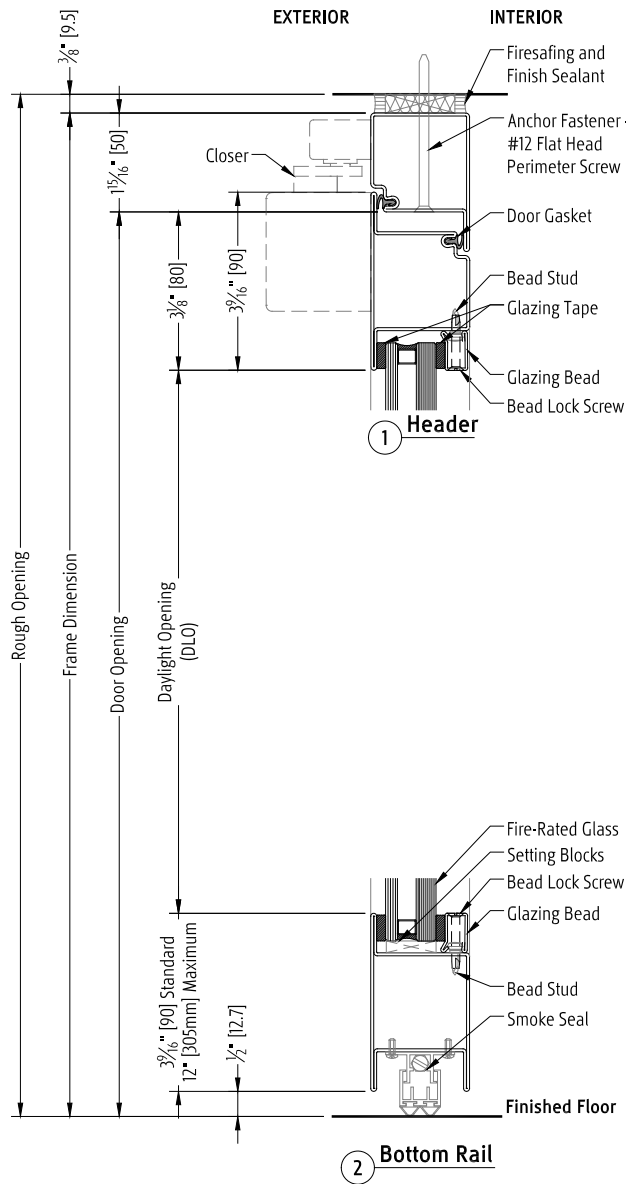


Figure 10 - Standalone Door

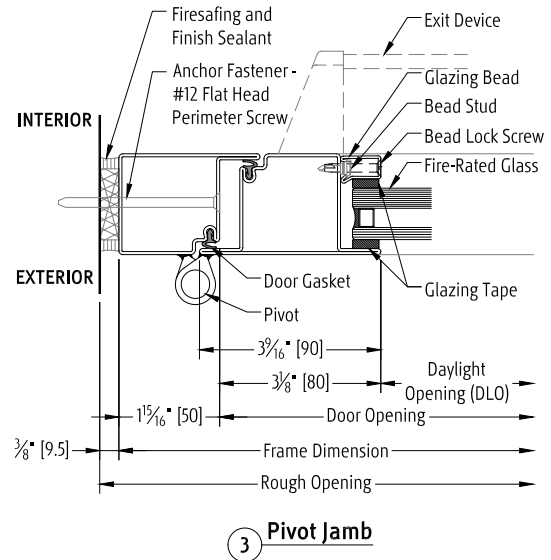


Figure 11 Standalone Door Jamb at Pivot Side

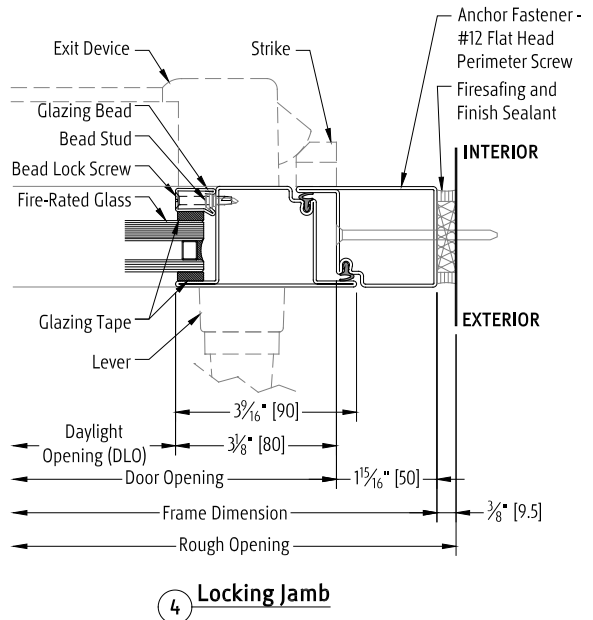
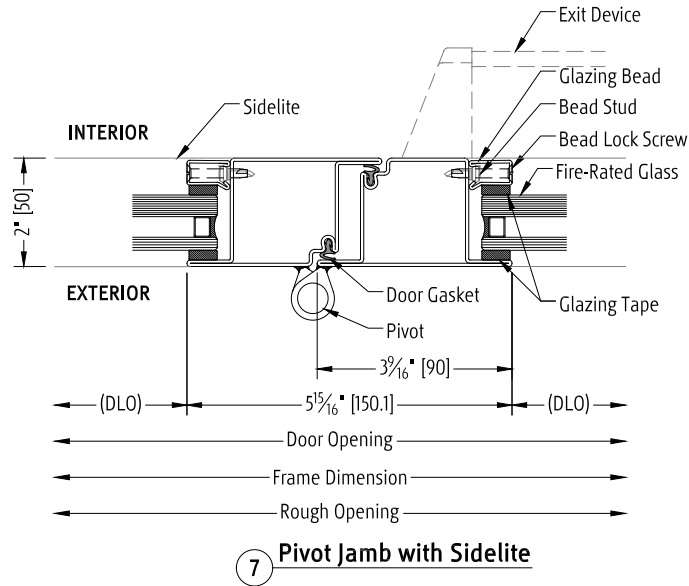


Figure 12 - Standalone Door Jamb at Lever Side

Sample Section Details – Doors



**Figure 13 - Standalone Door
Pivot Jamb with Sidelite**

Sample Section Details – Wide Stile Doors

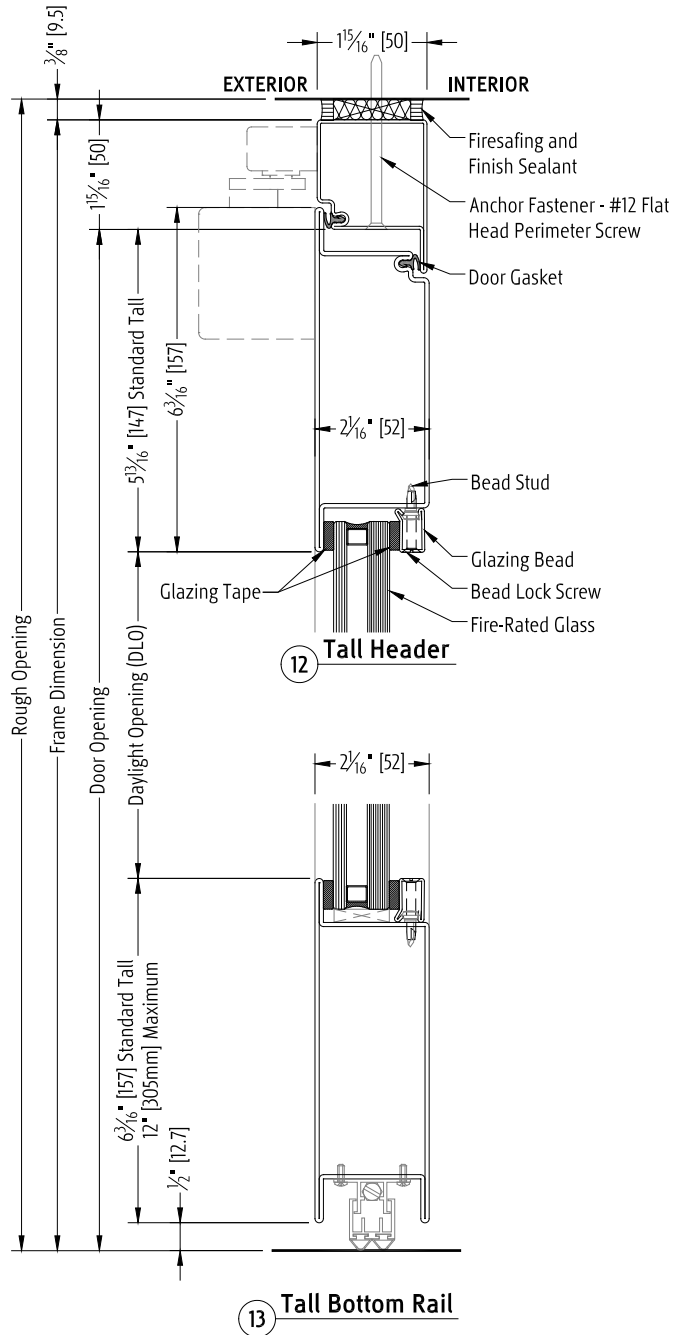
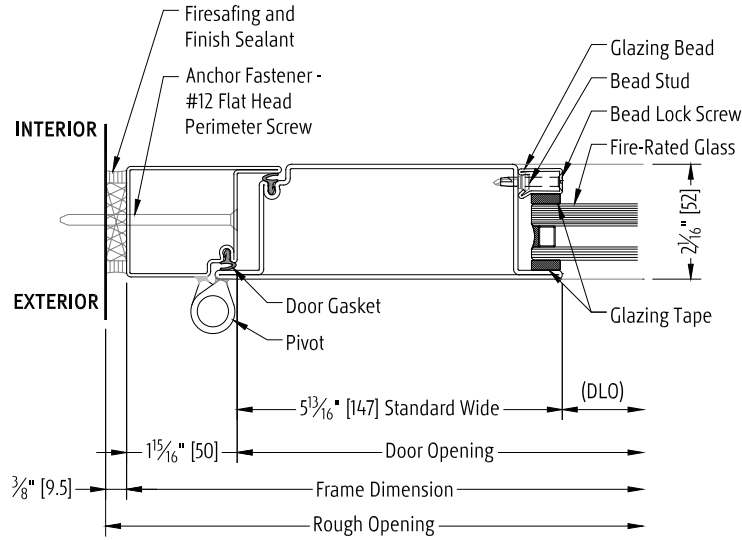
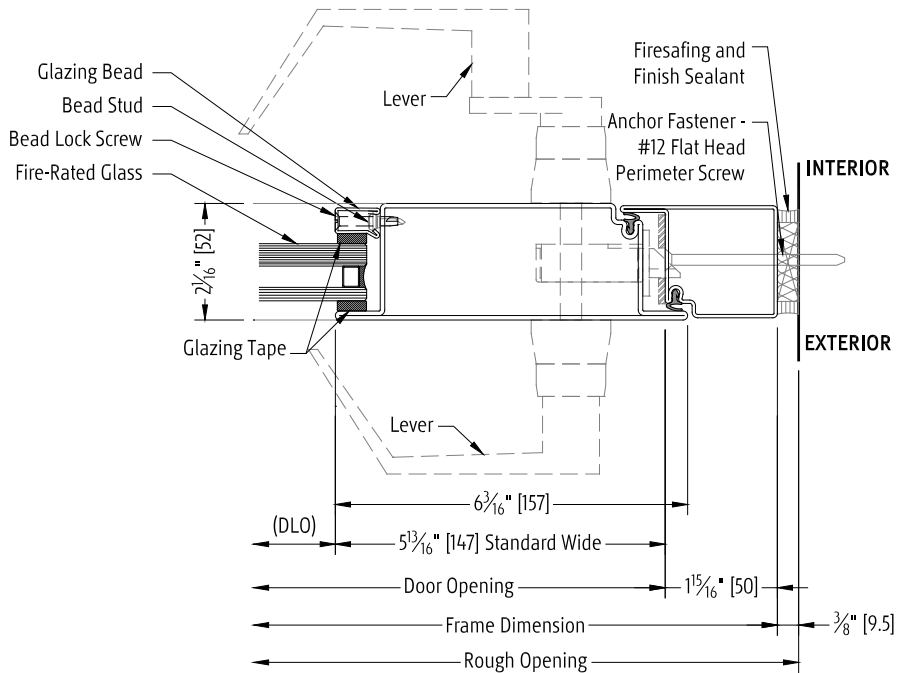


Figure 14 - Wide Stile Door Details

Sample Section Details – Wide Stile Doors



14 **Wide Stile at Pivot Jamb**



15 **Wide Stile at Locking Jamb**

Figure 15 - Wide Stile Jamb Combinations

Sample Section Details – Sidelites

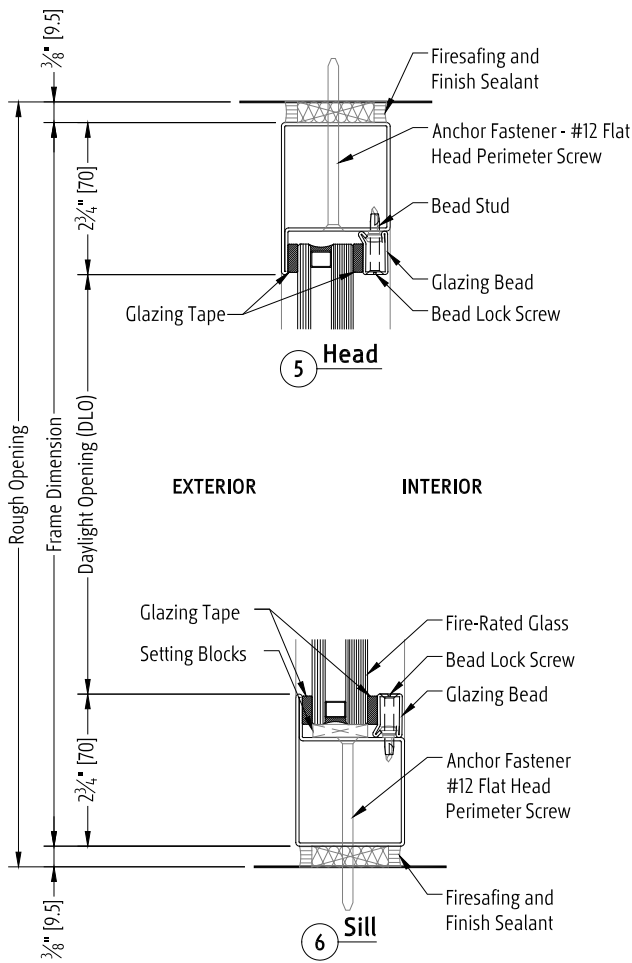


Figure 16 - INTERIOR Application

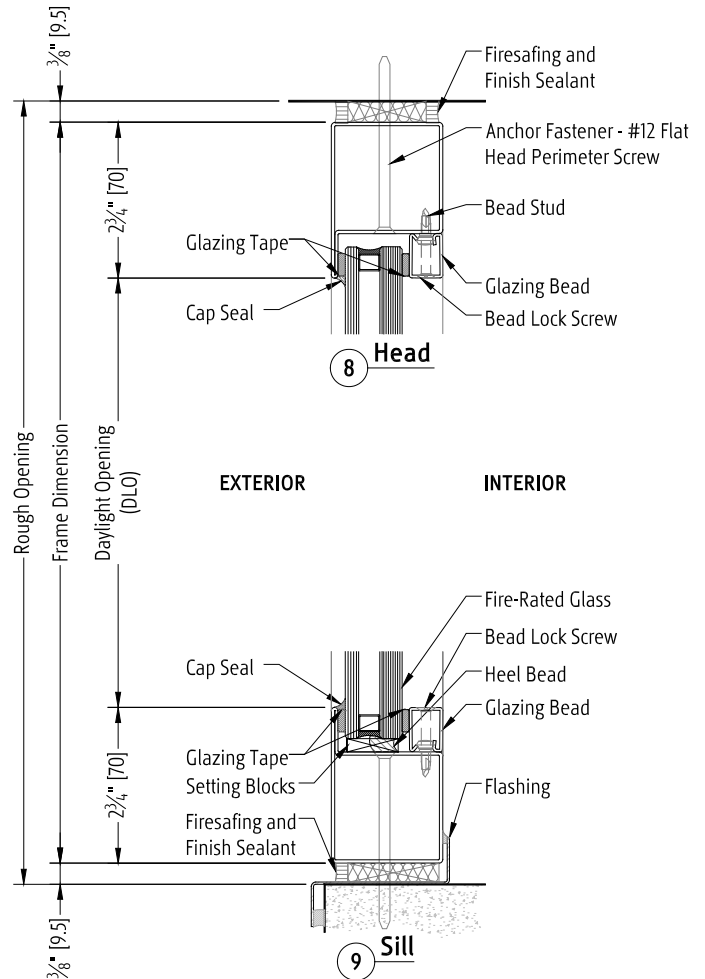


Figure 17 - EXTERIOR Application

NOTE: Install Frame Flange on the EXTERIOR of opening.
Typical IGU shown.

Sample Section Details – Multiple Sidelites

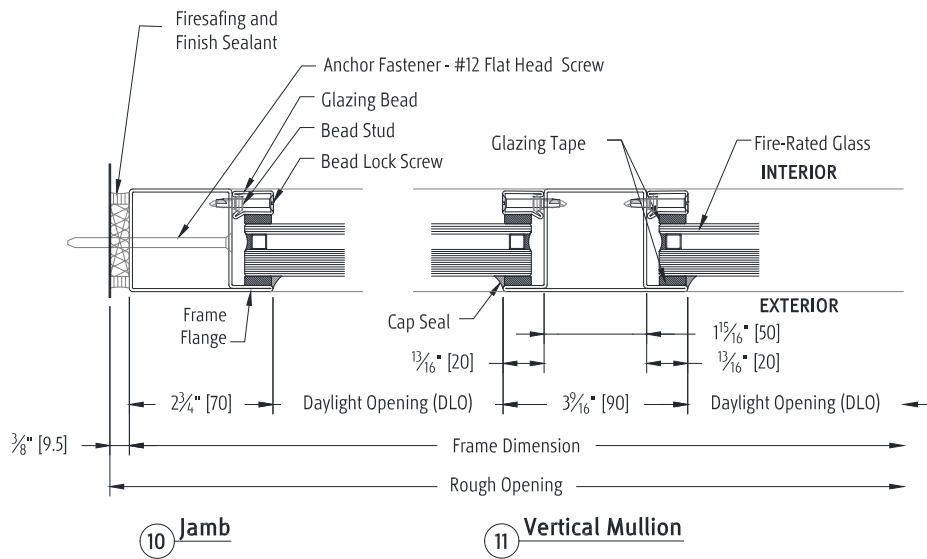


Figure 18 - INTERIOR Application