



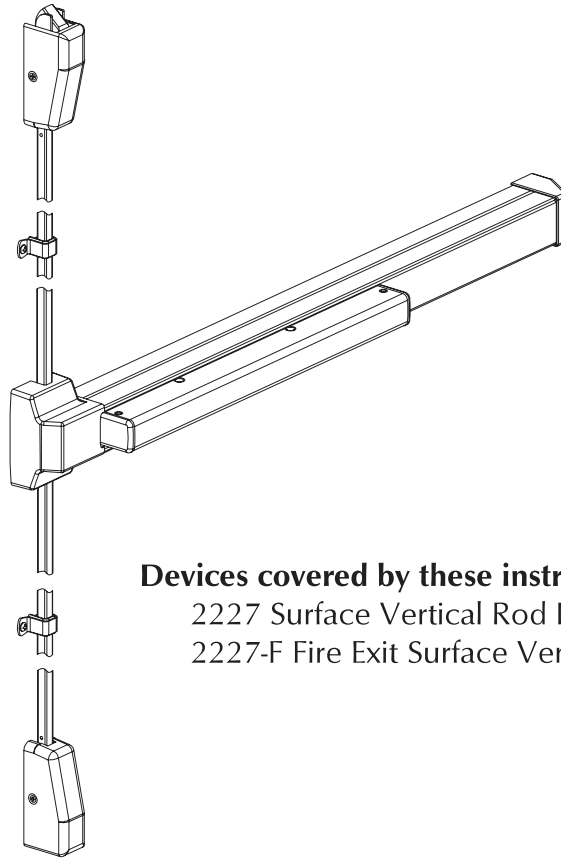
911334-00

2227

VON DUPRIN®

Surface Vertical Rod Device

Installation Instructions



Devices covered by these instructions:

2227 Surface Vertical Rod Device

2227-F Fire Exit Surface Vertical Rod Device

BEFORE STARTING INSTALLATION

1. Check hardware schedule for strikes, fasteners, and other special requirements.
2. Check carton label for trim, strikes, options, and order number.
3. Read all instructions, including instructions provided with any options used: trim, alarm kit, glass bead kit, latch guard kit, and rod guard kit.
4. Gather special tools required:
 - #10-24 tap
 - #25 drill bit
 - 1/8" dia. drill bit
 - 1/4" dia. drill bit
 - 5/16" dia. drill bit
 - 13/32" dia. drill bit
 - Hacksaw
 - 7/8" dia. hole saw

GENERAL INFORMATION

Review pages 2 and 3 so you can identify the hardware and understand the terminology used in the instructions.

See page 16 for the “Metric Conversion Table” if needed.

These exit devices can be installed on the door widths listed below:

| <u>Device Size</u> | <u>Code/Standard Requirement</u> | <u>Door Size</u> |
|--------------------|----------------------------------|------------------|
| Standard 3' (32") | NFPA101 | 24-3/4" to 36" |
| Standard 4' (44") | NFPA101 | 30-3/4" to 48" |



NOTE

Dogging panic device during high traffic periods will increase life of device. To dog, depress pushbar and turn hex key one-quarter turn clockwise.

MAINTENANCE

Von Duprin 2227 exit devices are designed and built to be maintenance free; however, such factors as installation, severity of use, environmental conditions, and changes in the condition of the door opening may require that maintenance and/or device adjustment be performed. The following guidelines are recommended to the building owner to insure proper device operation:

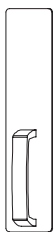
1. Check device operation for smooth operation periodically.
2. Check strikes (keeper) and latches to insure they are secure.
3. Check latches and other moving parts for binding or sluggish operation due to dirt or chemical buildup. Clean parts with soap and water and then lubricate with graphite-based or silicone lubricants. Do not use petroleum-based lubricants.

OUTSIDE TRIM

No outside trim supplied for EO (exit only) application



Escutcheon
(optional for
EO application)



DT
(pull when
dogged)



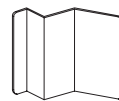
NL
(key retracts
latch bolt)



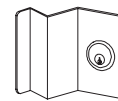
TP
(key locks
thumbpiece)



TP-BE
(thumbpiece;
unlocked)



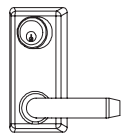
DT
(pull when
dogged)



NL
(key retracts
latch bolt)



K
(key locks
knob)



L
(key locks
lever)

2227/2227-F PARTS LIST

Item Quantity Description

In end cap package:

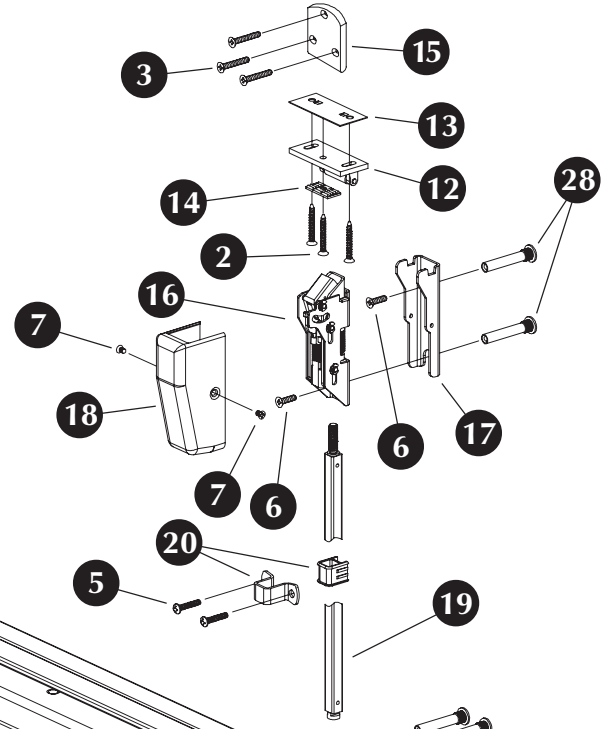
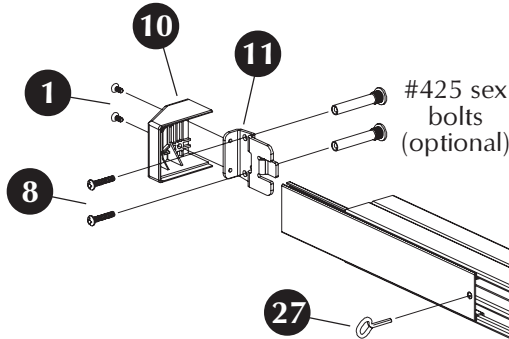
1 4 #8-18 x 1/2" undercut flat head machine screw

In 299/299F strike package:

2 3 #10-24 x 3/4" flat head machine screw (metal frame)
 2 3 #10-24 x 1-1/2" flat head wood screw (wood frame)

In 260U strike package:

3 3 #10-12 x 10-24 x 1-1/4" oval head combination screw



Item Quantity Description

In 248L-4 strike package:

4 2 #10-12 x 10-24 x 1-1/4" oval head combination screw

In rod guide mounting package:

5 4 #10-12 x 10-24 x 1" pan head combination screw

In latch mounting package:

6 4 1/4-20 x 3/4" undercut flat head machine screw
 6 4 1/4-20 x 1-1/4" undercut flat head machine screw

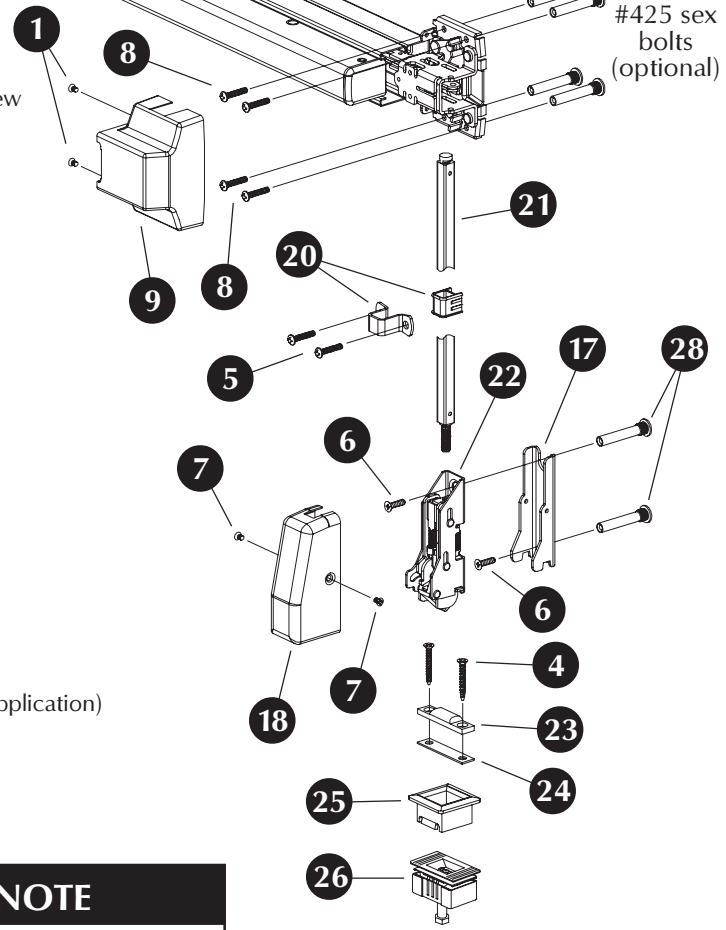
In each of two (2) latch cover mounting packages:

7 2 #8-32 x 1/4" undercut flat head machine screw

In device mounting screw package:

8 4 #10-24 x 1" pan head machine screw
 8 4 #10-24 x 1-1/2" pan head machine screw
 8 6 #10-24 x 1-1/4" pan head sheet metal screw
 8 2 #10-24 x 3/4" pan head machine screw
 8 2 #10-24 x 1-1/8" pan head machine screw

- 9 1 Center case cover
- 10 1 Mechanism case end cap
- 11 1 Mechanism case mounting bracket
- 12 1 299 (panic device) or 299F (fire exit device) strike
- 13 1 299/299F strike adjusting shim
- 14 1 Strike plate (299 strike only; not shown)
- 15 1 260U strike (optional; panic device; flush transom application)
- 16 1 Top latch assembly
- 17 2 Latch mounting bracket
- 18 2 Latch cover
- 19 1 Top vertical rod assembly
- 20 2 Rod guide assembly
- 21 1 Bottom vertical rod assembly
- 22 1 Bottom latch assembly
- 23 1 248L-4 strike (panic device)
- 24 3 248L-4 strike adjusting shim
- 25 1 304L strike
- 26 1 385A strike (optional)
- 27 1 Dogging key (panic device)
- 28 4 #325 sex bolts



NOTE

#325 sex bolts must be used to install latches on all types of doors.

INSTALLATION

1 Cut device if necessary.

- 1.1. Device length **A** must be at least 3" shorter than opening **B** (Figure 1-1).
- 1.2. If necessary, cut device so **A** is at least 3" shorter than **B** (Figure 1-2).

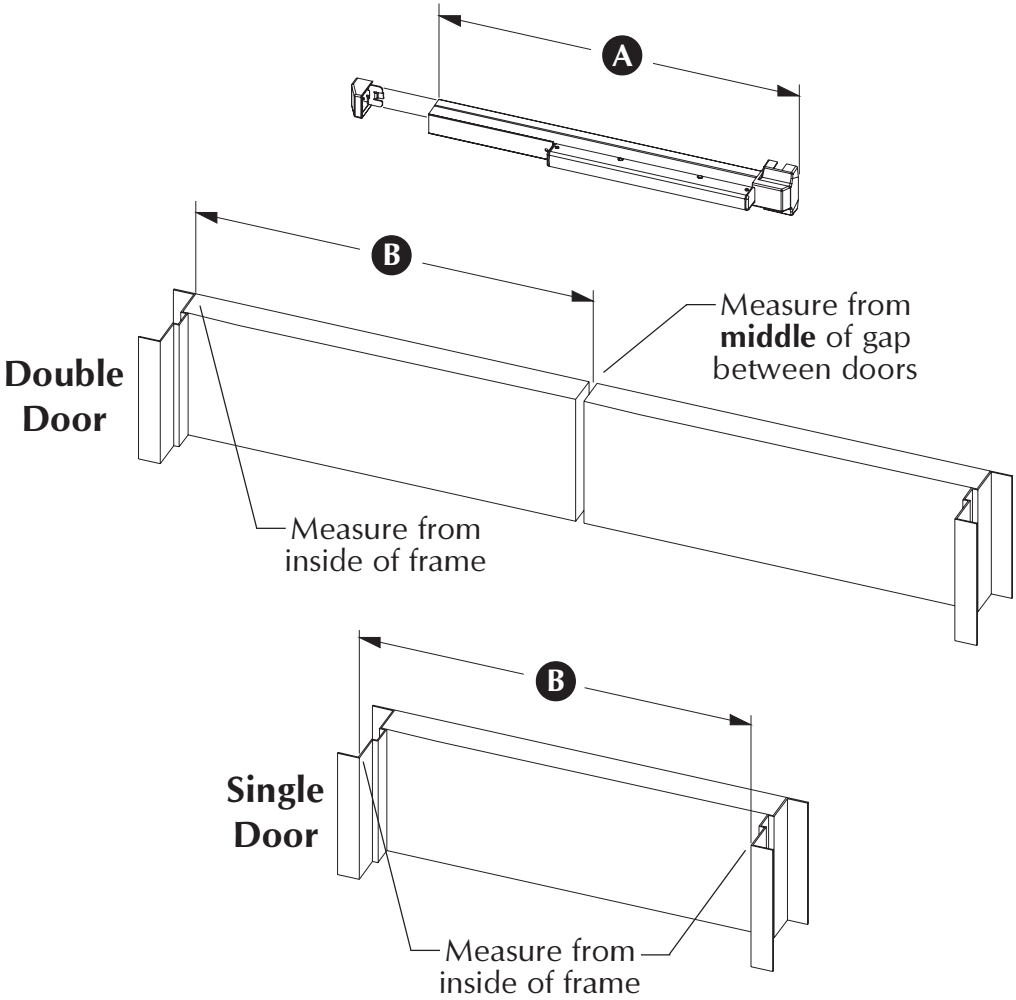
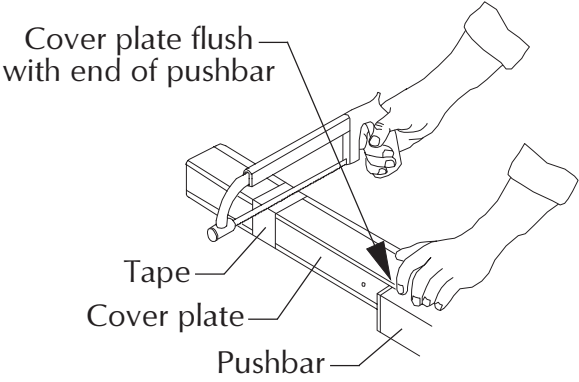


Figure 1-1



NOTE
If using ALK exit alarm option, install ALK cover plate before cutting device.

Figure 1-2

2 Prepare door.

- 2.1. Mark center line locations \mathcal{C} as shown (Figure 2-1).
- 2.2. Tape templates to door aligned with center lines \mathcal{C} .
- 2.3. Mark and prepare mounting holes per templates.
- 2.4. Prepare door for outside trim (see trim instructions).



NOTE

For wood fire doors with metal edge, increase backset so device center case clears metal edge.

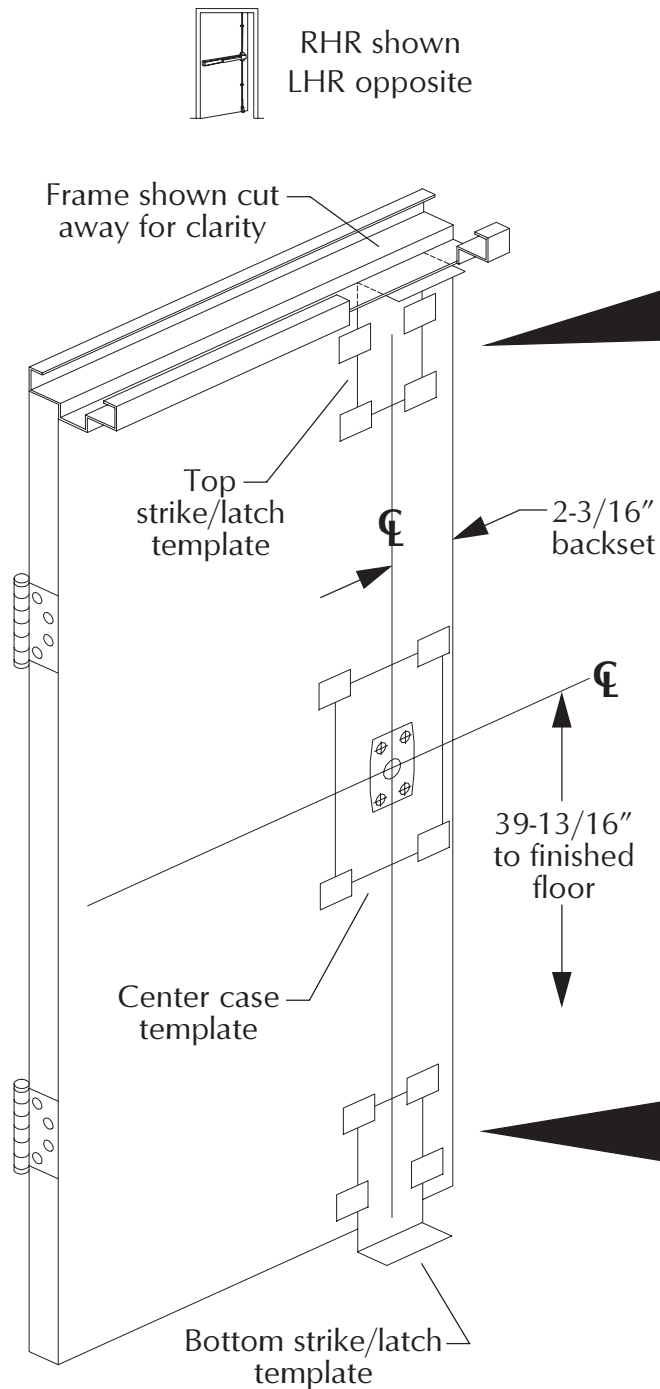
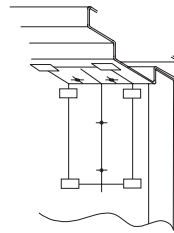
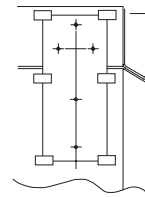


Figure 2-1

Top Strike/Latch Template Positions

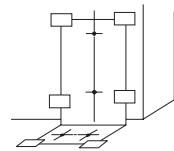


299, 299F, or 499F strike (Template #2)
Place template fold against bottom of stop

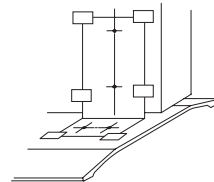


260U strike for flush transom (Template #5)
Place mark on template even with top of door

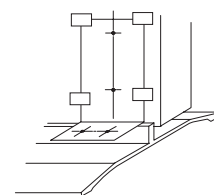
Bottom Strike/Latch Template Positions



304L strike (Template #3) or 248L-4 strike without threshold (Template #6)
Place template fold against finished floor



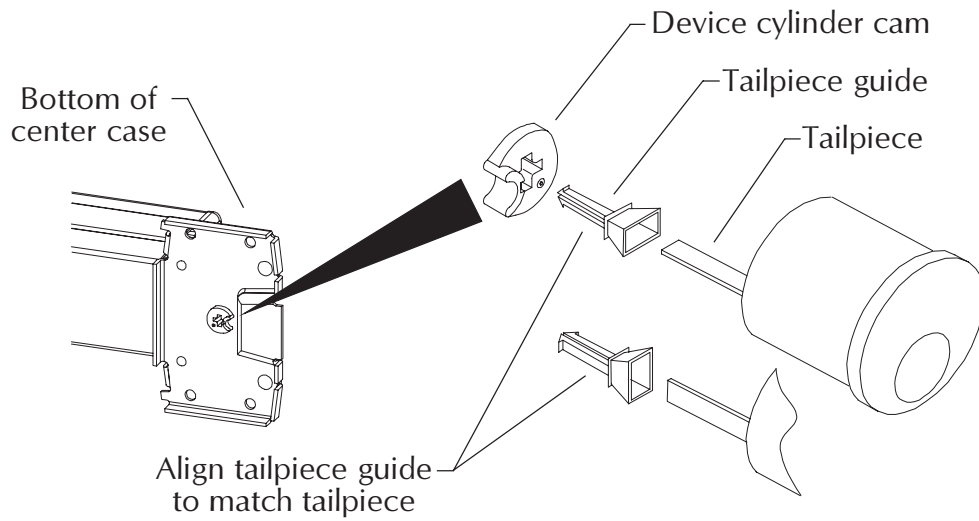
248L-4 strike with threshold (Template #6)
Place template fold against top of threshold



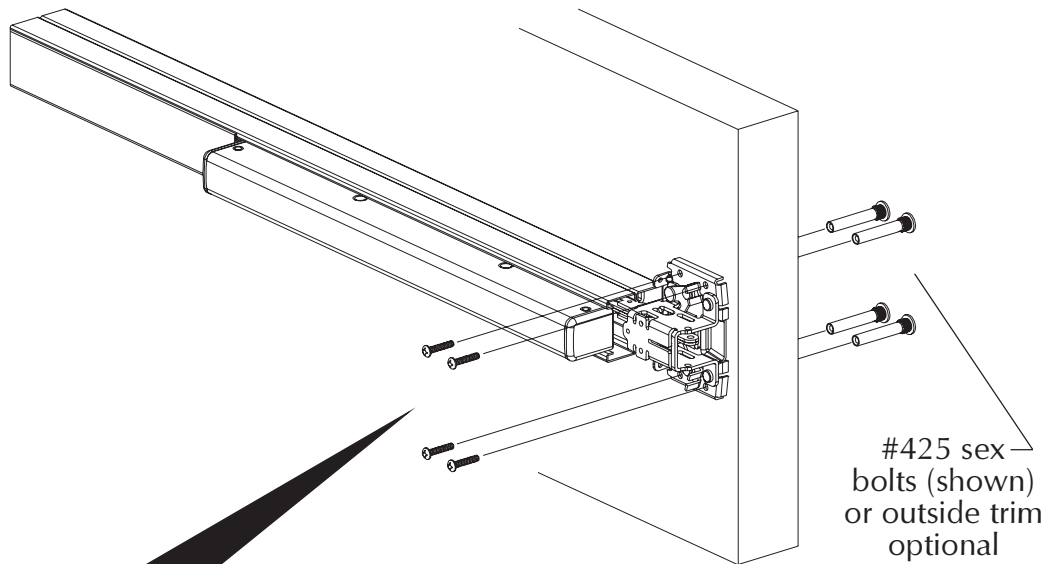
Latch track threshold (Template #4)
Place template fold against top of latch track

3 Install device.

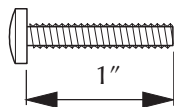
3.1. If using cylinder in trim, install tailpiece guide (packaged with trim) in device.



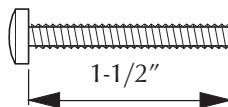
3.2. Install device to door at center case.



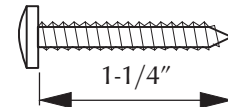
Use screws from device mounting screw package



#10-24 pan head machine for metal door surface mount, sex bolts on 1-3/4" door, or outside trim on 1-3/4" door

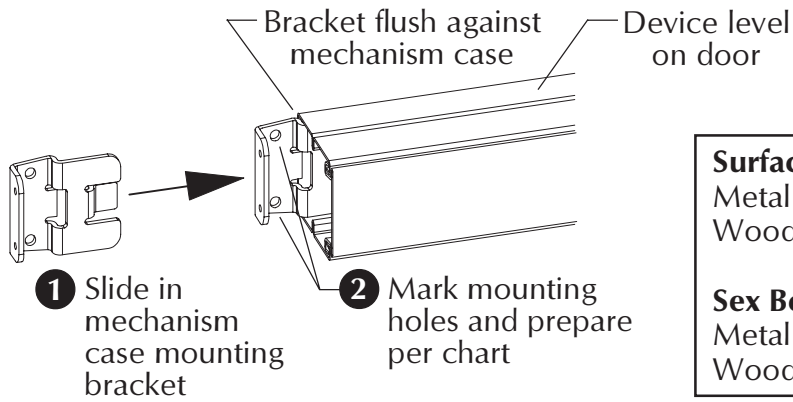


#10-24 pan head machine for sex bolts on 2-1/4" door or outside trim on 2-1/4" door



#10-24 pan head sheet metal for wood door surface mount

3 Install device (continued).



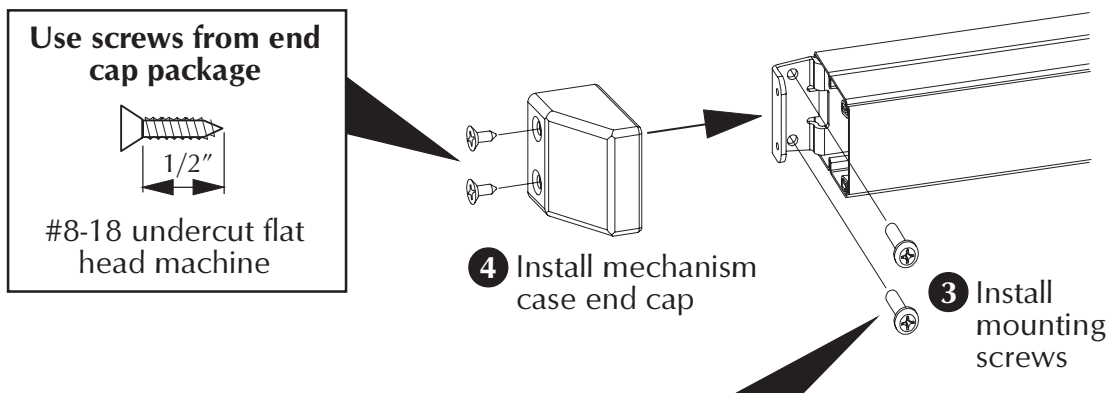
- 1 Slide in mechanism case mounting bracket
- 2 Mark mounting holes and prepare per chart

Surface Mount

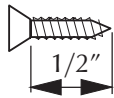
Metal Door: #25 drill and #10-24 tap inside
 Wood Door: 1/8" pilot drill, 1" deep, inside

Sex Bolts

Metal Door: 1/4" drill inside, 13/32" drill outside
 Wood Door: 13/32" drill thru



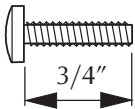
Use screws from end cap package



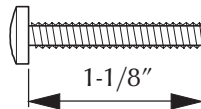
#8-18 undercut flat head machine

- 3 Install mounting screws
- 4 Install mechanism case end cap

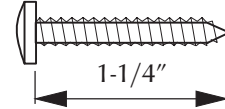
Use screws from device mounting screw package



#10-24 pan head machine for metal door surface mount or sex bolts on 1-3/4" door

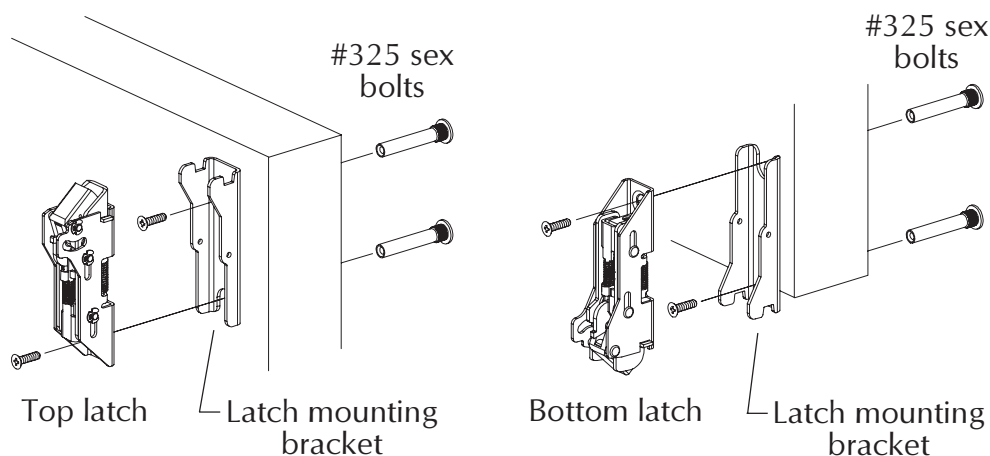


#10-24 pan head machine for sex bolts on 2-1/4" door



#10-24 pan head sheet metal for wood door surface mount

4 Install top and bottom latches.

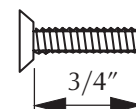


#325 sex bolts

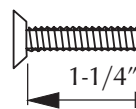
#325 sex bolts

Use screws from latch mounting package

1/4-20 undercut flat head machine



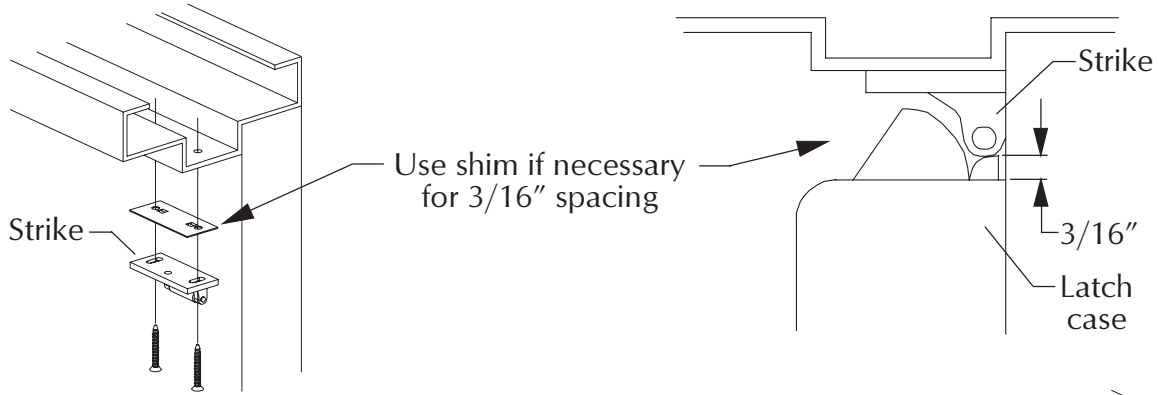
1-3/4" door



2-1/4" door

5 Install top strike.

299 and 299F Strikes

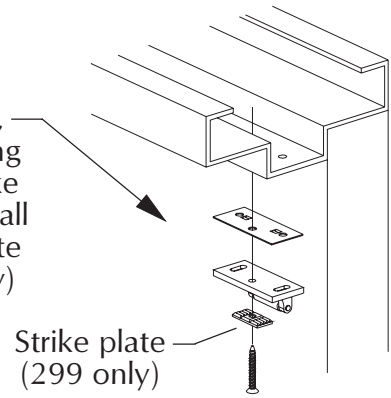


Use screws from 299/299F strike package

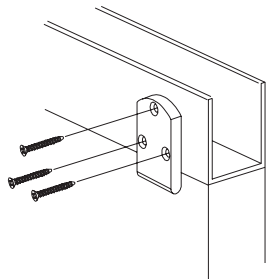
#10-24 flat head machine for metal frame

#10 flat head wood for wood frame

After strike is adjusted, prepare center mounting hole same as other strike mounting holes and install center screw (strike plate used for 299 strike only)



260U Strike



Use screws from 260U strike package

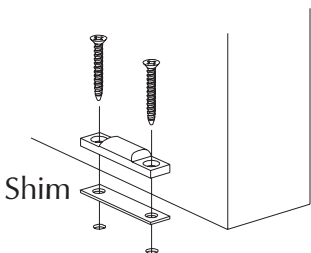
#10-12 x 10-24 oval head combination

1-1/4"

6 Install bottom strike.

248L-4 Strike

Add shim(s) so strike engages extended latch bolt but clears latch case



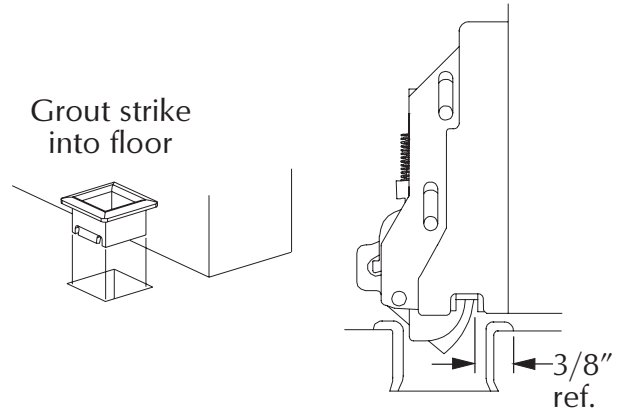
Use screws from 248L-4 strike package

#10-12 x 10-24 oval head combination

1-1/4"

304L Strike

Grout strike into floor



7 If door height is less than 84", cut top rod. (Uncut top rod is about 38-3/4" overall.)

- 7.1. Find amount to cut off (Figure 7-1).
- 7.2. Cut top rod (Figure 7-2).

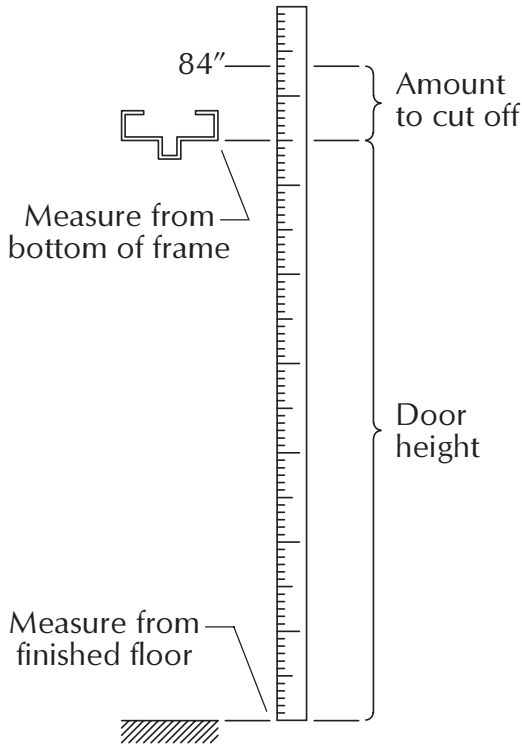


Figure 7-1

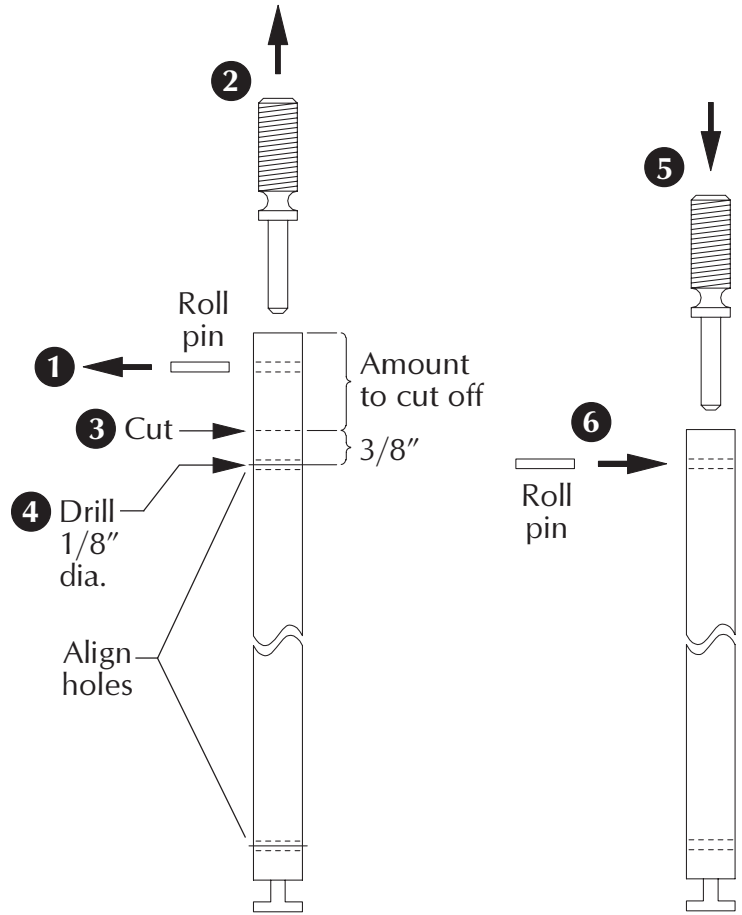
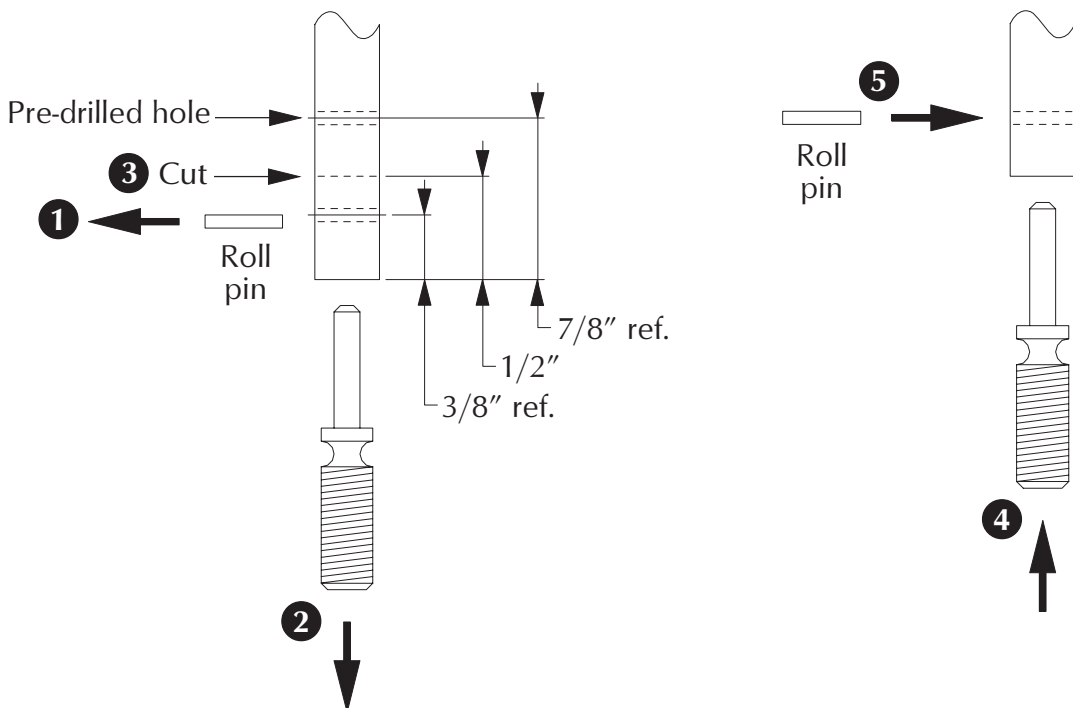


Figure 7-2

8 If using threshold, cut bottom rod. (Uncut bottom rod is about 34-7/8" overall.)



9 If door height is more than 84", prepare rod extension.

- 9.1. Find amount to cut off rod extension (Figure 9-1).
- 9.2. Cut rod extension (Figure 9-2).
- 9.3. Drill hole in rod extension (Figure 9-3).
- 9.4. Assemble rod extension rod (Figure 9-4).
- 9.5. Connect rod extension to top rod (Figure 9-5).

IMPORTANT
 For door heights less than 88", cut top rod instead of rod extension.

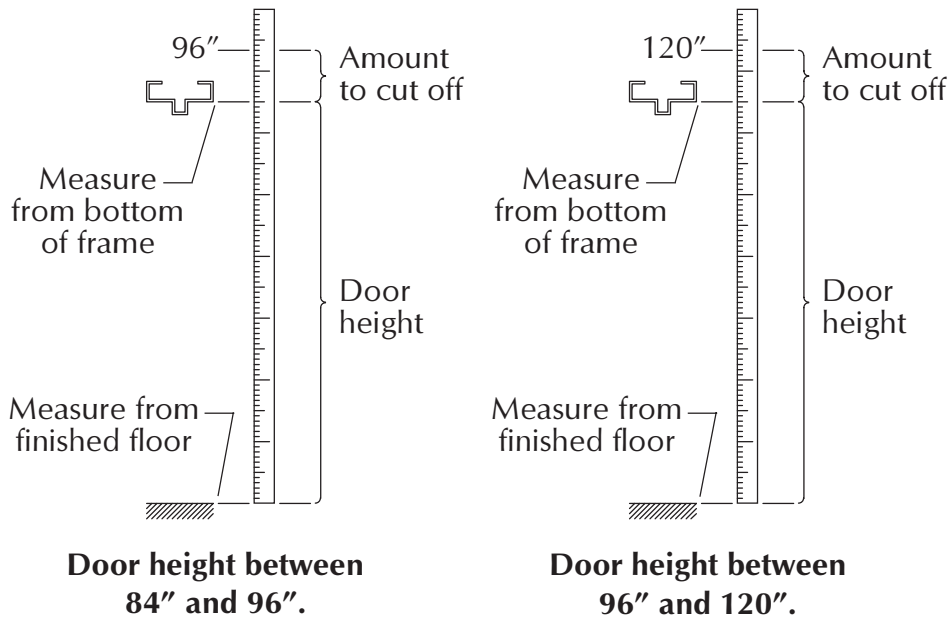


Figure 9-1

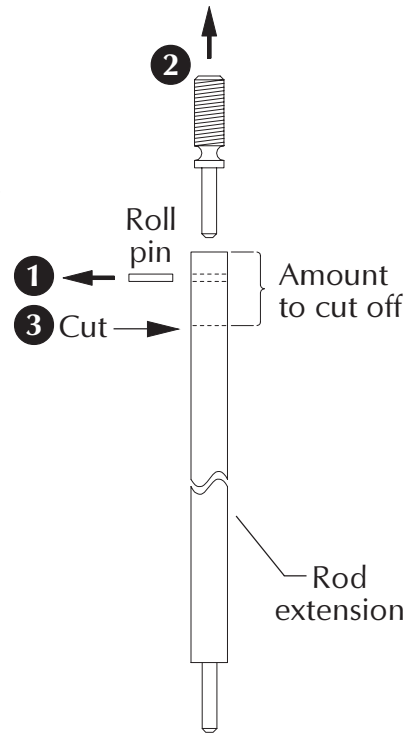


Figure 9-2

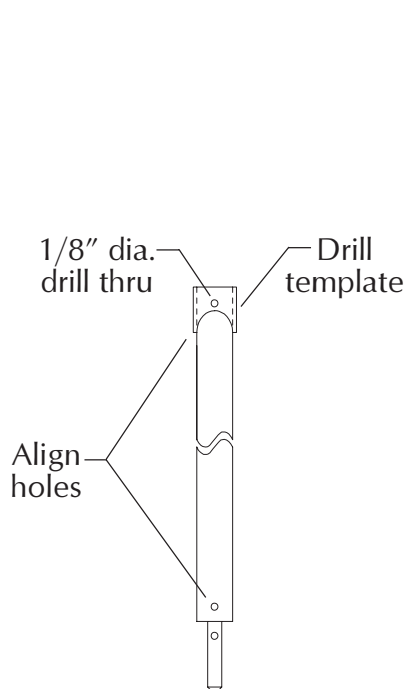


Figure 9-3

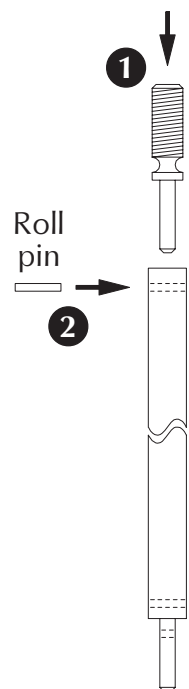


Figure 9-4

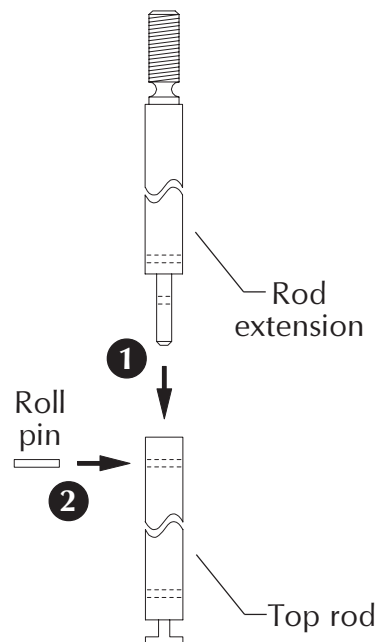
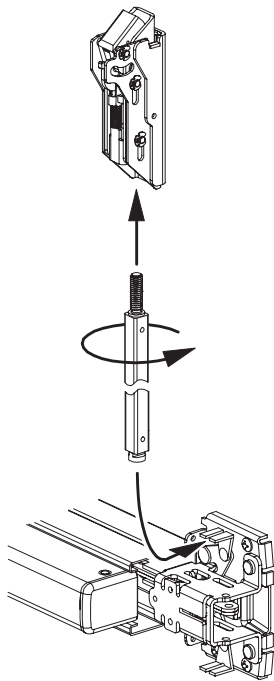


Figure 9-5

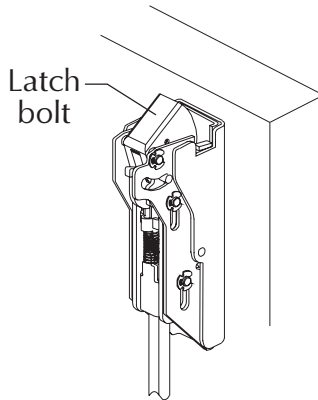
10 Install and adjust top rod.

Install

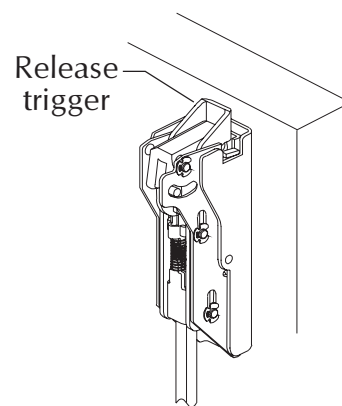


Adjust (screw rod into or out of latch)

With door closed:
Latch bolt fully extended and deadlatched (will not push in)

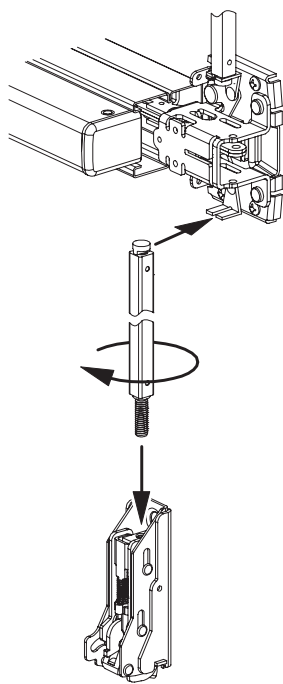


With door open:
Latch bolt flush with or slightly below latch case and release trigger extended



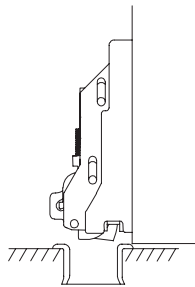
11 Install and adjust bottom rod.

Install (with door open)

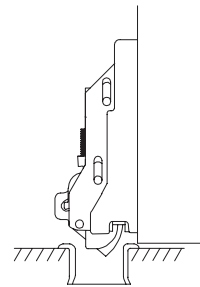


Adjust (screw rod into or out of latch)

With door open:
Latch bolt clears floor and does not bind on strike

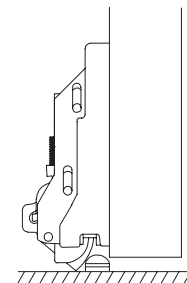
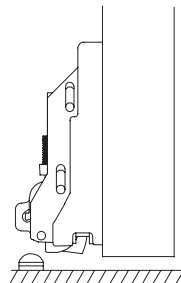


With door closed:
Latch bolt fully extended and deadlatched (will not push in)



304L strike

248L-4 strike



12 Install rod guides, center case cover, and latch covers.



NOTE

If using rod or latch guards, skip this step and see rod or latch guard instructions.

12.1. Disconnect top and bottom rods from center case. Slide rod guide bases **1** (with legs of bases against door) onto rods. Connect rods to center case.

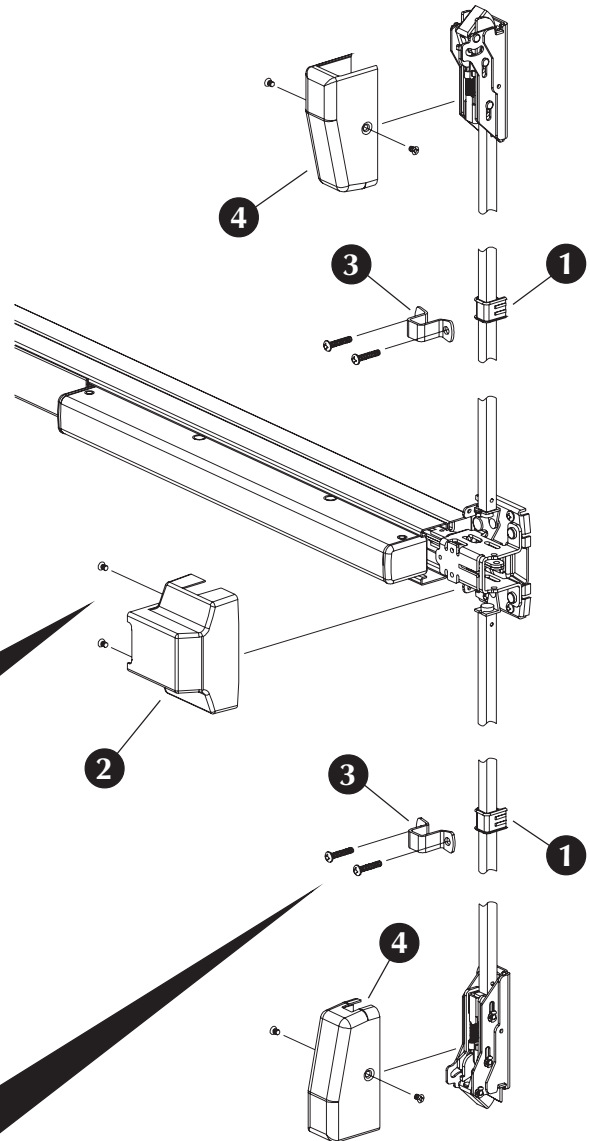
12.2. Install center case cover **2**.

12.3. Place rod guides **3** over rod guide bases **1**. Position rod guide/base midway between center case and latch and mark and prepare rod guide mounting holes:

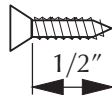
Metal door: #25 drill and #10-24 tap, inside
Wood door: 1/8" dia. pilot drill x 3/4" deep, inside

12.4. Install rod guides **3** over rod guide bases **1**.

12.5. Install latch covers **4**.

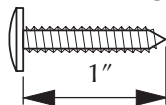


Center case: Use screws from end cap package:



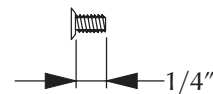
#8-18 undercut flat head machine

Rod guides: Use screws from rod guide mounting package:



#10-12 x 10-24 combination

Latch covers: Use screws from latch cover mounting package:



#8-32 undercut flat head machine

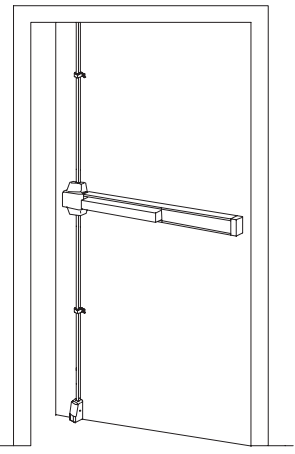
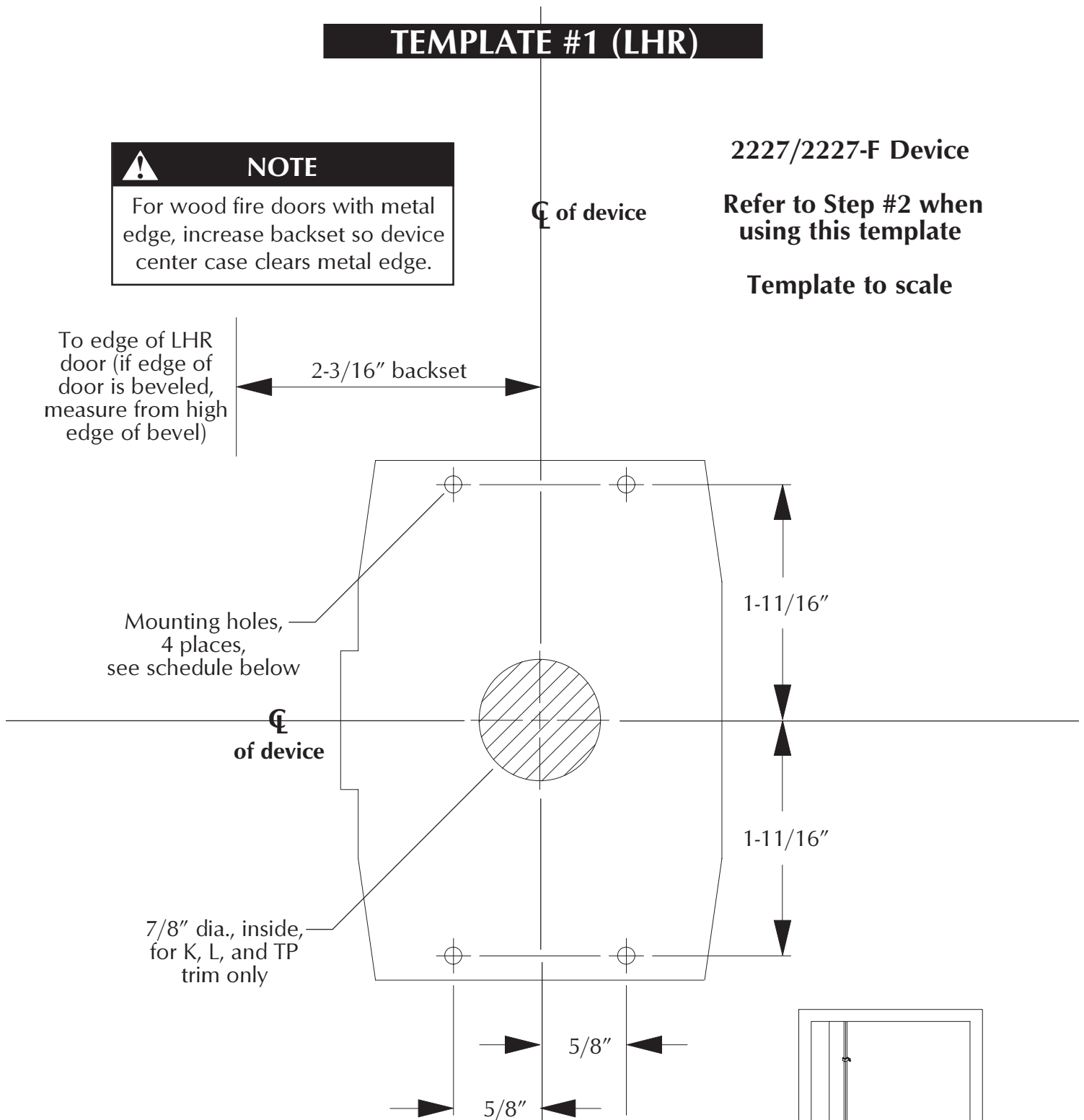
TEMPLATE #1 (LHR)

NOTE
 For wood fire doors with metal edge, increase backset so device center case clears metal edge.

2227/2227-F Device

Refer to Step #2 when using this template

Template to scale



LHR

| Mounting Hole Schedule | |
|------------------------|--|
| Surface Mount | |
| Metal Door: | #25 drill and #10-24 tap, inside |
| Wood Door: | $1/8''$ dia. drill x 1" deep (pilot hole) |
| Outside Trim | |
| Metal Door: | $1/4''$ dia. drill, inside |
| Wood Door: | $13/32''$ dia. drill, thru |
| Sex Bolts | |
| Metal Door: | $1/4''$ dia. drill, inside, and $13/32''$ dia. drill, outside |
| Wood Door: | $13/32''$ dia. drill, thru |

TEMPLATE #1 (RHR)

2227/2227-F Device

Refer to Step #2 when using this template

Template to scale

NOTE
 For wood fire doors with metal edge, increase backset so device center case clears metal edge.

☉ of device

2 3/16" backset

To edge of RHR door (if edge of door is beveled, measure from high edge of bevel)

1-11/16"

1-11/16"

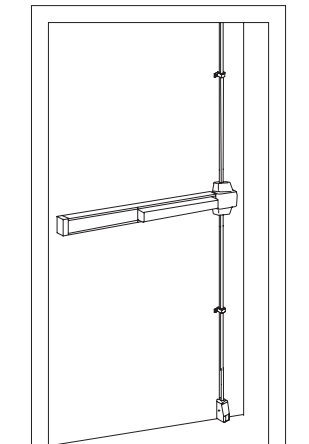
Mounting holes, 4 places, see schedule below

☉ of device

7/8" dia., inside, for K, L, and TP trim only

5/8"

5/8"

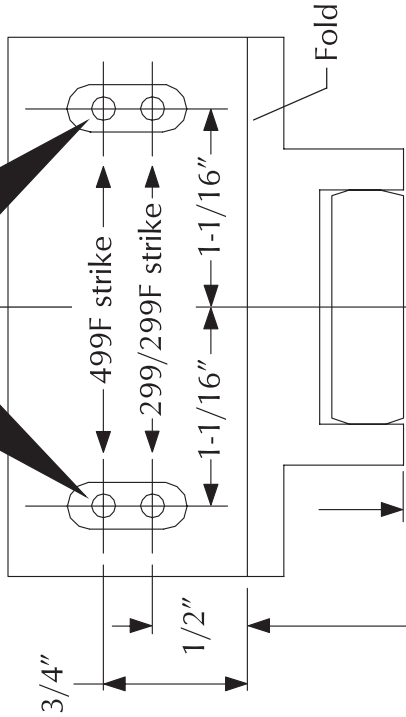


RHR

| Mounting Hole Schedule | |
|------------------------|---|
| Surface Mount | |
| Metal Door: | #25 drill and #10-24 tap, inside |
| Wood Door: | 1/8" dia. drill x 1" deep (pilot hole) |
| Outside Trim | |
| Metal Door: | 1/4" dia. drill, inside |
| Wood Door: | 13/32" dia. drill, thru |
| Sex Bolts | |
| Metal Door: | 1/4" dia. drill, inside, and 13/32" dia. drill, outside |
| Wood Door: | 13/32" dia drill, thru |

TEMPLATE #2
299/299F/499F Strike
and Top Latch

299/299F/499F Strike Mounting Holes, 2 Places
 Metal Frame: #25 drill and #10-24 tap, inside
 Wood Frame: 1/8" dia. drill x 1" deep (pilot hole)

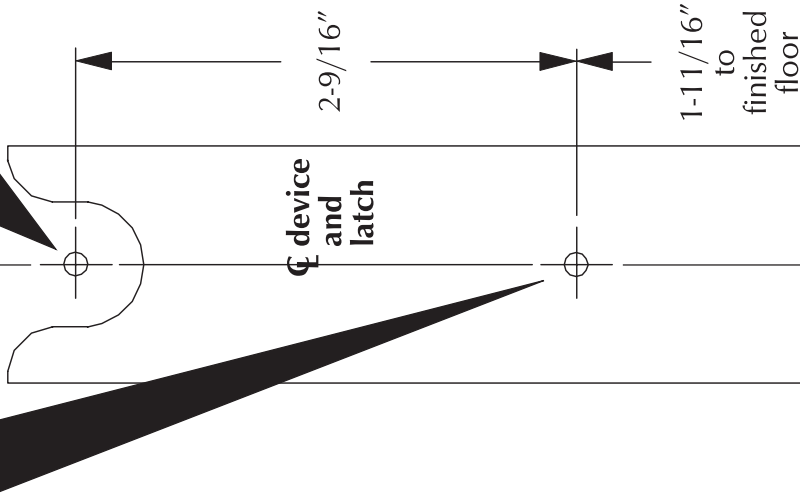


304L Strike and Bottom Latch

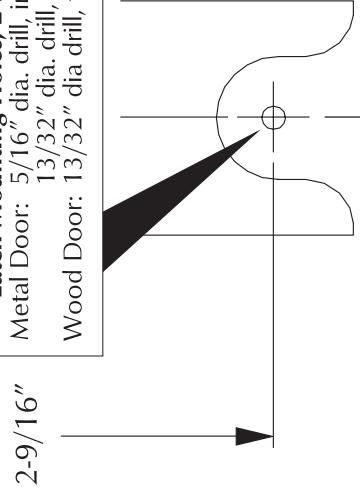
TEMPLATE #3

304L Strike and Bottom Latch

Latch Mounting Holes, 2 Places
 Metal Door: 5/16" dia. drill, inside, and
 13/32" dia. drill, outside
 Wood Door: 13/32" dia drill, thru



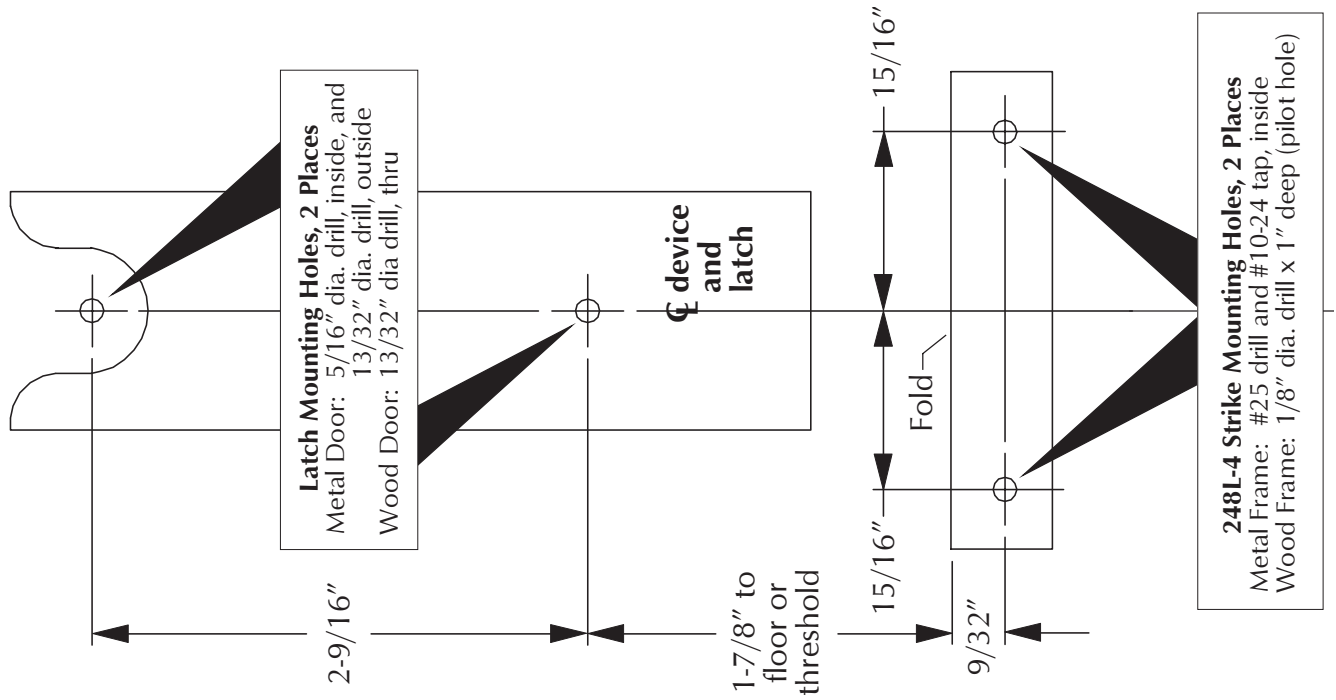
Latch Mounting Holes, 2 Places
 Metal Door: 5/16" dia. drill, inside, and
 13/32" dia. drill, outside
 Wood Door: 13/32" dia drill, thru



Refer to Step #2 when
using these templates

Templates to scale

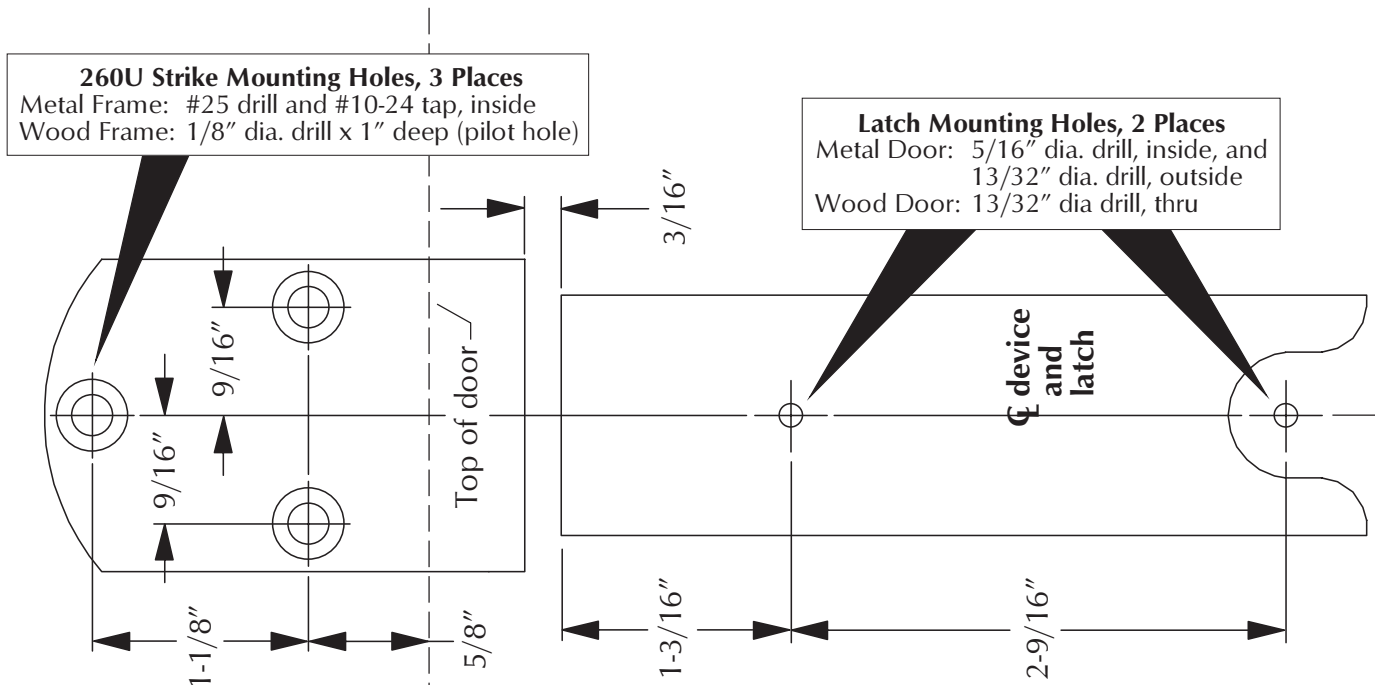
TEMPLATE #6
248L-4 Strike and Bottom Latch



Metric Conversion Table

| inches | mm | inches | mm | inches | mm | inches | mm |
|--------|----|--------|----|---------|-----|----------|------|
| 1/8 | 3 | 3/4 | 19 | 1-11/16 | 43 | 36 | 914 |
| 3/16 | 5 | 7/8 | 22 | 1-3/4 | 45 | 37-1/2 | 953 |
| 1/4 | 6 | 15/16 | 24 | 2-3/16 | 56 | 39-13/16 | 1011 |
| 9/32 | 7 | 1 | 25 | 2-1/4 | 57 | 44 | 1118 |
| 5/16 | 8 | 1-1/16 | 27 | 2-9/16 | 65 | 48 | 1219 |
| 3/8 | 10 | 1-1/8 | 29 | 3 | 76 | 84 | 2134 |
| 13/32 | 10 | 1-1/4 | 32 | 24-3/4 | 629 | 88 | 2235 |
| 1/2 | 13 | 1-1/2 | 38 | 30-3/4 | 781 | 96 | 2438 |
| 9/16 | 14 | 1-9/16 | 40 | 32 | 813 | 120 | 3048 |
| 5/8 | 16 | 1-5/8 | 41 | 33-1/2 | 851 | | |

TEMPLATE #5
260U Strike and Top Latch



Refer to Step #2 when using these templates. Templates to scale.