

REVIEW ALL INSTRUCTIONS COMPLETELY BEFORE ATTEMPTING INSTALLATION

GENERAL NOTES:

- Instructions are intended for trained door systems technicians using proper tools and equipment.



WARNING! – Components under **extreme spring tension** can cause death or serious injury.



WARNING! – **Releasing the door operator brake, or loosening or removing any part of the drive system, can cause the door to move uncontrolled and cause death or serious injury.**

- The terms “fire door“, “fire doors”, “door” and “doors” apply generally to Fire Doors and Counter Fire Doors. If an instruction refers to a specific type, it will be noted as such.
- Instructions refer to doors operated from the left side (tension adjusting wheel on the right side).
- Fire doors may be installed on concrete, filled masonry, brick, steel (3/16” minimum thickness), or drywall construction (with jambs as indicated on the “DRYWALL CONSTRUCTION JAMB SCHEDULE”).
- Wall bolts are provided in accordance with UL or FM requirements for the type of wall construction indicated at the time of order. **DO NOT** substitute wall bolts. *If the wall bolts provided are not correct for actual field conditions, or if the wall angles are to be welded to structural steel jambs, contact the factory for further instruction.*
- Fire doors require clearance for vertical expansion above the top of the door. Verify that there is adequate space for the expansion indicated on the “EXPANSION SCHEDULE”.
- Ultimate acceptability of any fire door is the decision of the Authority Having Jurisdiction.

INSTALLATION:

NOTE: If the door is to be mounted between the jambs, it is provided with extra “filler” angle(s), tube(s), or formed shape(s). Install the filler(s) as shown in the installation drawings, following the same procedure as for the installation of the wall angles as noted below.

NOTE: If the door is to be installed on independent tube supports – either in front of, or concealed inside of, rated wall construction – it is provided with the required tubes, top sleeves to allow for expansion clearance, base and top plates/angles for attachment to the slab and structure above.

NOTE: If a fascia is provided, evaluate field conditions and decide when the best time would be to install it. The fascia may attach to separate fascia mounting angles installed on each jamb or directly to filler angles, tubes or formed shapes. If intermediate support(s) are included, space support(s) equally between the jambs. Drill holes as indicated on the “WALL BOLT SCHEDULE” and attach supports(s) with the wall bolts provided. Attach the fascia with the sheet metal screws provided.

- 1) Measure the door opening and verify that the door size is correct for the opening. If it is not correct, contact the factory for further instruction. DO NOT modify the door.
- 2) Unbolt and remove the guide channels/angles from the wall angles. Level across the opening and mark the “heels” dimension on the jambs as shown on the “DOOR SCHEDULE”. (For a door installed with a “Z” guide configuration, “heels” is the same as the door width plus the width of both guides. For a door installed with an “E” guide configuration, “heels” is the same as the door width plus the width of both guides and the thickness of both wall angles.)
- 3) Set the wall angles on the floor/sill at the “heels” mark on each jamb. The wall angles must be installed level and plumb. Shim up the lower wall angle, if necessary, to be level.
- 4) Using the wall angles as templates, mark, or drill through, slots for the wall bolts.
 - Holes for the wall bolts must be drilled as indicated on the “WALL BOLT SCHEDULE” for Fire Doors or Counter Fire Doors, as appropriate.
 - Locate all holes at the top of the slots in the wall angles.
- 5) Secure the wall angles to the jambs with the wall bolts provided. All wall bolts require a heavily galvanized washer between the bolt and the wall angle.
- 6) Slide the brackets onto the barrel shafts.
 - The tension bracket (with tension release or tension lock) goes on the end of the barrel with the rotating shaft that is normally notched or drilled to match the type of tension adjusting wheel provided.
 - The operating bracket (with operating/governor mechanism) goes on the opposite end of the barrel with the fixed shaft that is normally keyed.
 - When a barrel hub is on the fixed shaft, the hub should be tight against the end of the barrel, and the hub should also be tight against the bearing in the operating bracket. When a barrel hub is not provided, the end of the barrel should be tight against the bearing in the operating bracket.
 - There should be clearance for expansion between the end of the barrel and the tension bracket.
- 7) It is recommended that operating bracket components be assembled now. Operating bracket components must be set tight against the outside of the bracket bearing. Use washers to shim for alignment if necessary. (As an alternative, this may be done after the barrel and brackets are raised and bolted to the wall angles.)

NOTE: Assembly details are included for typical push-up, crank, chain and motor operated doors. *Refer to supplemental installation instructions provided with the fire door governor, chain, crank and motor operator for further information.*

NOTE: In some cases, governor, chain and crank operators may require a field hand-change. If chain or crank operator handing is not correct, the door will not open. **CAUTION: If the governor handing is not correct, the speed of the door will NOT be governed when closing.**

- 8) Remove the truss head bolts and washers from across the barrel. Raise the barrel and brackets into position between the tops of the wall angles. **CAUTION: Use a hoisting method adequate to safely lift the size and weight of the barrel.** Bolt the brackets to the inside of the wall angles with the flat head bolts, washers and hex nuts provided.
- 9) Raise the curtain, with the lead slats pointing away from the wall, to below the barrel. **CAUTION: Use a hoisting method adequate to safely lift the size and weight of the curtain.** Set slings around the barrel and the curtain. **CAUTION: Use a minimum of 2 slings spaced across the barrel, but as many as required to safely support the size and weight of the curtain.** Set the curtain into the slings and cut the bands around the curtain. Unroll enough curtain to reach the barrel. Feed the curtain between the back of the barrel and the slings. Turn the barrel to bring the curtain over the top and around to the front. Center the curtain between the brackets. Align the slots in the lead slats with the nuts welded to the barrel. The lead slat at each end of the curtain must be against the endlock. Attach the lead slats to the barrel with the truss head bolts and washers previously removed.
- 10) **On tensions brackets with tension release**, slide the washer and tension adjusting wheel with the swing arm around it onto the shaft extending through the tension bracket. Insert a cotter pin through the hole in the end of the notched shaft.
On tension brackets with tension lock, slide the tension adjusting wheel onto the shaft extending through the tension bracket. If the shaft is drilled or keyed to secure the tension adjusting wheel, install the pin or key provided (and tighten any set screws).
- 11) Insert a winding bar into the top of the tension adjusting wheel and pull down, away from the wall, to wind the spring assembly. Carefully continue adding tension until the curtain coils itself nearly completely around the barrel. When the curtain is hanging balanced, lock the tension adjusting wheel with the tension pin or tension arm.



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- 12) Attach the guide channels/formed angles to the insides of the wall angles.
 - Guide channels/ formed angles attach to the wall angles with special headed bolts and require heavily galvanized washers under the flange nut.
 - Angle guides attach to the wall angles with hex head bolts and require heavily galvanized washers under the bolt head and the flange nut.
- 13) Make sure the curtain stops are in position and secured to the guides. Adjust the spring tension so the bottom bar wants to raise up to the curtain stops. Remove the slings from around the curtain and barrel. Try the operation of the door and adjust spring tension as necessary so the curtain is as balanced as possible. **CAUTION: Adjust spring tension only when the curtain is in the open position.**



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WARNINGS CONTINUED ON NEXT PAGE



WARNING! – Releasing the door operator brake, or loosening or removing any part of the drive system, can cause the door to move uncontrolled and cause death or serious injury.

On push-up fire doors with tension release, tension adjustment is now complete. Place the catch bar into the notch in the tension wheel lug nearest the front side of the swing arm, install the hex nut into the corresponding cavity in the face of the tension adjusting wheel, install the Grade 5 hex bolt through the bar and the lug, and tighten the bolt into the captured nut.

On chain, crank or motor operated fire doors with tension lock, additional tension adjustment is necessary. Tension adjustment requires that the curtain be in the fully open position, and that operating systems are disengaged (fusible link release is released). Attach locking pliers or clamp to each guide, approximately 6” below the bottom bar. Insert a winding bar into the front of the tension wheel. Securely hold the winding bar, remove the tension pin, and carefully release one hole of tension at a time until the bottom bar wants to drift down to the locking pliers or clamps. Lock the tension wheel with the tension pin. **CAUTION: Adjust spring tension only when the curtain is in the open position.** Temporarily engage and secure the operator release.

- 14) If intermediate hood support(s) are provided, install now. Space support(s) equally between the brackets. The top of the support(s) must be even with the top of the brackets. Drill holes as indicated on the “WALL BOLT SCHEDULE” and attach support(s) with the wall bolts provided.
- 15) Align the brackets so they are square (not “toed in” or “toed out”). Lift the hood, set in place centered between the brackets, and attach to the band on each bracket (and intermediate supports) with sheet metal screws provided.
- 16) Install the fusible links and cable.
 - One fusible link must be located at the release on the operator or tension bracket.
 - One fusible link must be located within 12” of the ceiling, but NOT within the area 4” down from the ceiling and 4” away from the wall.
 - One fusible link must be located on the opposite side of the wall, within 12” of the ceiling, but NOT within the area 4” down from the ceiling and 4” away from the wall.
 - All fusible links and cable must be installed so that the separation of any fusible link will cause the door to close.

NOTE: If the door is to be connected to a release device with automatic closing activated by an alarm system or detector(s), a fusible link must still be located at the release on the operator or tension bracket, but one is not required to be within 12” of the ceiling or on the opposite side of the wall. The release device can be mounted at any convenient location that provides for proper release of the door. Consult NFPA 80 or the Authority Having Jurisdiction for required location(s) of detector(s). Refer to supplemental installation instructions provided with the release device for further information.

NOTE: Use ½” EMT conduit as a sleeve through the wall. Cut the conduit so that it extends through the wall and into the set collars provided. The ends of the conduit should be ¼” inside the set collar on each end. File the ends of the conduit so there are no sharp edges. The sleeve must remain open and unobstructed – fire stopping, caulking, or other sealants are NOT to be used.

17) If locking pliers or clamps were used to hold the bottom bar during tension adjustment, make sure they are removed. Make sure the cotter pin has been removed from the fusible link release assembly of chain, crank, FGH and FGRL motor operators.

18) Drop test the door to verify proper operation and full closing.

- Separate the fusible link from the cable (typically at the link furthest from the door on the opposite side of the wall), through the alarm system or detector(s), or as otherwise required by the Authority Having Jurisdiction.
- The door must close at an average rate of no faster than 24 inches per second and no slower than 6 inches per second.
- The bottom bar must come to rest on the floor/sill.



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If the door closes as indicated, the drop test was successful. Reset the door and drop test one more time to confirm the door was reset properly, and then reset the door again.

If the door does NOT close as indicated, check for any obstructions, areas where binding may occur, or possible further tension adjustment. **CAUTION: Adjust spring tension only when the curtain is in the open position.**

- Reset the door and drop test until the door closes satisfactorily.
- After a successful drop test, reset the door and drop test one more time to confirm the door was reset properly, and then reset the door again.

NOTE: In some cases, small doors that are motor operated may require negative initial tension to allow the door to close through the internal governor.

19) Make sure warning labels are attached to the door as follows:

- L70011 Guide Label is attached to the guide (or to the wall if the guides are concealed) at eye level on the operating side of the door
- L70020 Fire Door Label is attached to the guide (or to the wall if the guides are concealed) at eye level on the operating side of the door
- L70010 Spring Label is attached to the tension bracket
- L70027 Operator Label is attached to the operating bracket (this label is not provided if the door is push-up operated)

If any warning labels are missing or not legible, contact the factory for replacement labels.

20) Make sure the inspection label is attached to the door as follows:

- L70014 Inspection and Test Record Label is attached to the guide (or to the wall, or to the bottom bar, if the guides are concealed) at eye level on the operating side of the door
- On the label, mark the square indicating the month in which the door was installed and drop tested. If the label is missing or not legible, contact the factory for a replacement label.

21) Complete the *Fire Door Inspection and Test Form* and distribute copies as noted on the form.

DRYWALL CONSTRUCTION JAMB SCHEDULE

Model SL, ML or HL Fire Doors / Model IL Insulated Fire Doors

OPENING WIDTH	METAL STUD	WOOD STUD	STEEL TUBE
to 8'-0"	(1) 16 ga. x 2 1/2" *	(2) 2" x 4"	2 1/2" x 2 1/2" x 3/16"
over 8'-0" to 14'-0"	(2) 16 ga. x 2 1/2"	(2) 2" x 4"	2 1/2" x 2 1/2" x 3/16"
over 14'-0" to 20'-0"	N/A	(1) 4" x 4"	3" x 3" x 1/4"
over 20'-0" to 28'-0"	N/A	(1) 4" x 6"	3 1/2" x 3 1/2" x 1/4"
over 28'-0" to 36'-0"	N/A	(1) 4" x 6"	4" x 4" x 1/4"
over 36'-0" to 44'-0"	N/A	(1) 6" x 6"	6" x 6" x 5/16"
over 44'-0" to 48'-0"	N/A	N/A	6" x 6" x 5/16"
over 48'-0" to 60'-0"	N/A	N/A	6" x 6" x 3/8"

* (2) 16 ga. studs are required for IL Insulated Fire Doors to 8'-0" wide

Model CL Counter Fire Doors

OPENING WIDTH	METAL STUD	WOOD STUD	STEEL TUBE
to 7'-0"	(1) 16 ga. x 2 1/2"	(2) 2" x 4"	2 1/2" x 2 1/2" x 3/16"
over 7'-0" to 16'-0"	(2) 16 ga. x 2 1/2"	(2) 2" x 4"	2 1/2" x 2 1/2" x 3/16"

NOTES:

- 1) Above jambs are minimum requirements only – jambs and their attachments must be designed to provide proper mounting and adequate support for the size and weight of the door and its intended use.
- 2) This jamb schedule is only for jambs located inside of rated non-masonry wall construction with the fire door attached to the face of the wall or between the jambs.
- 3) Metal studs are not to be used as jambs in non-masonry wall construction rated over 2 hours.
- 4) When metal studs are used for between-jamb mounted doors, they must be solid studs (un-punched, without knockouts).
- 5) Number of studs and width of steel tubes may need to be increased if guides are set back from edges of opening.
- 6) When jambs in existing walls are not in compliance with the above requirements, they must be replaced. As an alternative, independent tube supports provided by the fire door manufacturer as a part of the fire door assembly may be installed in front of the wall with the fire door face of wall or between jamb mounted, or guides and brackets direct attached, to the tube supports.

EXPANSION SCHEDULE

OPENING HEIGHT	VERTICAL EXPANSION CLEARANCE ABOVE TOP OF DOOR COIL
to 8'-0"	1/2"
over 8'-0" to 12'-0"	3/4"
over 12'-0" to 20'-0"	1"
over 20'-0" to 28'-0"	1 1/4"
over 28'-0" to 36'-0"	1 1/2"
over 36'-0" to 44'-0"	1 3/4"
over 44'-0" to 50'-0"	2"

WALL BOLT SCHEDULE – FIRE DOORS

(U-Channel or Angle Guides)

WALL CONSTRUCTION	OPENING WIDTH	WALL BOLT TYPE	MIN. WALL BOLT SIZE	DRILL SIZE	MIN. HOLE DEPTH
Masonry					
Concrete	to 14'	Wedge Anchor	3/8" x 3 1/2"	3/8"	3"
	over 14' to 36'	Wedge Anchor	1/2" x 4 1/2"	1/2"	4"
	over 36'	Wedge Anchor	5/8" x 5 1/2"	5/8"	5"
Filled CMU, brick or concrete	to 14'	Sleeve anchor	1/2" x 3"	1/2"	3"
	over 14' to 36'	Sleeve anchor	5/8" x 4"	5/8"	4"
	over 36'	Sleeve anchor	3/4" x 5"	3/4"	5"
Non-masonry (fire-rated drywall)					
Metal stud (16 ga. minimum)	to 14'	Self-tapping screw	3/8" x 2"	5/16"	N/A
	over 14'	N/A	N/A	N/A	N/A
Wood stud	to 14'	Lag screw	3/8" x 4"	1/4"	N/A
	over 14' to 36'	Lag screw	1/2" x 4"	11/32"	N/A
	over 36'	Through-bolts	5/8" x req'd length	11/16"	Through wall
Steel tube (3/16" minimum)	to 14'	Self-tapping screw	3/8" x 2"	Letter "S"	N/A
	over 14' to 36'	Machine screw	1/2" x 2"	27/64"	N/A
	over 36'	Machine Screw	5/8" x 2"	17/32"	N/A
Structural Steel					
3/16" (minimum) steel	to 14'	Self-tapping screw	3/8" x 1"	Letter "S"	N/A
	over 14' to 36'	Machine screw	1/2" x 1"	27/64"	N/A
	over 36'	Machine Screw	5/8" x 1"	17/32"	N/A
Masonry or Non-masonry					
Any	to 14'	Through-bolts	3/8" x req'd length	7/16"	Through wall
	over 14' to 36'	Through-bolts	1/2" x req'd length	9/16"	Through wall
	over 36'	Through-bolts	5/8" x req'd length	11/16"	Through wall

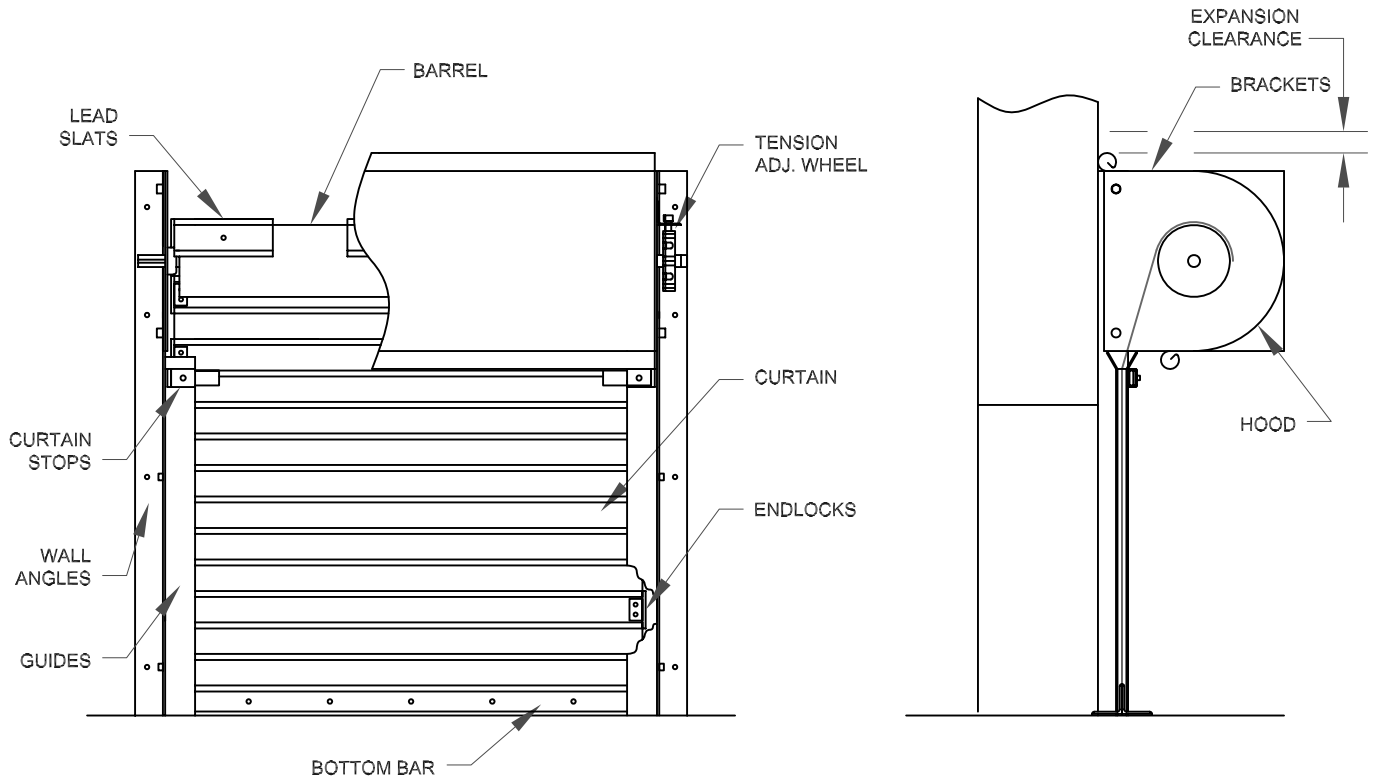
WALL BOLT SCHEDULE – COUNTER FIRE DOORS

(Formed Guides)

WALL CONSTRUCTION	OPENING WIDTH	WALL BOLT TYPE	WALL BOLT SIZE	DRILL SIZE	MINIMUM HOLE DEPTH
Masonry					
Concrete	to 16'	Wedge anchor	3/8" x 3 1/2"	3/8"	3"
Filled CMU, brick or concrete	to 16'	Sleeve anchor	1/2" x 3"	1/2"	3"
Non-masonry (fire-rated drywall)					
Metal stud (16 ga. minimum)	to 16'	Self-tapping screw	3/8" x 2"	5/16"	N/A
Wood stud	to 16'	Lag screw	3/8" x 4"	1/4"	N/A
Steel tube (3/16" minimum)	to 16'	Self-tapping screw	3/8" x 2"	Letter "S"	N/A
Structural Steel					
3/16" (minimum) steel	to 16'	Self-tapping screw	3/8" x 1"	Letter "S"	N/A
Masonry or Non-masonry					
Any	to 16'	Through-bolts	3/8" x req'd length	7/16"	Through wall

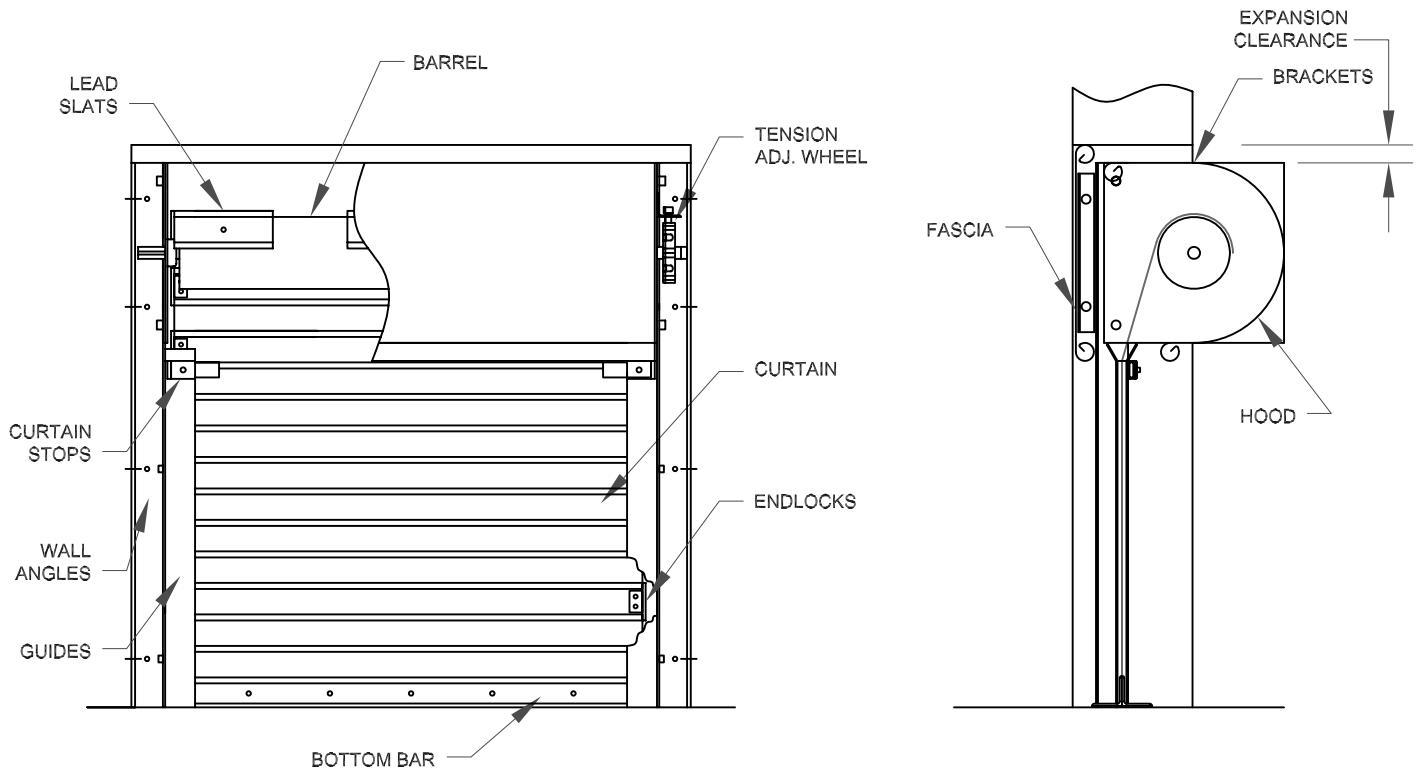
NOTES:

- 1) Doors may be provided with wall bolts larger than listed above. Use appropriate drill size and min. hole depth for wall bolts provided.
- 2) Doors installed on non-masonry wall construction rated over 2 hours (or walls with more than 2 layers of drywall) must be attached with through-bolts unless jambs are 3/16" min. steel.
- 3) Doors larger than 300 sq. ft. installed on non-masonry wall construction with wood stud jambs must be attached with through-bolts.



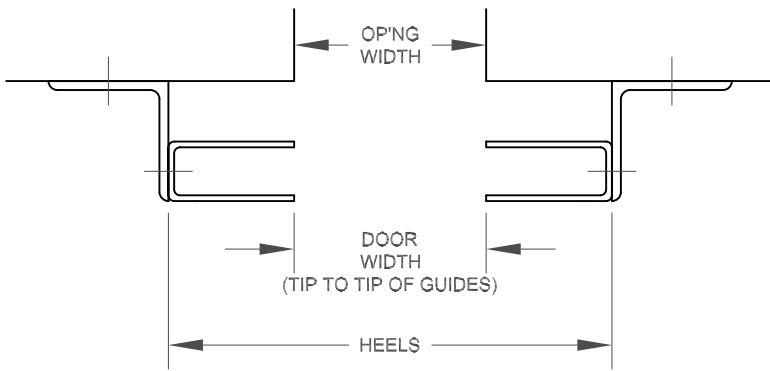
FACE MOUNT

NOTE: OPERATING & CLOSING SYSTEMS NOT SHOWN

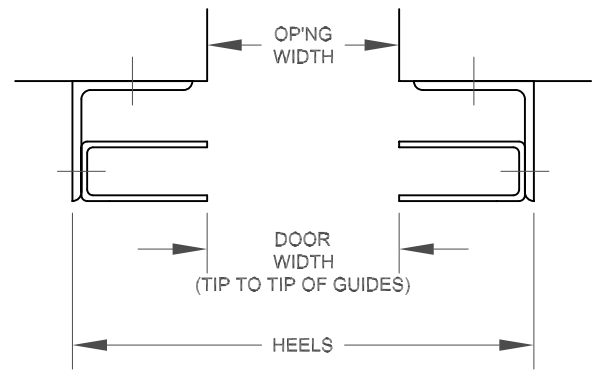


BETWEEN JAMB MOUNT

**GENERAL NOTE:
DOOR WIDTHS MAY
NOT BE THE SAME
AS OP'NG WIDTHS**

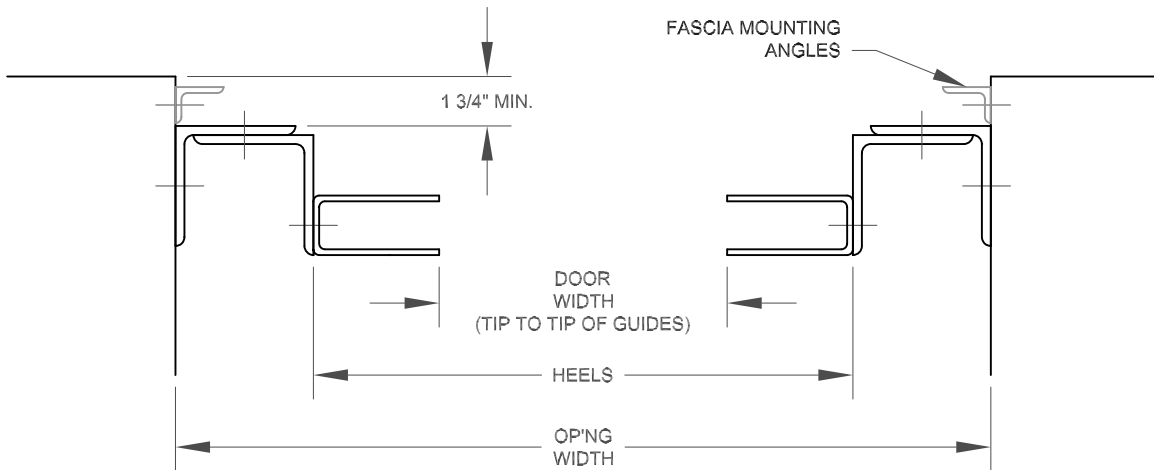


"Z" GUIDE CONFIGURATION

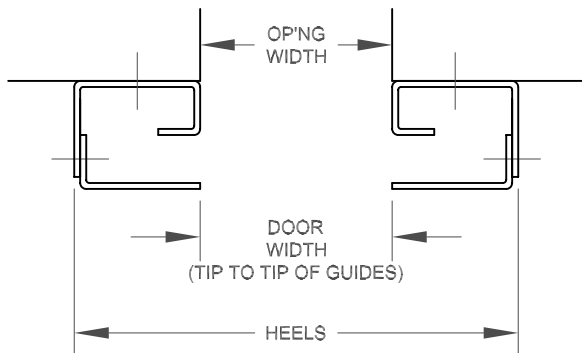


"E" GUIDE CONFIGURATION

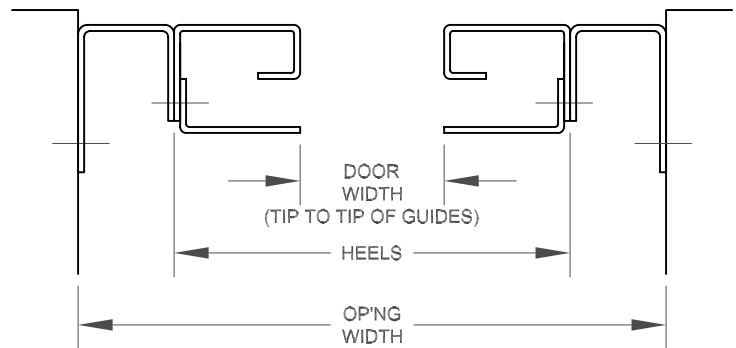
**FACE MOUNT
(U-CHANNEL GUIDES SHOWN - ANGLE GUIDES SIMILAR)**



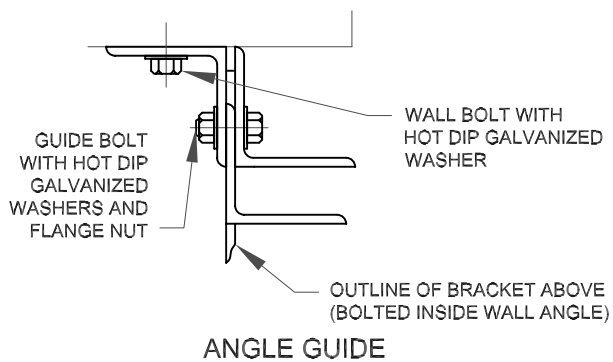
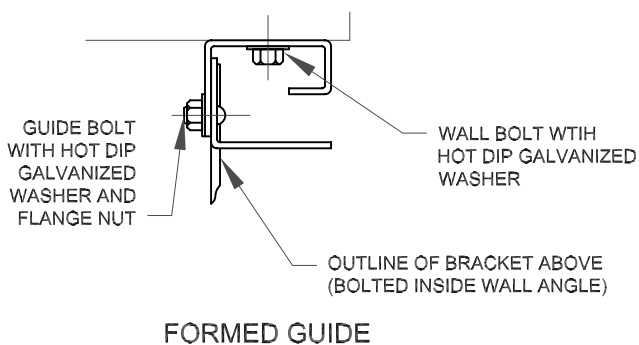
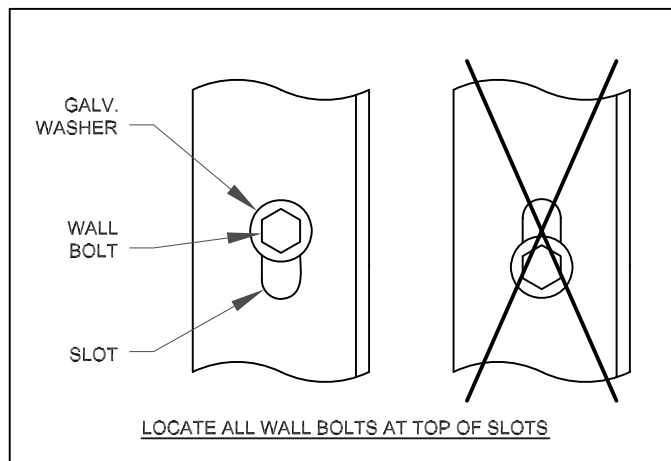
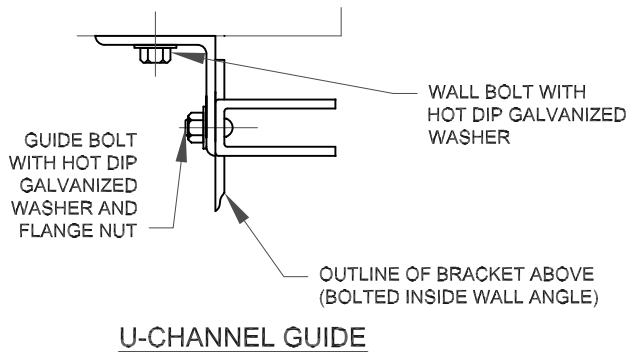
**BETWEEN JAMB MOUNT
(U-CHANNEL GUIDES SHOWN - ANGLE GUIDES SIMILAR)**



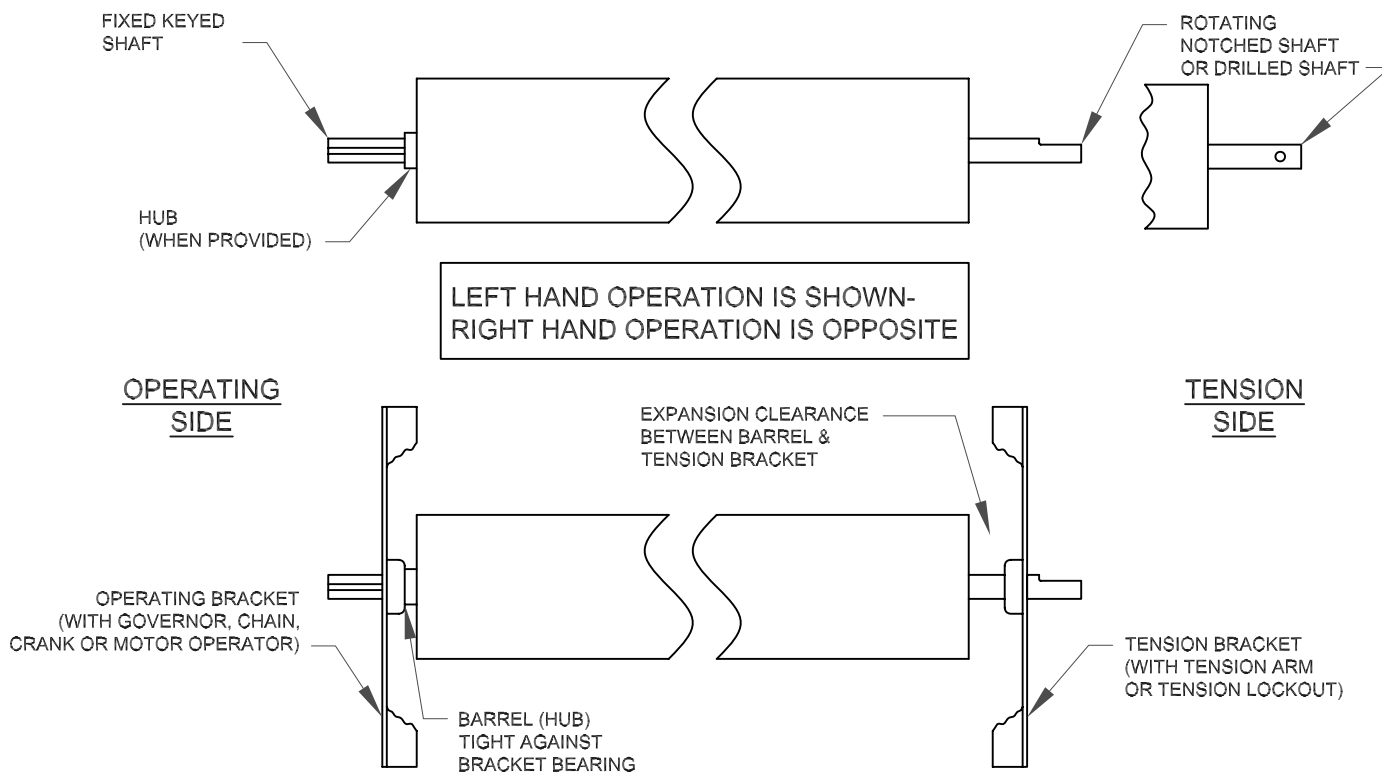
**FACE MOUNT
FORMED GUIDES**



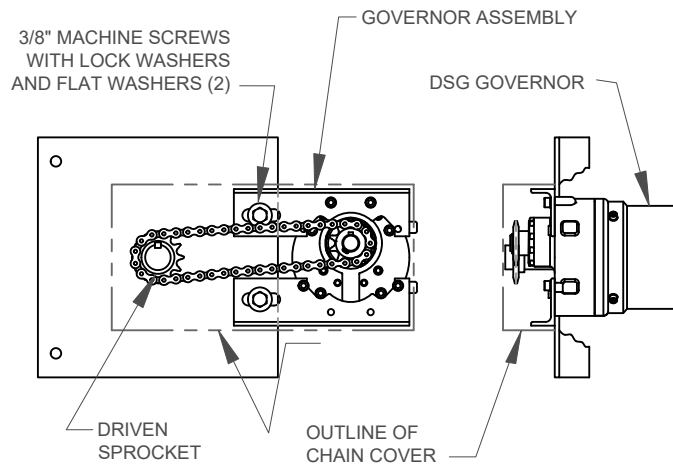
**BETWEEN JAMB MOUNT
FORMED GUIDES**



GUIDE INSTALLATION & ASSEMBLY
(FACE MOUNT SHOWN - BETWEEN JAMB MOUNT SIMILAR)

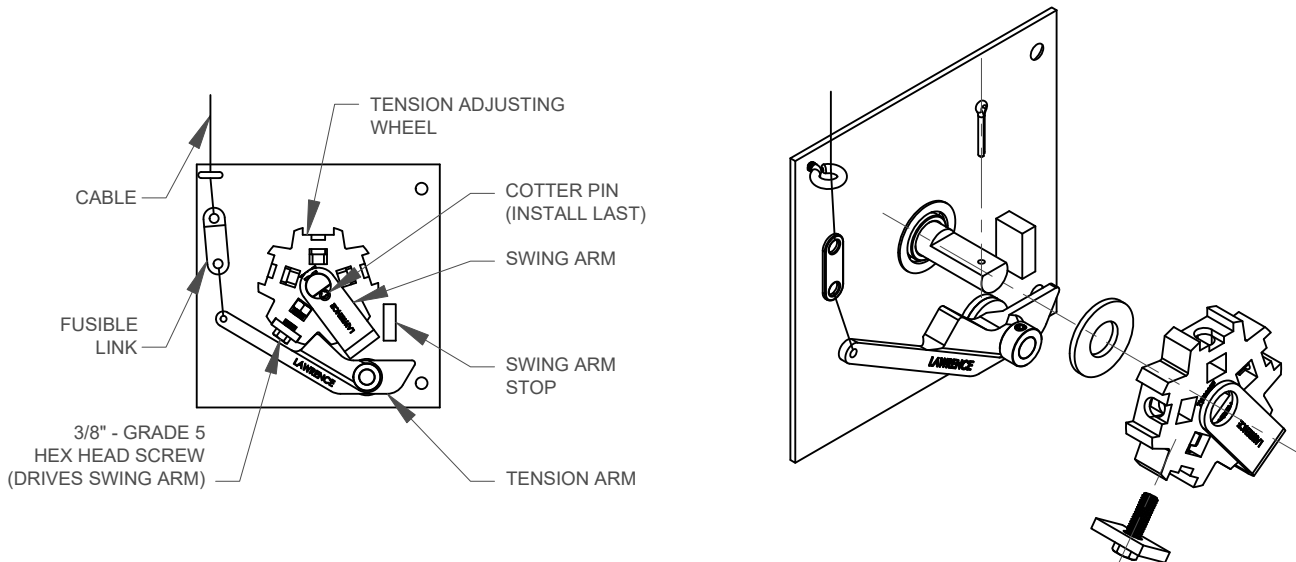


BARREL & BRACKET ASSEMBLY



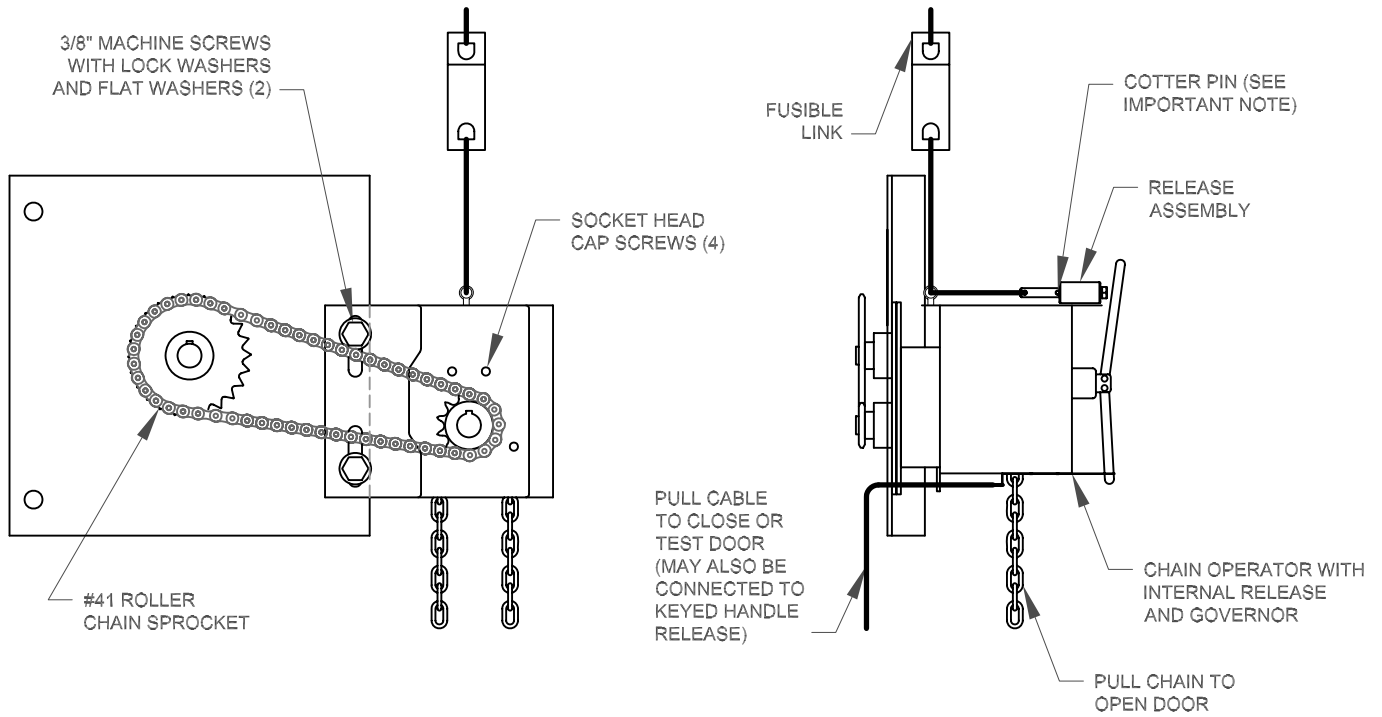
DSG GOVERNOR

OPERATING BRACKET
PUSH-UP OPERATION



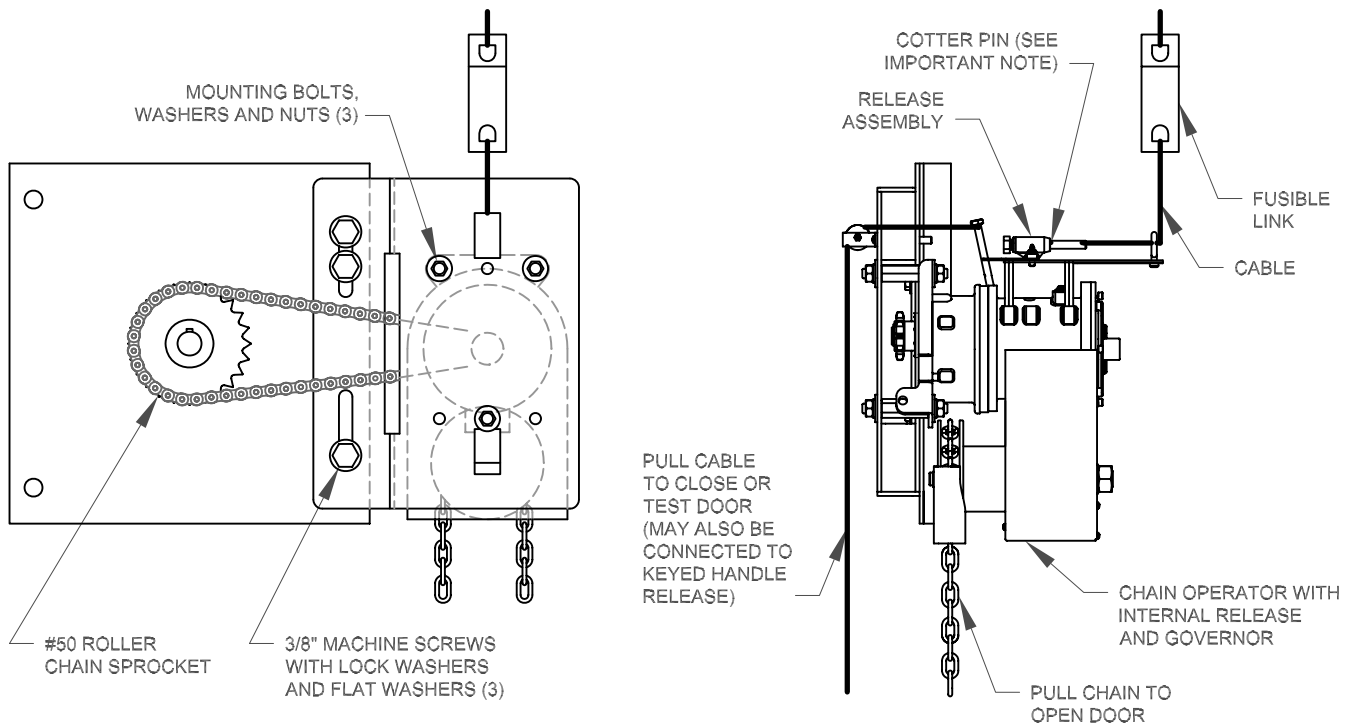
INITIAL SPRING TENSION IS RELEASED
UPON RELEASE OF TENSION ARM
TO ALLOW DOOR TO CLOSE

TENSION BRACKET WITH TENSION RELEASE
FOR PUSH-UP OPERATED DOORS

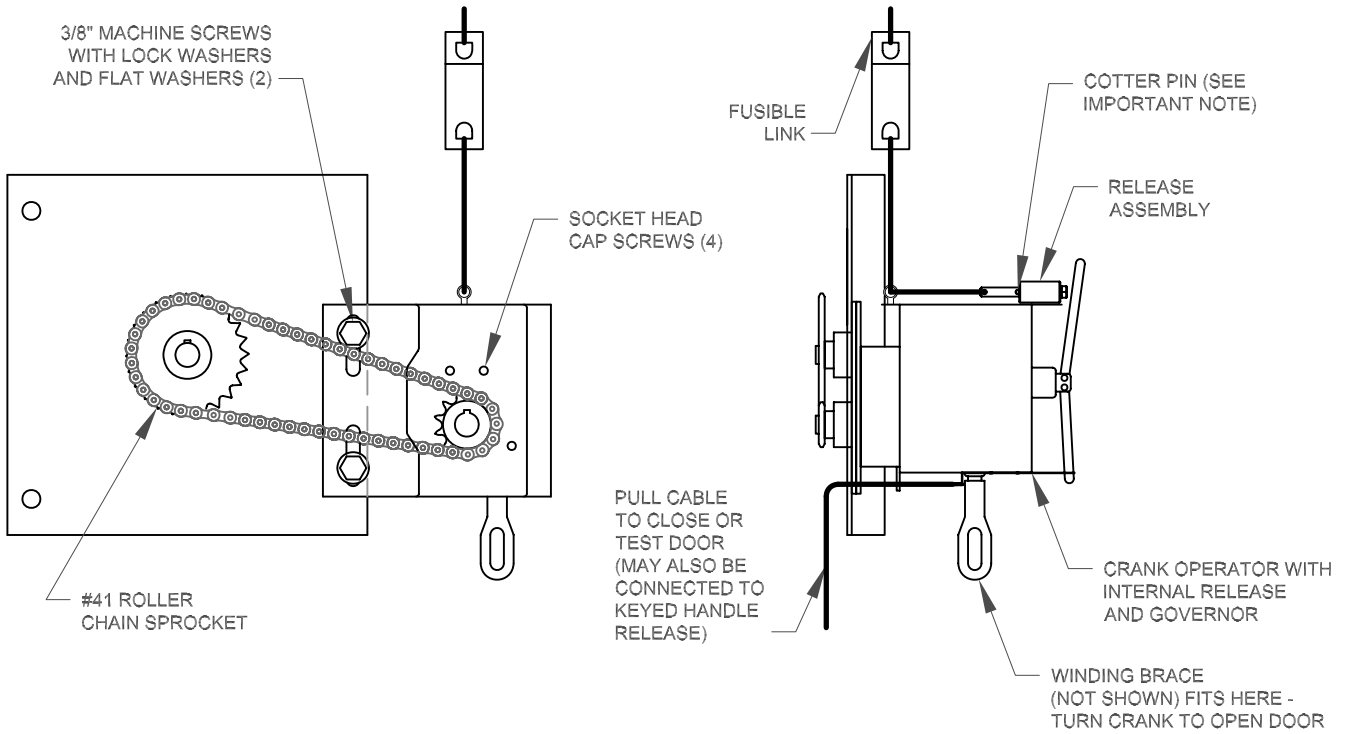


FHCM CHAIN OPERATOR

IMPORTANT NOTE:
 FOLLOWING INSTALLATION OF CHAIN OPERATORS SHOWN ON THIS PAGE, REMOVE COTTER PIN FROM RELEASE ASSEMBLY!

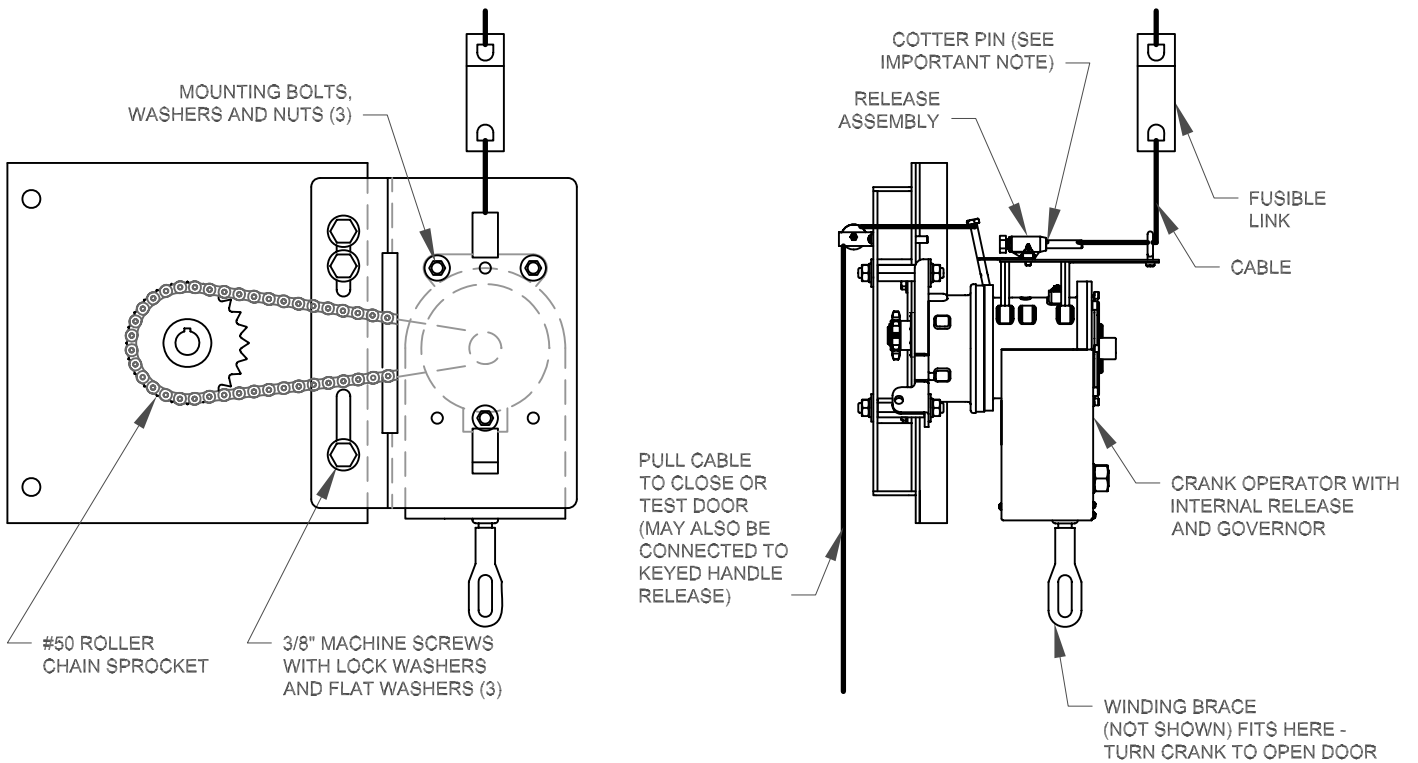


FHC CHAIN OPERATOR

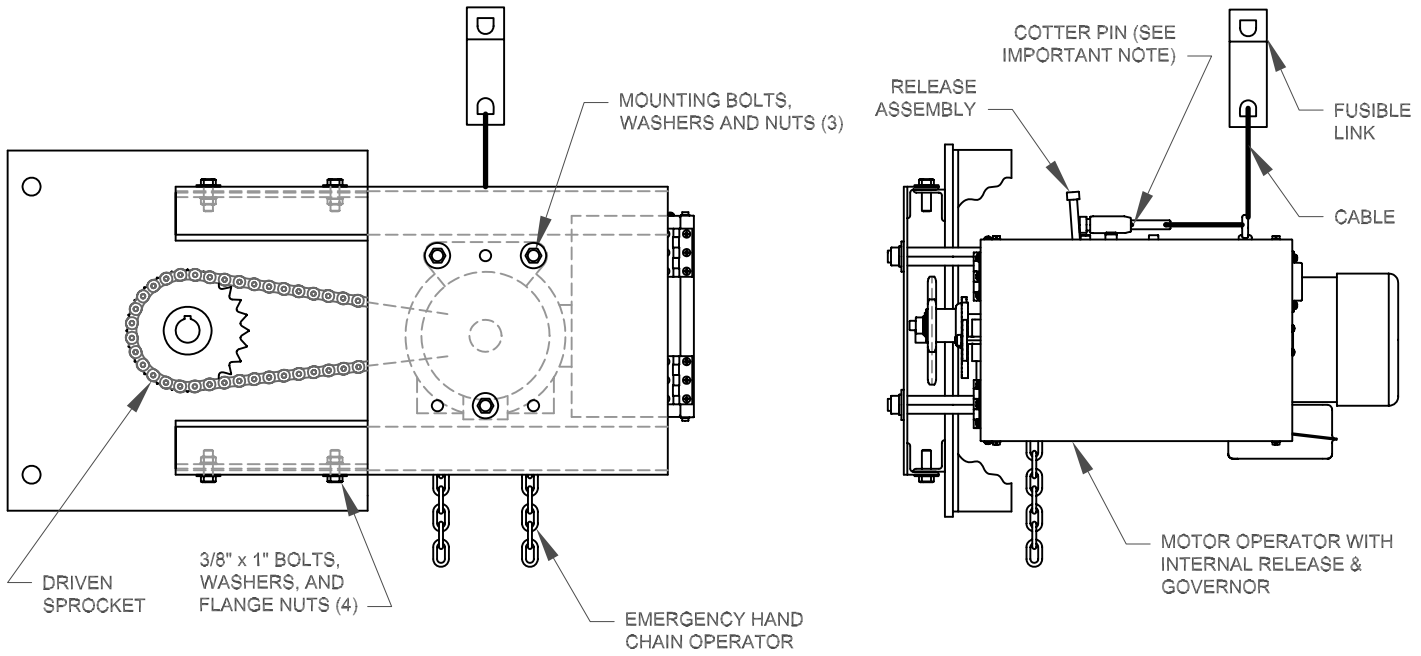


FHKM CRANK OPERATOR

IMPORTANT NOTE:
 FOLLOWING INSTALLATION OF CRANK OPERATORS SHOWN ON THIS PAGE, REMOVE COTTER PIN FROM RELEASE ASSEMBLY!

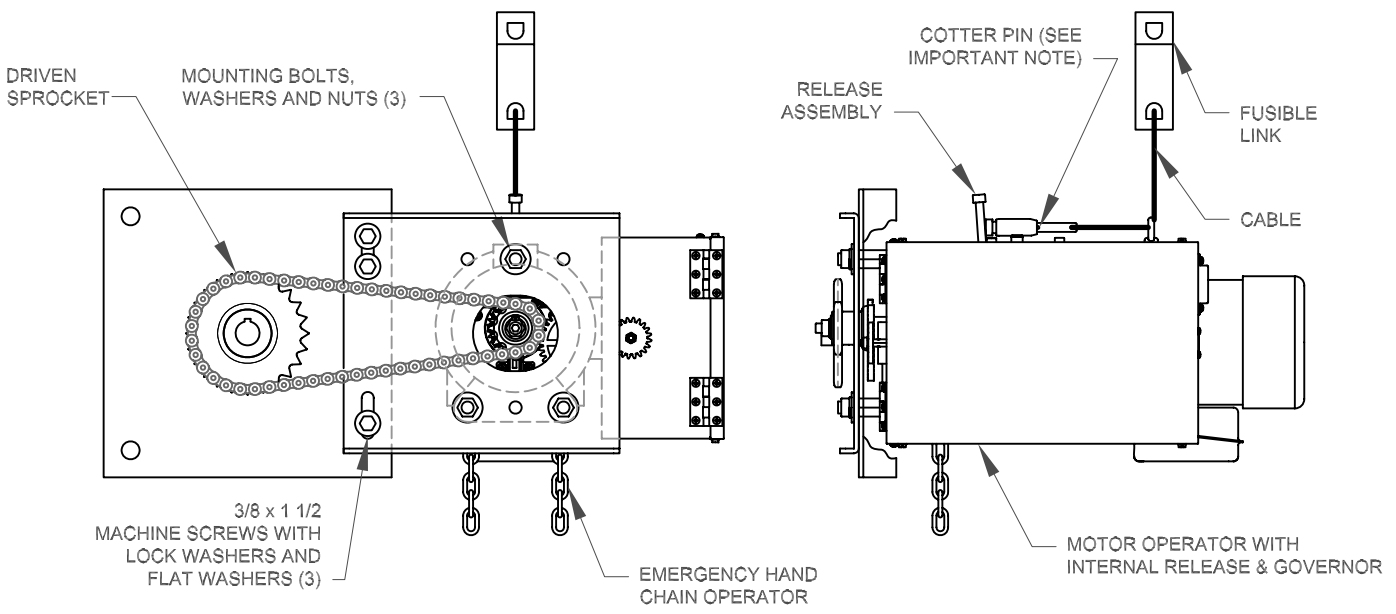


FHK CRANK OPERATOR

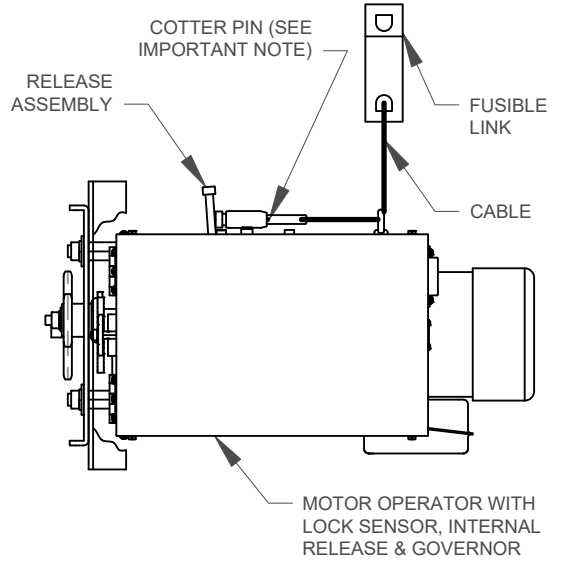
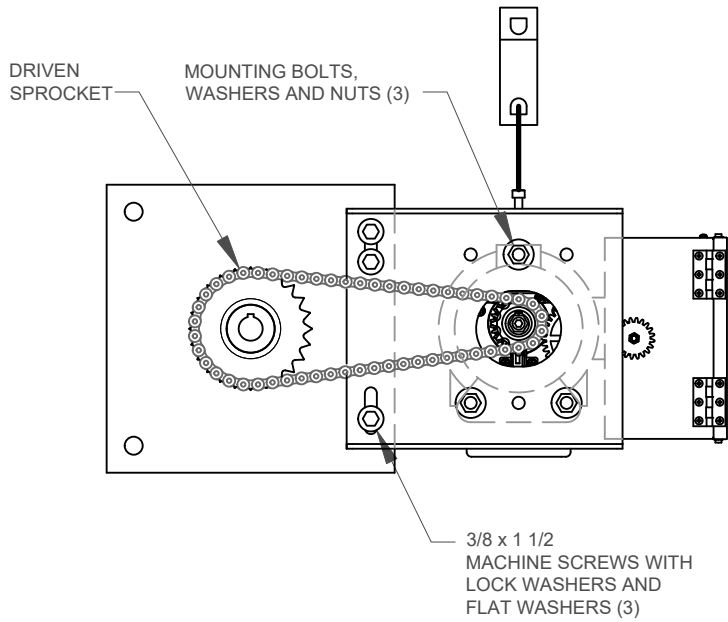


**MODEL FGH MOTOR OPERATOR
WITH HEAVY DUTY MOUNTING PLATE**

IMPORTANT NOTE:
FOLLOWING INSTALLATION OF FGH
MOTOR OPERATOR, REMOVE COTTER
PIN FROM RELEASE ASSEMBLY!

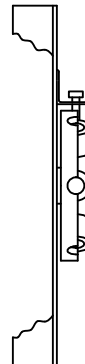
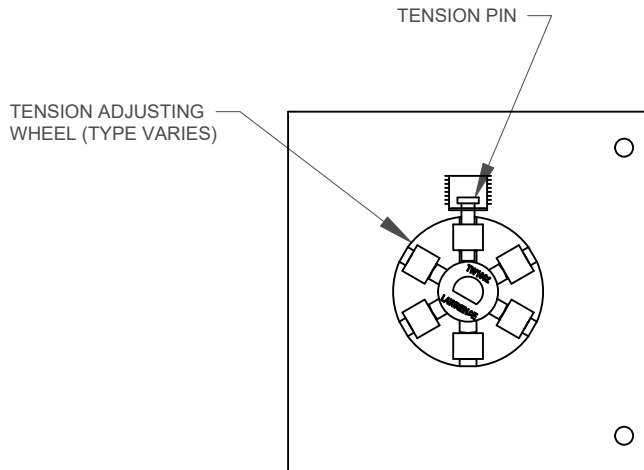


**MODEL FGH MOTOR OPERATOR
WITH STRAIGHT MOUNTING PLATE**



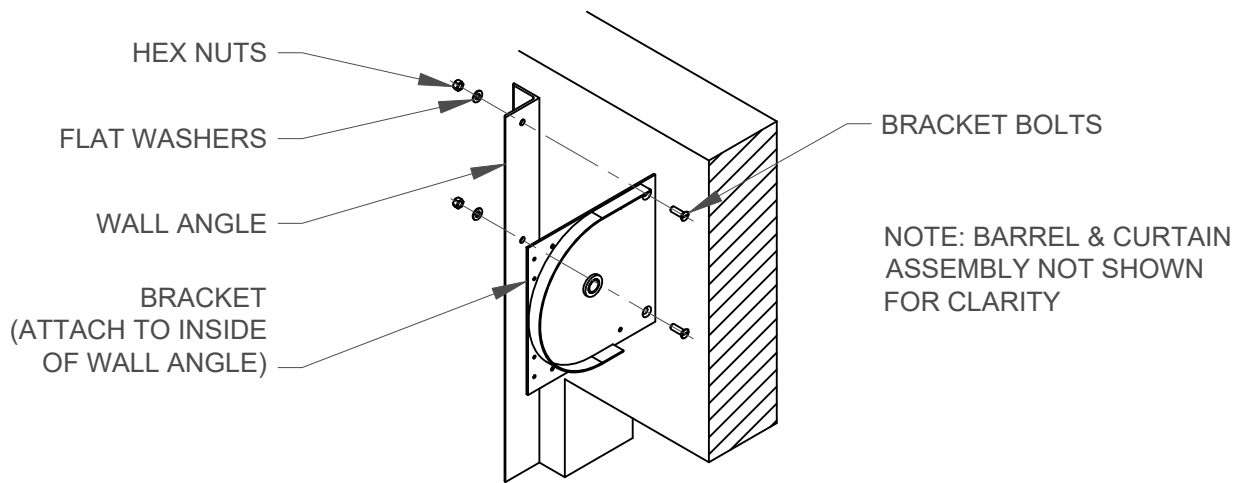
MODEL FGRL MOTOR OPERATOR

IMPORTANT NOTE:
 FOLLOWING INSTALLATION OF FGRL MOTOR OPERATOR, REMOVE COTTER PIN FROM RELEASE ASSEMBLY!

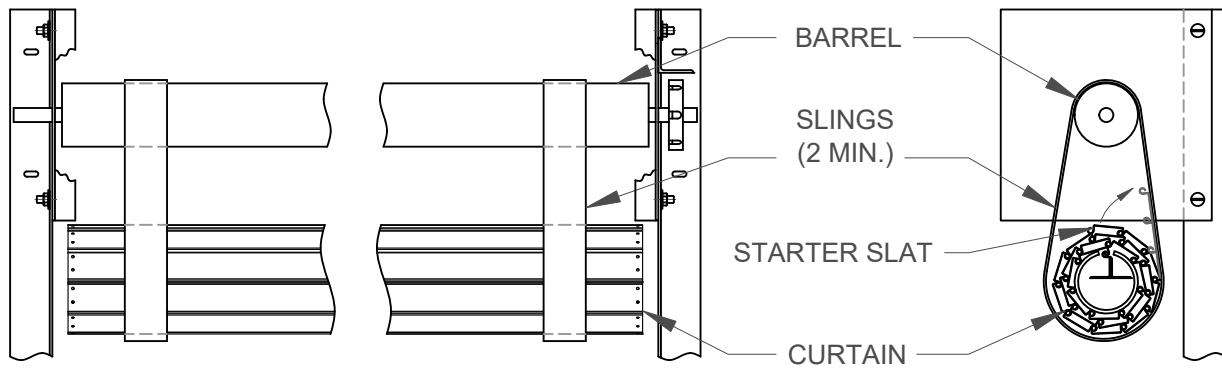


DOOR IS INSTALLED WITHOUT INITIAL TENSION TO ALLOW DOOR TO CLOSE UPON RELEASE

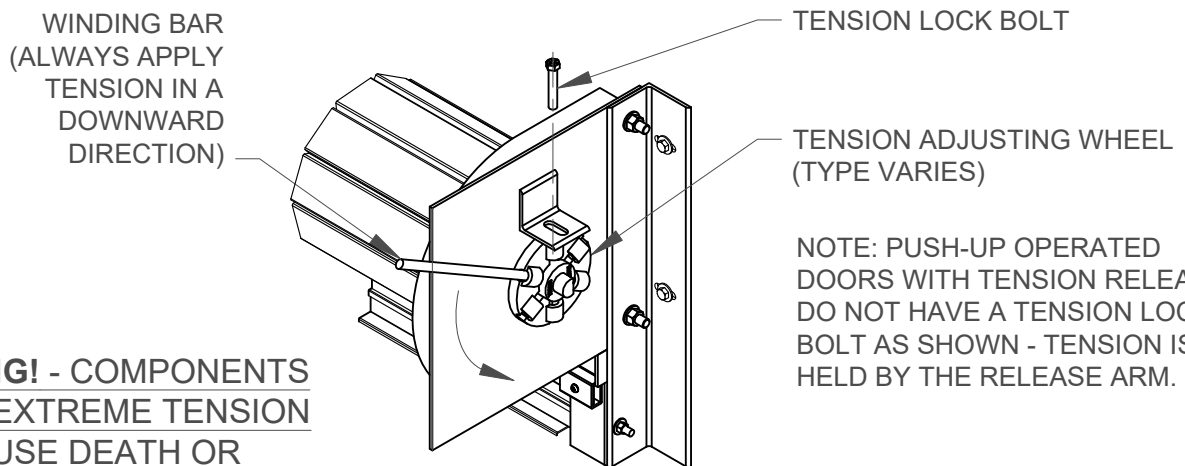
TENSION BRACKET WITH TENSION LOCK FOR CHAIN, CRANK & MOTOR OPERATED DOORS



BRACKET ATTACHMENT

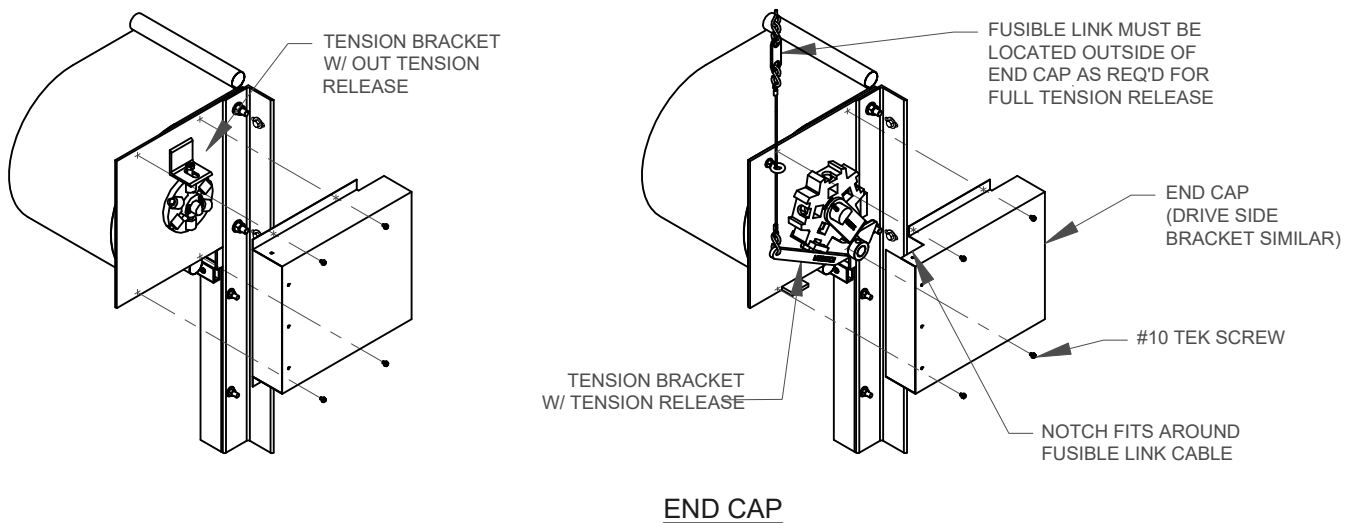
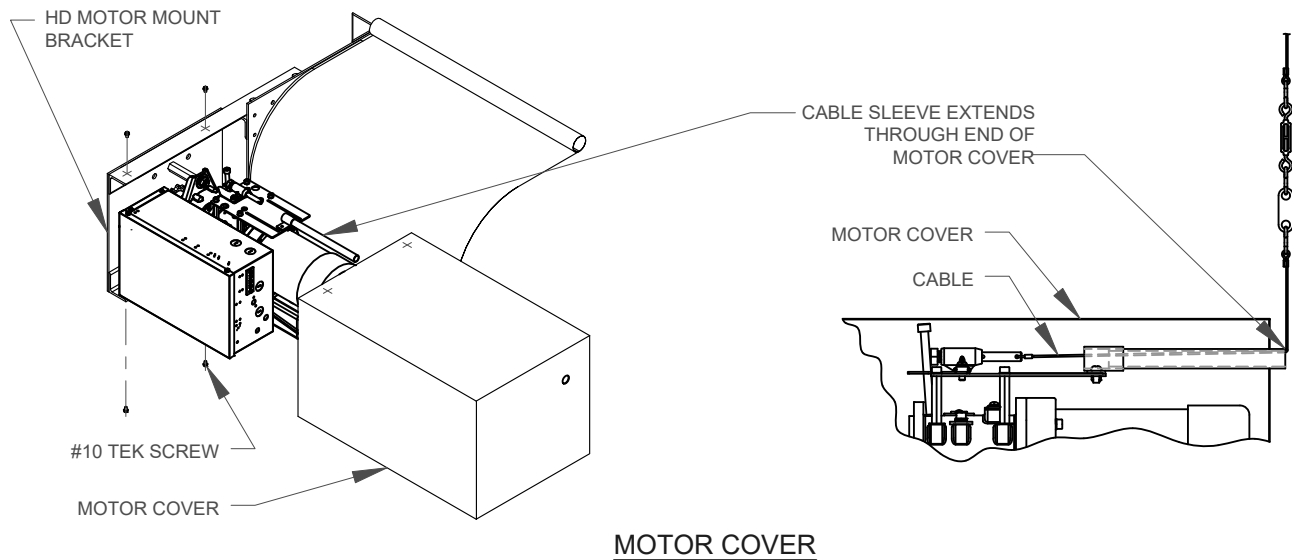
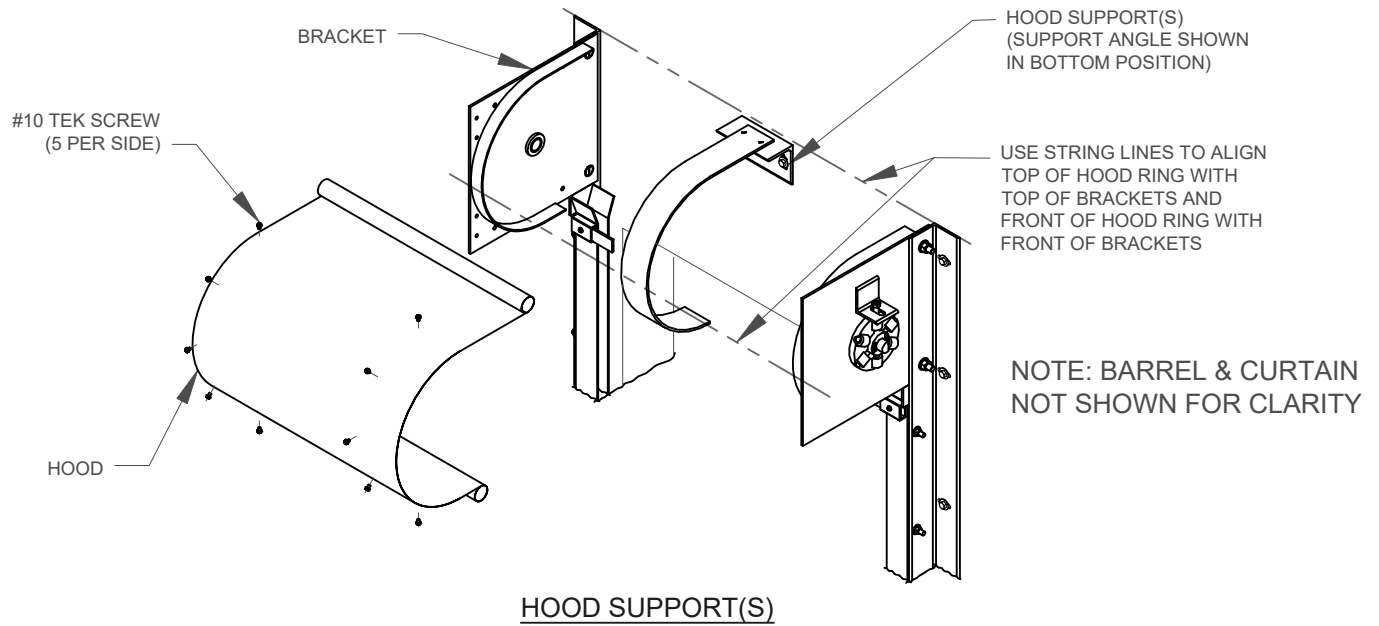


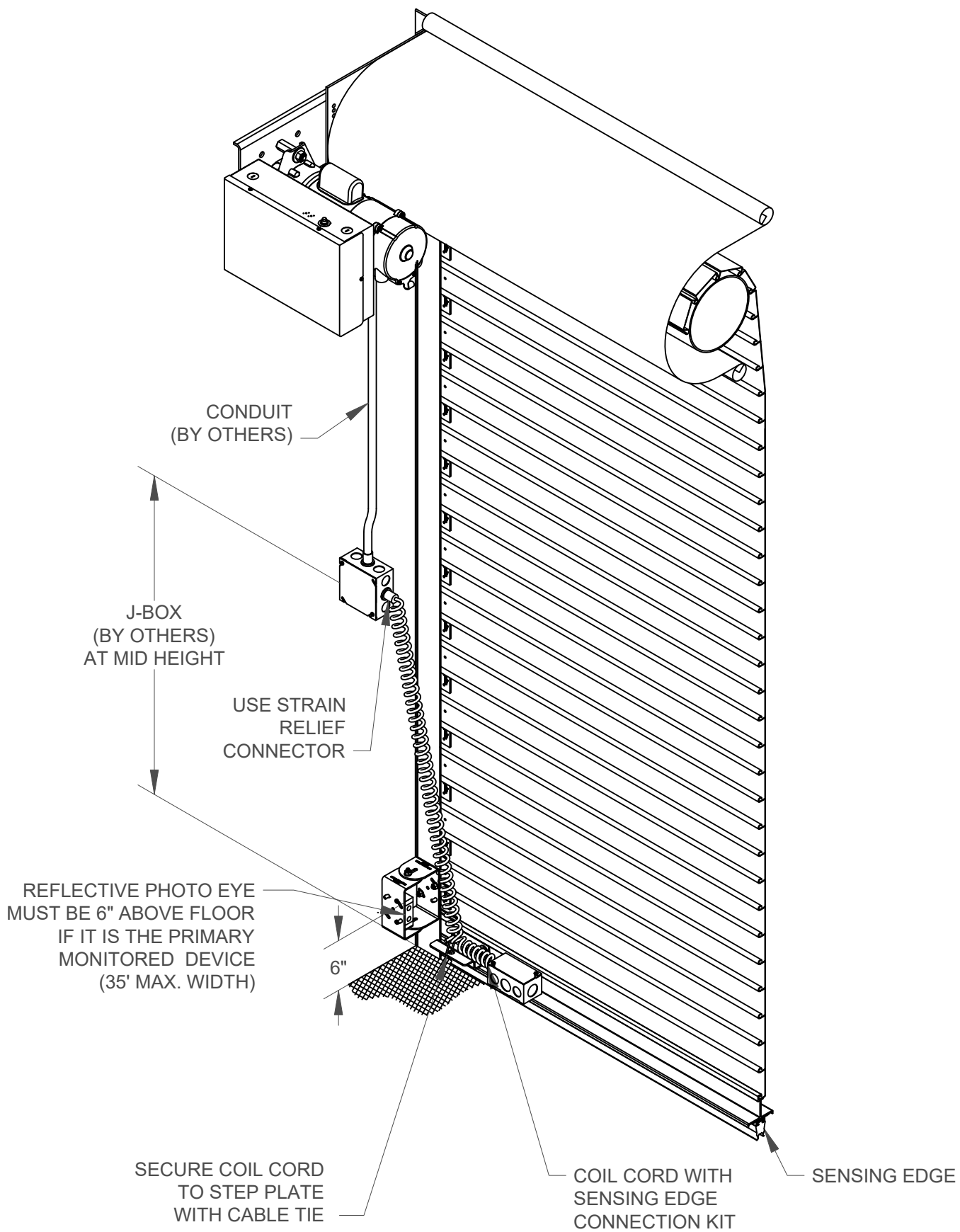
LOADING THE CURTAIN



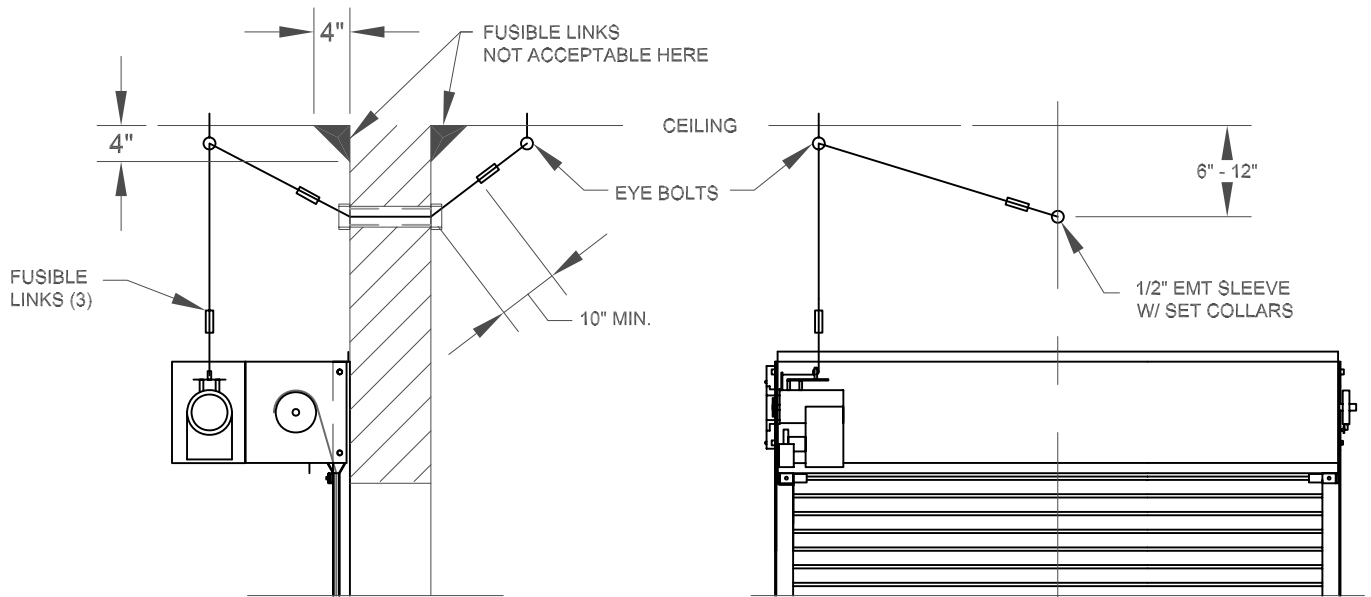
WARNING! - COMPONENTS
UNDER EXTREME TENSION
CAN CAUSE DEATH OR
SERIOUS INJURY.

APPLYING TENSION





MONITORED SENSING DEVICES

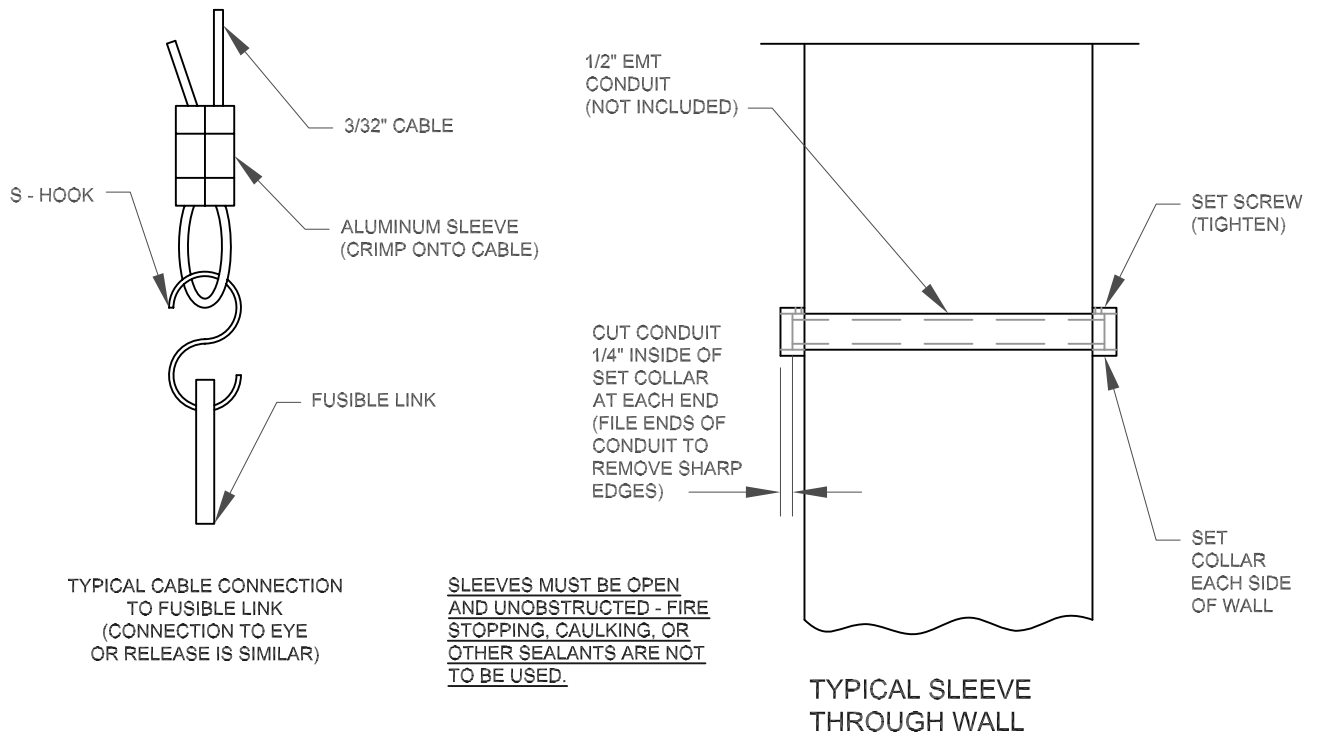


NOTE: If the door is to be connected to a release device with automatic closing activated by an alarm system or detector(s), a fusible link must still be located at the release on the operator or tension bracket, but one is not required to be within 12" of the ceiling or on the opposite side of the wall. The release device can be mounted at any convenient location that provides for proper release of the door. Consult NFPA-80 or the Authority Having Jurisdiction for required location(s) of detector(s).

CENTERLINE OF OPENING

FUSIBLE LINKS MUST BE ARRANGED SO THAT SEPARATION OF ANY LINK WILL ALLOW DOOR TO CLOSE COMPLETELY

TYPICAL RELEASE FOR CHAIN, CRANK & MOTOR OPERATED DOORS IS SHOWN - RELEASE FOR PUSH-UP OPERATED DOORS IS AT TENSION BRACKET



TYPICAL CABLE CONNECTION TO FUSIBLE LINK (CONNECTION TO EYE OR RELEASE IS SIMILAR)

SLEEVES MUST BE OPEN AND UNOBSTRUCTED - FIRE STOPPING, CAULKING, OR OTHER SEALANTS ARE NOT TO BE USED.

TYPICAL SLEEVE THROUGH WALL

TYPICAL FUSIBLE LINK ARRANGEMENT IS SHOWN (MODIFICATIONS MAY BE REQUIRED DUE TO FIELD CONDITIONS)