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## INSTALLATION GUIDE for ENTRY DOOR SYSTEMS

These instructions are provided as a general guide to installing pre-hung exterior door systems, into new or existing framework.

Most, but not all installation situations are covered here, and it is assumed that the installer has some mechanical and carpentry know-how.

Please, read through the instructions *before* getting started, and note that the door system you are installing may not be exactly the same in detail, as those described in these pages.

Note: The #8-3" wood screws described in these pages must be supplied by the installer. These are not necessarily included with the door system you have purchased.



## DOOR INSTALLATION INSTRUCTIONS

### Required Tools & Materials

- level (for sub-sill only)
- shims
- hammer
- screw gun
- #2 Robertson and Flat screwdrivers
- acrylic caulk
- low-expansion foam (or fibreglass) insulation
- supplied with door unit: 7 screws (#8 wood screws, 3" length)

**Important Point:** Although all steps are critical, this symbol identifies procedures requiring extra attention.

**Check Your Work:** This symbol identifies when the work should be checked for correctness before continuing with installation.

**PLEASE NOTE:** Failure to install this unit in accordance with these instructions may void any manufacturer's warranty.

### Step 1: Prepare Rough Opening

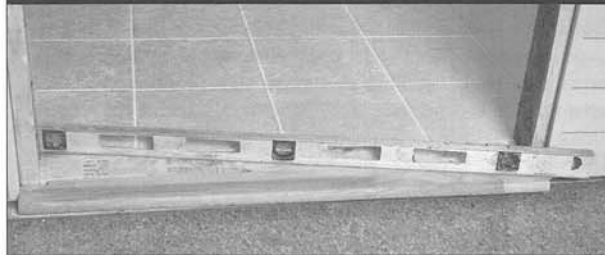


Figure 1: A clean, level, solid sub-sill is essential to successful installation.

Ensure that the following conditions are met:

- the rough opening (RO) is ideally 1" wider and  $\frac{1}{2}$ " taller than the outside frame dimensions of the door system
- the RO is plumb, square and level
- the old frame has been completely removed in retrofit installation
- the floor area is clean, dry and level
- the existing sub-sill is at least 6" deep for  $4\frac{9}{16}$ " frames and at least 8" deep for  $6\frac{9}{16}$ " frames.

**Important Point:** Because a solid, level sub-sill is absolutely essential for proper door system installation, do not proceed with the installation until the sub-sill is both solid and level.

### Step 2: Caulk the Sub-Sill

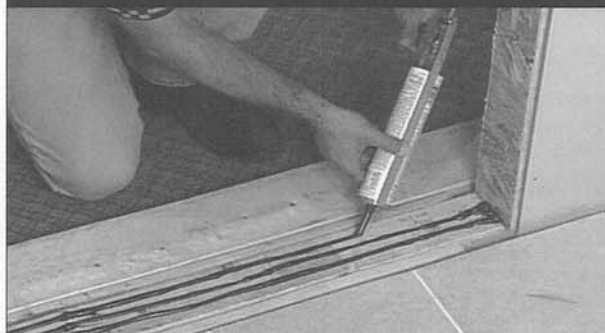


Figure 2: Caulk is applied in three parallel lines running the width of the sill.

Apply three  $\frac{1}{4}$ " lines of caulk (acrylic caulk is recommended) along the length of the sub-sill, the first line starting approximately 1" from the inside edge. The lines should be about 1" apart.

### Step 3: Remove Packaging Materials



Figure 3: Do not remove the black skid plate located along the bottom of the door (if applicable).

Remove all packaging materials such as nails, staples and screws.

**Important Point:** Do not remove the black skid plate because it allows the door to slide easily and acts as a permanent rot and moisture barrier (Figure 3). (if applicable)

**Check Your Work:** Make sure the door swings freely in the frame.

**\*\*BE CERTAIN** to remove plastic skid feet (if present), located at the bottom of each end of the sill, before installation.

## Step 4: Place Door in Rough Opening

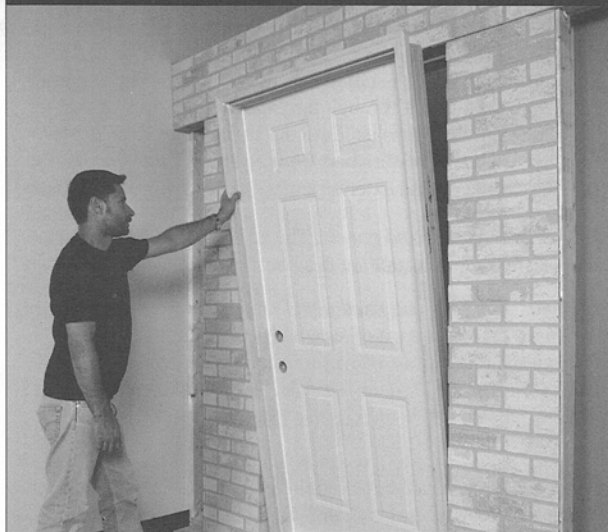
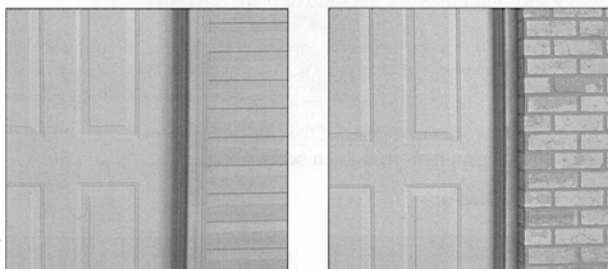



Figure 4: Place the sill in the opening first and then tilt the door up into the opening.



Figures 5 and 6: The brick mould rests up against exterior siding or slides into the opening of exterior brick.

Stand on the outside of the doorway. With the door facing out, tilt the door back toward the outside. Place the sill in the RO and tilt the door up and into the opening (Figure 4). The brick mould should rest up against the siding of the exterior wall (Figure 5) and should slide into the RO of a brick home (Figure 6).

 Do not leave the door wide open during installation. The weight of the door may cause it to fall and cause injury.

## Three Installation Types

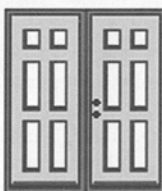
Instructions vary according to door type. Confirm which door type is being installed.

For single doors, use Step 5A. For double doors and side-hinged patio doors with astragals, use Step 5B. For center-hinged patio doors and doors with sidelites, use Step 5C.

### A: single door



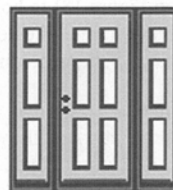
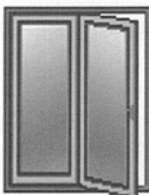
### B: double door



### side-hinged patio door



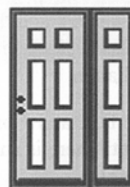
### C: center-hinged patio doors door with two sidelites



### sidelite on latch side



### sidelite on hinge side



## Information Panel

### How to Plumb the Door

- ☒ For all door types, it is essential that the frame is in a straight vertical plane and is not twisted. Check alignment using this method: Stand on the outside of the door. Check that the weatherstripping on the latch (or astragal) side is evenly compressed along the entire height of the door slab without any pinching or gaps (Figures 7 and 8).



Figures 7 and 8: The weatherstripping on these doors is not evenly compressed.

### How to Fasten the Door

After shimming, the door is fastened to the studs by installing screws through the jambs, shims and into the stud (Figure 9).

- ☒ When shims are properly installed, the frame should not move or twist when the screws are tightened and counter-sunk, thus maintaining the  $\frac{1}{8}$ " gap. If there is any movement, loosen the screws and shim tighter to maintain the  $\frac{1}{8}$ " gap, then retighten the screws.

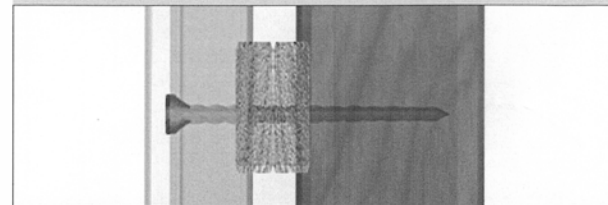


Figure 9: Screws are installed through the jamb, shims and into the stud.

## Step 5: Shim and Fasten

### Step 5A: For single doors

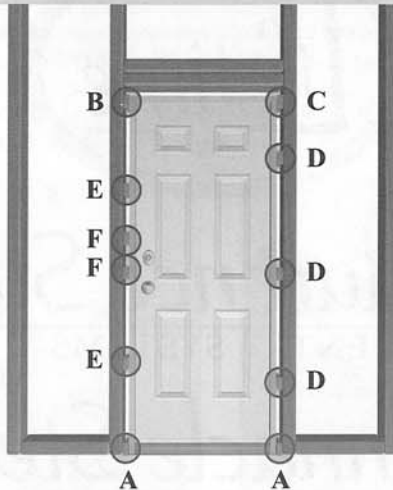


Figure 10: Install the shims in the correct locations and in the correct sequence.

Stand on the inside of the door and center the door in the opening. Shim tightly at the bottom corners of the door unit (Points A in Figure 10). This will keep the door centered and the frame tight against the sill. Shim the top of the door on the latch side (Point B in Figure 10). Install shims until there is a consistent  $\frac{1}{8}$ " gap between the top of the door slab and the frame header (as seen from the inside).

Shim the hinge-side of the frame (Point C in Figure 10). This will hold the door tight in its position relative to the frame. The door should operate freely with nothing but shims holding it in place.

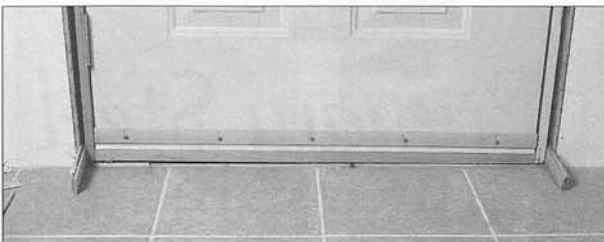


Figure 11: Proper position of shims at the bottom of the door (Points A).

## Step 5: Shim and Fasten

### Step 5A: For single doors

- ✓ From the outside and with the door closed, ensure that the frame is in a straight vertical plane (not twisted). To do this check that the magnetic weatherstripping on the latch side is evenly compressed along the entire height of the door slab without any pinching or gaps (see Figures 7 and 8).

Ensure that there is an even gap across the top of the door slab (as seen from the inside).

With the door closed and from the inside shim directly behind the vacant hinge screw hole in each hinge (Points D in Figure 10) until there is a consistent  $\frac{1}{8}$ " gap between the hinge-side jamb and the door slab edge along the entire height of the door. There should be a  $\frac{1}{8}$ " gap between the latch-side jamb and the door slab edge at the top and bottom of the door **only**. Drive one of the supplied 3" installation screws through the vacant hole in each hinge, through the jamb, shims and into the stud (Figure 9).

- ✓ When the shims are properly installed, the frame should not move or twist at all when the screws are tightened and counter-sunk thereby maintaining the  $\frac{1}{8}$ " gap. If there is any movement, loosen the screws and shim tighter to maintain the  $\frac{1}{8}$ " gap, then re-tighten the screws.

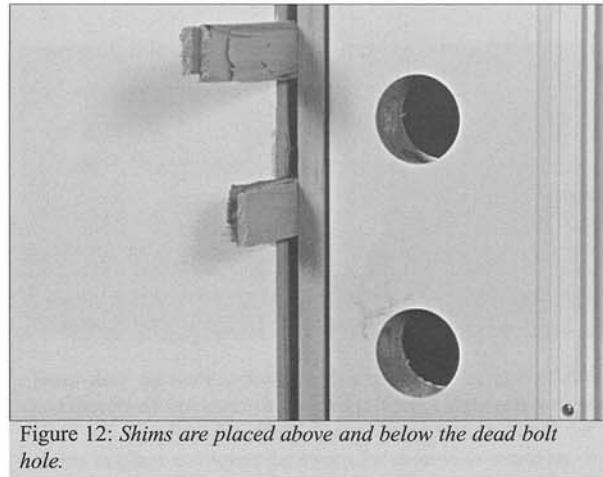


Figure 12: Shims are placed above and below the dead bolt hole.

## Step 5: Shim and Fasten

### Step 5A: For single doors

Shim behind the latch-side jamb (Points E in Figure 10) approximately 8" from the top and bottom of the frame. Install shims until there is an even  $\frac{1}{8}$ " gap between the jamb and the edge of the door slab along the whole length of the door. Shim behind the latch-side jamb (Points F in Figure 7) just above and below the dead bolt hole, maintaining the  $\frac{1}{8}$ " gap (Figure 12). Pull the weatherstripping away from the jamb (Points E on Figure 10) and screw the supplied 3" installation screws through the jamb and shims and into the stud (Figure 13).

Proceed to Step 6.

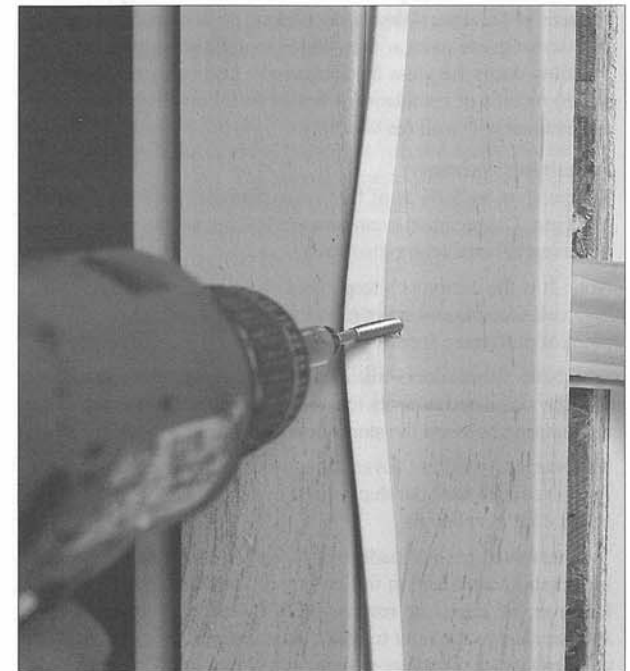


Figure 13: Install screws underneath the weatherstripping.

## Step 5: Shim and Fasten

### Step 5B: For double doors and side-hinged patio doors with astragals

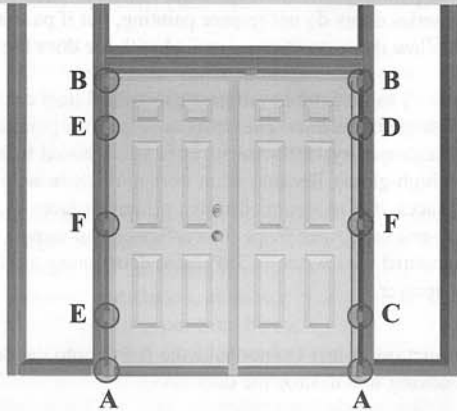


Figure 14: Install the shims in the correct locations and in the correct sequence.

Stand on the inside of the door and center the door in the opening. Shim tightly at the bottom of the unit (Points A in Figure 14). This will keep the door centered and the frame tight against the sill. Shim the top of the frame (at Points B in Figure 14). Install shims until there is a  $\frac{1}{8}$ " gap between the top of the door slabs and the frame header.

With full-length glass inserts, the door slabs may sag toward the center. This is normal. To correct sagging, align the flush bolts on the fixed door with the pre-drilled holes in the header and sill. Shim tightly behind the vacant hinge screw hole in the bottom hinge (Point C in Figure 14) until the lower flush bolt slides freely into the pre-drilled hole in the sill. Secure the door by driving a supplied 3" installation screw through the hinge and jamb and into the stud. If the flush bolt does not slide freely, loosen the screw, shim more tightly and then tighten the screw.

Shim behind the vacant hinge screw hole in the top hinge (Point D in Figure 14) to align the top flush bolt with the factory pre-drilled hole in the header (Figure 15). Secure with the supplied 3" installation screw supplied, through the hinge, jamb and into the stud.

## Step 5: Shim and Fasten

### Step 5B: For double doors and side-hinged patio doors with astragals



Figure 15: Correct sagging until the flush bolt slides freely into the pre-drilled hole in the head.

From the outside and with the door closed, ensure that the frame is in a straight vertical plane (not twisted). To do this check that the magnetic weatherstripping on the astragal side is evenly compressed along the entire height of the door slab without any pinching or gaps (see Figures 7 and 8).

Standing on the inside, shim behind each of the vacant hinge screw holes in both the top and bottom hinge on the operating door (Points E in Figure 14) until there is a consistent  $\frac{1}{8}$ " gap along the entire height of the door between the operating door and the astragal attached to the passive door. There should also be a  $\frac{1}{8}$ " gap between the top of each door slab and the header.

Shim above the header on the passive door side of the astragal pin to prevent the header from bowing (Figures 16 and 17).

Using the supplied 3" installation screws, drive a screw through the vacant holes in both the top and bottom hinge on the operating door (Points E in Figure 14), through the jambs and into the stud.

Shim behind the vacant hinge screw holes in each of the center hinges (Points F in Figure 14) and secure using the supplied 3" installation screws.

Proceed to Step 6.

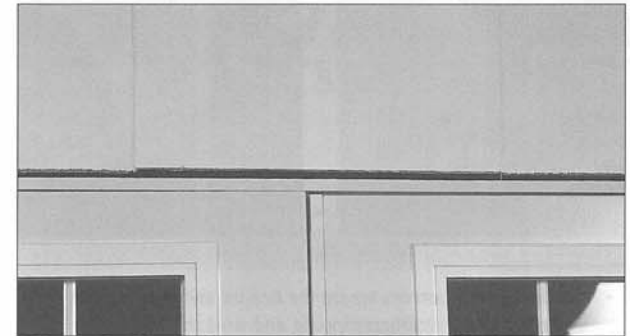


Figure 16: The gap between the door slabs and the head is not evenly aligned.

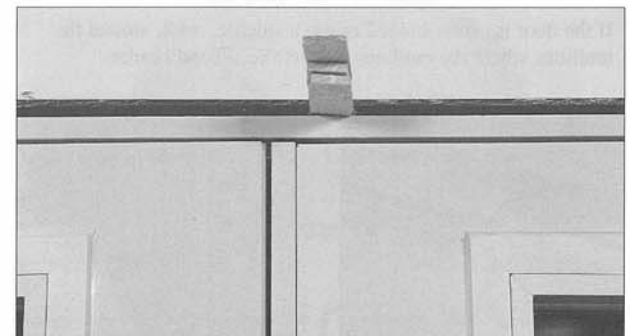


Figure 17: The gap between the door slabs and the head is evenly aligned.

## Step 5: Shim and Fasten

### Step 5C: For doors with sidelites and center-hinged patio doors

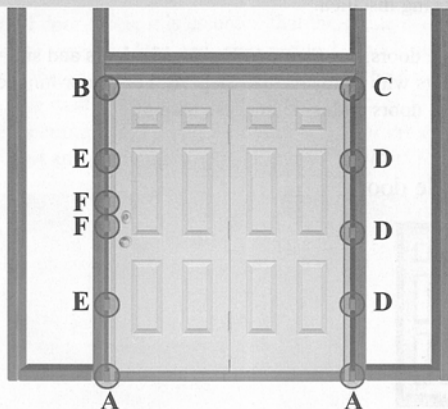


Figure 18: Install shims in the correct location and in the correct sequence.

Stand on the inside of the door and center the door in the opening. Shim tightly at the bottom corners of the door unit (Points A in Figure 18). This will keep the door centered and the frame tight against the sill. Shim the top of the frame, behind the latch-side jamb (Point B in Figure 18). Install shims until there is a consistent  $\frac{1}{8}$ " gap between the top of the operating door slab and the frame header.

Shim at the top of the frame, behind the hinge-side jamb (Point C in Figure 18) to hold the door tight in its position relative to the frame. The door should operate freely with nothing but the shims holding it in place.

- ☒ From the outside and with the door closed, ensure that the frame is in a straight vertical plane (not twisted). To do this, check that the magnetic weatherstripping on the latch side is evenly compressed along the entire height of the door slab, without any pinching or gaps (Figures 7 and 8).

Once there is an even  $\frac{1}{8}$ " gap across the top of the door slab (as seen from the inside), and the magnetic weatherstripping is evenly compressed along the height of the door slab, proceed with the installation.

Shim at points D, E and F on the perimeter of the frame (Figure 18), until there is an even  $\frac{1}{8}$ " gap on both sides of the operating door slab.

## Step 5: Shim and Fasten

### Step 5C: For doors with sidelites and center-hinged patio doors

Drive the supplied 3" installation screws, three on each exterior jamb of a fixed panel, through the exterior thick part of the jamb, through the shims and into the studs. If the door is pre-finished use the "Pre-finished Door Systems" information for fastening through clad exterior jambs.

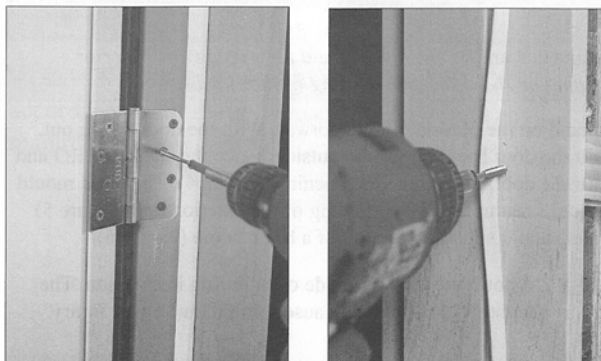
*For units with two fixed panels:* The additional  $1\frac{1}{8}$ " supplied screws are used to install the dead bolt strike plate (Step 6).

*For units with only one fixed panel attached on the latch side of the door:* The second set of supplied screws are installed through the thin part of the jamb using the vacant hinge screw holes (Figure 19). The additional  $1\frac{1}{8}$ " supplied screws are used to install the dead bolt strike plate (Step 6).

*For units with only one fixed panel attached on the hinge side of the door:* The second set of supplied 3" screws are installed through the thin part of the jamb under the weatherstripping through the shim and into the stud approximately 8" from the top and bottom of the jamb (Figure 20). Shim just above and below the dead bolt hole and drive the supplied 3" installation screws through the dead bolt strike plate (Step 6).

- ☒ When shims are properly installed, the frame should not move or twist at all when the screws are tightened and counter-sunk, thus maintaining the  $\frac{1}{8}$ " gap. If there is any movement, loosen the screws and shim tighter to maintain the  $\frac{1}{8}$ " gap, then re-tighten screws.

Proceed to Step 6.



Figures 19 and 20: The second set of supplied screws is installed in the vacant hinge holes or under the weatherstripping.

## Step 5: Shim and Fasten

### Pre-finished Door Systems

Because the inside of the jamb is not accessible, a  $\frac{1}{4}$ " hole must be drilled through the pre-finished cladding,  $\frac{1}{4}$ " deep at all points where the door system is shimmed (three on each exterior side of a fixed panel, Figure 21). Drive the supplied 3" installation screws, through the drilled hole in the cladding on the exterior thick part of the jamb, through the shims and into the studs (Figure 22). Use the supplied caps to cover the holes in the cladding (Figure 23).

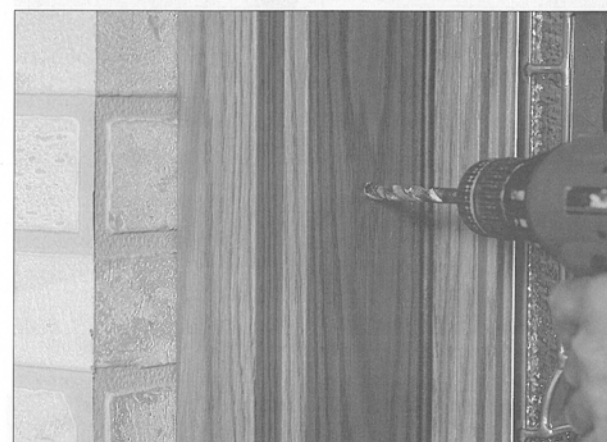


Figure 21: Pre-finished systems must have holes drilled before screws are installed.



Figures 22 and 23: Drill holes through the cladding on pre-finished doors to install screws and plugs.

### Step 6: Install Dead Bolt and Strike Plates

Install the dead bolt strike plate at the correct location, depending on the door style: if the plates are being installed on an exterior jamb, use 3" screws. If the plates are being installed on a mullion at a sidelite, use 1 1/8" screws. Note that the security strike plate is sandwiched between the mullions.

Using the supplied installation screws, drive the screw through the strike plate, jamb, security strike plate (already attached to the back of the jamb) and into the stud (Figures 24 and 25).

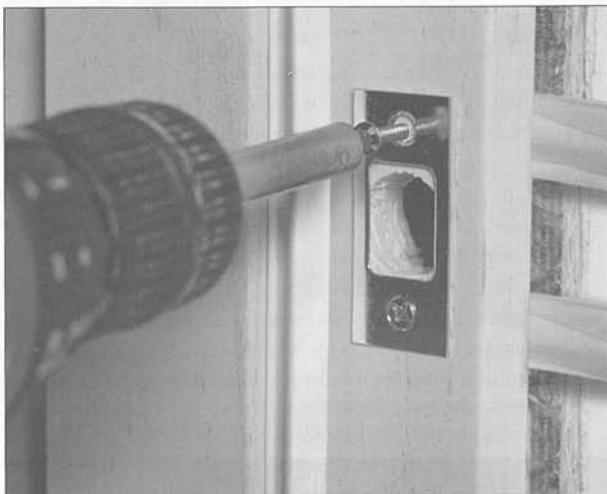


Figure 24: Screws fasten the latch plate to the door slab.

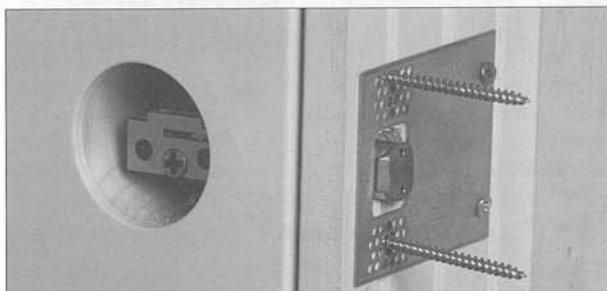


Figure 25: Screws should connect the dead bolt plate to the stud.

### Step 7: Insulate



Figure 26: Insulate between the jambs and the wall studs all around the door.

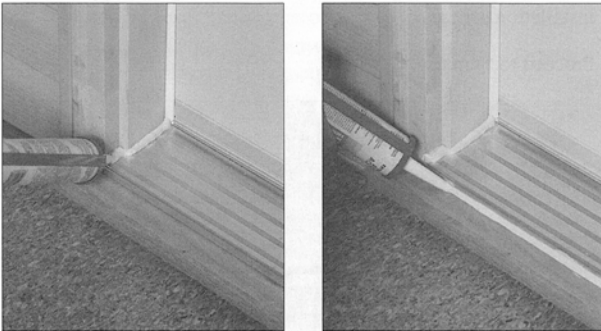
Score shims with a utility knife and snap the shims along the score. Trim any excess with the utility knife. Insulate around the top and sides of the door unit in the cavity between the jamb and the wall studs (Figure 26). Use either a low-expansion foam or fiberglass insulation. If a low-expansion foam insulation is used, wait for it to completely cure (refer to the product instructions) and trim any excess insulation with a utility knife. Install the interior casing around the door.

**Important Point:** The use of a foam that does not have a low-expansion formula may cause the door jambs to warp; this may leave the door inoperable or push the brick mould away from the jamb.

## Step 8: Caulk Doorway

Caulk all four exterior corners and all around the brick or siding in the following sequence:

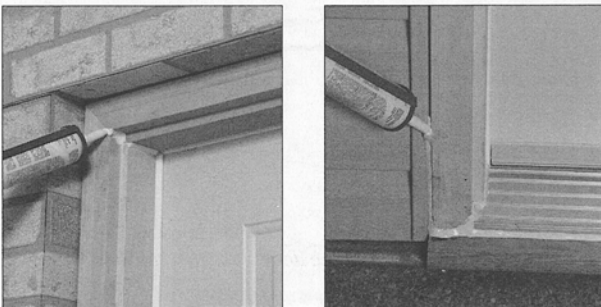
- caulk the sill on both latch and hinge sides from the edge of the sill crown along the edge where the sill and jamb or brick mould meet (Figure 27)
- caulk the front sill edge where the sill and the sub-floor meet (Figure 28)



Figures 27 and 28: Caulk the sill crown and the front of the sill.

- caulk the top corners where the header and jambs meet, starting at the weatherstripping and working to the face of the brick mould (Figure 29)
- caulk the perimeter where the brick mould meets the brick or siding trim (Figure 30)

If the door is center-hinged or has a sidelite, caulk around the mullions where the mullions contact the sill and header.



Figures 29 and 30: Caulk the jambs and the brick mould.

## Step 9: Adjust Sill or Sweep

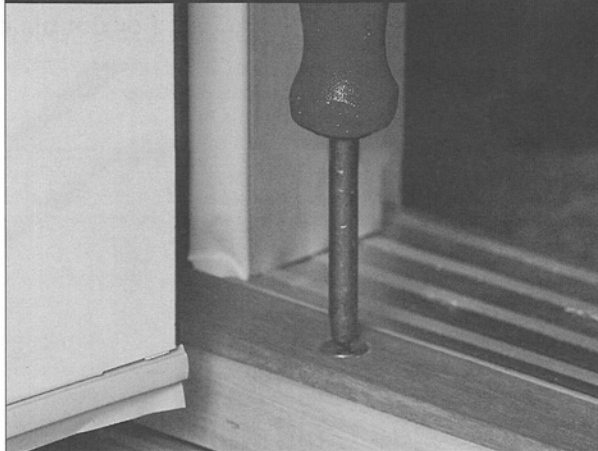


Figure 31: Raise or lower the sill by adjusting the three sill screws.

Some door units are supplied with adjustable sills, and these may be raised or lowered to form a tight seal with the fixed sweep on the bottom of the door. This adjustment requires a #2 Flat screwdriver. To increase the height of the sill crown, turn the sill screws counter-clockwise. To decrease the height of the sill crown, turn the sill screws clockwise. (Figure 31).

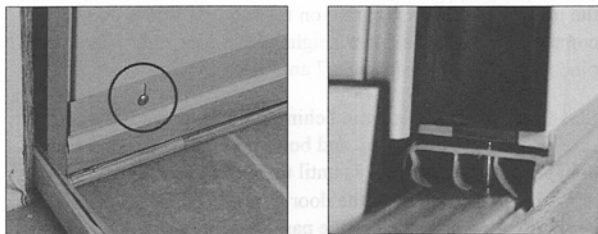


Figure 32: U-channel sweeps are adjusted to form a tight seal with the sill.

Some door units are supplied with a U-channel adjustable sweep and these may be raised or lowered to form a tight seal with the fixed sill. To adjust the sweep, loosen the screws that hold the sweep in place and lower the sweep far enough to create an airtight seal with the sill. Once the sweep is positioned properly, tighten the screws by hand, taking care not to over-tighten (Figure 32).

## Step 10: Paint

Totally pre-finished vinyl-coated or pre-painted door units do not require painting. The door lite frames on Endurance and Pinnacle series doors do not require painting, but if painting is desired, follow the instructions supplied with the door lite frame.

Our doors are made from hot-dipped galvanized steel coated with a high-quality primer. The doors are ready for painting with any high-quality 100% acrylic latex or oil-based finish (semi- or high-gloss). Because paint does not adhere well to shiny surfaces, it is recommended that primer surfaces be dulled using 200-grit sandpaper. Wipe the surfaces clean using a clean cloth dampened with water or TSP. Paint doors using a roller, brush or sprayer.

**Important Point:** Do not bake the finish onto the doors as baking will destroy the door slab.

**Important Point:** Doors and trim (any exposed wood on jambs or brick mould) must be painted within six months of installation. The door lite frames on Primary Steel doors must be painted within six months of installation. Failure to paint the door unit within six months may void any warranties that might otherwise apply.

**Important Point:** Do not paint the sweep or weatherstripping. Painted weatherstripping will not seal properly and may cause system failure. For this reason, be extremely careful in keeping the door open after painting until the door slab is completely dry.