SmokeShield
Fabric Fire and Smoke
Installation Manual

Section 1 – Table of Contents

Safety Check List

Rolling doors are large, movable objects. They move with the help of electric motors or manual operators (chain, crank, push up, etc), and most have springs under high tension. These items and their components can cause injury. In order to avoid injury to yourself and others, please follow the instructions in this manual.

- **Review the potential hazards and preventative measures listed below:**

Table 2.1 - Potential Hazards and Preventative Measures

Potential Hazard		Preventative Measure
	**DANGER** **Pinned or crushed by closing door.**	• Keep yourself and others clear of opening while door is in motion. • Do not allow children to play near or operate door. • Do not operate if door becomes jammed or broken.
	**WARNING** **Struck by adjusting wheel bar while applying spring turns.**	• Be sure bar is adequate in strength and long enough to allow installer to apply the necessary torque. • Make sure bar is fully seated into the adjusting wheel slot before applying pressure. • Use two bars while applying turns to the adjusting wheel.
	**WARNING** **Electrical shock.**	• Make sure electrical operator is properly grounded. • Turn off source power completely prior to servicing the motor. • Make sure wires are clear of any moving or potentially moving parts. • Avoid pinching wires when installing the motor cover.
	**WARNING** **Pinched by moving components.**	• Make sure the motor is turned off and unplugged before working with moving parts such as roller chain and sprockets, drop-out mechanisms, adjusting wheels, etc. • Locate the possible pinch-points of the unit (Drive chain, coil area, bottom bar, etc.) Do not operate the door while someone is near these areas.

- **Check the following during installation and before leaving the job site:**
  1. If the unit has tension springs, be sure the proper amount of tension is applied to the torsion springs, in order to properly counterbalance the weight of the curtain.
  2. Securely fasten the tension adjusting wheel in place with the appropriate hardware provided.
  3. Check that the keys and/or cotter pins have been set in place and fit properly at all sprockets or gears.
  4. Check that the setscrews in each sprocket or gear (one over the key and one offset from the key) have been tightened properly.
  5. Check all fasteners holding the unit to the building structures.
  6. Check all fasteners used to assemble the components of the unit together.
  7. Instruct owner or representative in the proper method of operating the door.

Freight Receiving

- **Upon delivery, check condition of components for damage.**

- **If damage occurred in transit, the installation should not proceed without authorization.**

NOTICE

If the installation proceeds, neither the carrier nor the manufacturer will assume responsibility for replacing the damaged material.

- **If the installation is stopped due to damage, do the following:**
  1. Take pictures of the damage.
  2. Do not move material from point of delivery to other premises once the damaged components are discovered.
  3. Do not unpack, if the damage is visible prior to removing packaging, until an inspection is made.
  4. If the damage is found while removing contents from packaging, the packaging material must be saved until inspection is made.
  5. Container and packaging should be retained by consignee until inspection is made.
  6. Have components inspected by carrier's representative within 15 days from date of delivery.
  7. Consignee must obtain a copy of the Inspection Report.

- **Returning damaged components:**
  1. Obtain permission from carrier to return.
  2. Route the return shipment via the identical carrier(s) involved in the original shipment.
  3. Notify the manufacturer when shipment is returned to manufacture plant.

- **Verify that all components have arrived. Look for the following:**
  1. Job construction drawings featuring different views (elevation, section, plan, etc.)
  2. (2) Guide assemblies (3 x 3 tubes for between jambs applications, 3-1/2 x 1-1/2 tubes for face of wall to create pack-off if upset is required)
  3. Barrel assembly
  4. Curtain assembly
  5. Bottom bar angles and flat sections
  6. Bracket plates
  7. Shaft support bracket assemblies with rollers
  8. Operator; if not attached to bracket
  9. Controller with switch
  10. Hood and hood supports
  11. Hardware
  12. Verify material/finish/color of components matches what is listed on the job construction drawings and/or what was ordered.

- **If the delivery is incomplete:**
  1. Make note on delivery receipt.
  2. Note should be verified by driver's signature.
  3. Notify carrier and manufacture

Pre-Installation

- **Read entire instruction manual thoroughly. The manufacturer will not be held responsible for any charges incurred due to improperly installed components.**
  a. Only trained door systems technicians should perform installation, maintenance, etc.
  b. Each unit comes with an individual item number. If the job contains multiple units, be sure to locate all the components for each item and separate each.

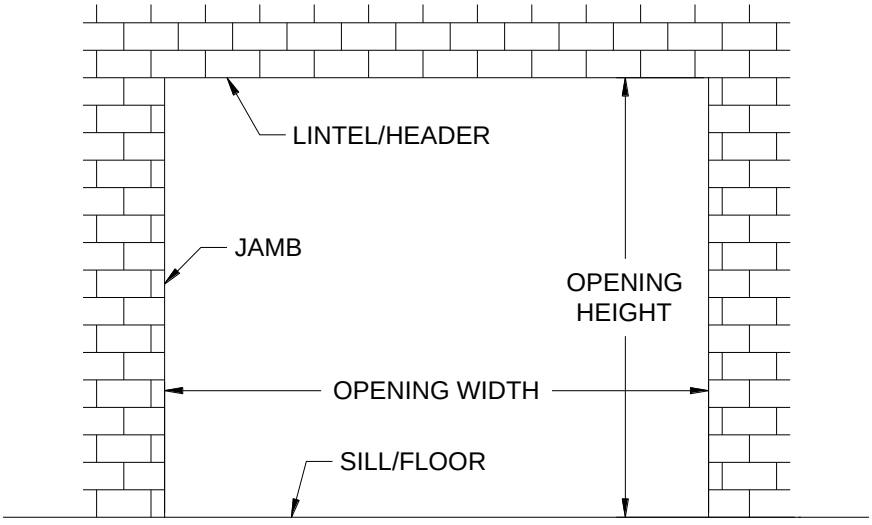
⚠WARNING

Do not interchange parts from one door to another.

  c. Find the job construction drawings for the unit being installed and check the dimensions of the opening against those on the drawings. See ***Figure 4.1*** below.
  d. If the opening dimensions differ from those on the drawings, **do not proceed,** check with distributor/manufacturer to be sure the correct door is being installed.
  e. Check the jambs of the opening for plumb. Check the head/lintel and floor for level.

- **Work Area:**
  a. The key to a smooth installation is a clean and well-prepared work environment. Once the components have been inspected and the job construction drawings have been reviewed; lay out the components in the order of installation.
  b. The opening for the door should be cleaned and inspected for rough surfaces and construction debris.
  c. Lastly the mounting hardware supplied with the door should correspond with the surface and construction features of the opening.
  d. The basic assembly sequence is as follows: fascia hood plates, shaft support brackets, guides, barrel assembly (brackets and tube motor), curtain, bottom bar, and hood.

Figure 4.1 – Opening Dimensions and Designations



Torque Specifications

Table 5.1 – Torque Recommendations for Guide Assembly and Wall Fasteners

Bolt size/type	Torque (ft lbs) [a]
10-32	2.5
1/4-20	6
5/16-18	25
3/8-16	20
1/2-13 Grade 5 steel bolt	75
1/2-13 Grade 8 steel bolt	107
5/8-11 Grade 8 steel bolt	212
3/4-10 Grade 8 steel bolt	376
[a] The recommended torque for steel bolts is based on a plated bolt that has not been lubricated.	

Table 5.2 – Torque Recommendations for Solid Masonry Wall Anchors

	Manufacturer/Torque (ft lbs)[a]	
Anchor Size (nominal)	Simpson Wedge-All	Hilti-Kwik Bolt 3
3/8	30	20
1/2	60	40
5/8	90	85
3/4	150	150
[a] Torque values for grout filled block are different, reference bolt manufacturer for these values.		

Section 6 – Hardware

Hardware

Table 6.1 – Hardware List – Hoods (Masonry substitute in parentheses)

Hoods
#12 x 3” self drilling hex head screw (3/16 x 1-3/4” Hex Washer Head Tapcon)
1/4” flat washer
1/4" fiber washer
1/8” pop rivet
#8 sheet metal screw

Table 6.2 – Hardware List – Guides (Masonry substitute in parentheses)

Guides
1/4” flat washer (3/8 flat washer)
1/4" fiber washer (3/8 fiber washer)
1/4 x 3” self drilling hex head screw (3/8 Simpson Drop In Anchor (DIA), 3/8-16 x 2-1/2” bolt)
1/4-20 hex flange nut
1/4"-20 x 1” hex drive screw (3/8 x 5” Simpson Wedge-All)
1/4 x 1” self threading screw

Table 6.3 – Hardware List – Brackets (Masonry substitute in parentheses)

Brackets
1/4” flat washer
3/16 x 3/4” self tapping screw
3/8-16 x 1 1/4” carriage bolt
3/8-16 hex nut
3/8 flat washer
1/4-20 hex flange nut
1/4 x 1” self threading screw
1/4-20 x 5/8 phillips pan head screw
#12 x 3” self drilling hex head screw (3/8 X 3-3/4” Simpson Wedge-All)
1/4” flat washer (3/8 washer)

Section 6 – Hardware

Table 6.4 – Hardware List – Bottom Bar

Bottom Bar
1/4” flat washer
1/4-20 hex flange nut
1/4-20 x 3/4” Phillips pan head screw
3/16 pop rivet
1/4-20 x 5/8 PEM stud
1/4-20 weld nut
3/8-16 x 1/2” truss head screw
3/8-16 weld nut

Installation

Face of Wall (FOW) Installation

Instructions on the following pages refer to installation over gypsum wall with metal or wood studs. Masonry equivalent fasteners/quantities are listed in each section. Different guides and support brackets are required for masonry applications.

Figure 7.1 – Fascia Hood Plate attachment

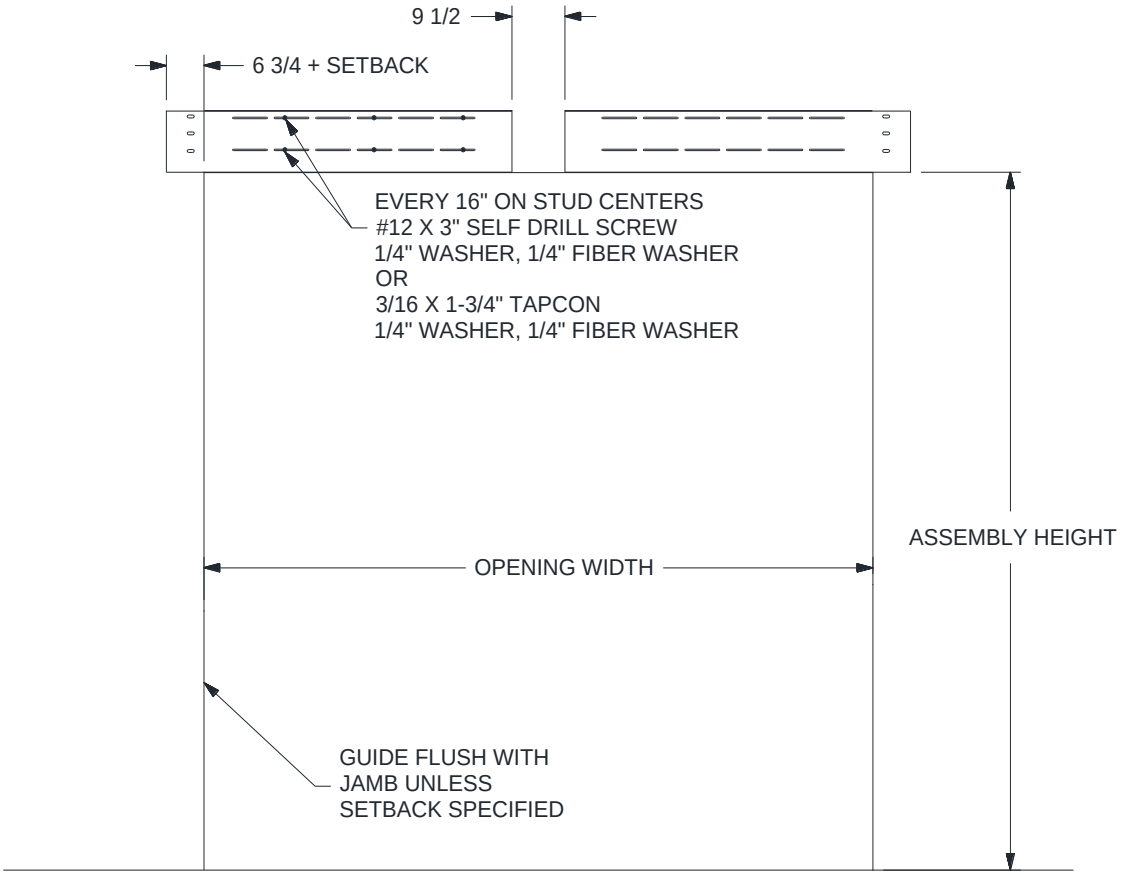


Figure 7.2 – Fascia Hood Plate attachment – Isometric View

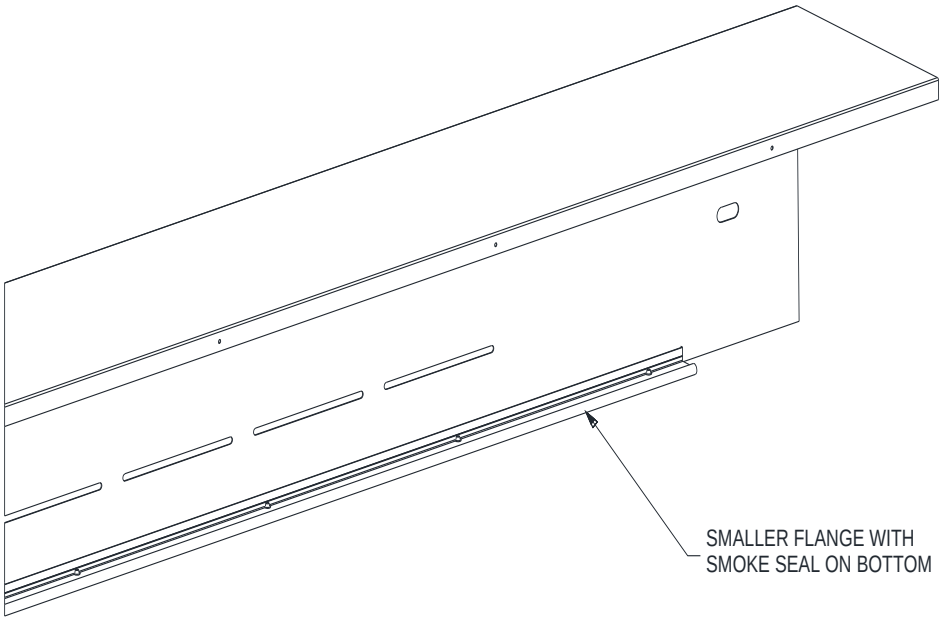


Figure 7.3 – Middle Fascia Plate and Support Bracket Attachment

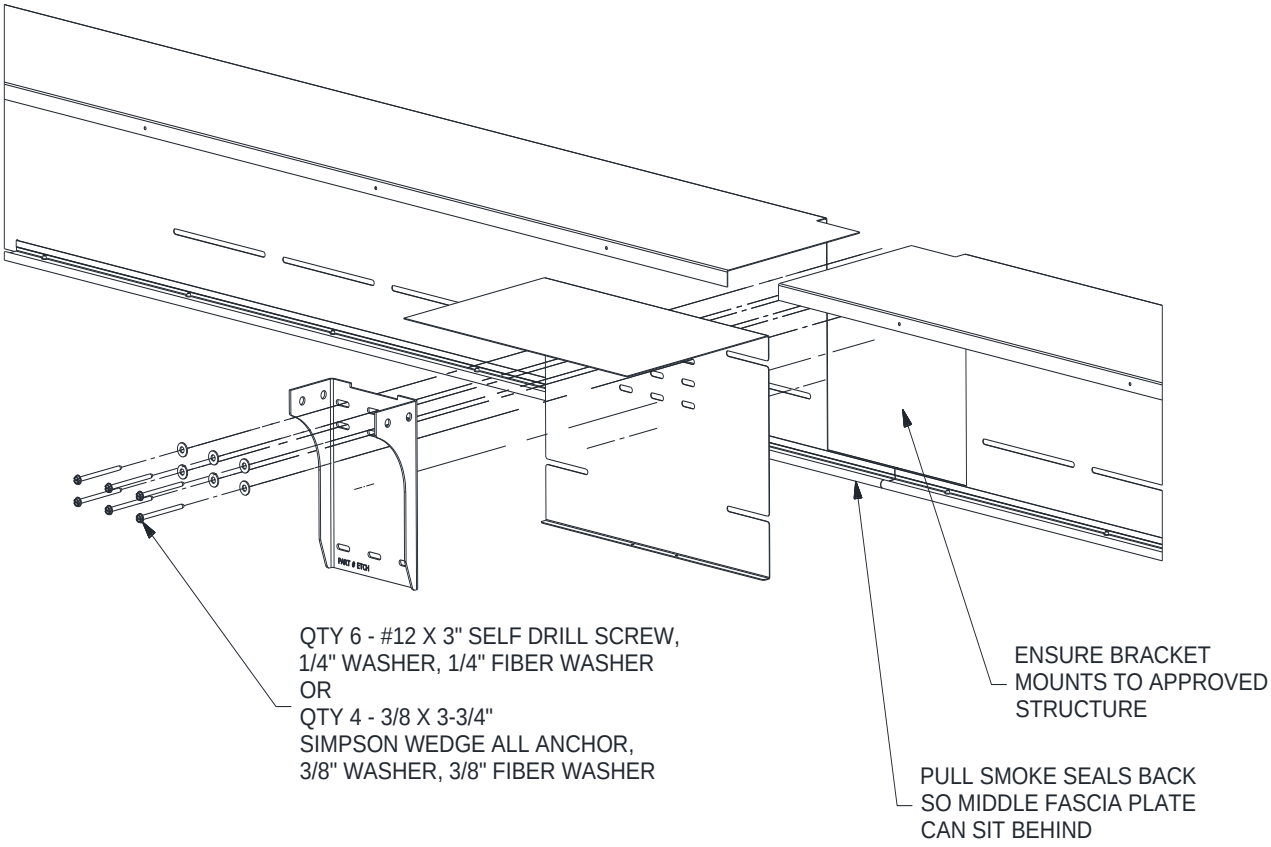


Figure 7.4 – Middle Fascia Plate and Support Bracket Alignment

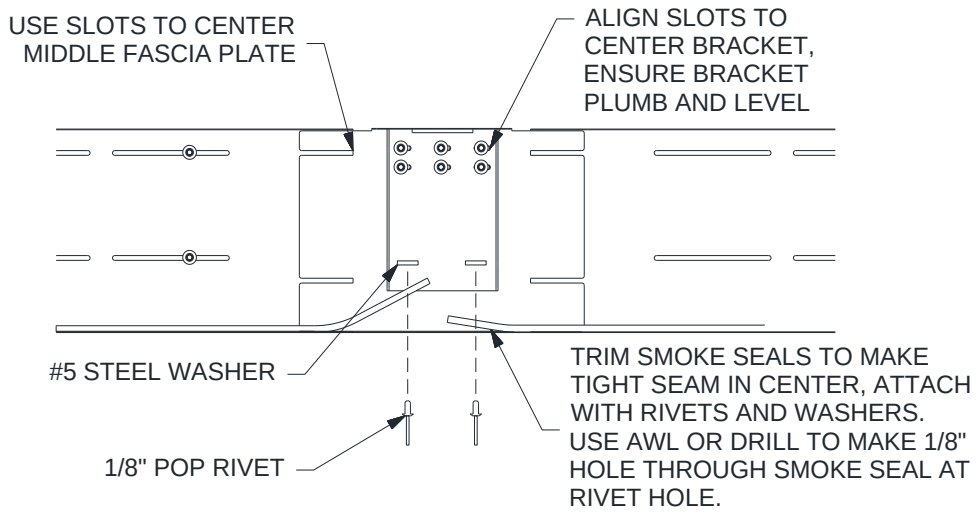


Figure 7.5 – Upper Support Bracket attachment

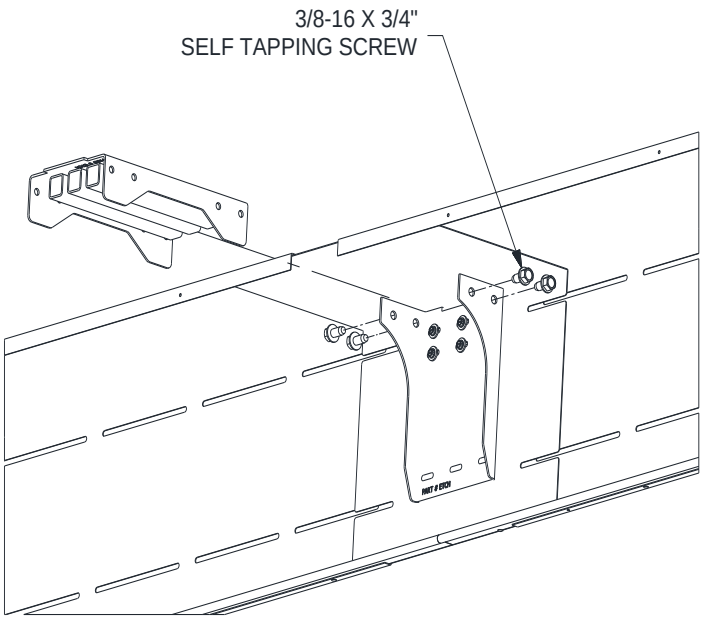


Figure 7.6 – Fascia Side Guide attachment

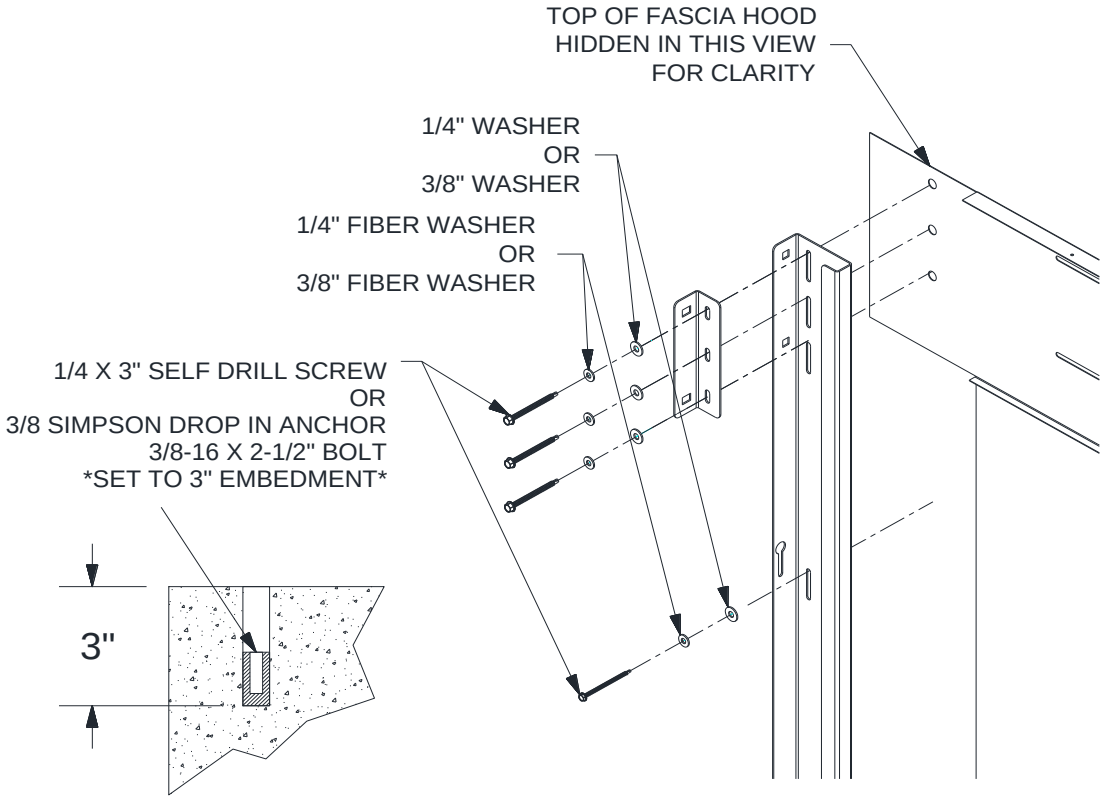
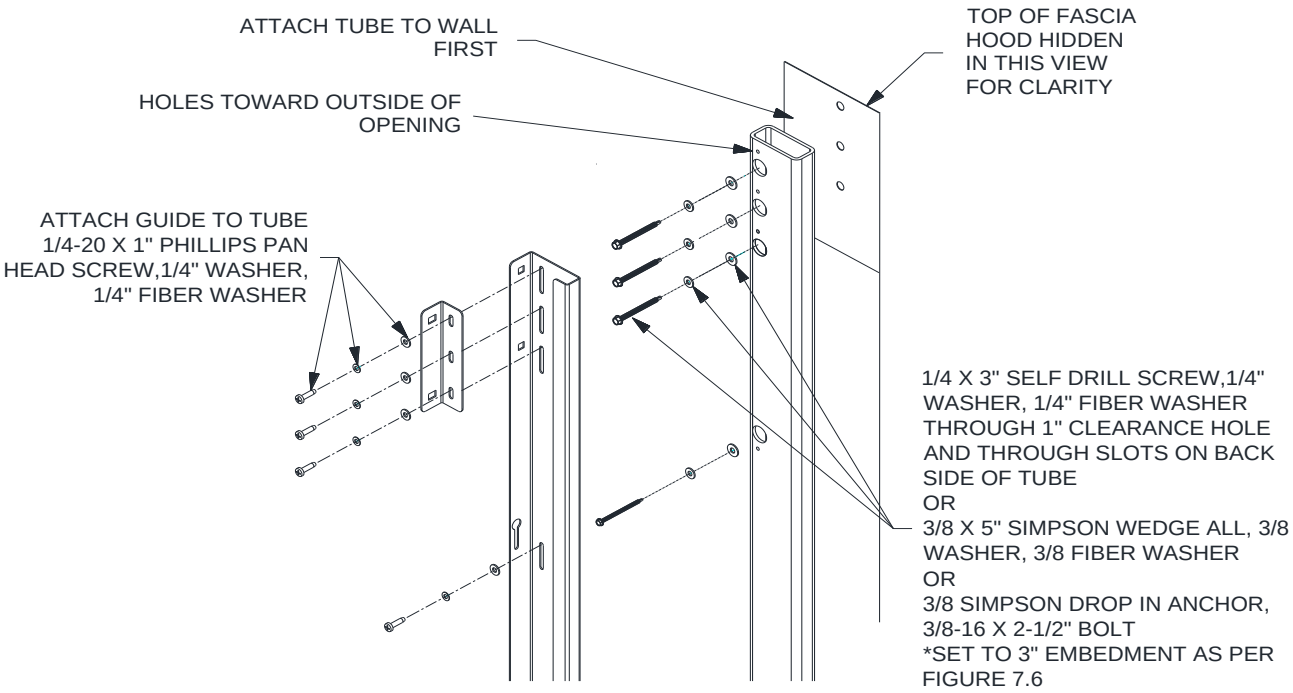


Figure 7.7 – Fascia Side Guide attachment with Pack-off Tube
(For doors that require any amount of upset)



Before installing shaft assembly in next step, ensure all electrical connections are made to operator and controller (see operator user manual). Motor will need to be functional to complete remaining steps.

Figure 7.8 – Shaft attachment

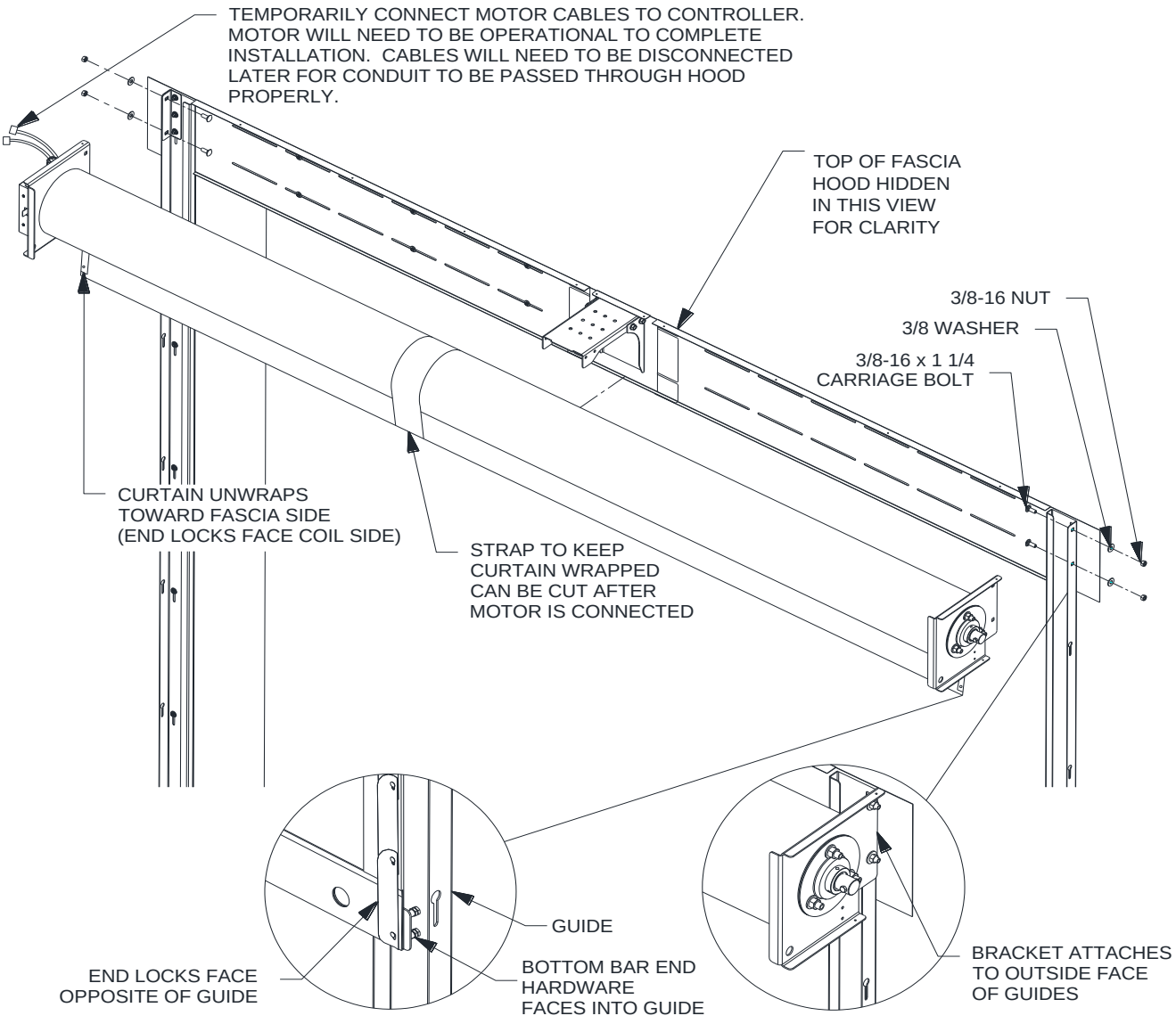


Figure 7.9 – Roller Support Bracket installation

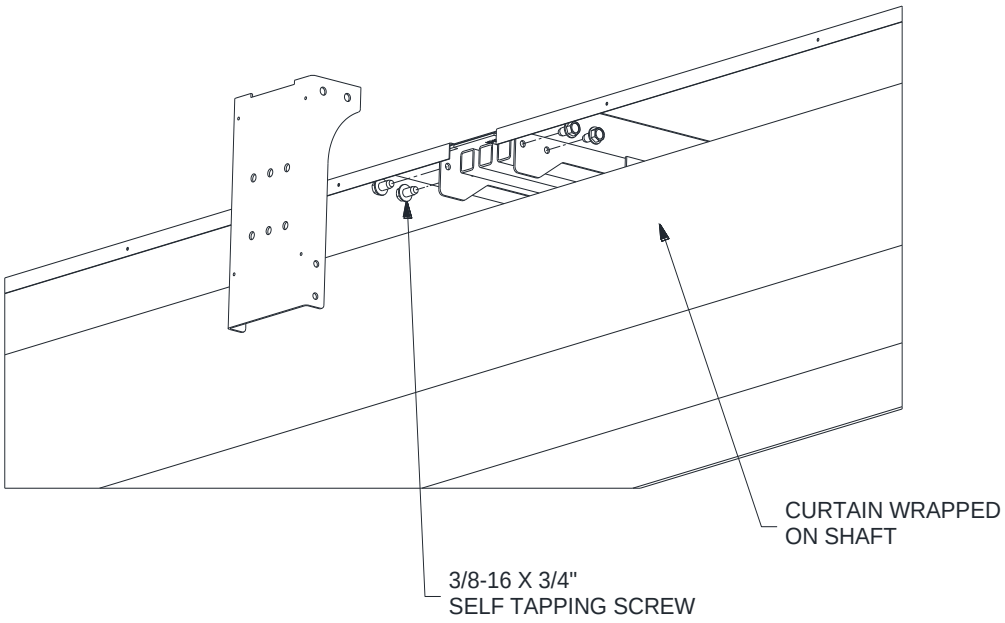
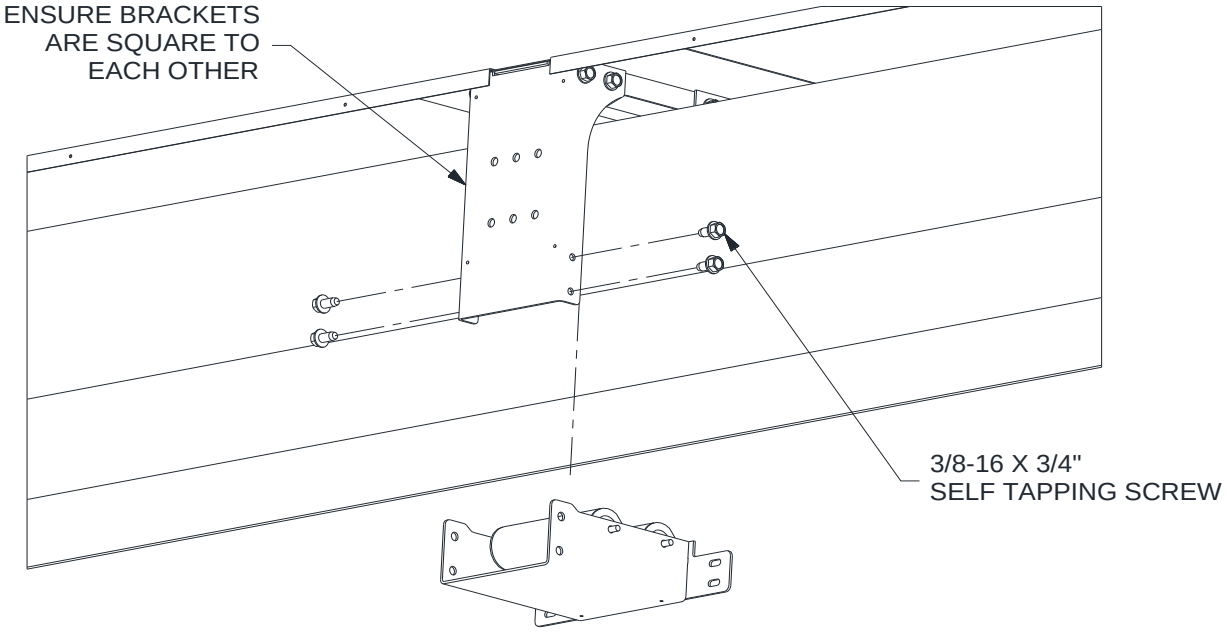


Figure 7.10 – Cross Brace Support Bracket attachment



- Assemble coil side guides by aligning PEM studs with hex flange nuts attached to slots in coil side guide that is already attached to the wall. Align slots with insert stud/nut and drop guide down until it rests on floor. Use a nut driver to hand tighten all of the hex flange nuts after guides are in place. Use opening at bottom of guide to insert nut driver.

Figure 7.11 – Coil Side Guide detail

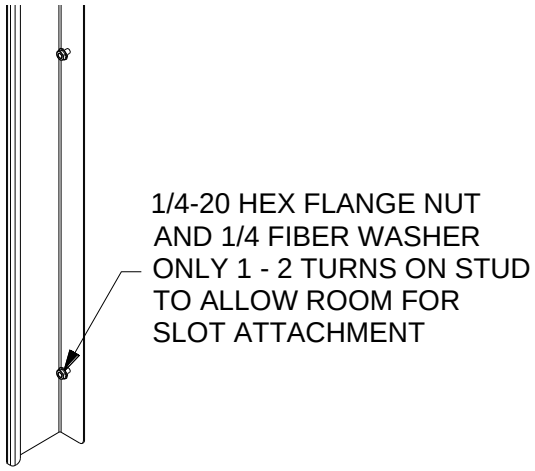


Figure 7.12 – Coil Side Guide attachment

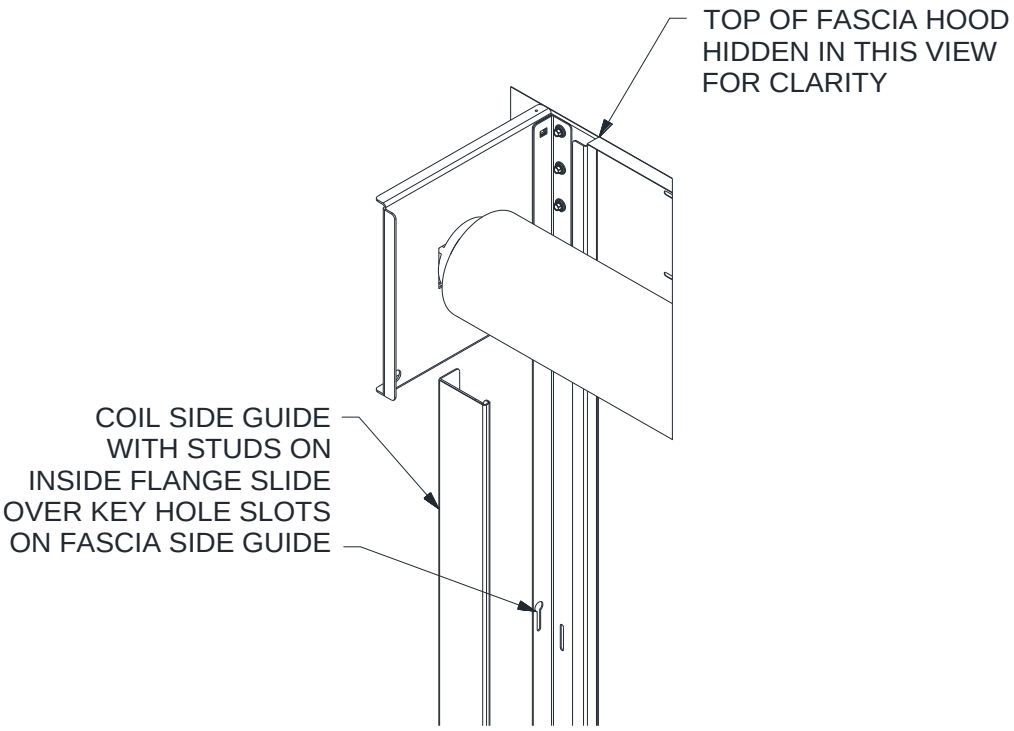


Figure 7.13 – Guide gap

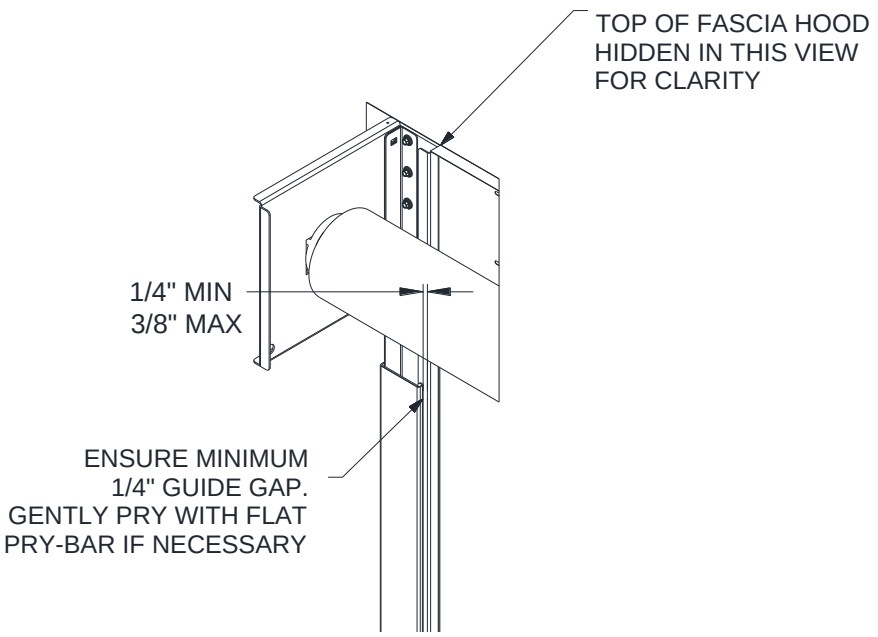


Figure 7.14 – Cross Brace attachment
(Curtain not shown for clarity)

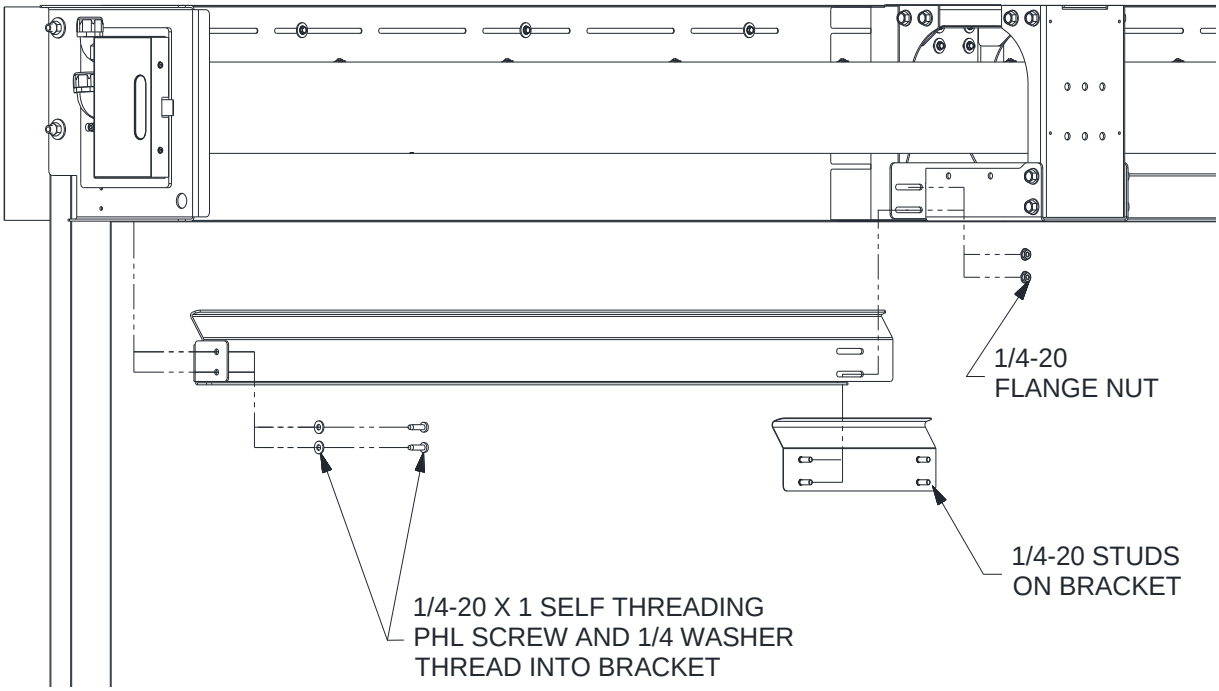
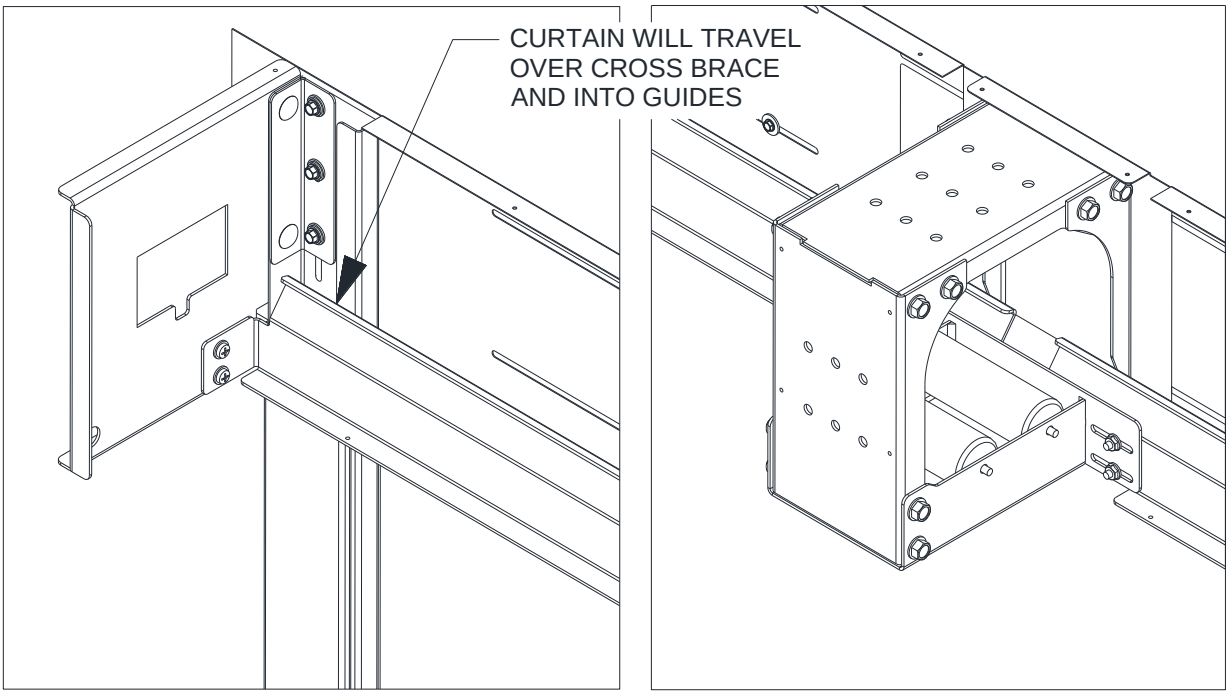
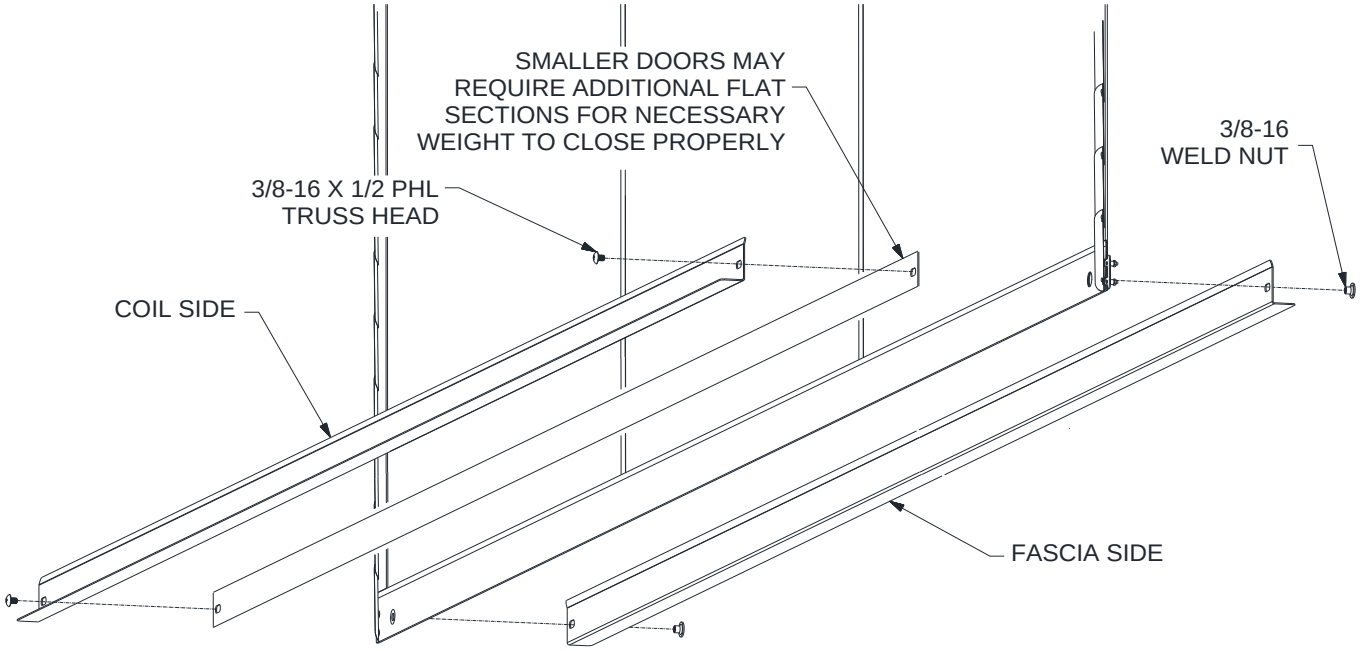


Figure 7.15 – Cross Brace assembled isometric views
(Shaft and Curtain removed and top of fascia hood hidden for clarity)



- Lower curtain into guides and assemble bottom bar outer angles to bottom of curtain. Curtain may require some assistance to drop without the weight of the bottom bar angles.

Figure 7.16 – Single Bottom Bar Outer Angle attachment (Door less than 11’ 7 5/8” DBG)



For doors larger than 11’ 7 5/8” DBG, the bottom bar will be segmented and must be assembled per **Figure 7.17** and

Figure 7.18.

Figure 7.17 – Bottom Bar Outer Angle Assemblies

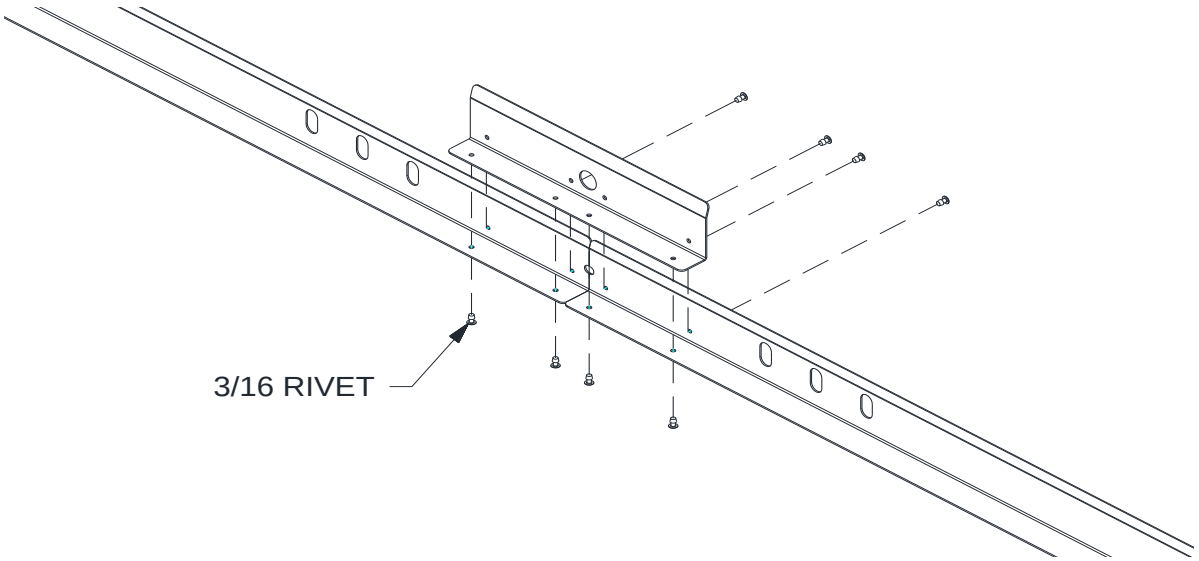
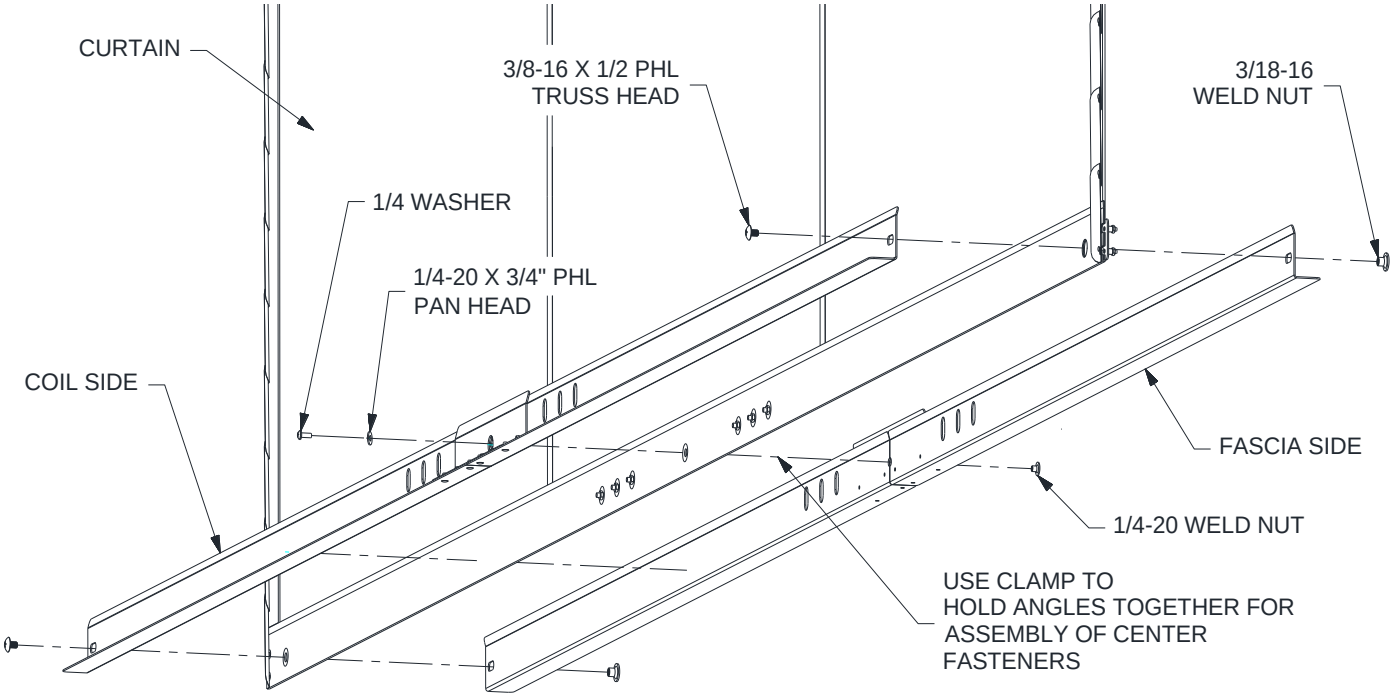
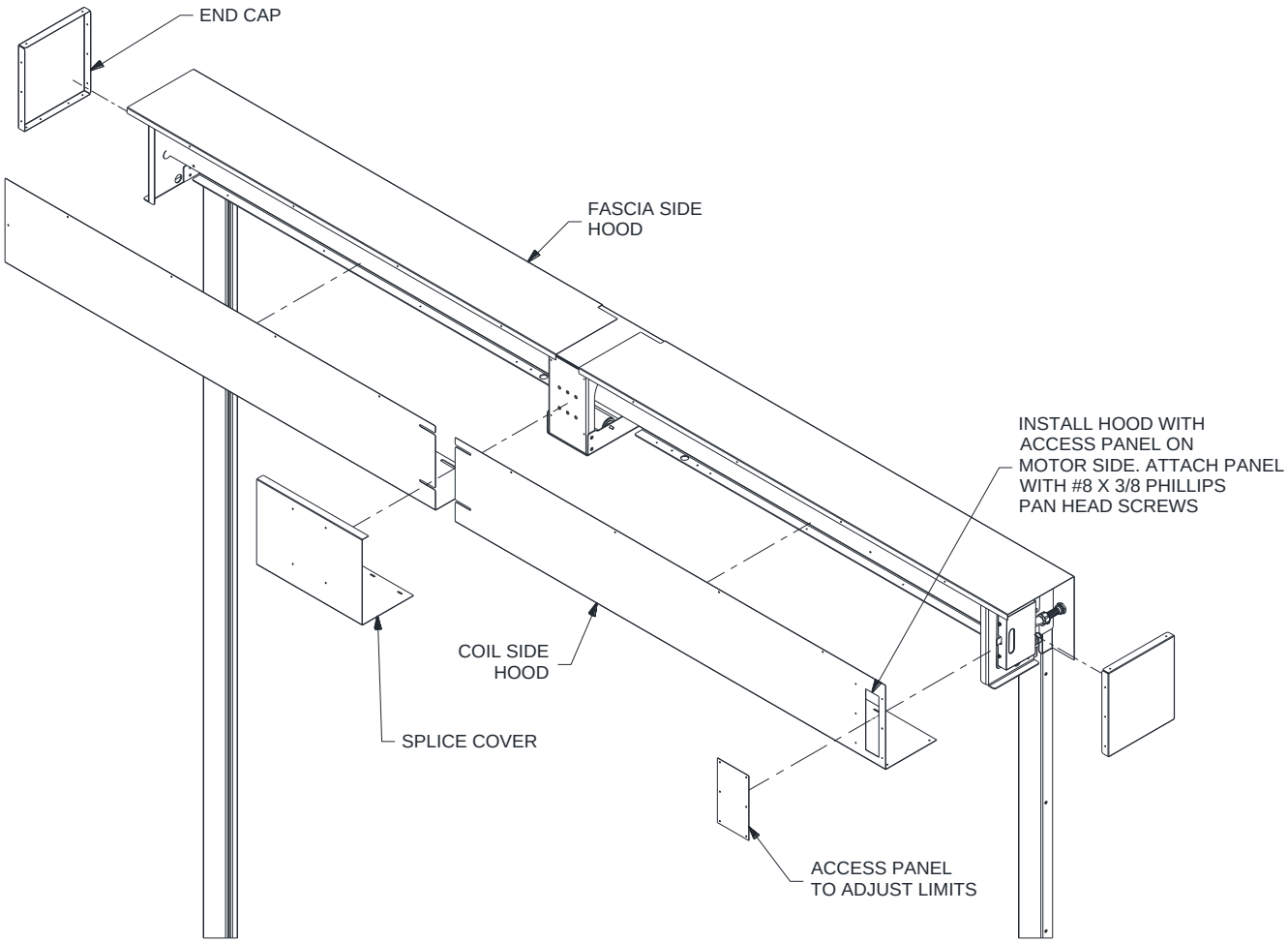


Figure 7.18 – Segmented Bottom Bar Outer Angle attachment – Larger Doors
(Guides not shown for clarity)



- Prior to installing the hoods, see Figure 7.20 for the (2) required holes for the ½" conduit.
- Install all hood parts with 1/8" pop rivets, #10 fiber washers, and #10 flat washers as in **Figure 7.19.**
- Some rivet holes may need to be drilled on site due to same parts being used across multiple configurations.
- Ensure Access Panel is on motor side as noted below.

Figure 7.19 – Coil Side Hood Attachment



- Set upper and lower limits per motor/controller user manual
- Lower door to closed position and proceed to next step

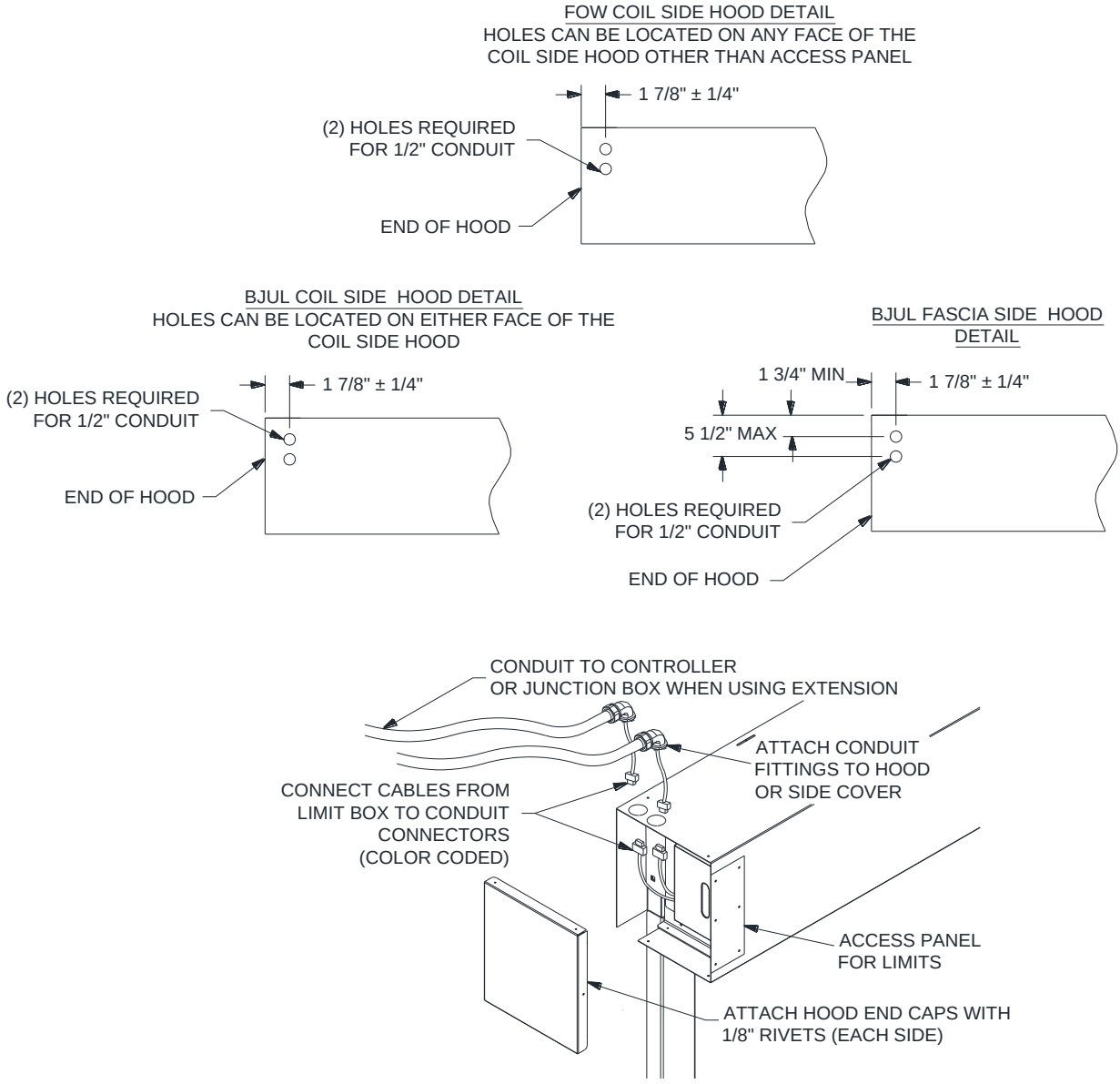
⚠WARNING

- **When power is disconnected motor is free to rotate and it is normal for door to move slightly even when in closed position as curtain sags**

- (2) holes are required at the operator end of the hood or side cover for ½" conduit.

- See the details below for acceptable hole locations in the hood parts.

Figure 7.20 – Conduit connection and End Cap installation



Between Jambs Under Lintel (BJUL) Installation

Instructions on the following pages refer to installation over gypsum wall with metal or wood studs. Masonry equivalent fasteners/quantities are listed in each section. Different guides, 3x3 tube, and support brackets are required for masonry applications.

Figure 7.21 – Hood Channel Installation

Multiple hood configuration is shown in this section. Single hood configuration is similar installation process but one piece hoods across top and face are used.

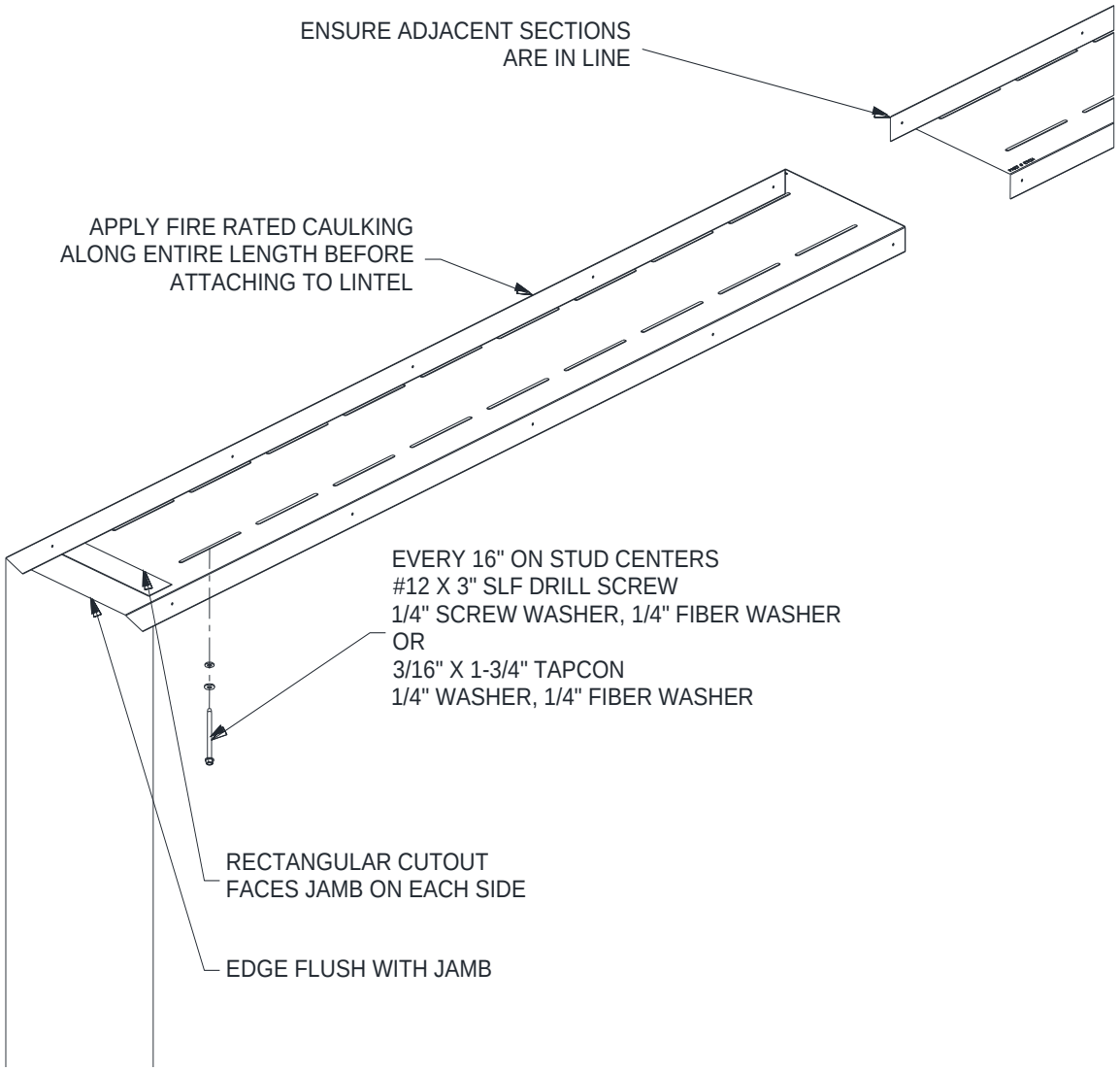


Figure 7.22 – Hood End Cap mounting to jambs

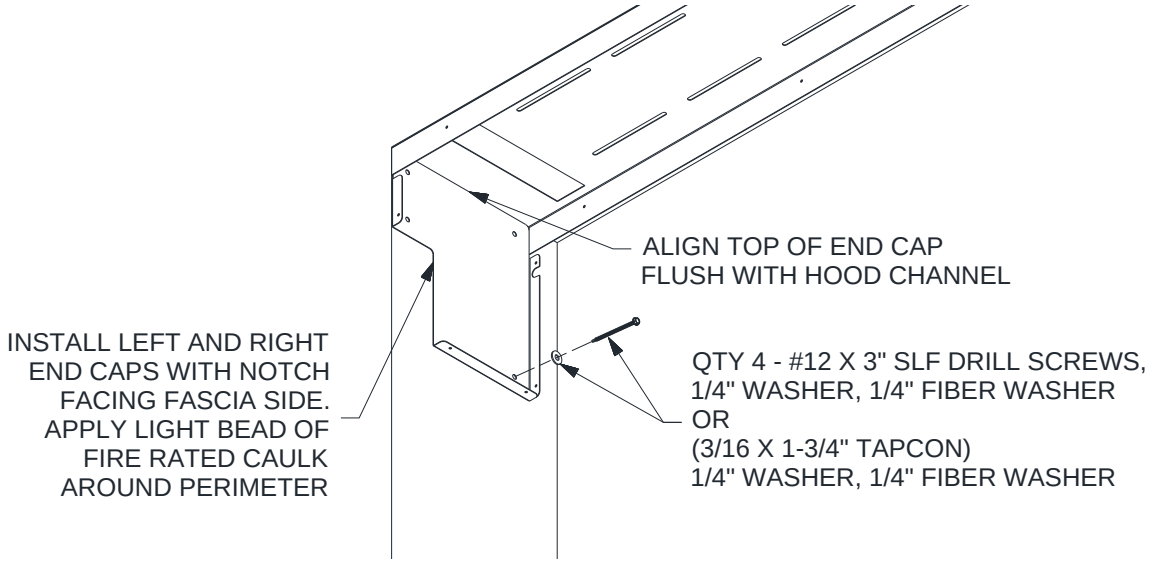


Figure 7.23 – Upper Shaft Support attachment to lintel

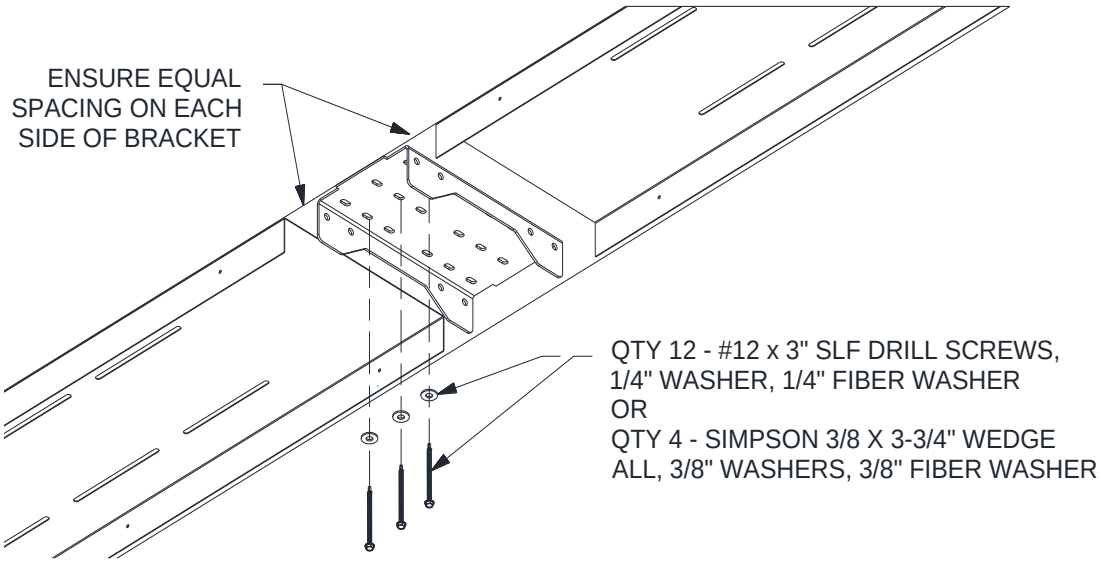


Figure 7.24 – Upper Shaft Support attachment to lintel (bottom view)

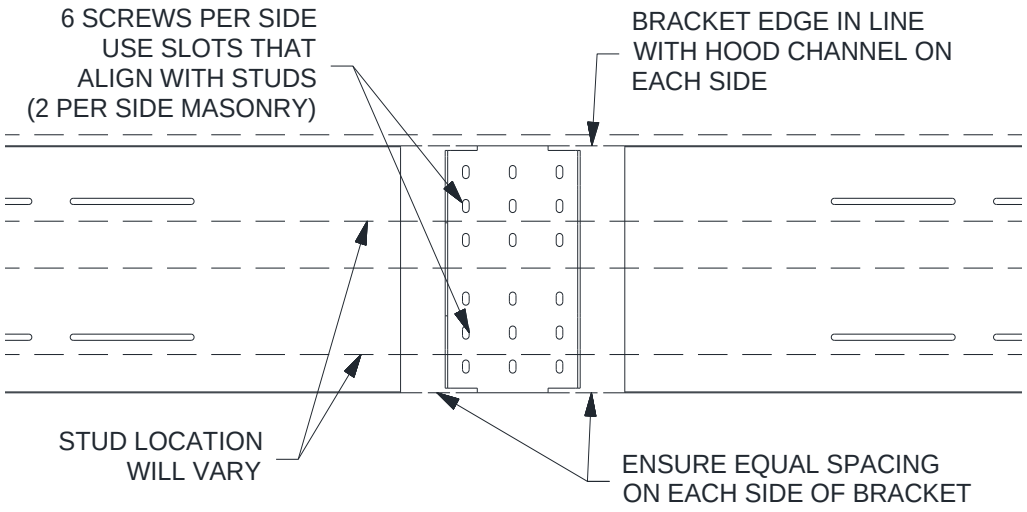


Figure 7.25 – Front Shaft Support attachment to Upper Shaft Support

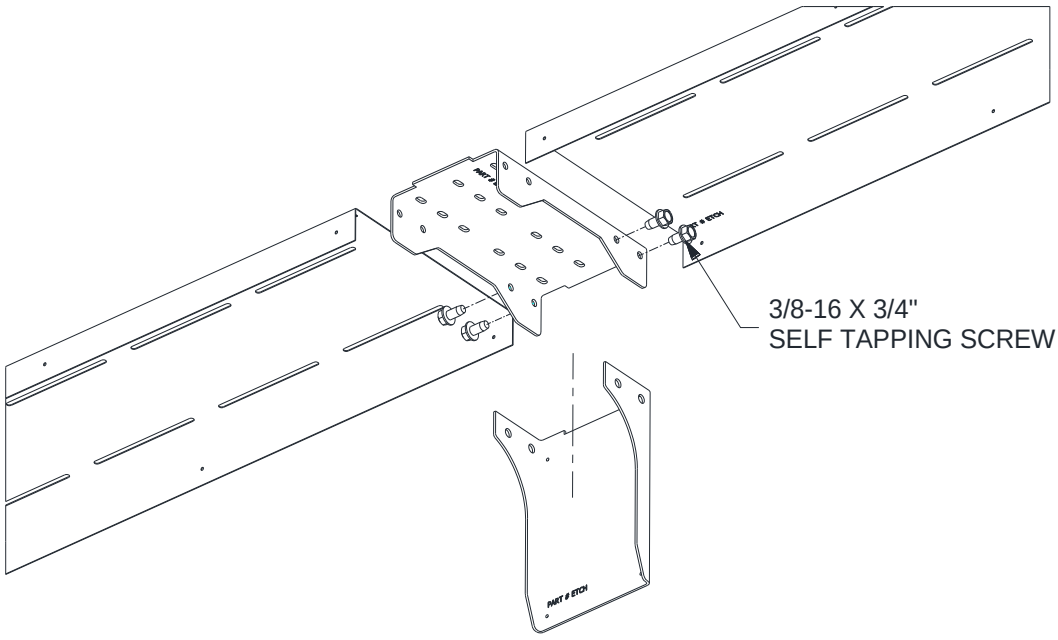


Figure 7.26 – Install Lintel Brackets on each side

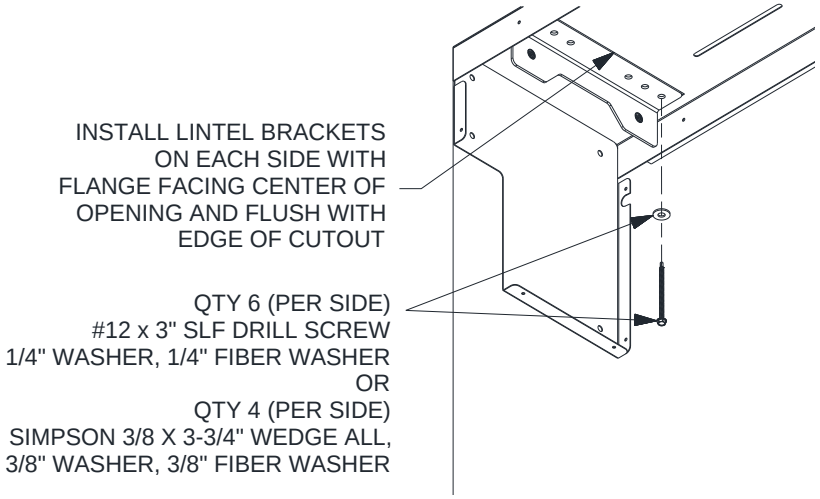
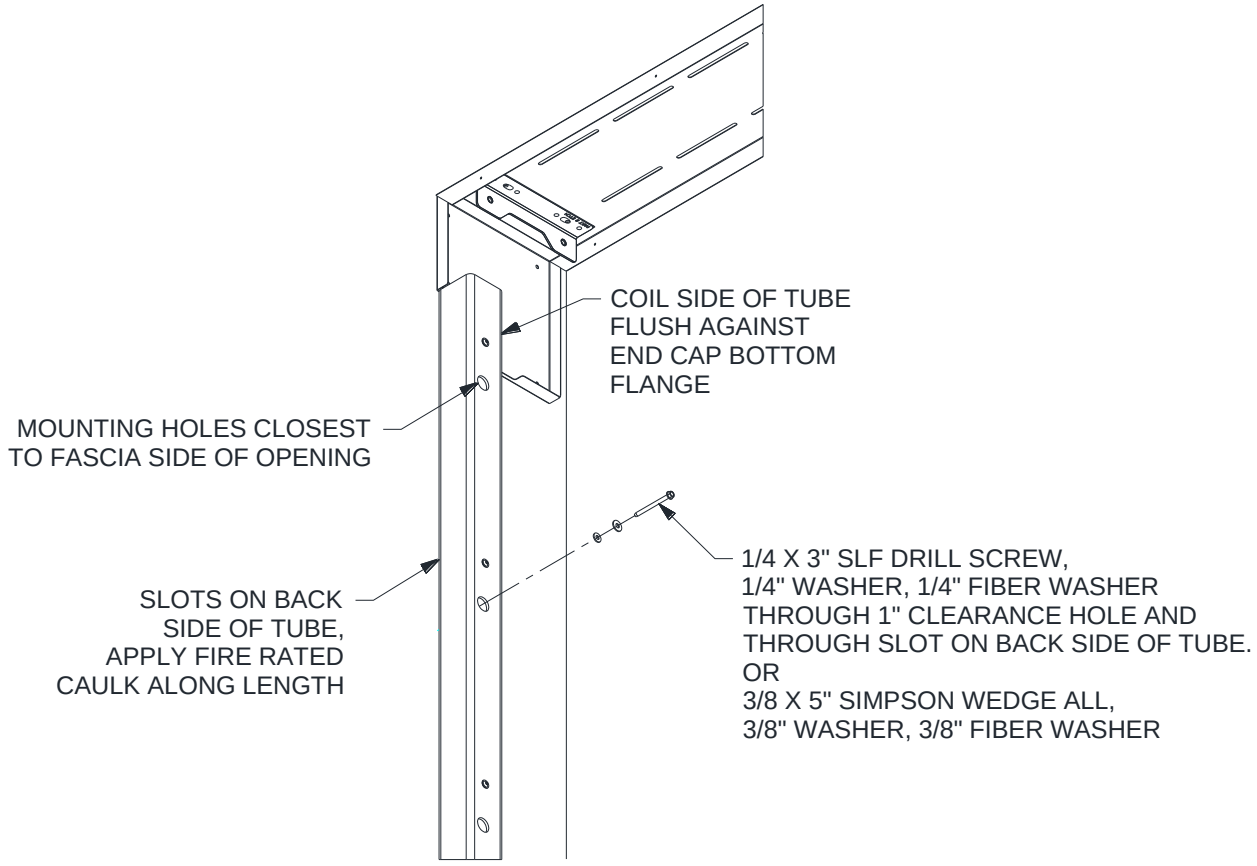


Figure 7.27 – Install 3 x 3 Tube on each side

NOTE: Guides will come pre-assembled to tube for shipping. Loosen all screws attaching guides to tube with 5/16 allen key. Screws are inside of guide, tool will need to be inserted into guide gap.



- **Before installing shaft assembly in next step, ensure all electrical connections are made to operator and controller (see operator user manual). Motor will need to be functional to complete remaining steps.**

Figure 7.25 – Shaft Installation

(Curtain not shown for clarity)

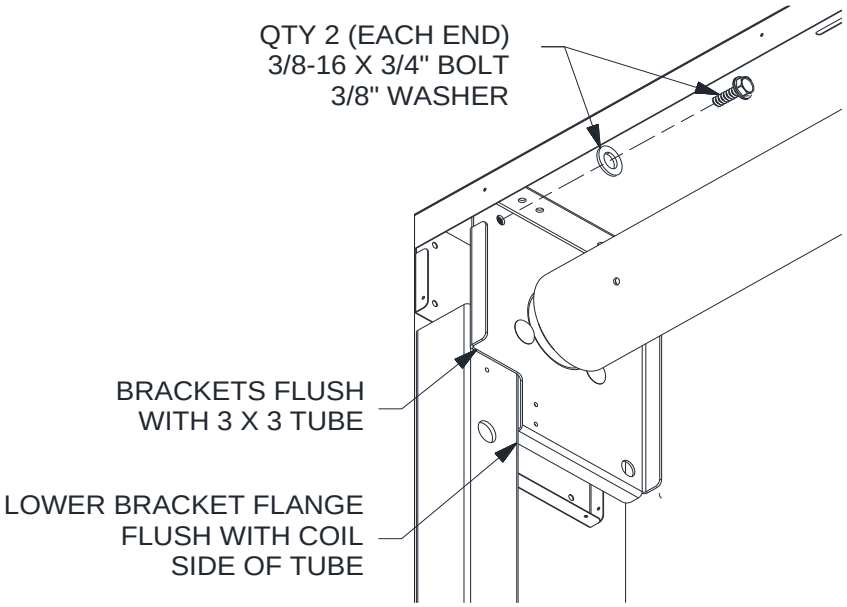


Figure 7.26 – Guide installation

- Install guides onto tube by sliding key slots over 1/4-20 allen head screws and fiber washers (fiber washer location is not critical).

  Note: Ensure minimum 1/4” and maximum 3/8” guide gap when assembly completed. Use pry bar to gently spread guides apart if necessary.

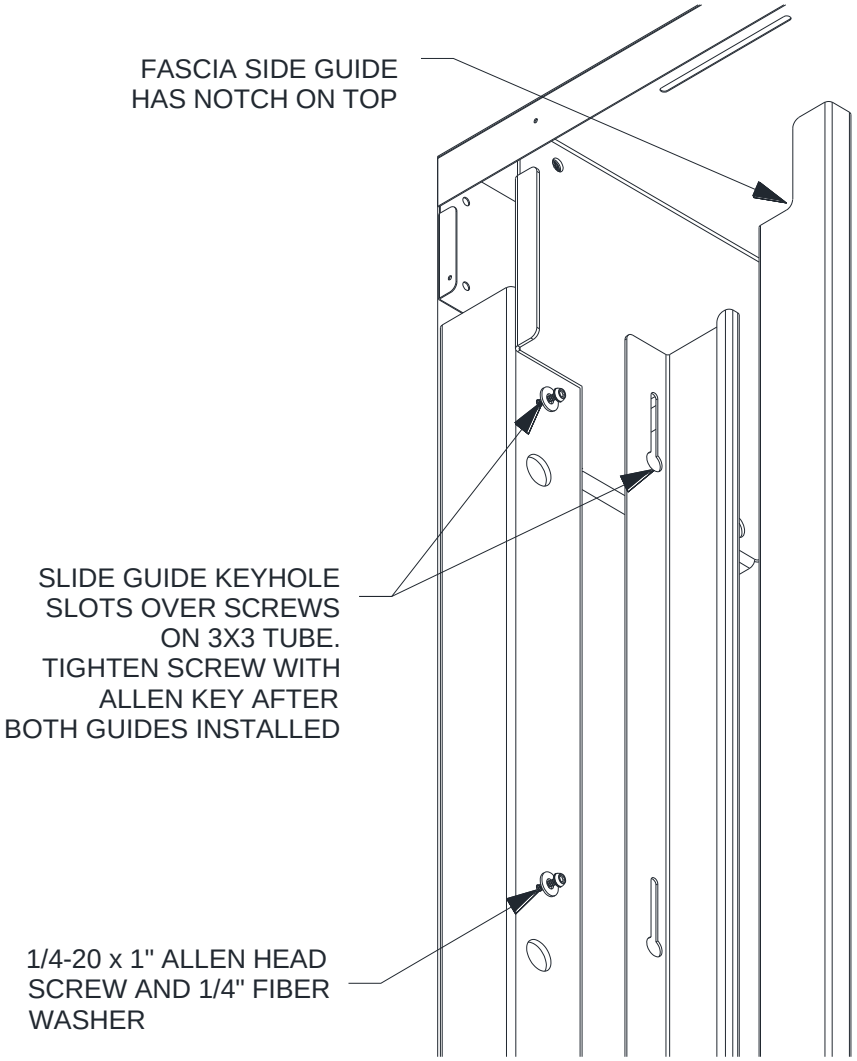
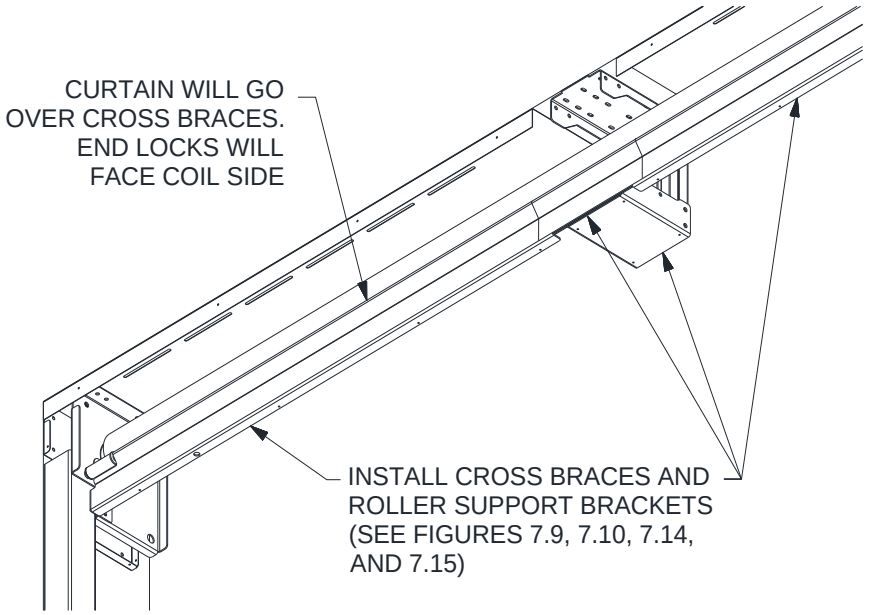


Figure 7.27 – Roller Bracket and Cross Brace Installation
(Curtain not shown for clarity)



- Install bottom bar and hoods as per figures 7.16 – 7.19.
- Install conduit to connect motor to controller similar figure 7.20 in fascia side of hood only.
- Set upper and lower limits per motor/controller user manual

Slip Joint & Saddle Mounting

1. Measure the "*Opening Width*", the distance between jambs. Compare with the job construction drawings provided.

NOTICE

If this distance is not equal to the job construction drawing dimension, **do not proceed!!** Be sure the correct unit is being installed. Contact the project manager.

2. The tubes are usually supplied with the inner and outer guides already attached, and can usually be installed as one unit. For larger units, installing the tubes with the guides attached may prove difficult. The tubes may need to be installed **without** the inner and outer angles attached. If you feel this is the case, remove the inner and outer angles at this time.
3. Determine where the fascia of the door will be located with respect to the header/lintel (if one exists) and the jamb.
4. If a header/lintel exists, see the elevation view of the job construction drawings to determine if the door is to be placed against the header. If so, project a plumb line from the header to the floor. Mark the floor at this location.
5. If a header/lintel does **not** exist, or if the door is **not** going to be placed against the header/lintel, contact the project manager to determine where the door will be located. Mark the floor at this location.
6. Locate the Saddles (brackets used to constrain the tube at the bottom). There are two types of saddles: *standard saddles* and *inverted saddles*. Both utilize the same steps for installation. The difference is the mounting flange. Fire doors come with inverted saddles for mounting at the bottom of the tube.

Figure 7.43 – Tube Saddles

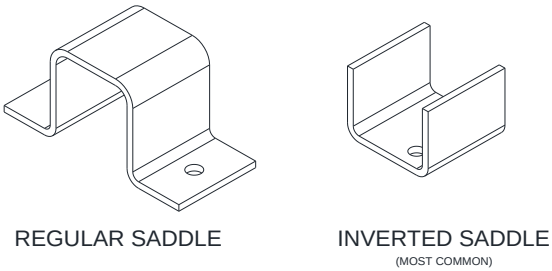
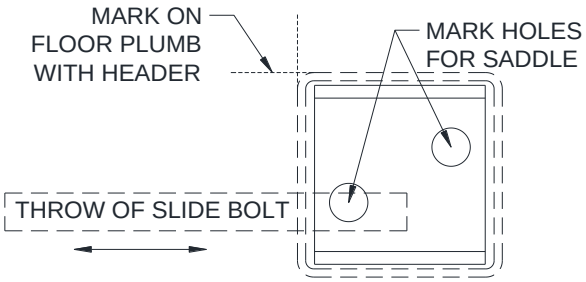


Figure 7.44 – Tube Saddle Hole location



7. Use the mark placed on the floor in the previous steps, to locate where the saddle will be and mark the hole locations by placing the saddle on the floor. See ***Figure 7.44***.
8. Double check the width dimensions provided on the job construction drawings, then drill holes for the saddle fasteners.
9. Install saddles using the provided hardware.
10. Fire door guides mounting to tubes, require the use of a slip joint. There are (3) mounting styles for slip joints, as detailed in ***Figures 7.45, 7.46 and 7.47***. Refer to the job information to determine the correct mounting style for the unit. Locate the Slip Joint Mounting Member(s).
11. Use the job information and the marks made in the previous steps to determine the correct Slip Joint Mounting Member location. Install using the provided hardware. Use only enough

fasteners to hold the Mounting Members securely in place (2), as they will be removed in a later step.

12. Determine the required tube length. Refer to ***Figures 7.45, 7.46 and 7.47***, depending on which configuration you are installing.
    a. Measure from the "*Floor to Slip Joint Mounting Member"* as shown in the corresponding figure below. Record this measurement.
    b. To allow for heat expansion, the steel tube will need to be cut short. To determine the required "*Expansion Allowance*", round the measurement taken in the previous step **up** to the nearest foot increment. Multiply the rounded value by 1/8 in/ft. Refer to the table below for examples:

Table 7.1 – Slip Joint Expansion Allowances

Floor to slip joint mounting member (ft)	9	10	11	12	13	14	15	16	17	18	19	20
Expansion Allowance (in)	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2	2 1/8	2 1/4	2 3/8	2 1/2

    c. Calculate the Tube Length:
    Tube Length = "Floor to Slip Joint Mounting Member" – "Expansion Allowance"
    d. Cut the tubes to the calculated "*Tube Length*". Make sure you cut the excess tubing from the top. Otherwise you will cut off necessary mounting holes and/or notches.

Note: *If regular saddles are provided, the tube length will have to be adjusted because the tube will not sit on the saddle flanges instead of the floor. Subtract the thickness of the flanges from the tube length.*

13. Remove the Slip Joint Mounting Member(s). Place the Slip Joint Mounting Members in the tops of the tubes.
14. Orient the tubes (ensure the guides, mounting holes or notches are facing the correct direction.) Place the bottom of the tube over the saddle. Stand the tube upright and reattach the slip joint mounting member using the previously drilled/marked holes to locate. Use all provided fasteners at this stage. Check that installed tube is plumb.
15. If you removed the inner and outer angles in ***Step 2***, reinstall them at this point.

Figure 7.45 – Slip Joint - Between Floor and Ceiling Mounting Assembly

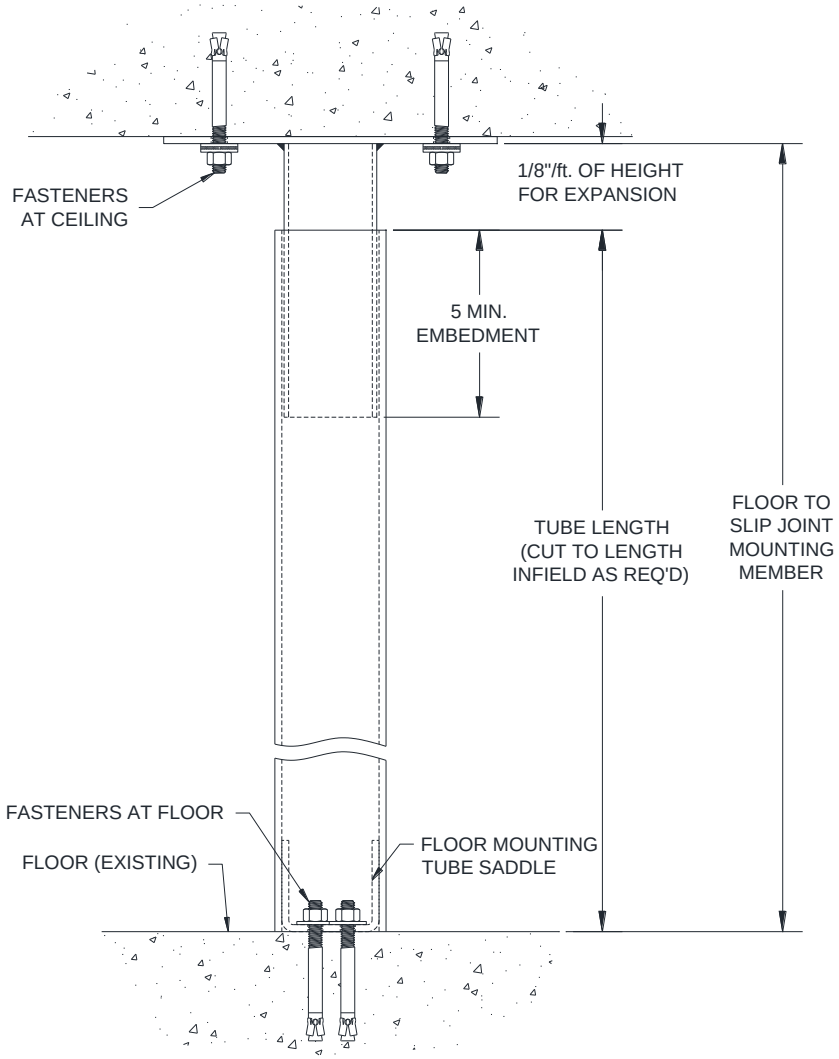


Figure 7.46 – Slip Joint - Floor to Wall with Plate Mounting Assembly

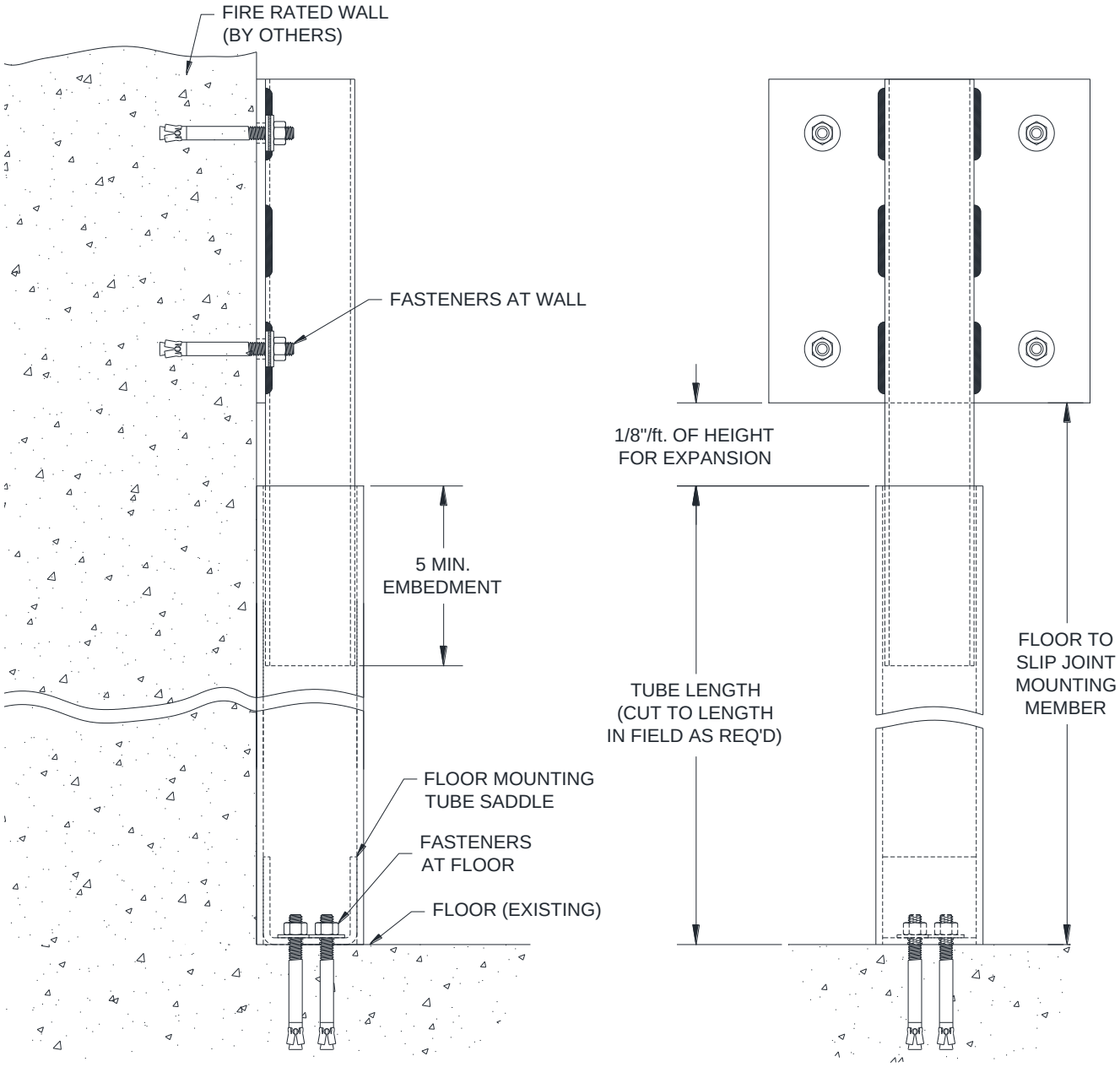
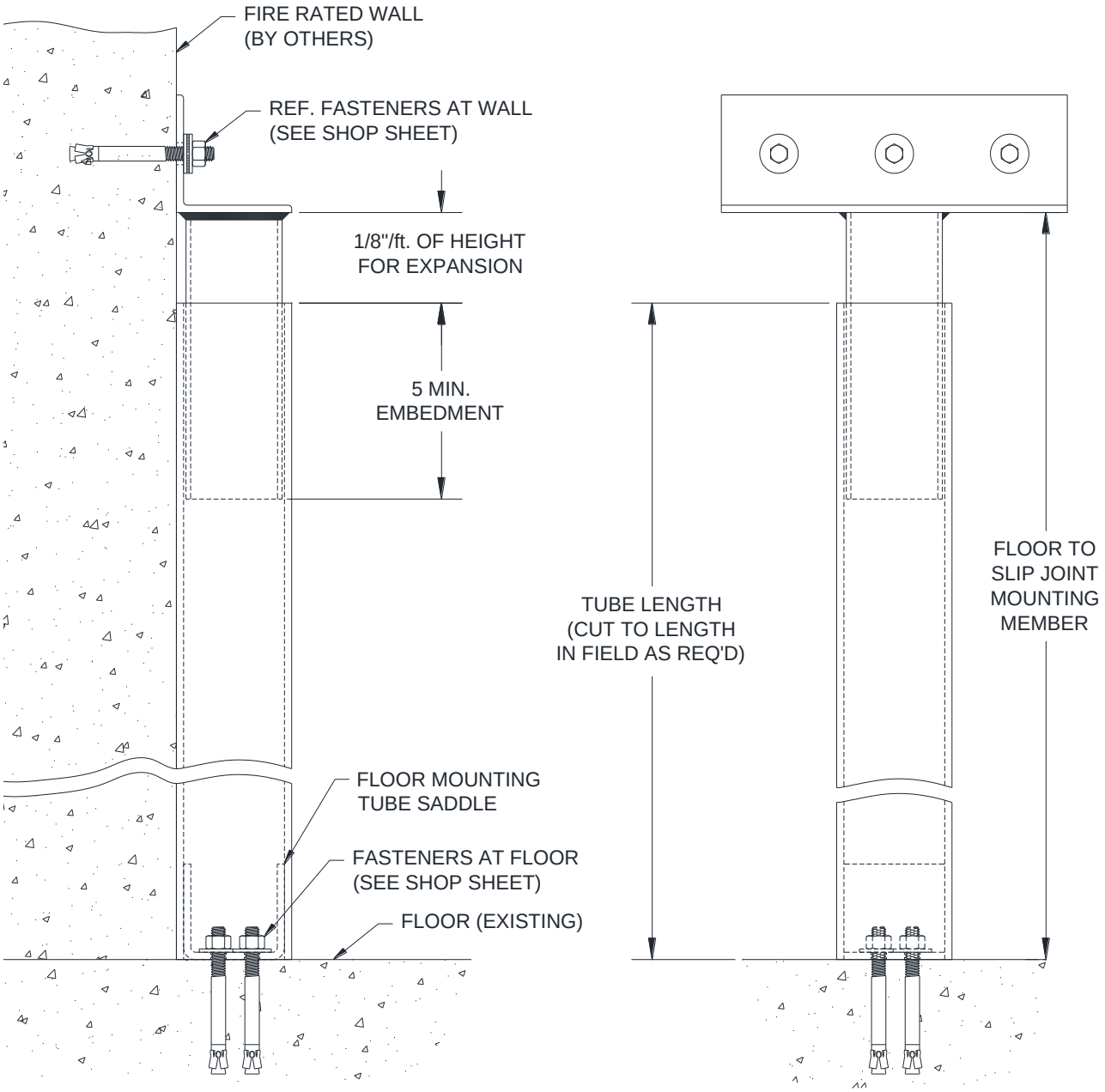


Figure 7.47 – Slip Joint - Floor to Wall with Angle Mounting Assembly



- **Mixed Guides (One Face of Wall and One Between Jambs):**
  1. Refer to the job construction drawings for specific mounting information.
  2. Follow the steps in the preceding sections for each of the respective guide configurations.
  3. Ensure that the guide centers (centerline of the guide openings) are aligned before proceeding

Maintenance Schedule

Note: *If any of the following problems exist,* ***<u>do not</u>*** *operate the door until repaired.*

Component	What to look for and how often the components must be inspected:	Weekly	Monthly	Quarterly	What to do if problem exists:
Curtain & Bottom Bar	Are any curtain components damaged (slats, endlocks, etc.)?	X			Contact Service about replacing damaged parts.
	Is bottom bar damaged?	X			Contact Service about replacing damaged parts.
	Are bottom bar fasteners in place and properly tightened?		X		Fasteners must be inspected/replaced and properly tightened.
	Are fasteners attaching curtain to the barrel in place and properly tightened?		X		Fasteners must be inspected/replaced and properly tightened.
	Do you notice any hang-ups, jamming or other problems preventing the door from moving smoothly throughout the opening?	X			Check for external issues, if none exist, contact Service.
	Do you notice any odd or excessive noise when the door is operated?	X			Check for external issues, if none exist, contact Service.
Brackets	Are brackets plumb and perpendicular with wall?			X	Contact Service.
	Are bracket fasteners in place and properly tightened?			X	Fasteners must be inspected/replaced and properly tightened.
	Do you notice signs of excessive wear on the bearings (i.e. binding, excessive noise, etc.)?		X		If there is a grease fitting, apply grease, if not, contact Service.
Guides	Are wall fasteners in place and properly tightened?		X		Fasteners must be inspected/replaced and properly tightened.
	Are guide assembly fasteners in place and properly tightened?		X		Fasteners must be inspected/replaced and properly tightened.
	Is guide gap dimension correct?		X		Guide gap must be between 1/4” and 3/8”, adjust if necessary.
	Are any of the guide parts bent or damaged?		X		Contact Service.
Hood and Fascia	Is hood/fascia dented or damaged?			X	Remove hood/fascia. Repair if possible. If not leave hood/fascia off and contact Service.
	Is curtain rubbing against the hood/fascia?	X			Hood/fascia may have been damaged. Contact Service.
	Is hood/fascia level?			X	Check fasteners, they may be loose or missing. Replace as soon as possible.
	Are guide assembly fasteners in place and properly tightened?		X		Fasteners must be inspected/replaced and properly tightened.
	Is hood support level?			X	Check fasteners, they may be loose or missing. Replace as soon as possible.
Door operation	Does the door require excessive force to open?		X		Check for hang-ups or obstructions. Ensure spring tension is set correctly. Contact Service.

Section 8 – Maintenance Schedule

Component	What to look for and how often the components must be inspected:	Weekly	Monthly	Quarterly	What to do if problem exists:
Motor Operator	Are the fasteners attaching the motor-to-the mounting bracket secure?			X	Fasteners must be inspected/replaced and properly tightened. Contact Service for replacement hardware.
	Is the door stopping correctly at the open and closed (as soon as the bottom bar contacts the floor) positions?		X		Limits may have to be adjusted in the motor operator. Refer to the operator owner's manual or contact Service.
	Is the operator functioning normally?		X		Refer to the *Operator Troubleshooting Table* on the following page to diagnose the problem.

- **Operator Troubleshooting:**
  ***Note**: If you suspect you are having an issue with your operator, use the following table to determine the potential causes. If the provided solution does not eliminate the issue, or the table does not address your particular problem, contact the Service Department.*

Component	Problem	Potential Cause	Solution
Motor Operator	Motor Operator does not run when OPEN or CLOSE button is pushed	The circuit breaker may be flipped or fuse blown.	Reset breaker or replace fuse. Contact Service if replacement fuse is needed.
		The thermal overload may be tripped.	Reset thermal overload.
	Motor operator runs but the door does not move	Tube motor internal gearing might be damaged.	Contact Service for repair parts. Hoods and shaft will need to be removed to replace tube motor.
	Motor hums but does not run	Door or drive chain may be jamming.	Check for hang-ups or obstructions. Try to operate manually. If issue persists, contact Service.
		Brake does not release.	Check power to brake solenoid.
		Open motor winding.	Check that all connections are secure.
	Motor operator runs in wrong direction and limits do not function	Polarity is reversed.	Interchange any 2 power leads to unit.
	Door drifts when motor shuts off	Brake may be improperly adjusted or broken.	Contact Service for repair parts. Hoods and shaft will need to be removed to replace tube motor (brake is internal).
	Motor operator does not shut off at full OPEN or at full CLOSE position	Limits may need adjustment.	Refer to the operator owner's manual to readjust limits.
		Limit switch may be defective.	Contact Service.
		Limit nut retainer not engaging slots in limit nuts.	Be sure retainer is securely engaged in slots of both limit nuts.
		Limit nuts binding on screw threads, allowing them to jump position on retainer.	Lube screw thread. Check that limit nuts turn freely.

Air Leakage Data

Please refer to the following table for specific leakage rates:

Table 9.1 – Air Leakage Data with Artificial Bottom Seal

TEST PRESSURE *(inches of WC)*	SILL CONDITIONS**	AIR TEMPERATURE	DOOR ASSEMBLY LEAKAGE* *(cfm/ft²)*	
0.1	A	Ambient	1.72	<3
0.2	A	Ambient	2.84	<3
0.3	A	Ambient	3.69	>3
0.1	A	Elevated	1.98	<3
0.2	A	Elevated	2.93	<3
0.3	A	Elevated	3.83	>3

Table 9.2 – Air Leakage Data without Artificial Bottom Seal

TEST PRESSURE *(inches of WC)*	SILL CONDITIONS**	AIR TEMPERATURE	DOOR ASSEMBLY LEAKAGE* *(cfm/ft²)*	
0.1	B	Ambient	2.21	<3
0.2	B	Ambient	4.68	>3
0.3	B	Ambient	++	>3
0.1	B	Elevated	1.92	<3
0.2	B	Elevated	4.35	>3
0.3	B	Elevated	++	>3

* Maximum Air Leakage Rate allowed is 3 cfm/ft² at 0.1 inches of WC (water column).

**Sill Condition A – Assembly tested with bottom of door and frame assembly artificially sealed as allowed by UL 1784 and NFPA 105. Sill Condition B – Assembly tested without artificial bottom seal.