# GT7700 Terrace Door

GRAHAM
ARCHITECTURAL PRODUCTS

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## Installation Guidelines for
## GT7700 Inswing, Outswing
## Single and French Doors

**Approved 02/13/2023**

# GT7700 Terrace Door

## Installation Guideline Disclaimer

This document contains general installation guidelines for Graham Architectural products and does not address each particular condition or installation. Shop drawing installation details may vary from these Guidelines as these Guidelines do not address each particular condition so any variances should be addressed by the design professional. These Guidelines do not address the structural adequacy on any installation, and such should be addressed by a design professional. Anchorage to existing or proposed wall conditions are not addressed in this document. Sealant compatibilities and application details should be reviewed by the sealant manufacturers. This document does not address the interface between the door system and the buildings weather barrier system and should be reviewed by the waterproofing consultant. It is generally recommended that insulation be installed in all voids created in the installation of a thermally improved system, but the application of insulation in wet areas needs to be addressed by the design professional and the particular type of insulation may need to be specified.

# GT7700 Terrace Door

These instructions include the installation and initial adjustment instructions of the GT7700 Doors. Read these instructions before starting any installation.

## Receiving, Handling, and Storage

The proper receiving, handling and storage of windows and/or doors is critical to the performance of the products throughout their service life. Abuse of the products during these processes will affect their operation and appearance. Even if the effects are not immediately noticed, they could surface later in the life of the product. The following are precautions that need to be followed.

Receiving: Prior to receiving the shipment of the doors, ensure that there is an adequate location to receive the products and enough manpower and equipment to off load the doors and accessories.

- Depending on the glass configuration and the size of the doors, the doors may be extremely heavy. A loading dock or glass manipulator may be needed to offload the products without damaging them. Contact Graham Architectural to determine the weight of any doors that are over 40 square feet.
- Most trucking companies allow a 3 hour off-loading time, and will charge a detention fee if the truck is not off-loaded within that time period. That should be considered when determining the location where the truck will be off-loaded and how much manpower will be needed to complete the process.
- Ensure that the storage location is close to the off-loading area. The product storage area must meet the requirements listed in the “Storage” section below.

Handling: HANDLE CAREFULLY – DO NOT DROP.

- It’s recommended to use a glass manipulator for large or heavy units. Ensure that there is enough manpower to lift and maneuver the doors. Use glass cups when possible. Only use material handling equipment that will not damage the finish of the products.
- Be careful handling doors with pre-loaded panels. Make sure the panels are fully locked prior to moving the doors. Never have fingers or hands inside the operating area of a panel.
- Do not use any of the hardware or grids for lifting or manipulating the door. Glazed products must always be transported vertically.

Storage:

- The storage location for any finished products must be cordoned off to prevent damage from other trades, such as moving equipment.
- Stack vertically and on their sills with adequate separation so door parts will not rub together, including any protruding hardware such as handles. All products should be stored on top of wood blocking to protect the finish and weather-strip. Blocking will also be needed between the frame and any object that can damage the door frame.

Storage (continued):

- Ensure that the products cannot be blown over by the wind, and limited to stacking of five (5) units before alternate support is given. If the doors are going to be stored for a short period of time (less than 1 month), they can be leaned at a 15° – 20° angle from vertical, with blocking to prevent them from rubbing/deforming. If they are going to be stored for an extended period of time, they will need stacked vertically (<3° from vertical) with strapping to prevent them from being blown over by the wind.
- Protect products completely from moisture and dirt prior to installation. It is important that all doors that are not installed, are protected from direct contact with rain, snow, or ice so as to protect the finish and glazing of the product. If water gets into, and is retained in the glazing pocket it will cause the edge seal of the insulating glass to fail.
- Storing the products in the building is preferred, as long as they are not in a high traffic area. If stored in a trailer, or under clear plastic, there must be adequate ventilation to prevent the temperature of the doors from exceeding 110° F (43.3° C). Temperatures exceeding this threshold can damage the sealants in the insulating glass. Heat build can also cause stress fractures in the glass. If storing outside, the products must be covered in a manner that will prevent water from getting into the products, while allowing ventilation to prevent excessive temperature or humidity build-up.
- Construction debris and dirt within the frame will affect the operation of the door. Protect all products from paint, weld spatter, construction debris, cement, plaster, terrazzo, and other construction materials, which include, but are not limited to, alkali based materials or caustic cleaners. This must be removed immediately to prevent damage to the finish of the aluminum or to the clarity of the glass.
- If the doors have been wrapped in a transparent plastic protective wrap, this wrap cannot be on the product for more than 90 days from the date of manufacturing, otherwise, it will be very difficult to remove protective wrap from the door finish.
- Prior to applying sealants, the surfaces must be cleaned and prepared as directed by the sealant manufacturer.

*CAUTION – Doors are not to be used as ladders, scaffolds, or supports. Installed door openings are not to be used as construction entrances, unless adequate protection to the door sill and jambs is provided. Damage to any products from any construction activity will void the product warranty for the products in question.*

***Note:** Copies of these instructions can be downloaded from www.grahamwindows.com/architectural-resources/technical-information/*

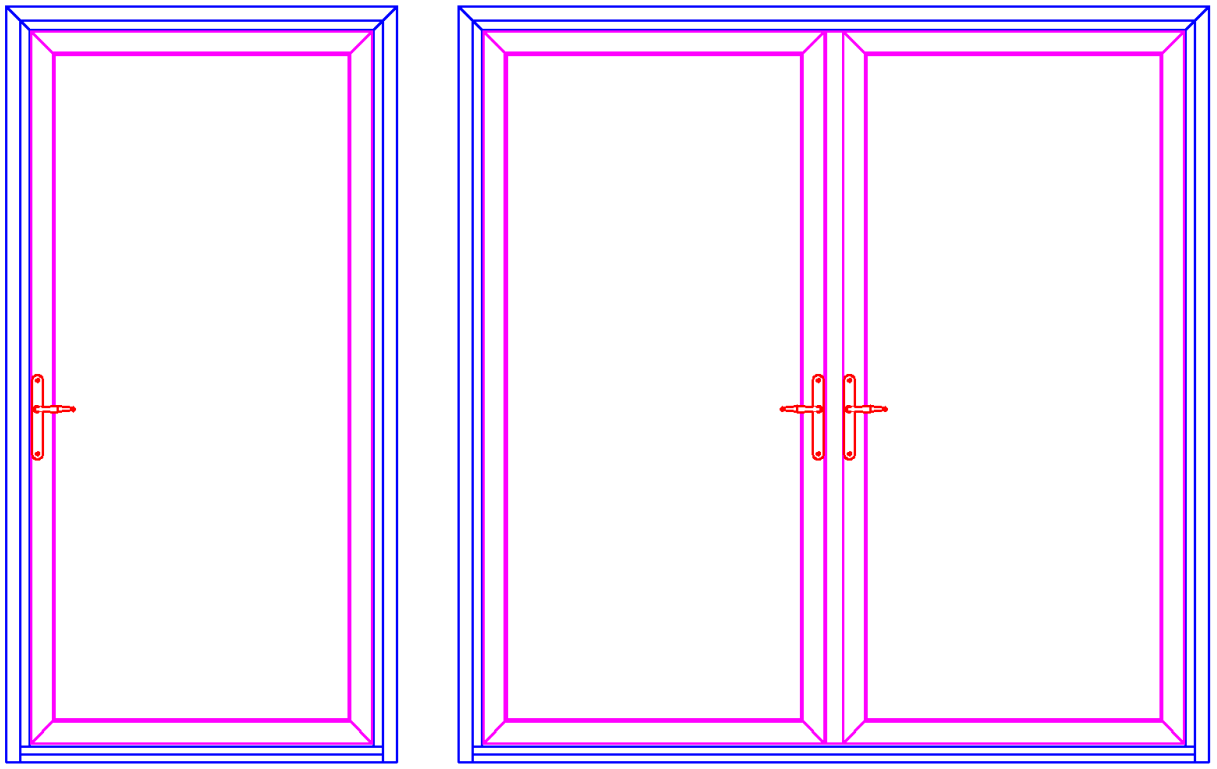
# GT7700 Terrace Door

## Contents:

Carefully check that all doors and hardware have been received undamaged. The doors are shipped without the handles. Make sure there is a handle kit for each door. Contact Graham Architectural if any products are damaged or are missing.

## Configurations:

The GT7700 Terrace Doors are available in 2-3/4", 3", 3-1/4", and 3-3/8" frame depths, in either inswing or outswing configurations. The doors can be single doors or XX French doors. Sidelights and transoms will be windows from other product series.



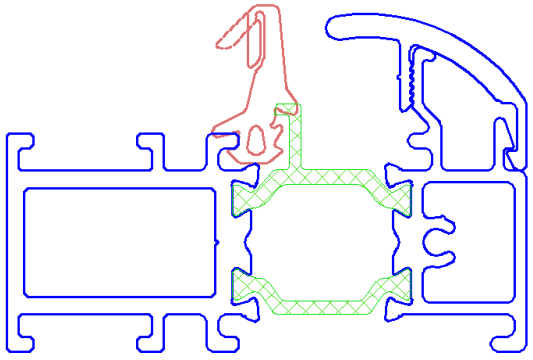
*Note: French doors will have different water performance than the single doors. Reference the Graham Architectural Product Catalog for more information*.*

** To download the product catalog, go to https://www.grahamwindows.com/product/gt7700-terrace-doors/*

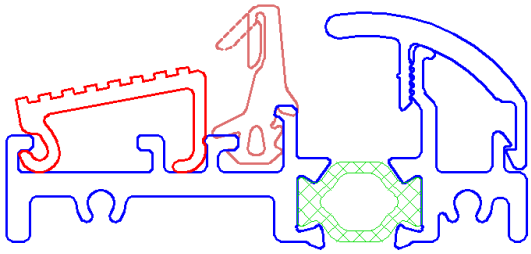
# GT7700 Terrace Door

## Sill Options:

The GT7700 doors have two sill options, the standard sill and the low sill. Reference the Graham Architectural Product Catalog* for more information on these sill types and their uses.



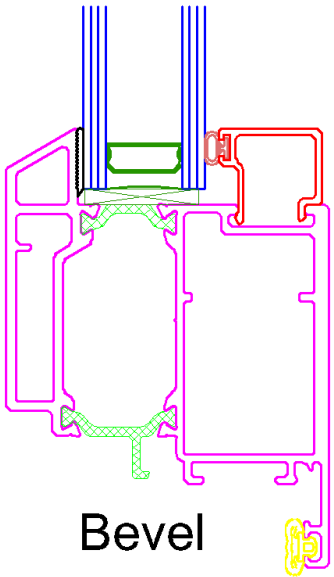
Standard Sill



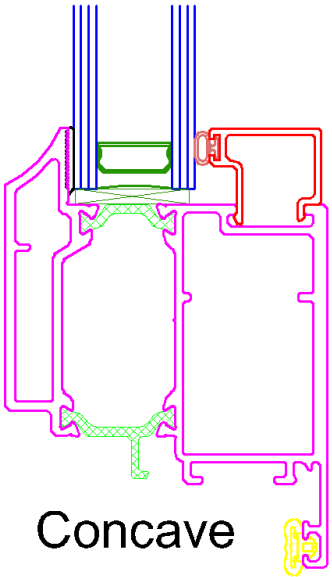
Low Sill

## Glazing Leg Options

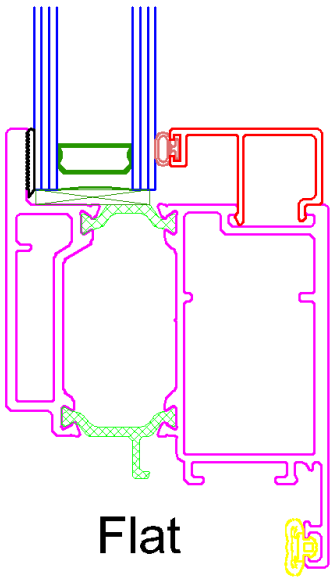
The GT7700 doors have three different (exterior) glazing leg options. The beveled, the concave leg, and the flat leg. See the drawings below.



Bevel



Concave



Flat

# GT7700 Terrace Door

## Door Installation

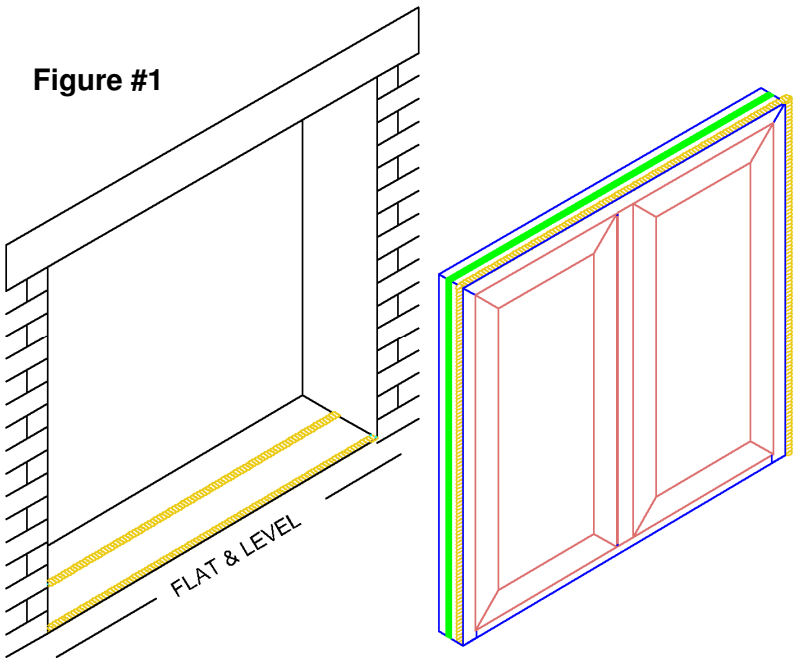
**General Instructions:**

A. Install the door in accordance with the shop drawings. Graham Architectural recommends at least two rows of sealant at the sill. The sill sealant will need to connect with the jamb seal.

B. Anchor the frames as required by the shop drawings. It is not recommended to drill through the sill, or through the tank of the sill. If fasteners are required to penetrate the sill; sealant must be applied in the pre-drilled hole first. Drill the hole, clean out the drill shavings/debris, clean around the hole area, apply sealant in the hole, install the fastener, and then seal over the fastener head.

C. The sill will need continuous support. The sill must be level in accordance with Table #1.

**Figure #1**




### Table #1

| Installation Tolerances (+/- Target) | | | |
|---|---|---|---|
| | **Inches/ Foot** | **Inches Maximum** | **Method of Measurement** |
| Level (Horizontal Measurement) | 1/32" | 1/8" | Measure sill using level |
| Plumb (Vertical Measurement) | 1/32" | 1/8" | Measure jambs using level or plumb bob |
| True (In Plane Measurement) | 1/32" | 1/8" | Attach strings across corners, measure where they cross |
| Extrusion Straightness | 1/64" | 1/16" | Measure with straight edge |
| Square (Diagonal Measurement) | N/A | 1/16"* 1/8"** | Measure diagonal corners (Difference/2) |

*Openings up to 20 sq. ft. **Openings 20 sq. ft. and over

D. All work should start from established benchmarks and column center lines established by the architectural drawings and the general contractor.

E. The sequence of installation should be coordinated with the job superintendent, so delays are prevented.

F. Be aware of allowable edge distance requirements for the fasteners into the substrate, especially when the substrate is masonry. Refer to the fastener manufacturer's instruction for proper usage.

G. Seal the exterior in accordance with the shop drawings.

H. Insulate between the door frame and the rough opening (or receptor, if used).

## Through Frame Installation

A. Position the frame in the opening. Be careful not to twist or rotate the frame during handling or installation.

B. The fastening schedule will generally be determined by a structural engineer. If a fastening schedule has not been specified, Graham Architectural recommends applying fasteners a maximum of 9 inches from each corner, and then a maximum of 18 inches apart. (Note: Recommended fastening does not apply to projects that have blast mitigation or hurricane requirements)

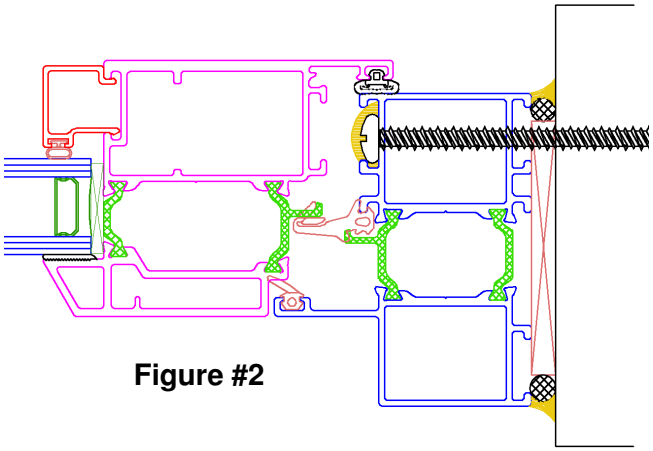


**Figure #2**

C. Shims and fasteners will be needed above and below the hinges within 2"of the hinge; and one at (or within 2") each lock point (See Figure #2).

D. The door must be level, plumb and square in accordance with Table #1.

E. When fastening through the door frame, seal the heads of the fasteners before and after installation.

## Strap Anchor Installation

A. Attach the strap anchors to the door head and jambs at the required spacing with the screws provided (See Figure #3). If necessary, bend the strap anchors so they point to the interior of the opening.

B. Make sure the sill is level within the tolerances in Table #1.

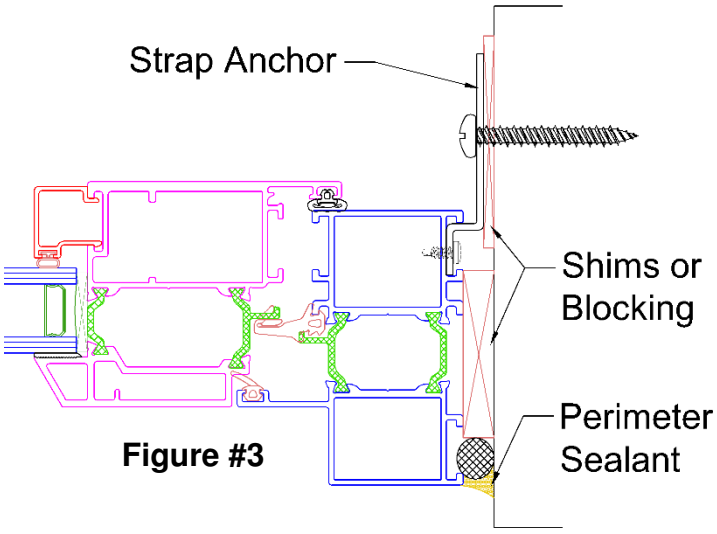



**Figure #3**

# GT7700 Terrace Door

## Strap Anchor Installation (Continued)

C. Position the door into the opening, making sure that the door is plumb and at the proper set-back from the exterior.

D. Apply fasteners through the strap anchor. Apply shims, if needed to position the door properly.

E. Shims and fasteners will be needed above and below the hinges within 2"of the hinge; and one at (or within 2") each lock point.

F. Apply backer rod and seal the perimeter of the window frame (See Figure #3).

## Trim and Clip Installation

A. The trim clips can be full length or 3" long sections. If sections are used, they will need to be lined up in order to snap on the trim.

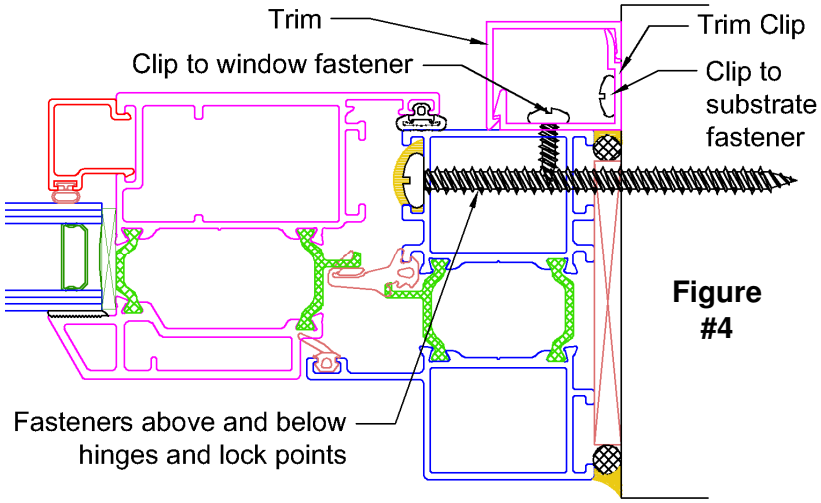



**Figure #4**

B. The fastening schedule will generally be determined by a structural engineer. If a fastening schedule has not been specified, Graham Architectural suggests applying fasteners 9 inches from each corner, and then a maximum of 18 inches apart.

C. The clip to door fastener must be a minimum of #8 x 1/2" screw, or heavier as required to meet project design loads. Fasteners will still be needed through the frame at (near) the hinges and latch.

D. The clip to rough opening fastener is dictated by the substrate. Graham Architectural recommends that the fastener is greater than, or equal to, that of the fastener used at the clip to door (as required to meet project design loads).

E. Shims and fasteners will be needed above and below the hinges within 2"of the hinge; and one at (or within 2") each lock point (See Figure #4).

F. The door must be level, plumb and square in accordance with Table #1.

G. When fastening through the door frame, seal the heads of the fasteners before and after installation.

J. The jambs are cut to size after the head and (if used) the sill trim is installed. Snap covers on using a rubber mallet.

## Receptor Installation:

A. If the doors are to be installed in a receptor system, refer to the Graham Installation Guidelines for Receptor Systems for more detailed instructions. www.grahamwindows.com/architectural-resources/technical-information/

B. Apply shims and/or blocking at each hinge and fastener location (See Figure #5). The door must be level, plumb and square in accordance with Table 1.

C. In addition to the blocking and shims described in Step B, cross-blocking will be needed to prevent the door from going out of square when opened (See Figures #5 and #6).

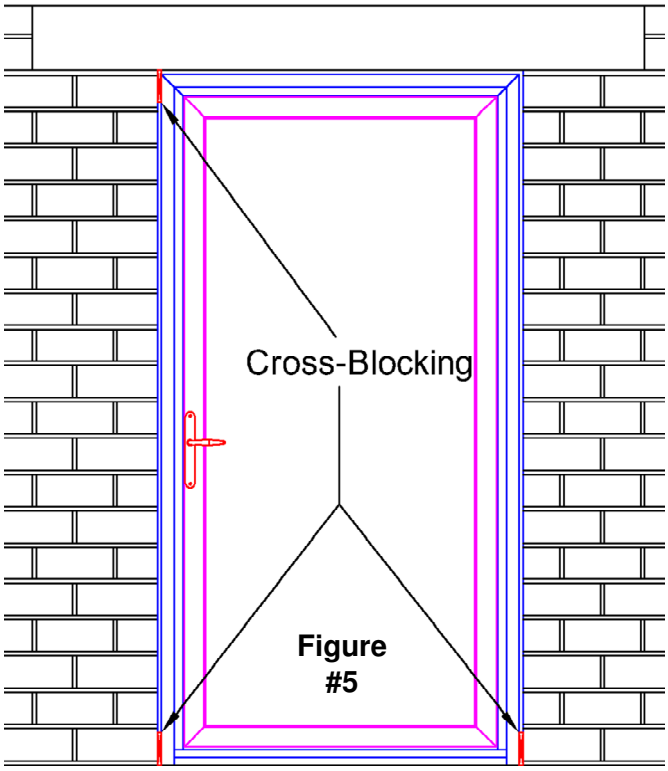



**Figure #5**

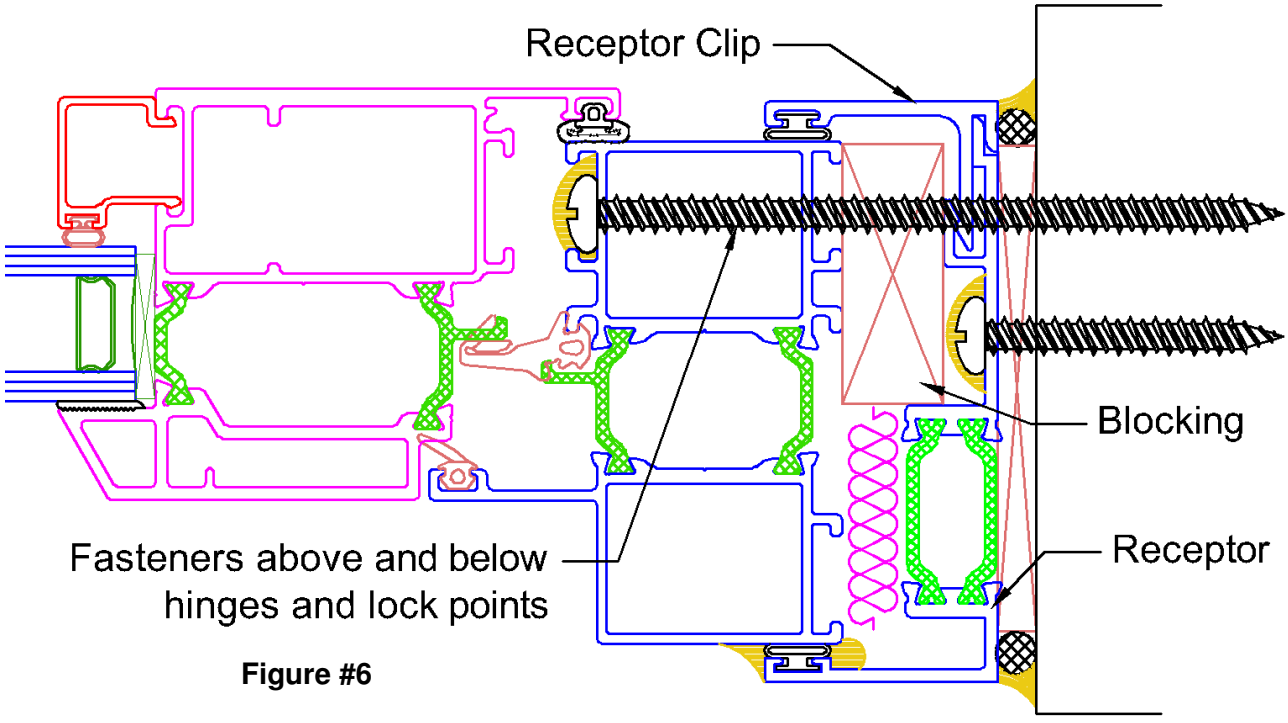



**Figure #6**

# GT7700 Terrace Door

## Handle/ Lock Installation

A. If there is a key cylinder, insert the cylinder in the exterior handle assembly and attach the cylinder with the Z-clip and the supplied screw (See Figure #7).

B. Insert the gasket into the exterior handle assembly.

C. Insert the spindle into the gearbox that has previously been installed into the door.

D. Slide the spring cassette onto the spindle, on the interior side of the door.

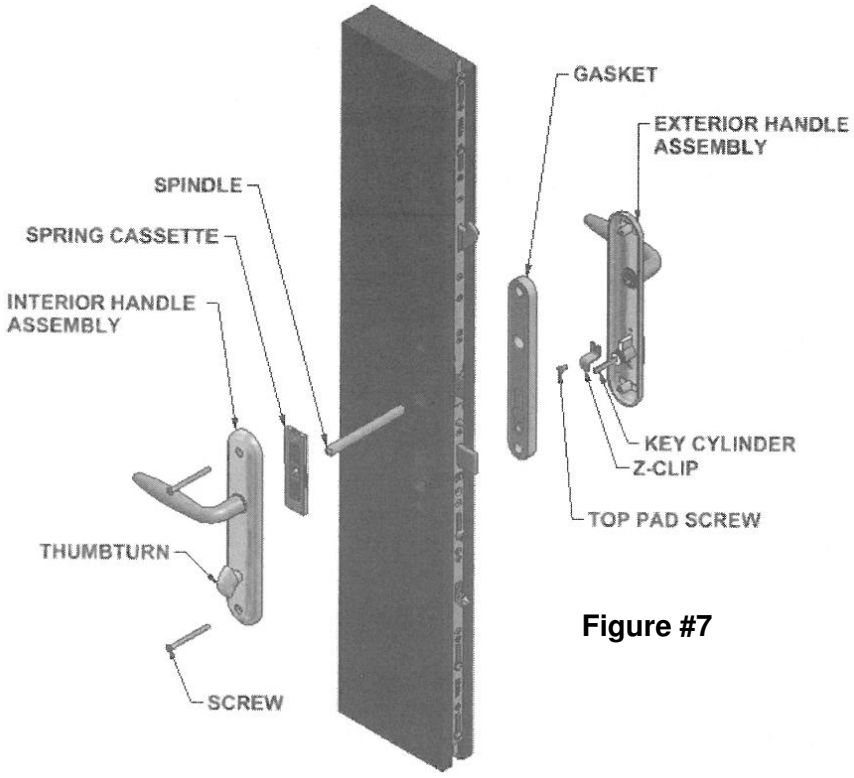
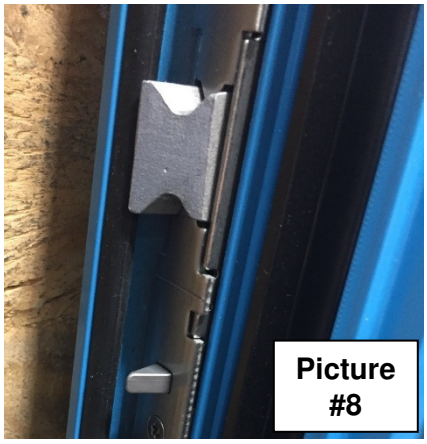



**Figure #7**

E. While aligning the spindle ends with the door handles (and the lock spindle, if supplied), Slide the handle assemblies into position.

F. Attach the handle assemblies with the supplied screws.

G. The latch should be situated with the high part toward the door gasket as shown in Picture #8. If it is not situated correctly, pull the handle up to lock the assembly, and then pull the latch out and twist it into the correct position (See Picture #9).



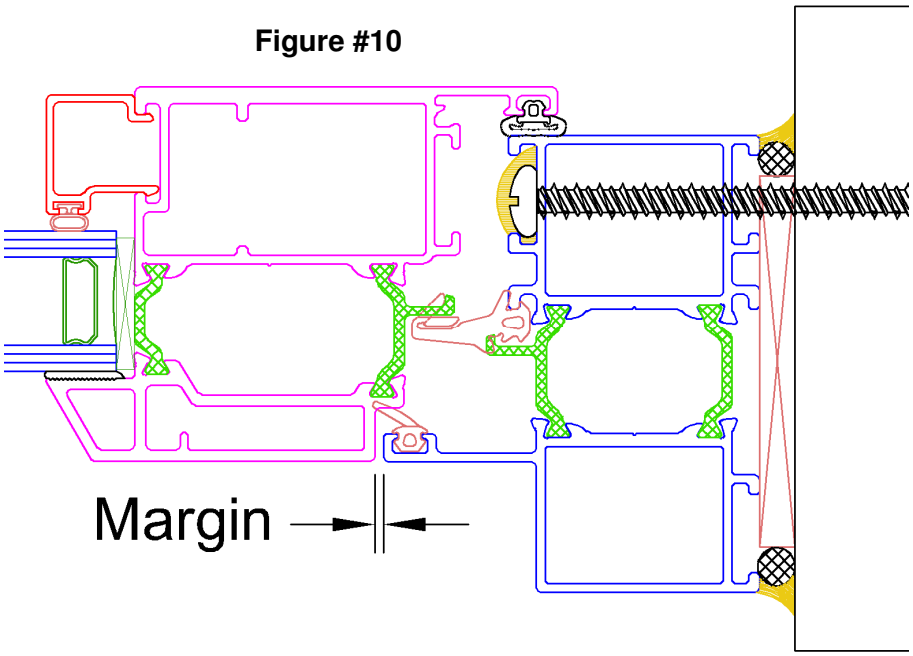
**Picture #8**

**Picture #9**

## Door Panel(s) Alignment

A. Look at the margin between the door panel and the door frame (See Figure #10). If the margin is not even around the perimeter of the door panel, the door will need adjustment. Determine which direction the panel needs the adjustment. The door panel needs uniformly centered in the frame.

**Figure #10**




B. French door panels will need to be aligned with each other. It is recommended to adjust the inactive (secondary) panel and then adjust the active panel to match (See Figure #11).

C. The panel adjustments can be made with the hinges. The vertical position of the panel(s) can be adjusted +/- 3 mm. The horizontal position of the panel can be adjusted +/- 1mm.

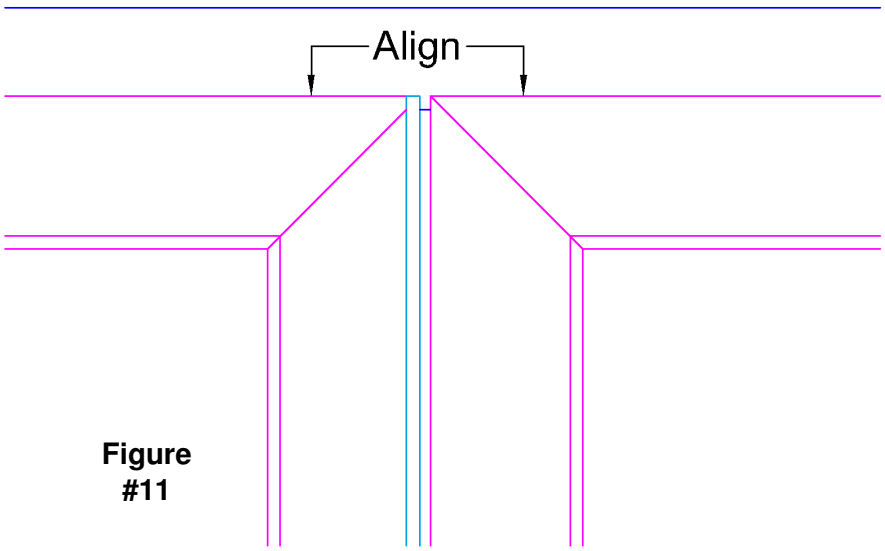



**Figure #11**

D. Adjust the panels using the Hinge Adjustment section of this manual.

# GT7700 Terrace Door

## Hinge Adjustment

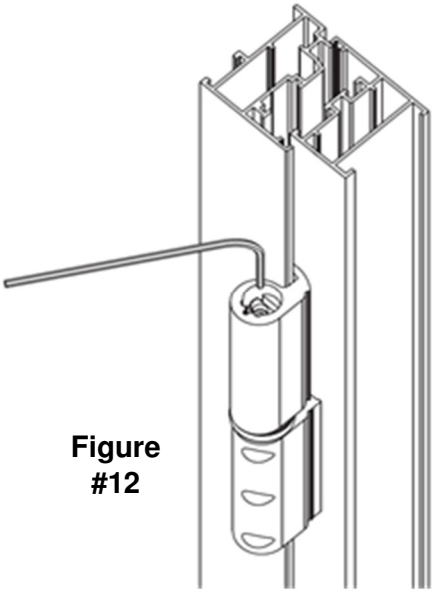


Figure #12

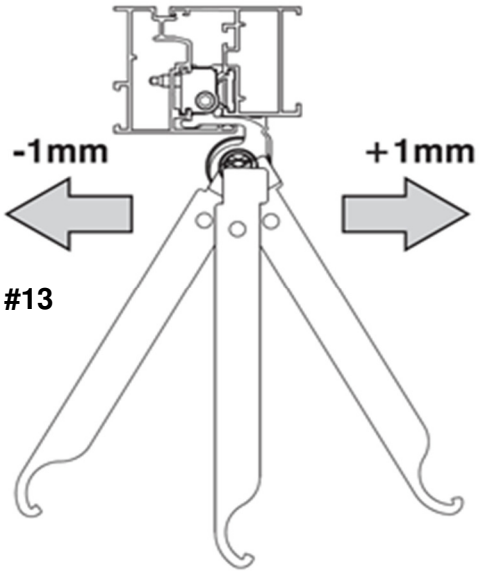



Figure #13

Horizontal Adjustment:

A. Loosen the grub screw in the top of the hinge (See Figure #12).

B. Use the Giesse key (Part #03259N) or a wide, flat tip screwdriver to adjust the hinge bushing (See Figure #13).

C. Check the panel alignment and re-adjust if necessary.

D. Re-tighten the grub screw.

Vertical Adjustment:

A. Slightly loosen the hinge mounting screws on the door frame side of the hinge (See Figure #14).

B. Use a hex head wrench to turn the grub screw in the block that's on the frame. This will adjust the panel up or down (See Figure #14).

C. Check the panel alignment and re-adjust if necessary.

D. Re-tighten the hinge mounting screws.

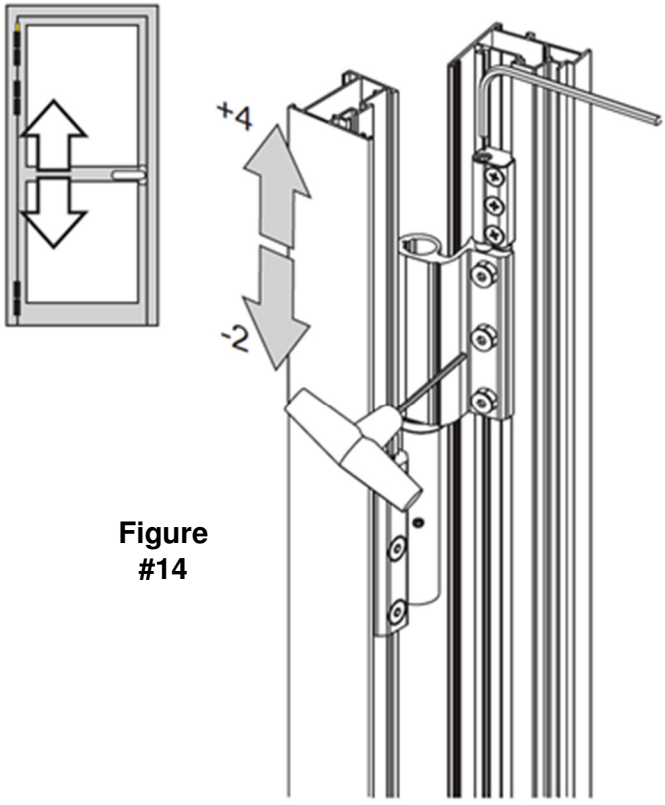



Figure #14

## LOCK ADJUSTMENT:

A. The door panel(s) must be adjusted in the frame prior to adjusting the locks. See the Panel Alignment section to adjust the door panel.

B. Check the alignment of the lock points, by opening the door, engage the locks (lift handle up), almost close the door, and the lock points should align with the keepers (See Figure #15).

C. If the keepers need adjusted up or down (or left or right), loosen the 2.5mm hex screws and slide as needed. Re-tighten the screws. (See Figure #16).

D. Open and close the door a couple of times. If the handle is hard to turn, the lock keepers will need to be loosened (Go to Step F).

E. Compression of the center weatherstrip can be checked by inserting a piece of flexible paper (dollar bill) between the door and the frame, and closing and locking the door. If the door has an interior or exterior gasket that will affect this test, pull approximately 24" of the gasket out of the way, so only the center gasket is tested for compression. If the paper pulls out easily, the lock (keepers) will need tightened (Go to Step F).

F. If the panels need tightened (more compression on weatherstrip) or loosened (lighter handle pressure) to the frame, loosen the Phillips screw and adjust the keeper as needed. Re-tighten the screw. (See Figure #16).

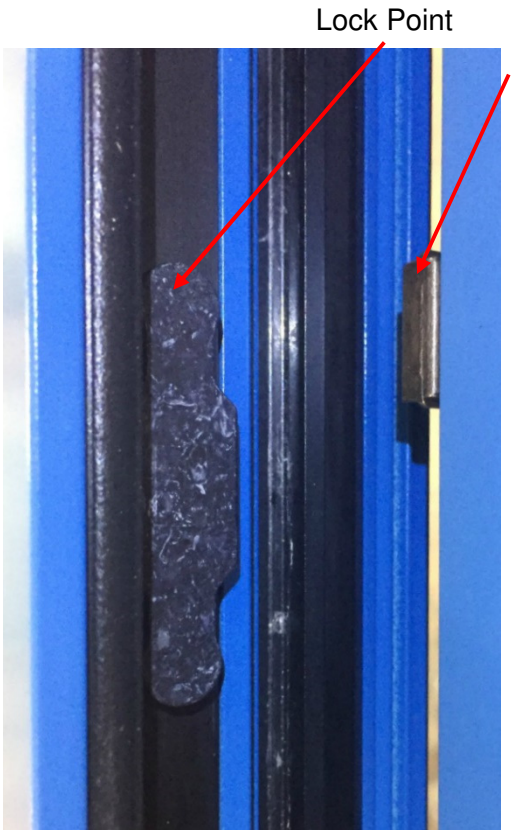



**Figure #15**

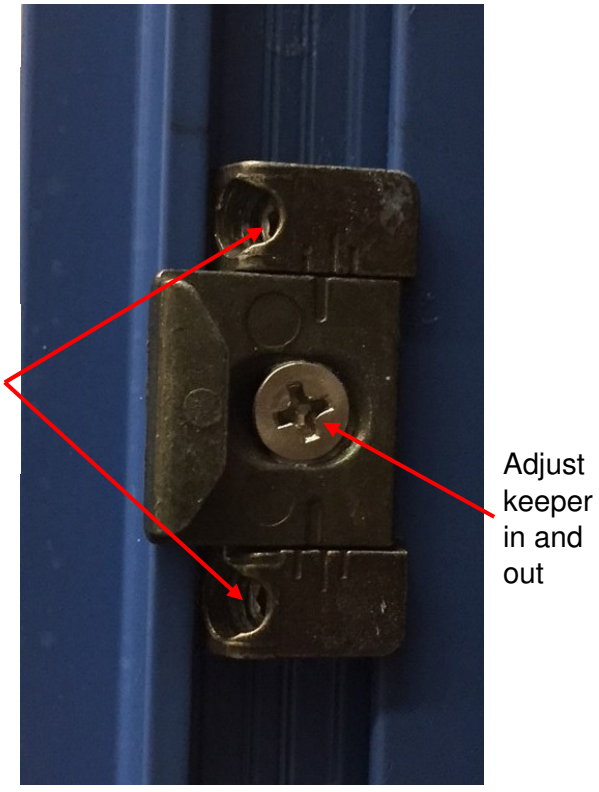



**Figure #16**

## SNUBBER ADJUSTMENT:

A. The door panel(s) must be adjusted in the frame prior to adjusting the snubber(s). See the Panel Alignment section to adjust the door panel.

*Note: Snubbers are anti-deflection devices that also ensure proper gasket contact on the hinge stile.*

B. If the door panel bounces open when attempting to close, the snubbers may need adjustment.

C. Check the snubber alignment by opening the door until the panel snubber and the frame snubber can be viewed. The panel snubber should align with the frame snubber (See Figure #17).

D. If the frame snubbers need adjusted up or down, loosen the snubber attachment screws (2.5mm hex screws) and slide as needed. Re-tighten the screws. (See Figure #18).

E. If the panels still bounce open when attempting to close, the frame snubbers will need adjusted toward the exterior. In order to adjust the frame snubbers, loosen the snubber adjustment screw (Phillips) and adjust the snubber as needed. Re-tighten the screw. (See Figure #18).

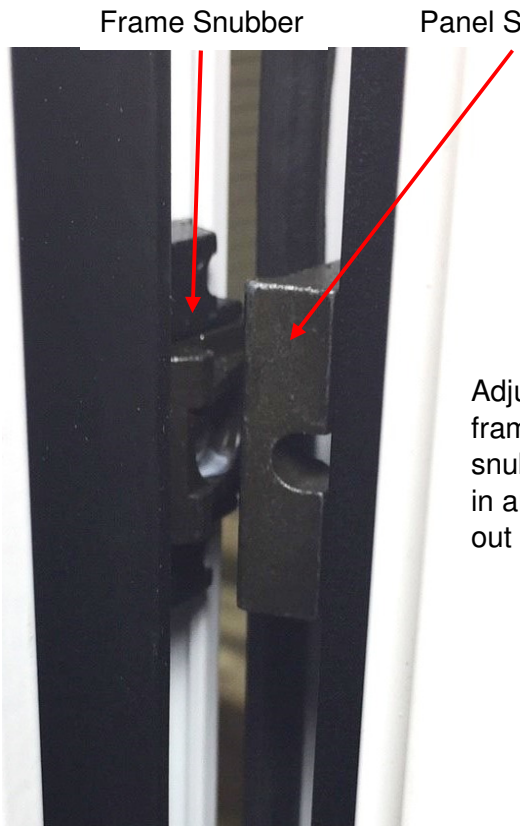



**Figure #17**

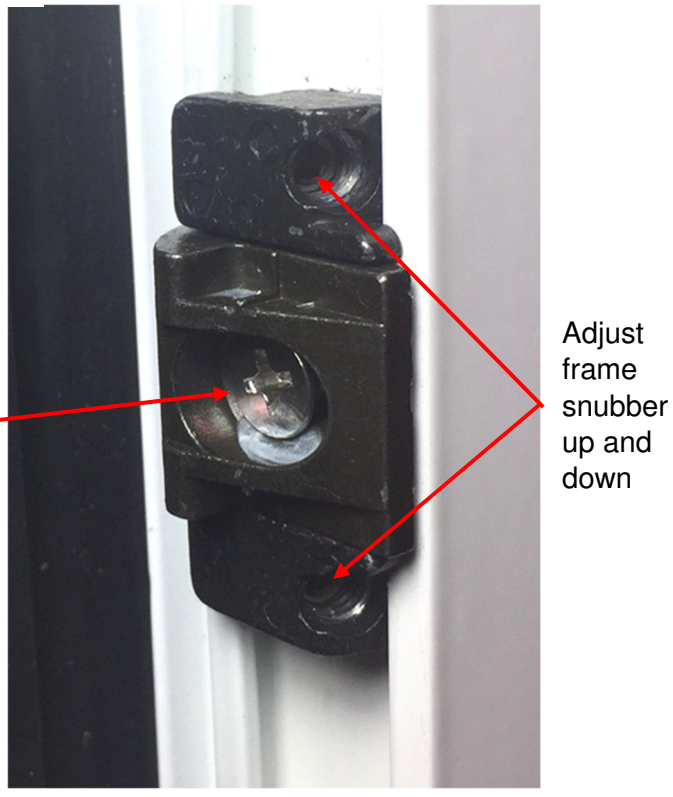



**Figure #18**

## Door Stops and Closers

All outswing doors come with a door stop at a minimum. The door stop has a friction set screw (See Figure #20) in the slider cam, which is on the top of the door panel. This set screw will adjust the force required to open and close the door.

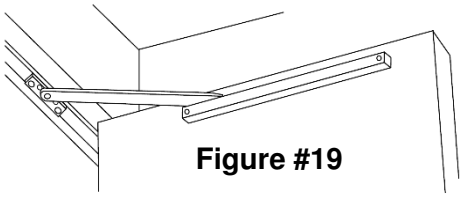


**Figure #19**

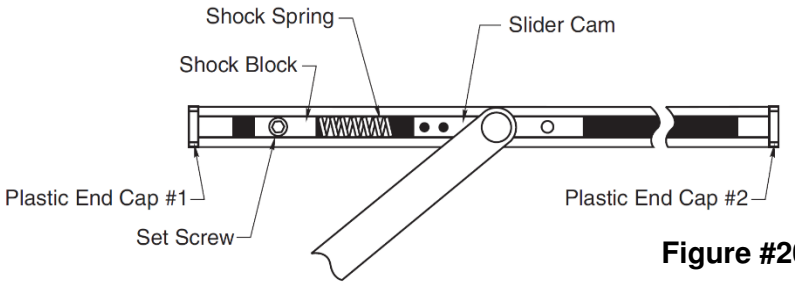
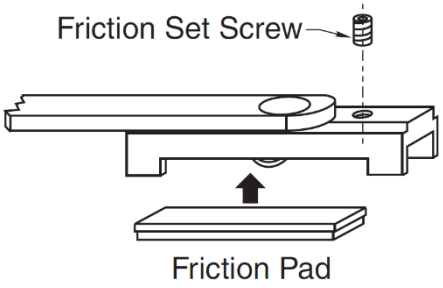



**Figure #20**

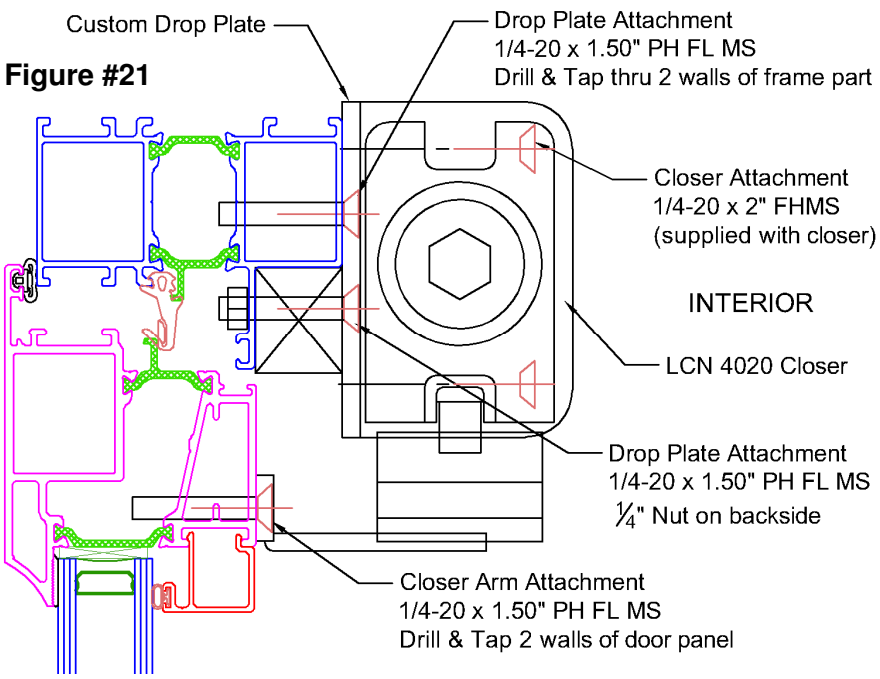



## Optional Door Closer Installation and Adjustment

A. Door closers are not factory installed; therefore, they will need to be installed in the field.

B. The door will come with a drop plate pre-attached to the door panel. Use the screws that are supplied with the kit to attach the closer to the drop plate (See Figure #21).

**Figure #21**




C. When attaching the arm to the door frame use the two (2) 1/4-20 x 5/8" PH FL MS 188 that are separately supplied by Graham Architectural. The pre-threaded attachment points are installed at the factory.

D. Follow the directions in Figure #22 on the next page. The door closer instructions can also be downloaded from https://us.allegion.com/content/dam/allegion-us-2/web-documents-2/Install Instructions/LCN_4510_Series_Installation_Instructions_107175.pdf

***Note:*** *Door closer is not designed to latch the door.*

Determine door width, adjust spring power to match chart.

| DOOR WIDTH | | LCN FAST ™Power Adjust |
|---|---|---|
| INTERIOR | EXTERIOR | SET TO: |
| ♿ | —— | 1 |
| 34" | 8.5 lb-f | 2 |
| 38" | 30" | 3 |
| 48" | 36" | 4 |
| 54" | 42" | 5 |

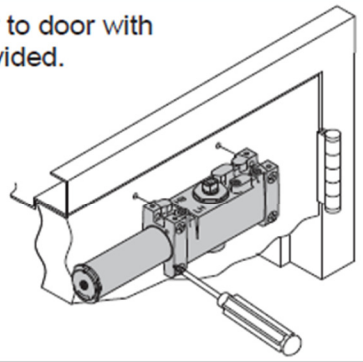
LCN® FAST ™Power Adjust for Spring Power Adjustment

(Used only on non-sized closers)


**CAUTION**

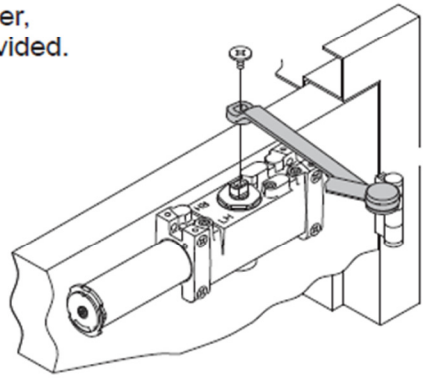
IMPROPER INSTALLATION OR REGULATION MAY RESULT IN PERSONAL INJURY OR PROPERTY DAMAGE. FOLLOW ALL INSTRUCTIONS CAREFULLY. FOR QUESTIONS, CALL LCN AT 877 - 671 - 7011

Secure closer to door with fasteners provided.

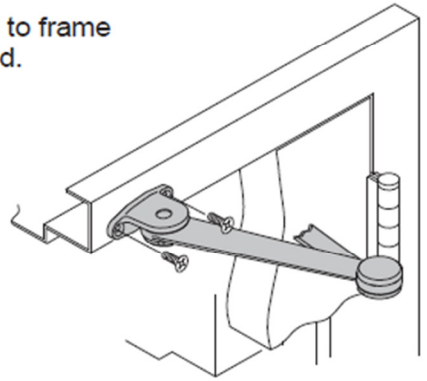


T-27

Attach arm to closer, with fasteners provided.




Secure arm assembly to frame with fasteners provided.



If necessary, adjust closer.

NOTE: A "Normal" closing time from 90° open position is 5 to 7 seconds, evenly divided between main speed and latch speed.

**CAUTION**

OPENING OF REGULATION VALVES TOO FAR MAY RESULT IN LEAKAGE OF CLOSER, PERSONAL INJURY OR PROPERTY DAMAGE. FOLLOW ALL INSTRUCTIONS CAREFULLY.

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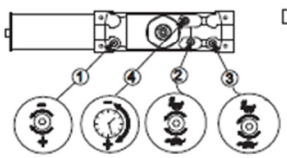
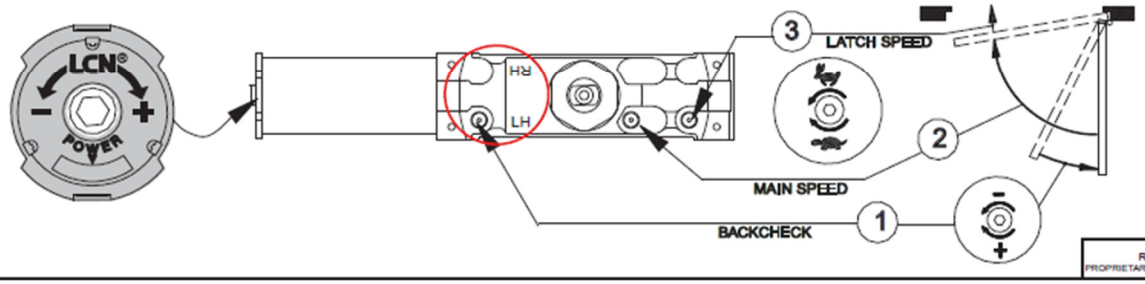
Optional Delay Action
① - Backcheck
② - Main Speed
③ - Latch Speed
④ - Delay Speed




Patents Pending Include:
Rapidor ™Installation system
PROPRIETARY, LCN Division, Schlage Lock Company

Attach cover with fasteners provided.

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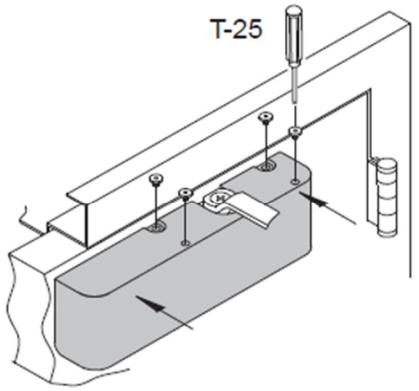

**Figure #22**