

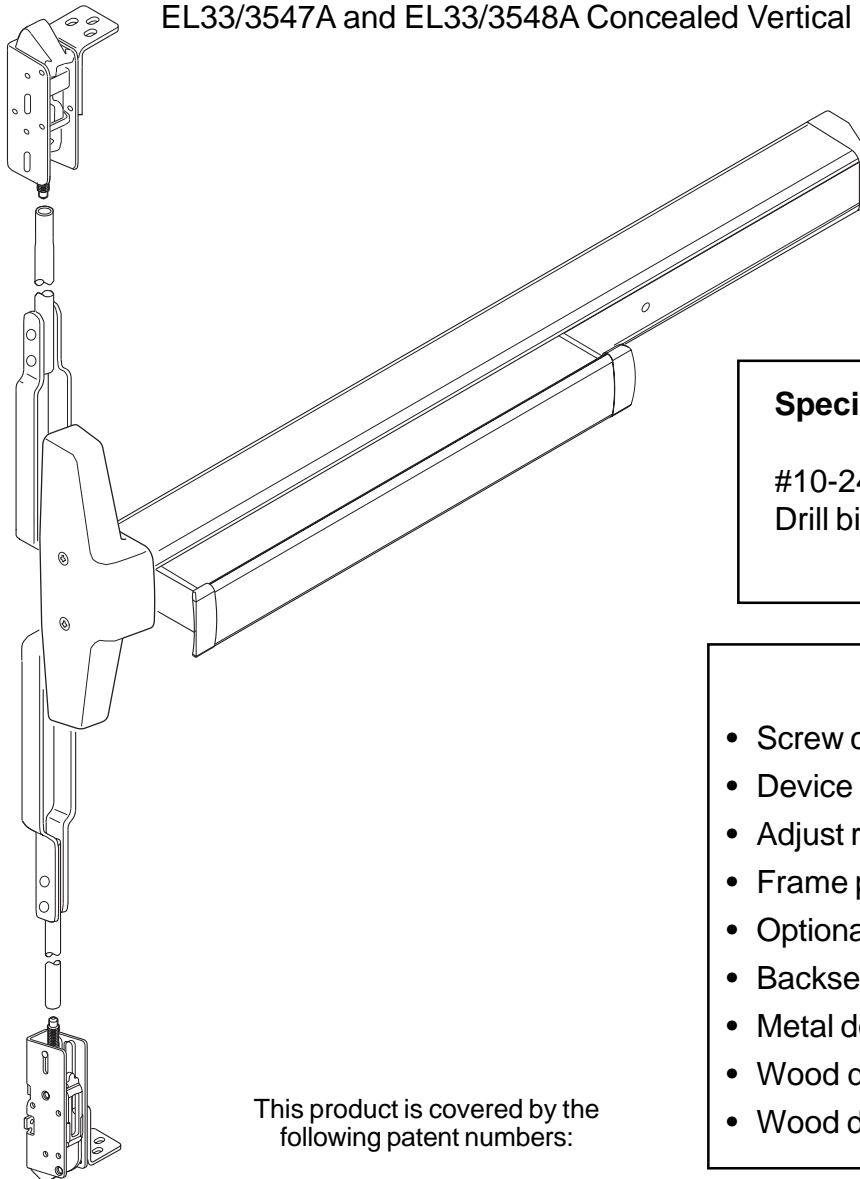
# VON DUPRIN®

## Installation Instructions

### 33/3547A Concealed Vertical Rod Exit Device

#### Devices covered by these instructions:

33/3547A and 33/3548A Concealed Vertical Rod Exit Device  
33/3547A-F and 33/3548A-F Fire Concealed Vertical Rod Exit Device  
CD33/3547A and CD33/3548A Concealed Vertical Rod Exit Device  
EL33/3547A and EL33/3548A Concealed Vertical Rod Exit Device



This product is covered by the following patent numbers:

#### Special tools needed:

#10-24 tap  
Drill bits: #25, 5/16,  
13/32", 1/2"

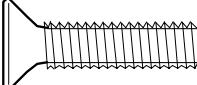
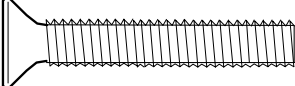
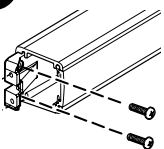
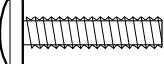
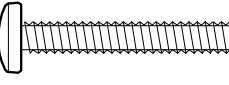


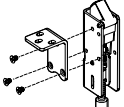

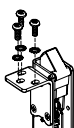

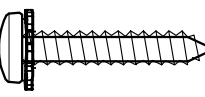


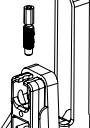
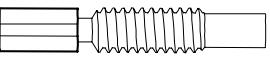
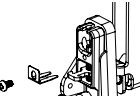
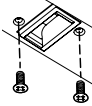
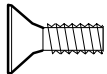

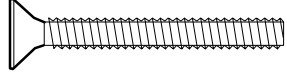
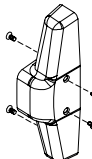

#### Index:

- Screw chart ..... 2
- Device installation ..... 3-5
- Adjust rods ..... 6
- Frame preparation ..... 7
- Optional equipment ..... 8-9
- Backset information ..... 10
- Metal door template ..... 11-12
- Wood door preparation .... 13-14
- Wood door template ..... 15-16

Please give these instructions to building owner after device is installed



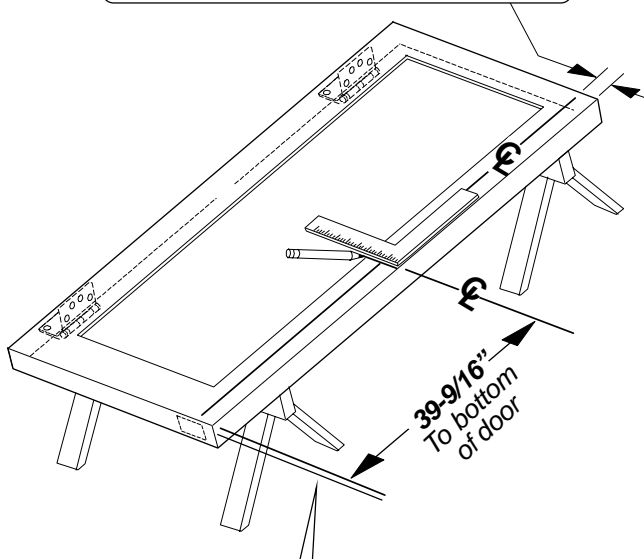
# SCREW CHART

<b>A</b> 	 	1/4-20 x 1" _____ Trim mount or sex bolts: (1-3/4" door)  1/4-20 x 1-1/2" _____ (2-1/4" door)
<b>B</b> 	 	#10-24 X 3/4" _____ Surface mount or Sex bolts (1-3/4" door)  #10-24 X 1-1/8" _____ Sex bolts 2-1/4" door
<b>C</b> 		#10-16 X 3/8" Thread cutting _____ End cap
<b>D</b> 		#10-32 X 1/4" _____ Bracket to latch
<b>E</b> 	 	*#10-24 X 1/2" _____ Bracket to door *#10 X 1" Wood screw _____ Bracket to door *Used with external tooth lock washer
<b>F</b> 		#10-32 X 3/8" Socket head _____ Rod attachment
<b>G</b> 		Rod adjusting screw _____ Rod length adjustment
<b>H</b> 		#8-32 X 5/16" _____ Retaining clip
<b>I</b> 		#10-24 X 1/2" _____ 338 Strike
<b>J</b> 		#10-24 X 1-1/2" _____ Ratchet release
<b>K</b> 		#8-18 x 3/8" Thread cutting _____ Center case cover

# 1

## Draw horizontal and vertical device center lines (C).

See "Backset information" on page 10



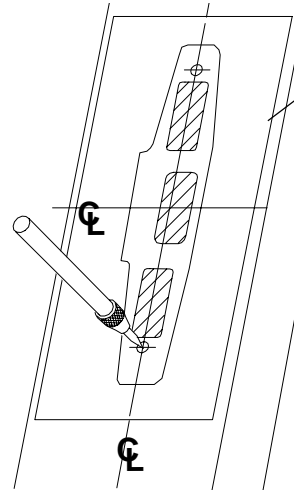
Once hung, door should have 1/4\" undercut (gap) at bottom of door to finished floor

RHR shown  
(LHR opposite)

# 2

## Place paper device template on door and prepare door.

For wood doors - See pages 13 & 14 for special door preparation instructions.



**Paper template**  
**Metal - pages 11 & 12**  
**Wood - pages 15 & 16**

Prepare mounting holes and cut-outs per template

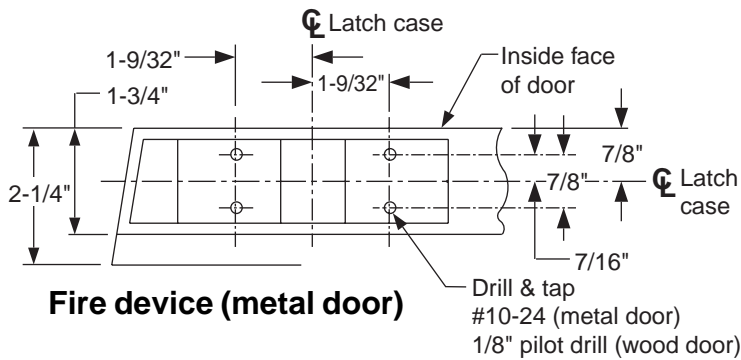
See trim instructions for pull side door preparation.

RHR shown  
(LHR opposite)

# 3

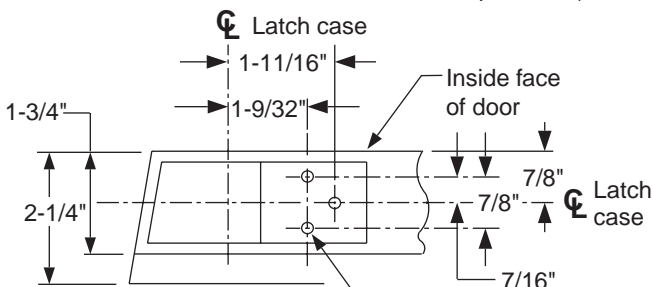
## Prepare top and bottom of door for latch mounting brackets.

**Latch cases**  
**(drill top and bottom of door)**



**Fire device (metal door)**

Drill & tap  
#10-24 (metal door)  
1/8\" pilot drill (wood door)



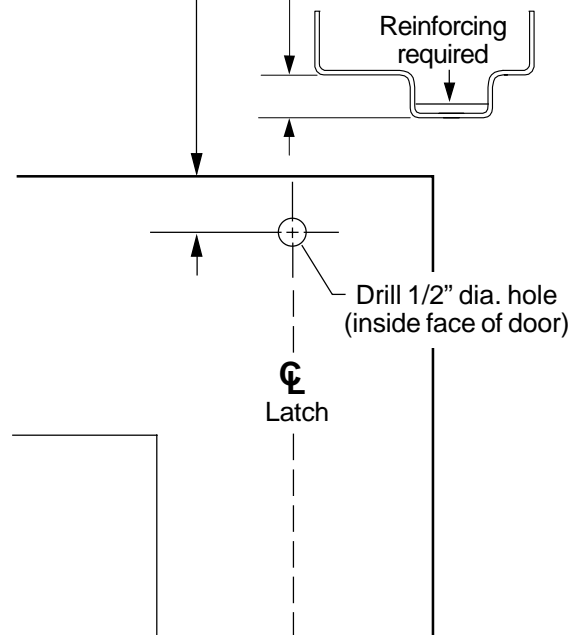
**Panic device (metal door)**  
**Panic and fire (wood door)**

Drill & tap  
#10-24 (metal door)  
1/8\" pilot drill (wood door)

# 4

## Drill ratchet release hole in door.

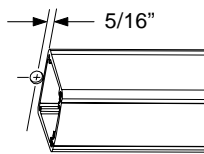
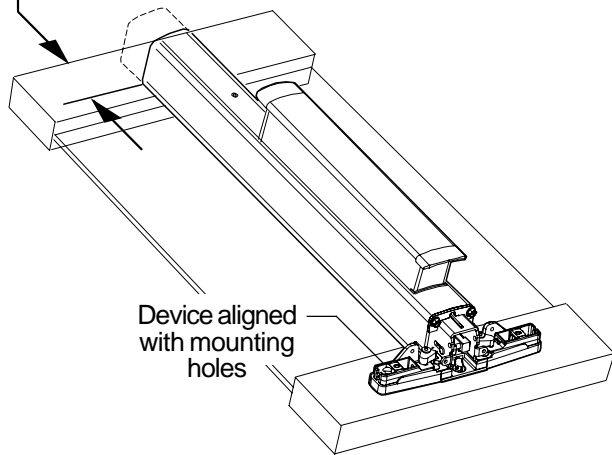
11/16"	1/2" Stop height
13/16"	5/8" Stop height
15/16"	3/4" Stop height



# 5

## Measure to determine length to cut device.

1-3/16" minimum clearance  
(with end cap removed)



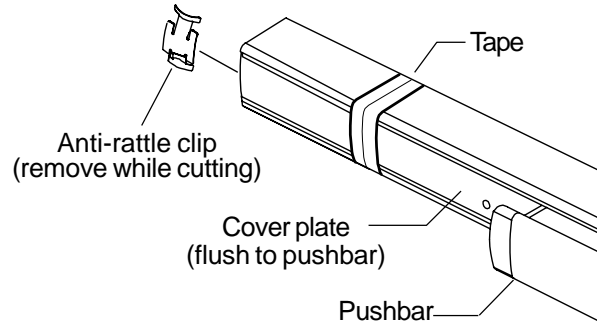
### Note

If 5/8" diameter wire access hole has been predrilled in door, cut device 5/16" from center of hole.

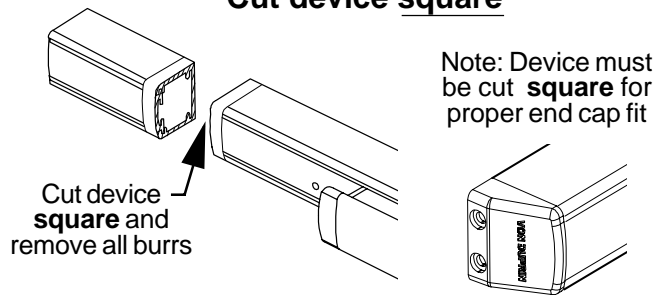
# 6

## Cut device to length.

### Prepare device for cutting



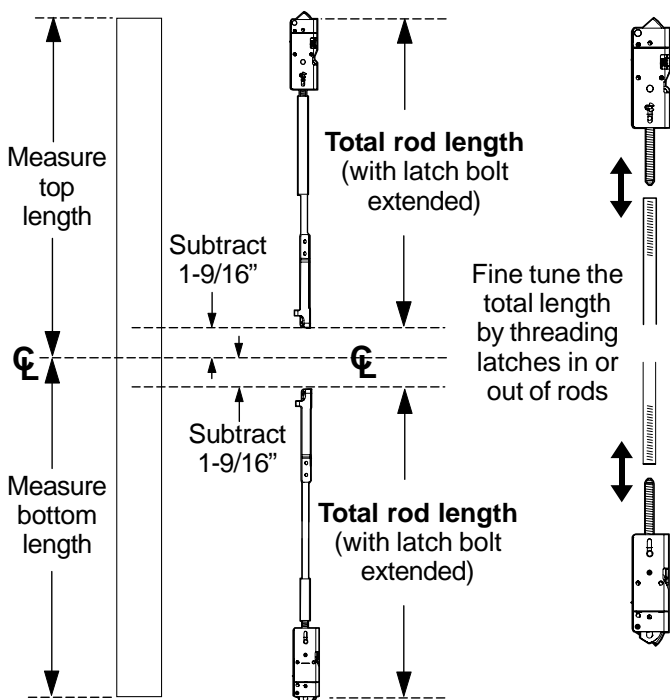
### Cut device square



# 7

## Assemble rods and latches and adjust length.

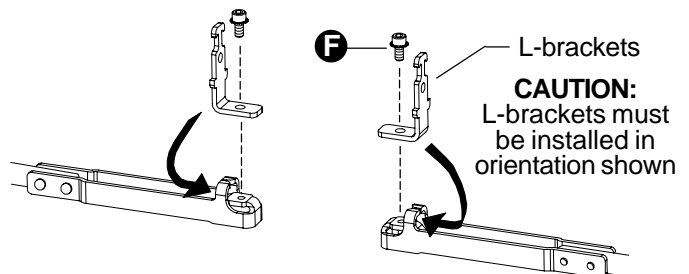
Follow white and brown instruction cards on rods to set initial rod length



# 8

## Install rods as shown.

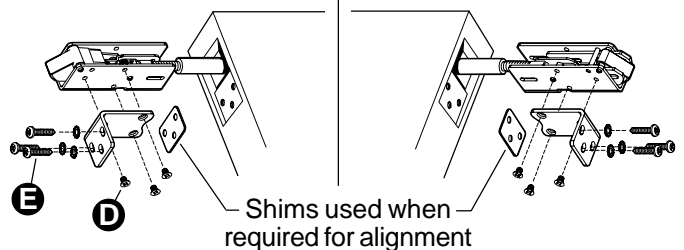
Rods are shipped with L-bracket attached. Insert rods with L-bracket pointing toward lock stile. Rotate rod until L-bracket protrudes through door cutout. If this is not possible, remove L-bracket and re-insert rod, then re-attach L-brackets.



NOTE: Fire devices on metal doors use brackets on both sides of latches

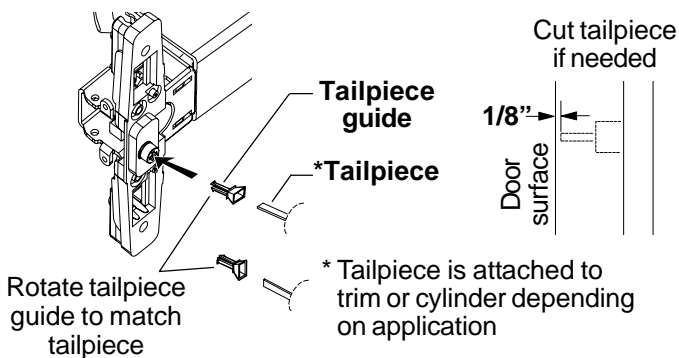
### Top latch & rod

### Bottom latch & rod

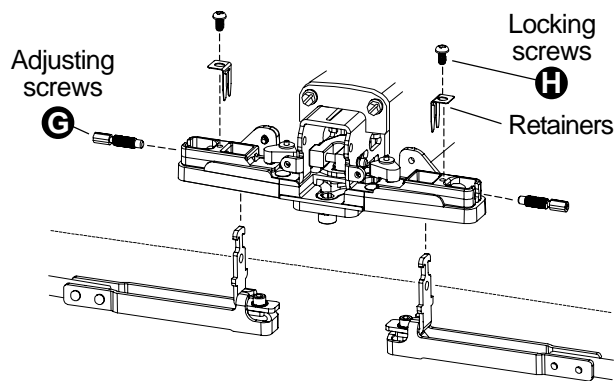


# 9

## Install tailpiece guide and attach rods to center case.

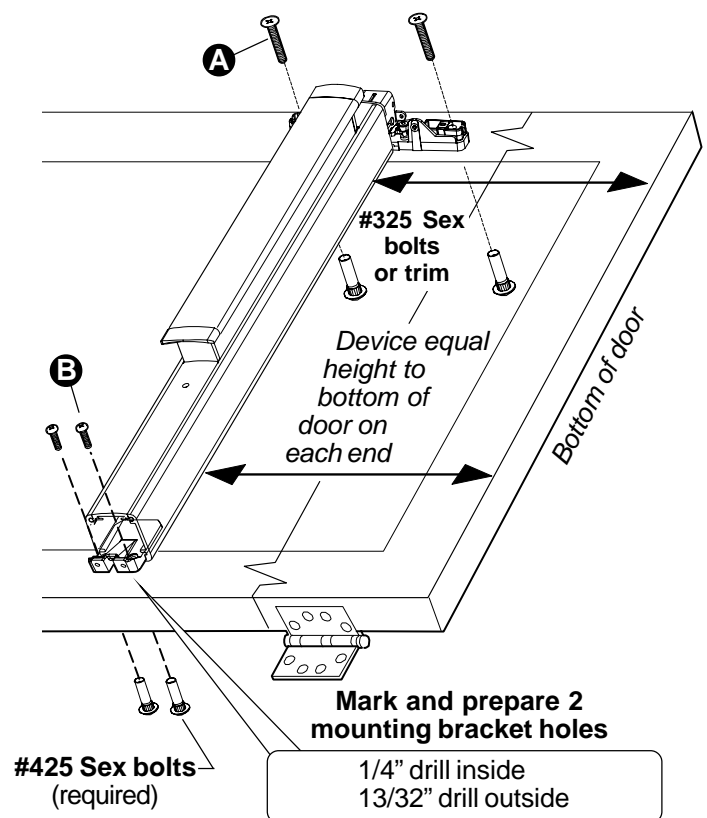


Place device over L-brackets and install adjusting screws, then install retainers and locking screws



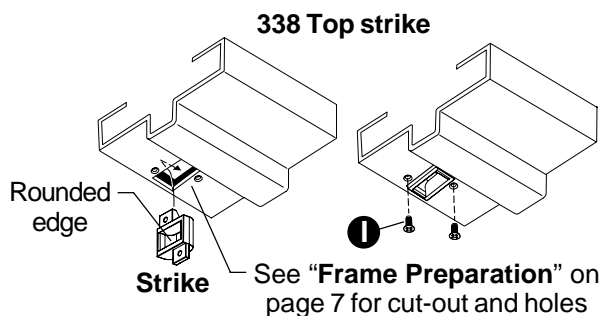
# 10

## Secure device to door and mount door to frame.

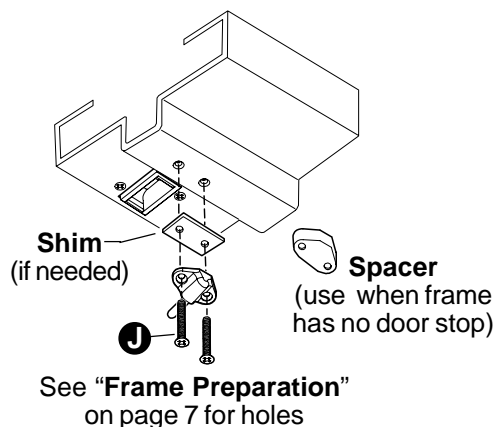


# 11

## Install top strike and ratchet release.



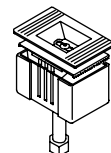
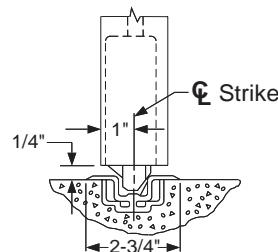
### Ratchet release



# 12

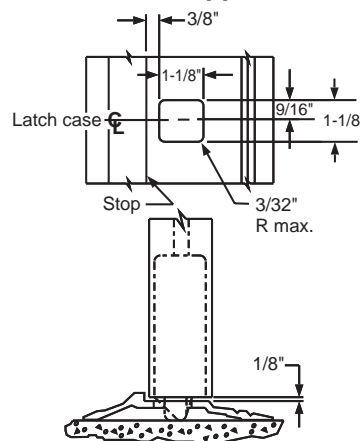
## Install bottom strike or prepare threshold.

### 385-A Bottom strike



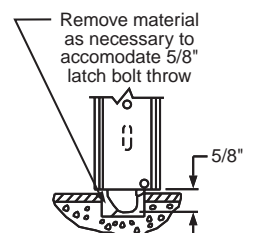
385-A strike has two pieces. Grout bottom piece into floor and attach top piece to bottom with screw through slot.

### Threshold application



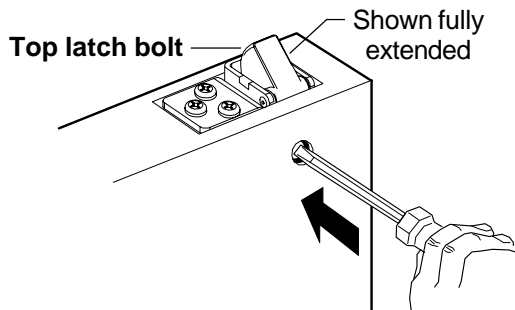
Note: Thresholds are not to be used with 38/3947-F

### Flat threshold application



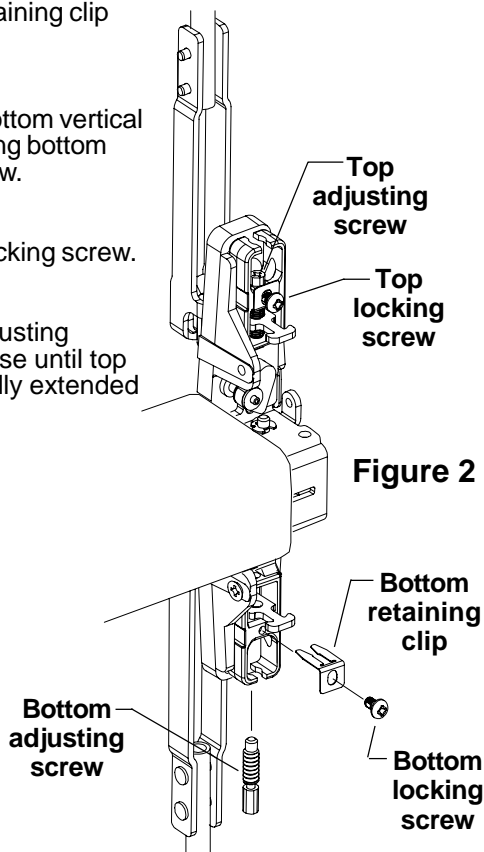
# ADJUST RODS

1. Open door and release top latch bolt as shown (Figure 1).



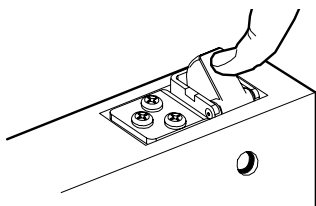
**Figure 1**

2. Remove bottom locking screw and retaining clip (Figure 2).
3. Disconnect bottom vertical rod by removing bottom adjusting screw.
4. Loosen top locking screw.
5. Rotate top adjusting screw clockwise until top latch bolt is fully extended (Figure 1).



**Figure 2**

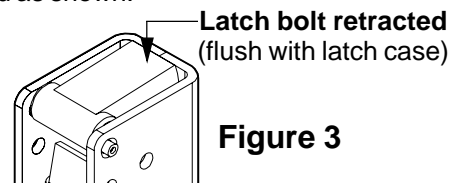
6. Check top latch bolt for deadlocking (latch bolt should not push in).



7. Turn top locking screw in against flat on adjusting screw. Do not over-tighten.

8. Depress pushbar and release.

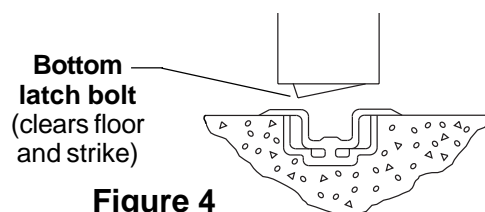
9. Make sure top latch bolt stays retracted as shown.



**Figure 3**

10. Install bottom adjusting screw through bottom rod and install bottom retaining clip and locking screw (Figure 2).

11. With top latch bolt still retracted, adjust bottom rod so latch bolt clears floor and bottom strike.



**Figure 4**

12. Close door and check bottom latch bolt for dead locking.

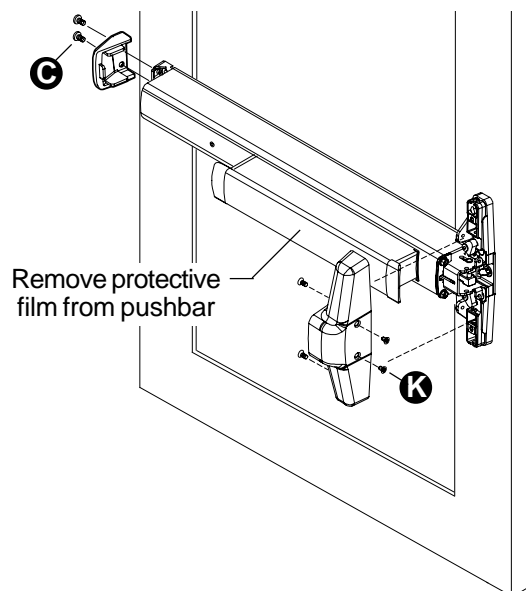
13. After bottom rod is fully adjusted per steps 11 and 12, turn bottom locking screw in against flat on adjusting screw. Do not over-tighten.

14. Check device operation by opening and closing door several times from the outside.

## Redo adjustment procedure if :

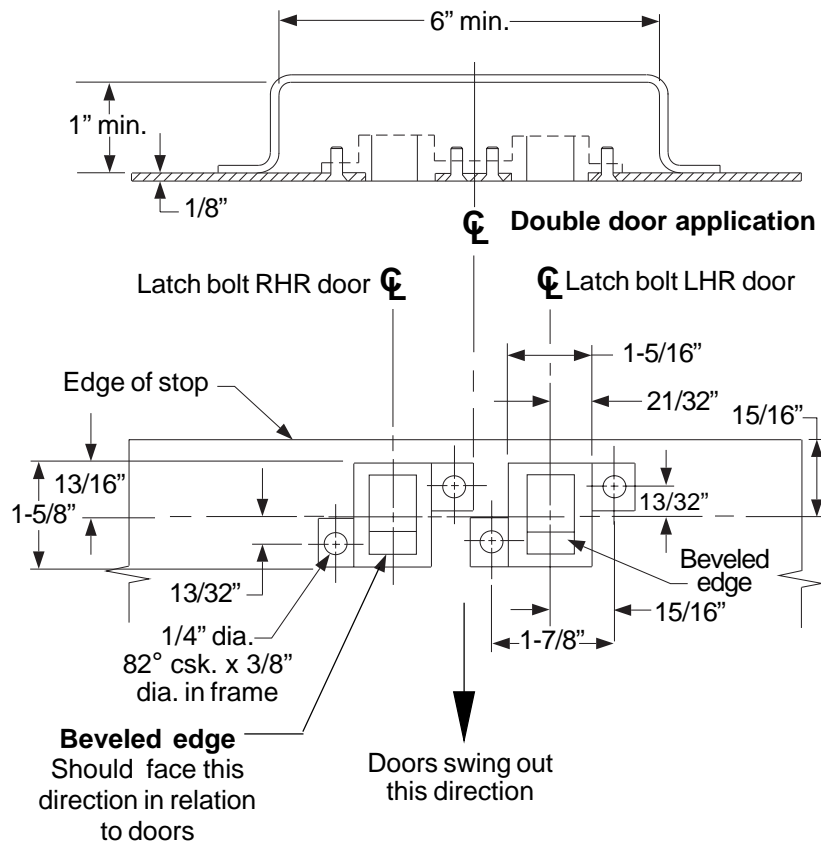
- Top latchbolt is not held retracted
- Bottom latchbolt does not clear floor and bottom strike

15. Install end cap and center case covers.

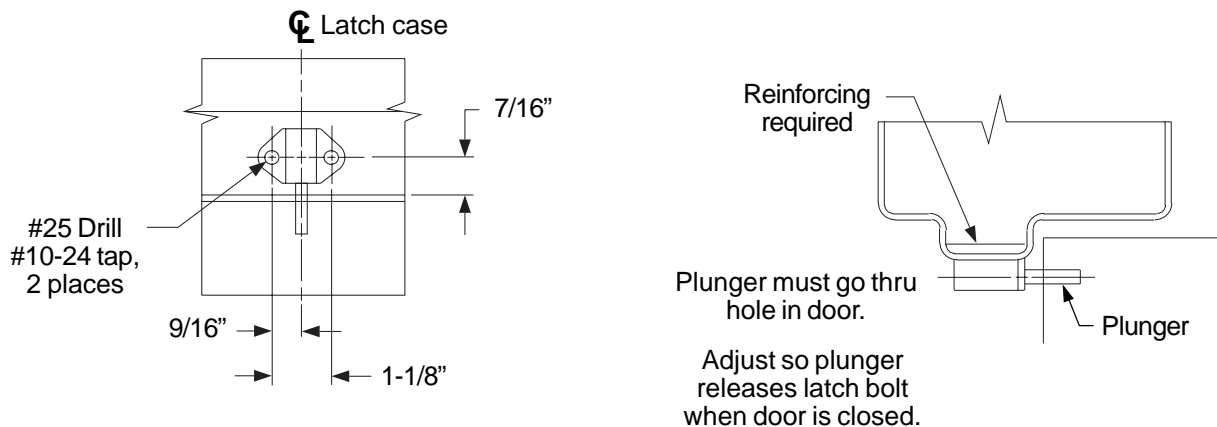


# FRAME PREPARATION

## 338 Top strike



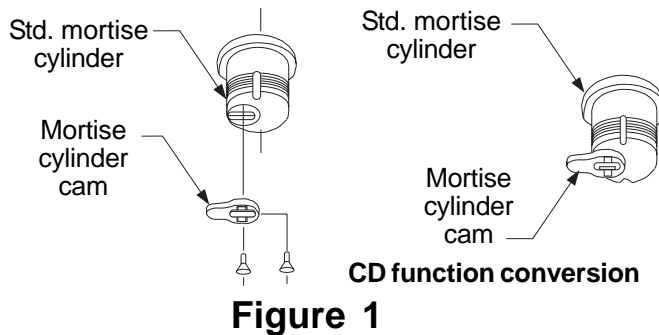
## Ratchet release



# OPTIONAL EQUIPMENT

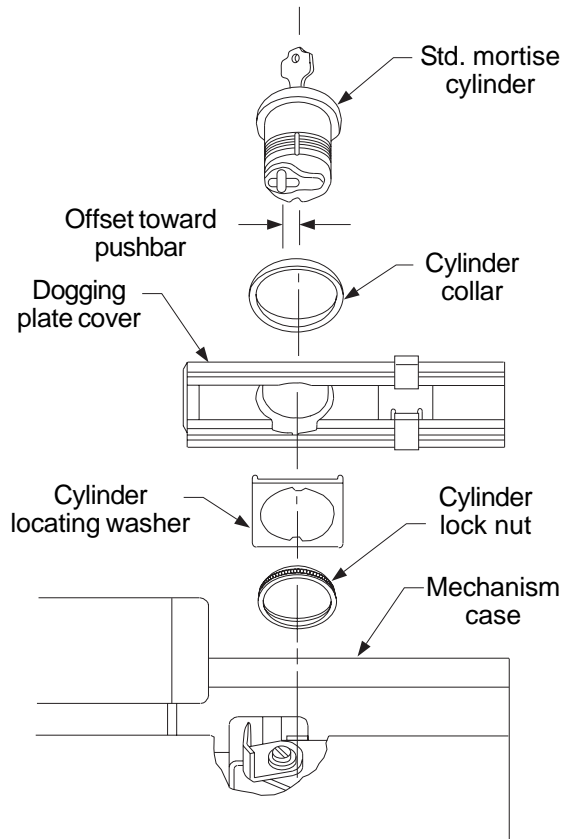
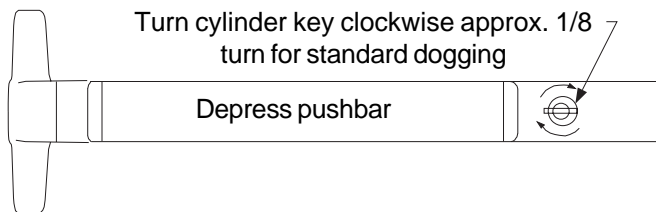
## CD (CYLINDER DOGGING)

1. Remove mortise cylinder cam and reinstall in reverse (Figure 1).
2. Insert key and rotate cam to install the cylinder to the cover plate (Figure 2).
3. Remove key to slide cover plate in position in the mechanism case.



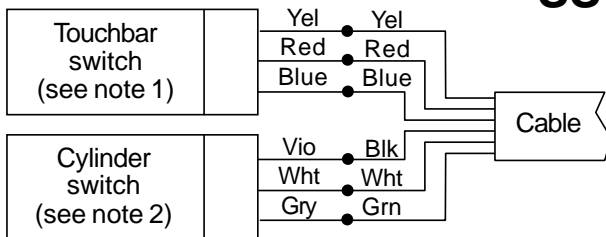
**Figure 1**

### Dogging procedure

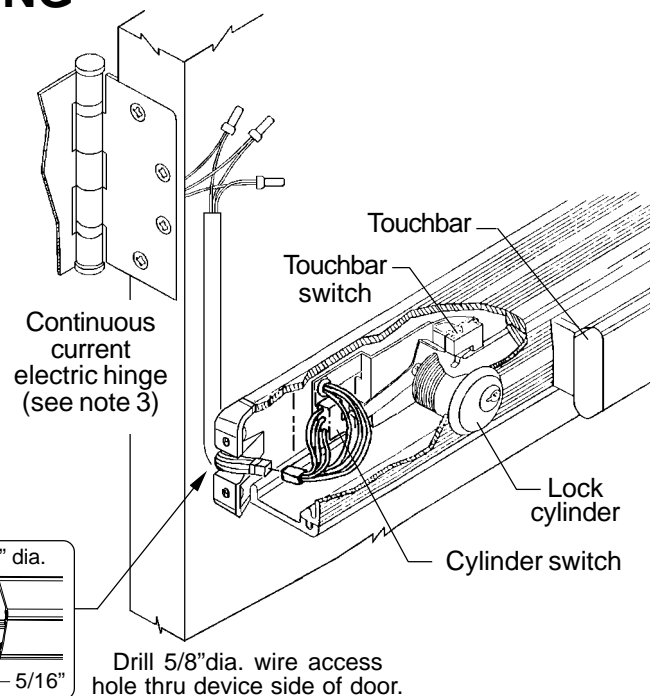


**Figure 2**

## SS WIRING



- NOTES:**
1. The touchbar switch is actuated whenever the touchbar is depressed or the device latch bolt is retracted. This switch may be used for initiating an alarm.
  2. The cylinder switch is actuated when the key is inserted into the lock cylinder and turned clockwise. This switch may be used for shunting or resetting an alarm.
  3. A continuous current electric hinge or equivalent is required to transfer the wiring from the door to the frame.
  4. Splice electric hinge wires and cable wires together with wire nuts. Unused wires should be cut off or insulated.
  5. Cut device to proper length before connecting cable and switch wires.

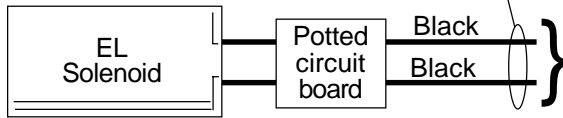




## OPTIONAL EQUIPMENT - CONTINUED

12 AWG required for distances up to 200'  
14 AWG permitted for distances 0-100'

### EL WIRING



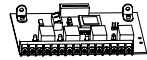
#### ELECTRICAL SPECIFICATIONS

Voltage: 24 VDC  
Current: 16 A inrush (0.3 sec.)  
0.25 A holding

**Solenoid draws 16 A inrush current from PS873.  
Solenoid must be wired to a PS873 logic board:**



If 871-2 logic board, refer to Von Duprin instructions 941352.



If other 873 logic board, refer to Von Duprin instructions 941356.

#### NOTE

When power is applied to the **potted circuit board**, the solenoid receives a momentary signal to retract and a separate signal to hold as long as power is applied. When attempting to retract solenoid again, power must be removed from the circuit and reapplied.

### Troubleshooting solenoid operation

If the solenoid fails to retract the latch bolt when power is applied, recheck wiring for proper connections.

If solenoid retracts latch bolt momentarily but will not remain in energized position:

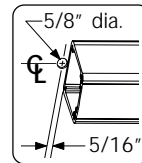
1. Check wiring for proper connections, gauge, and distances.
2. Check for latch bolt binding caused by improper strike installation, warped door, etc.

Do not cut device with potted circuit board installed

Solenoid

Potted Circuit Board  
Install after device has been mounted on door

Electric power transfer



Drill 5/8" dia. wire access hole thru device side of door.

## EL ADJUSTMENT PROCEDURE

- Check for proper function:
  1. Make sure device is not dogged.
  2. Depress pushbar and make sure latch bolts retract and extends fully (see Figure 5).
  3. Electrically energize solenoid and hold.
  4. Check latch bolt(s) for full retraction (must clear strike (see Figure 5).
  5. Release solenoid and check latch bolt extension (see Figure 5).
  6. Continue to Section B if device does not function electrically.
- Determine if dogging rod adjustment is too long or short:
  1. The dogging rod adjustment is too **long** if latch bolt does not retract and clear strike (see Section C for adjustment).
  2. The dogging rod adjustment is too **short** if latch bolt does not fully extend **or** latch bolt fully retracts but solenoid releases while energized (see Section D for adjustment).
- Adjust solenoid if dogging rod is too **long** (see Figure 6):
  1. Remove end cap ① and dogging cover ②.
  2. Loosen cap screw ③.
  3. Hold plunger ⑤ depressed in solenoid housing ⑥.  
**Note:** Push hard against plunger ⑤ to overcome an internal spring in solenoid housing ⑥.
  4. Turn threaded bushing ④ in to shorten dogging rod ⑦ so latch bolt fully retracts.
  5. Tighten cap screw ③.  
**Note:** Cap screw ③ must be tightened against flat on threaded bushing ④. Apply a few drops of Loc-Tite 222 to threads of cap screw ③.
  6. Replace dogging cover ② and end cap ①.
  7. Return to Section A to check for proper function.

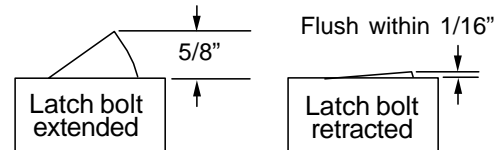


Figure 5

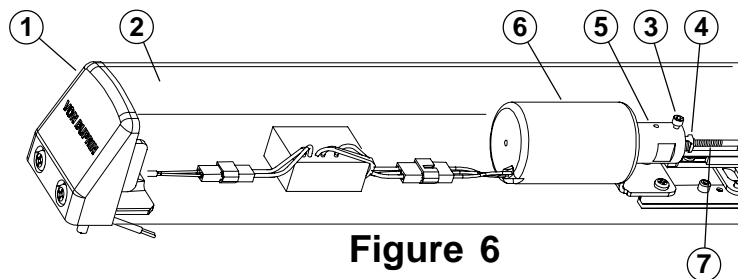
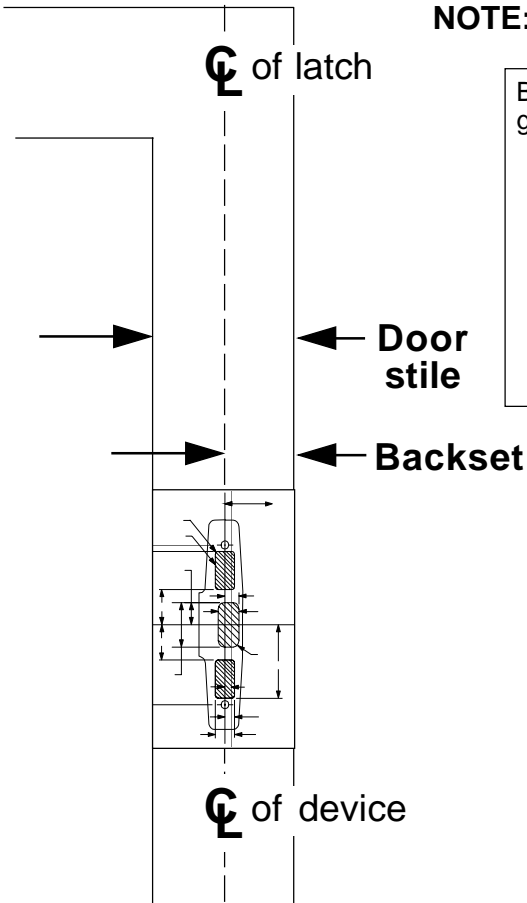


Figure 6

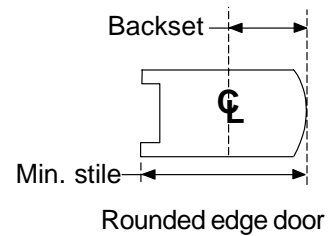
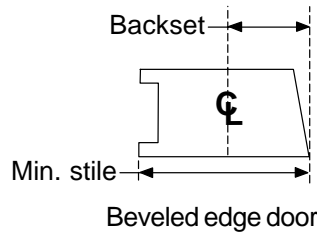
- Solenoid adjustment if dogging rod adjustment is too **short** (see Figure 6):
  1. Remove end cap ① and dogging cover ②.
  2. Loosen cap screw ③.
  3. Hold plunger ⑤ depressed in solenoid housing ⑥.
  4. Turn threaded bushing ④ out to lengthen dogging rod ⑦ so plunger ⑤ just bottoms in solenoid housing ⑥ and latch bolt is fully retracted.  
**Note:** Push hard against plunger ⑤ to overcome an internal spring in solenoid housing ⑥.
  5. Tighten cap screw ③.  
**Note:** Cap screw ③ must be tightened against flat on threaded bushing ④. Apply a few drops of Loc-Tite 222 to threads of cap screw ③.
  6. Replace dogging cover ② and end cap ①.
  7. Return to Section A to check for proper function.

# BACKSET INFORMATION

**NOTE: For 2" stile doors see bottom half of page**



Backset is measured from outer edge of door as shown. Minimum stile is less glass stop (rectangular glass stop is recommended for stiles less than 2-1/8")

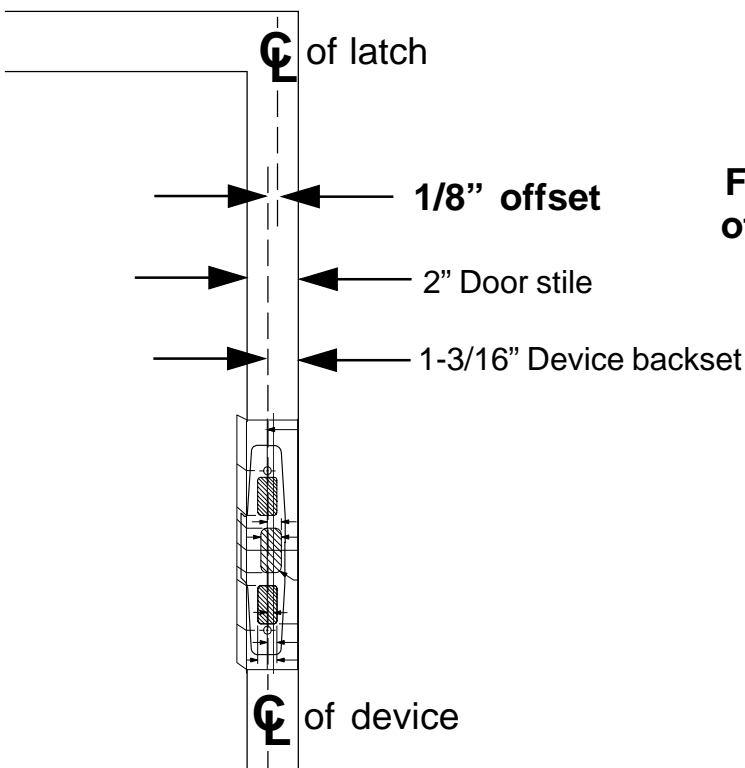


## Backset Table

Door type	Backset	Min. stile	Application
Wood	1-5/16"	NA	All
Metal	1-3/16"	2-1/8" - 2-3/4"*	Two vertical rod devices (panic)
	1-1/2"	2-3/4" - 3-3/4"	
	1-7/8"	3-3/4" - 5"	
	2-1/2"*	5" to flush	
	1-1/2"	2-1/2" - 3-3/4"	Single door (panic)
	1-7/8"	3-3/4" - 5"	
	2-1/2"*	5" to flush	
	2-3/4"	3-5/8" to flush	Fire applications

\*\* Note: Backset for 30" or less door to be 1-7/8"

## SPECIAL INSTRUCTIONS FOR 2" STILE DOORS



**For 2" stile doors ONLY! Latch CL is offset 1/8" from Device CL as shown**

# METAL DOOR RHR

## 33/3547A Device template

RHR

X

Backset

See "Backset  
Information"  
on page 10

Device  $\phi$

1/8" Radius

Cut-outs  
device side  
only

Sex  
bolts

5/16" drill inside  
13/32" drill outside

Trim

5/16" drill inside  
1/2" drill outside

For 3347A-F on hollow  
metal doors #7 drill,  
1/4-20 tap if no outside  
trim or sex bolts  
are used.

7/8"

3-1/8"

2-7/8"

1-3/8"

19/32"

7/8"

$\phi$   
of device

1-3/8"

1/4"  
Radius

3-1/8"

2-7/8"

1-3/4"

1/4"

DO NOT SCALE

13/16"

13/32"

Line X-X is a reference line for  
trim and exit device alignment.  
Line X-X shown here should  
correspond to line X-X in the  
trim installation instructions

X

# LHR

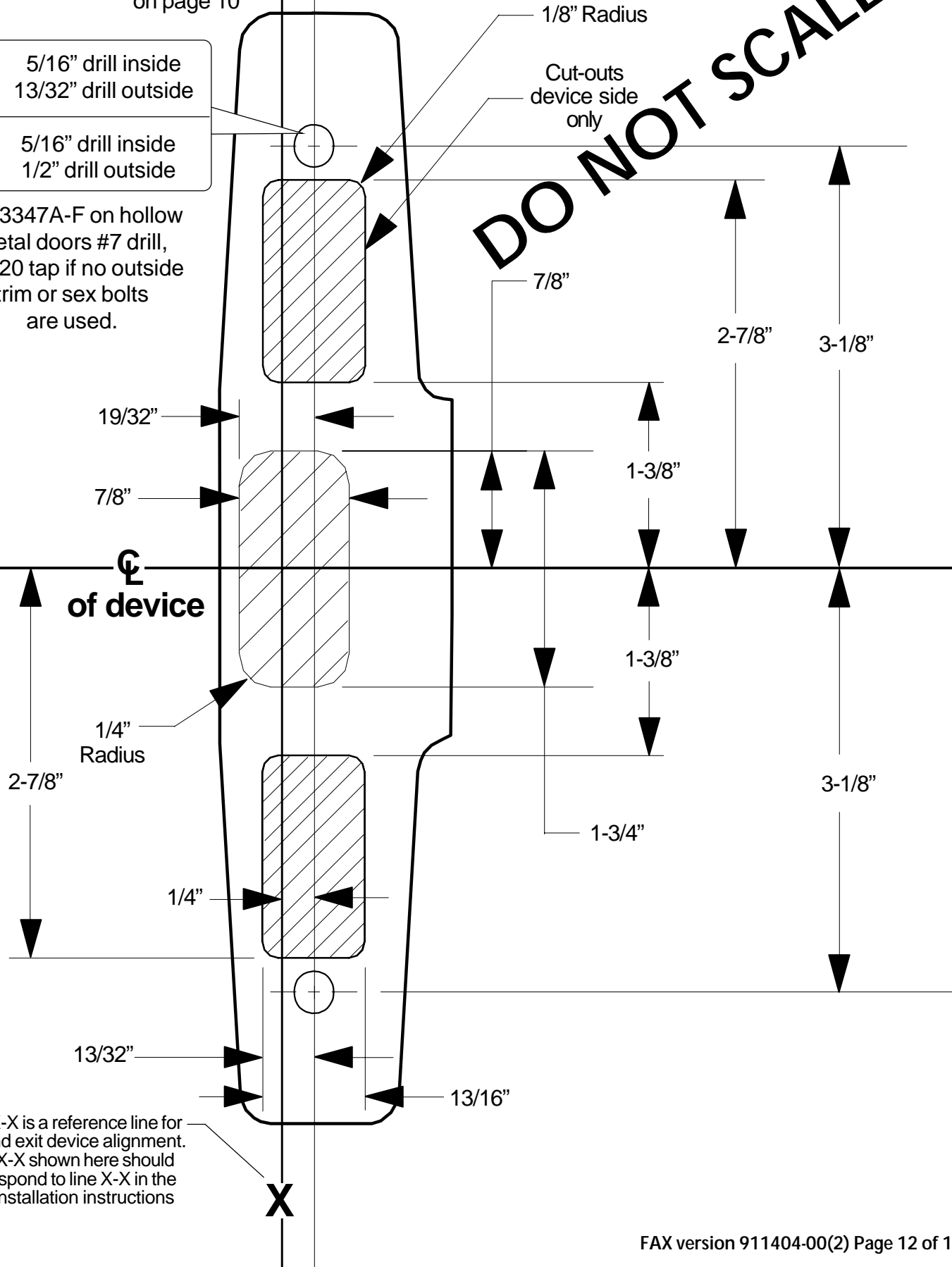
**Backset**  
See "Backset Information" on page 10

**☒ of device**

<b>Sex bolts</b>	5/16" drill inside 13/32" drill outside
<b>Trim</b>	5/16" drill inside 1/2" drill outside

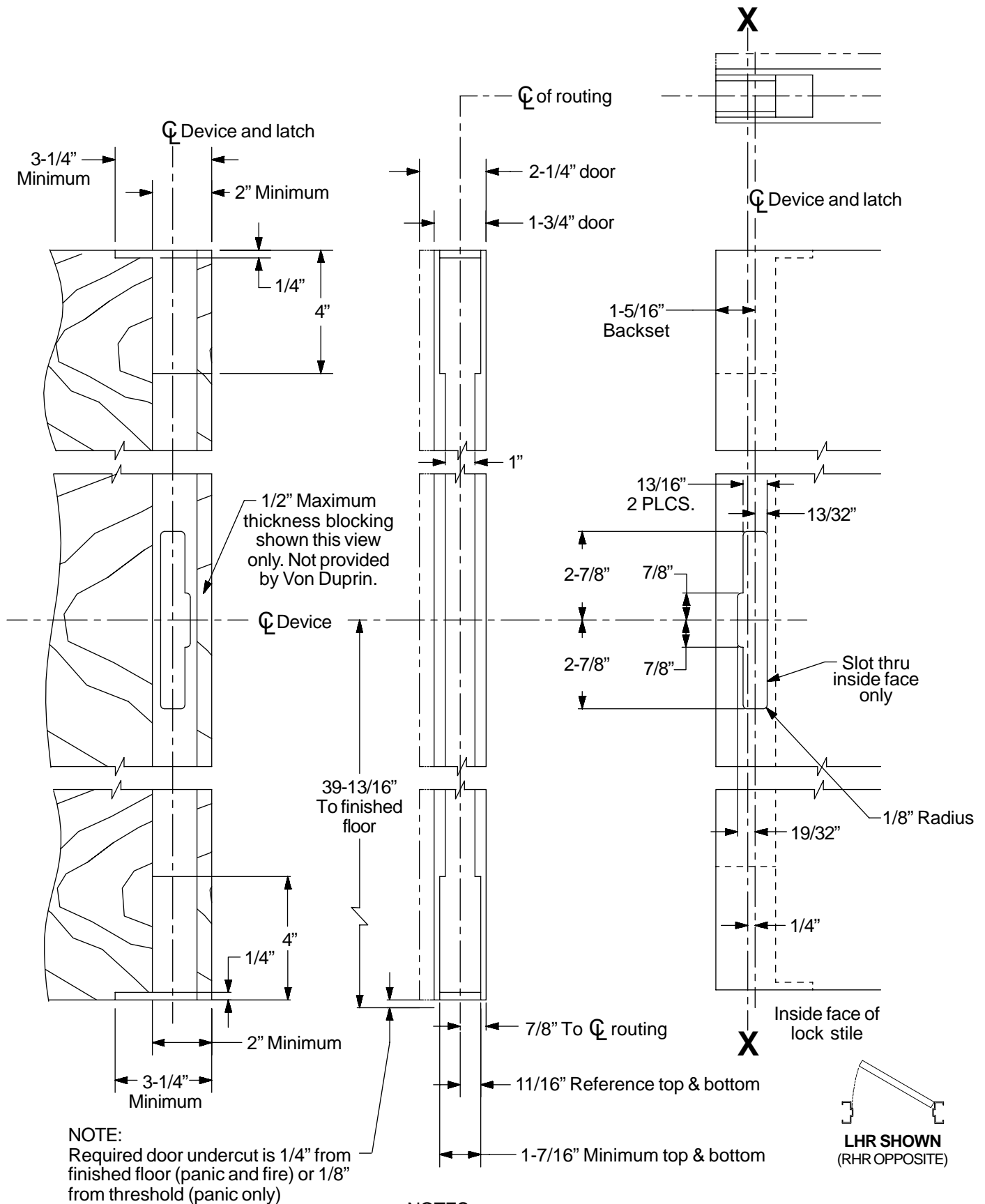
For 3347A-F on hollow metal doors #7 drill, 1/4-20 tap if no outside trim or sex bolts are used.

**DO NOT SCALE**



Line X-X is a reference line for trim and exit device alignment. Line X-X shown here should correspond to line X-X in the trim installation instructions

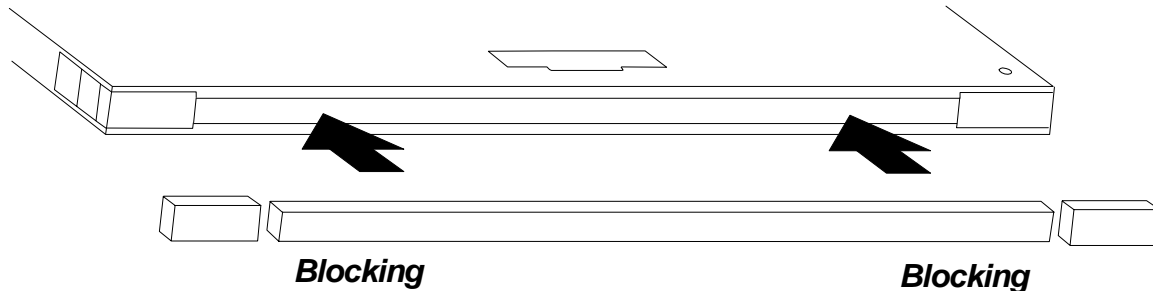
# WOOD DOOR PREPARATION - DOOR ROUTING



## WOOD DOOR PREPARATION - DOOR BLOCKING AND WRAP

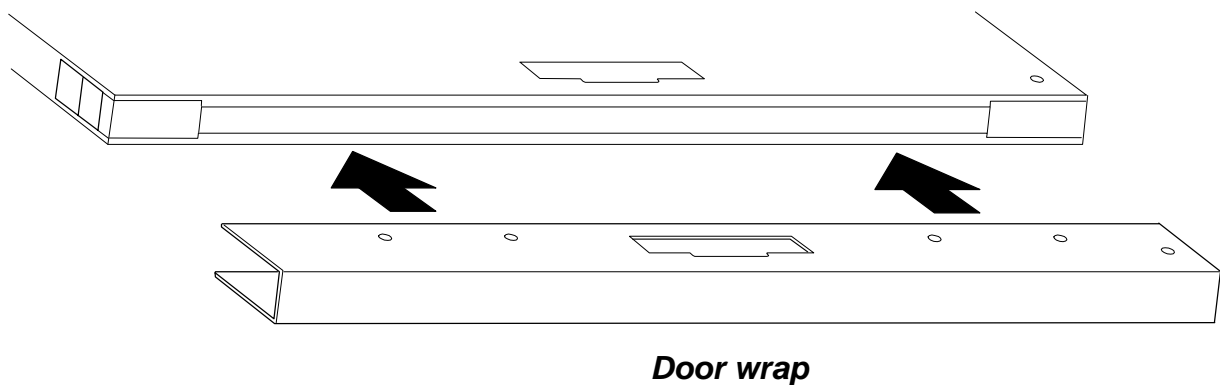
**A.** Install door blocking. See page 13 for door blocking dimensions.

**Note:** If not using door wrap, the blocking can be installed after device is installed.



**B.** Install door wrap if needed. Door wrap is required for Fire rated (F) devices.

**Note:** Required on fire doors only, not supplied by Von Duprin  
(See door manufacturer's requirements)



RHR

X

A

CL

13/16"

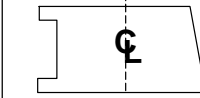
13/32"

3-1/8"

2-7/8"

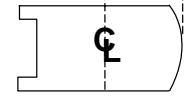
A = 1-5/16" Backset as shown  
to outer edge of door

1-5/16"  
Backset



Beveled edge door

1-5/16"  
Backset



Rounded edge door

1/8" radius

7/8"

CL  
of device

7/8"

CL of device

19/32"

Cut-out  
device side  
only

3-1/8"

2-7/8"

Sex  
bolts

13/32" drill thru

Trim

1/2" drill thru

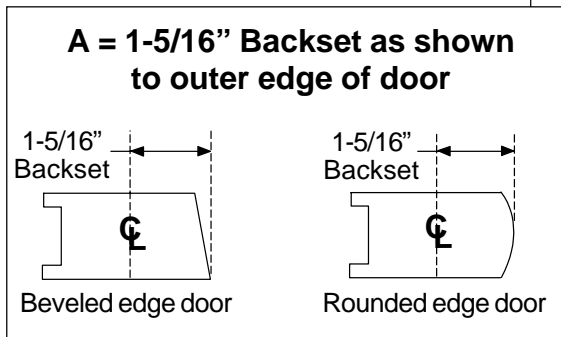
1/4"

X

Line X-X is a reference line for  
trim and exit device alignment.  
Line X-X shown here should  
correspond to line X-X in the  
trim installation instructions

DO NOT SCALE

LHR



1/8" radius

7/8"

☒  
of device

7/8"

☒ of device

19/32"

Cut-out  
device side  
only

13/16"

13/32"

3-1/8"

2-7/8"

2-7/8"

3-1/8"

1/4"

Sex  
bolts

13/32" drill thru

Trim

1/2" drill thru

Line X-X is a reference line for trim and exit device alignment. Line X-X shown here should correspond to line X-X in the trim installation instructions