

SIDE-HINGED DOOR UNIT INSTALLATION INSTRUCTIONS

Some dwelling designs/conditions may require special installation steps, consult your architect, design professional and/or product manufacturer for additional guidance.

Required Tools & Materials



safety glasses



gloves



24" to 48" construction level



claw hammer



measuring tape



24" framing square



caulking gun



power screw gun with arrangement of screw bits



screw driver with arrangement of screw bits



2 tubes of paint grade exterior caulk (latex, silicone or butyl)



wedge shaped shims



recommended fiberglass insulation or low pressure window and door installation foam




corner pad




2-1/2" wood screws



finish nails suitable for attaching interior and exterior trim

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Critical Point: Although all steps are critical, this symbol identifies procedures requiring extra attention.
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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 architect, design professional or product manufacturers instructions will have a direct effect on the units performance and/or long term wear. Installer shall be experienced in performing work required and shall be specialized in installation work similar to that required for this project. Warranty claims are subject to site inspections by a qualified manufacturer's representation to establish probable cause and proposed corrective action.

Step 1: Prepare Rough Opening



FIGURE 1: A clean, level, solid sub-floor area is essential to successful installation.


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Ensure that the following conditions are met:

 - ▶ Clean, clear work area
 - ▶ The rough opening (RO) is ideally 3/4" wider and 1/2" taller than the outside frame dimensions of the door unit. Units intended for installation in hurricane prone regions require less clearance between unit and RO (1/4" sides & top).
 - ▶ The RO is plumb, square and level
 - ▶ The old door frame has been completely removed in retro-fit installation
 - ▶ When replacing existing door units, ensure products are properly disposed and recycled in safe manner.

If disturbing existing paint, take proper precautions if lead paint is suspected (commonly used before 1979). For proper management of lead paint, see www.epa.gov/lead.

- ▶ The sub-floor area is clean, dry and level
- ▶ The existing sub-floor area is at least 6" deep for 4-9/16" frames and at least 8" deep for 6-9/16" frames.
- ▶ Apply flashing in a manner to prevent entry of water into the wall cavity in accordance with flashing manufacturer's instructions.


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Because a solid, level sub-floor is absolutely essential for proper door unit installation, do not proceed with the installation until the sub-floor is both solid and level.

Step 2: Caulk the Sub-Floor



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

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Variations in threshold design may require that the caulk lines be applied directly to the bottom of the door unit to ensure a necessary weather-seal. Inspect the bottom of door unit to confirm it features a flat surface before caulking the sub-floor area.

Apply three 1/4" lines of caulk along the length of the sub-floor, the first line starting approximately 1" from the inside edge. The lines should be about 1" apart.

Step 3: Prepare Door Unit

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

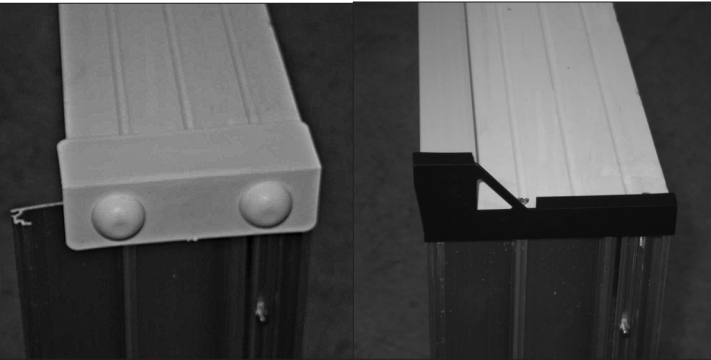


FIGURE 3: Some door units will be supplied with plastic covers over the bottoms of the jambs. These must be removed before installation.

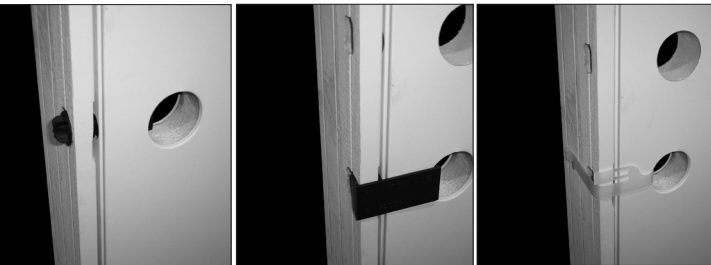



FIGURE 4: Some door units may be supplied with a "clip" or "plug" holding the panel aligned and closed during the initial installation steps. Do not remove at this time. Some door units may be supplied with a double headed nail or screw holding panel closed - this needs to be removed at this time.

Step 4: Place Door in Rough Opening



FIGURE 5: Place the sill in the opening first and then tilt the door up into the opening.


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Door units featuring multiple door panels or glass inserts are heavier and more difficult to handle - do not attempt to handle without assistance.



FIGURES 6 and 7: The exterior trim (brickmould) rests up against exterior sheathing or slides into the opening of exterior brick.

Stand on the outside of the doorway. With the exterior side of the door unit facing you, tilt the door unit toward you (Figure 5). The brickmould (not supplied with all units) should rest up against the siding of the exterior wall (Figure 6) and should slide into the RO of a brick home (Figure 7).

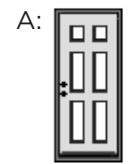
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If door unit is supplied without a clip or plug holding door aligned and closed, do not leave the door wide open during installation. The weight of the door may cause it to fall and cause injury.

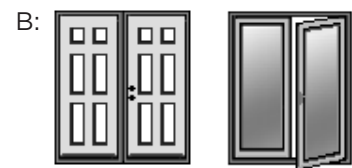
Step 4: Place Door in Rough Opening

Instructions vary according to door type. Confirm which door type is being installed. Some door styles not available in all markets.

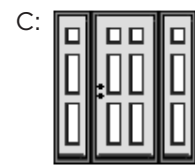
For single door unit, use Step 5A. For double door unit, use Step 5B. For single door unit with one or two sidelites, use Step 5C.



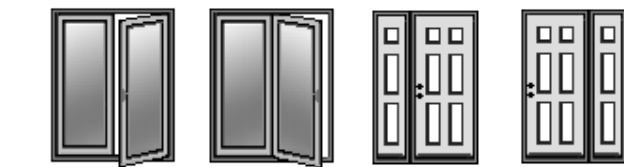
single door
(X for operable panel or O for non-operable panel)



double door
(XX for unit featuring two operable panels)





single with two sidelites
(OXO for unit featuring operable panel with two non-operable panels)



double door or single with one sidelite
(OX or XO for unit featuring operable panel with non-operable panel)

INFORMATION PANEL How to Plumb the Door

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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 weather-stripping on the latch side is evenly compressed along the entire height of the door slab without any pinching or gaps (Figures 8 and 9).
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DO NOT utilize the wall to square and level unit. Unit must be square and level to insure proper operation and performance.




Figures 8 and 9: The weather-stripping 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.

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Screws located in hinge or strike position shall be placed in the thin (rabbit) section of frame, other screws shall be placed in thick (stop) section of frame. Wide frames should be attached with a screw in both sections of the frame to minimize rotation.
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When shims are properly installed, the frame should not move or twist when the screws are tightened and counter-sunk, thus maintaining the 1/8" gap between the edge of door panel and frame. If there is any movement, loosen the screws and shim tighter to maintain the 1/8" gap, then retighten the screws.

Step 5: Shim and Fasten

Step 5A: For single doors

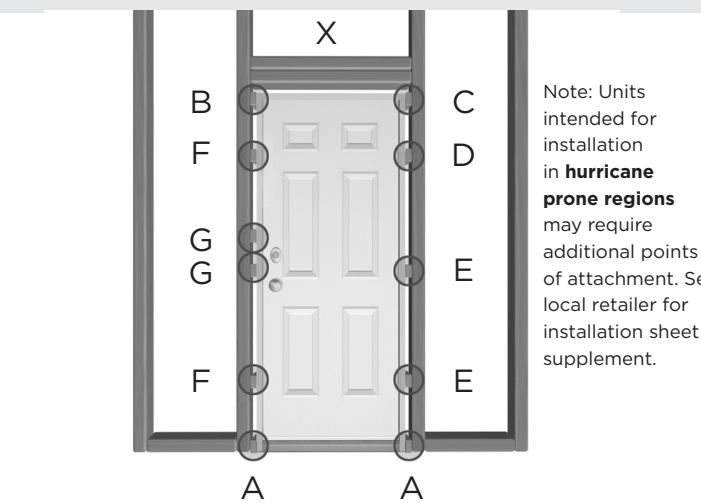



FIGURE 10: Install the shims in the correct locations and in the correct sequence.

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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 1/8" gap between the top of the door slab and the frame header.

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.

CAUTION: Do not open door panel greater than 30-degrees until 2-1/2" screws have been installed. (Points D, E, F & G in Figure 10).




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

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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 weather-stripping on the latch side is evenly compressed along the entire height of the door slab without any pinching or gaps (see Figures 8 and 9).

Step 5: Shim and Fasten

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Ensure that there is an even gap across the top of the door slab. With the door closed and from the inside shim directly behind the vacant hinge screw hole in each hinge (Points D and E in Figure 10) until there is a consistent 1/8" gap between the hinge-side jamb and the door slab edge along the entire height of the door. Gap between the latch-side jamb and the door slab edge should be 1/8" at the top and bottom of the door only. Drive one of the 2-1/2" screws supplied through the vacant hole in each hinge, through the jamb, shims and into the stud or rough buck (Figure 11).



FIGURE 12: Shims are placed above and below the dead bolt hole (points G in Figure 10).

Shim behind the latch-side jamb (Points F in Figure 10) approximately 8" from the top and bottom of the frame. Install shims until there is an even 1/8" gap between the jamb and the edge of the door slab along the door. Shim behind the latch-side jamb (Points G in Figure 10) just above and below the dead bolt hole, maintaining the 1/8" gap (Figure 12). Screw 2-1/2" installation screws through the jamb and shims into the stud.

Proceed to Step 6.

Step 5: Shim and Fasten

Step 5B: For double doors with concealed top and bottom flush bolts

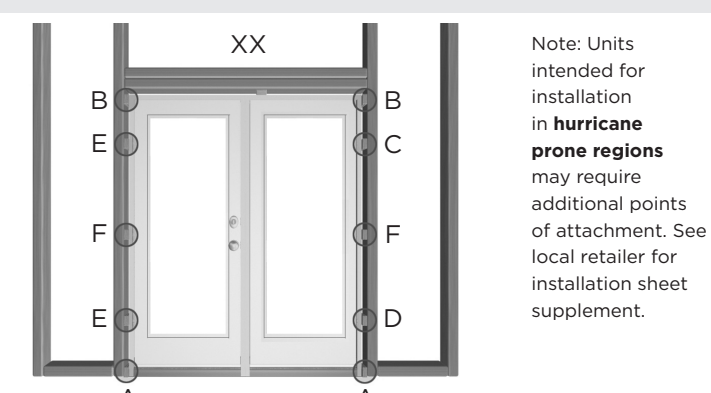



FIGURE 13: Install the shims in the correct locations and in the correct sequence.

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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 13).

This will keep the door centered and the frame tight against the sill. Shim the top of the frame (at Points B in Figure 13). Install shims until there is a 1/8" gap between the top of the door slabs and the frame header. 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.

CAUTION: Do not open door panel greater than 30-degrees until 2-1/2" screws have been installed. (Points C, D, E & F in Figure 13).

Door panels with glass inserts may sag toward the center. This is normal. To correct sagging, align the flush bolts on the fixed door with clearance in the header and sill. Most units do not have pre-drilled holes in the header and sill. Holes must be drilled. Slide top flush bolt up against header and bottom bolt down against threshold to mark. Mark where bolts make contact with header and sill with pencil. Drill holes on marks to receive bolts (1-1/2" deep minimum). Once holes are drilled, close panel and engage bolts making sure they extend far enough to secure unit.




FIGURE 14: Correct sagging until the flush bolt slides freely into the pre-drilled hole (not typical of most units) in the head/threshold.

If there is a gap between the threshold and weatherstrip block around the foot bolt, the hole is not deep enough (the weatherstrip block must touch the threshold to properly seal the unit). Shim tightly behind the vacant hinge screw hole in the bottom hinge (Point D in Figure 13) until the lower flush bolt slides freely into the clearance hole in the sill. Secure the door by driving a 2-1/2" installation screw supplied, 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.

Step 5: Shim and Fasten

Shim behind the vacant hinge screw hole in the top hinge (Point C in Figure 13) to align the top flush bolt with the clearance hole in the header (Figure 14). Secure with the 2-1/2" installation screw supplied, through the hinge jamb and into the stud.

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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 weather-stripping on the astragal side is evenly compressed along the entire height of the door slab without any pinching or gaps (see Figures 8 and 9).

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 13) until there is a consistent 1/8" gap along the entire height of the door between the operating door and the passive door. There should also be a 1/8" gap between the top of each door slab and the header.

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

Install two 2-1/2" screws along the head jamb of double door systems for additional reinforcement. Screws should be installed above center of each panel. (Figures 17 and 18).

Using the supplied 2-1/2" installation screws, drive a screw through the vacant holes in both the top and bottom hinge on the operating door (Points E in Figure 13), through the jambs and into the stud.

Shim behind the vacant hinge screw holes in each of the center hinges (Points F in Figure 13) and secure using the supplied 2-1/2" installation screws.

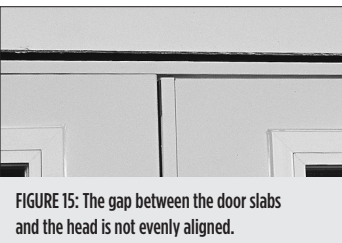


FIGURE 15: The gap between the door slabs and the head is not evenly aligned.

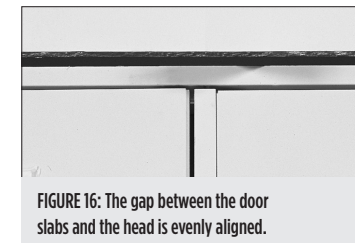



FIGURE 16: The gap between the door slabs and the head is evenly aligned.



FIGURE 17: Aluminum Astragal Strike Plate adjustment.

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Lift out the plastic filler strip with a flat head screw driver. Loosen the Phillips screws and adjust strikers to the desired location. Tighten Screws. Reinstall plastic strips. (Plastic strip may need trimming.)

Proceed to Step 6.

Step 5: Shim and Fasten

Step 5C: For door with sidelites

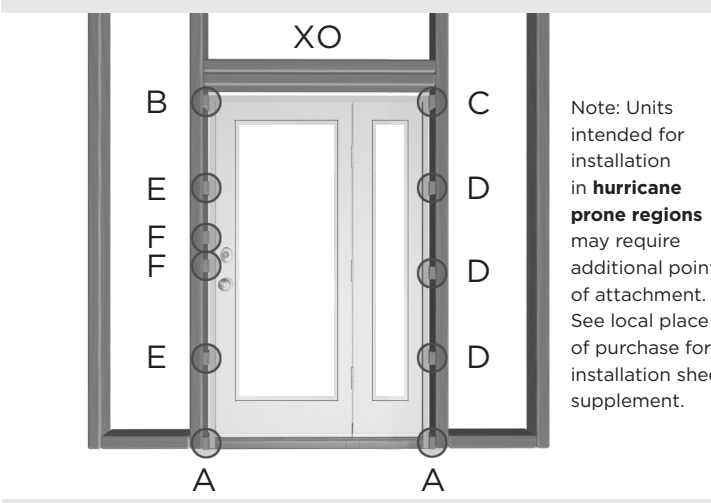




FIGURE 18: Install shims in the correct location and in the correct sequence.

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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 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.

CAUTION: Do not open door panel greater than 30-degrees until 2-1/2" screws have been installed. (Points B, C, D, E & F in Figure 17).

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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 weather-stripping on the latch side is evenly compressed along the entire height of the door slab, without any pinching or gaps (Figures 8 and 9).

Once there is an even 1/8" gap across the top of the door slab and the weather-stripping 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 1/8" gap on both sides of the operating door slab.


Drive the 2-1/2" installation screws, three on each exterior jamb of a fixed panel, through the exterior (stop) section part of the jamb, through the shims and into the studs. Note: If the door is factory-finished use the "Factory-Finished Door System" information for fastening through exterior jambs.

For units with two non-operable panels: Typically long security screws are used to install the dead bolt strike plate (Step 6).

Step 5: Shim and Fasten

For units with only one non-operable panel attached on the latch side of the door: The second set of supplied screws are installed through the thin (rabbit) section of the jamb using the vacant hinge screw holes (Figure 19). Typically long security screws are used to install the dead bolt strike plate (Step 6).

For units with only one non-operable panel attached on the hinge side of the door: 2-1/2" screws are installed through the thick section of the jamb through the shim and into the stud approximately 8" from the top and bottom of the jamb. Shim just above and below the dead bolt hole and drive the supplied 2-1/2" installation screws through the dead bolt strike plate (Step 6).

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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 1/8" gap. If there is any movement, loosen the screws and shim tighter to maintain the 1/8" gap, then re-tighten screws.

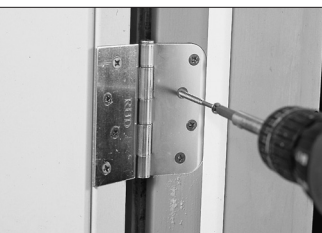


FIGURE 19: Install 2-1/2" screws through the lock jamb into the shim and stud minimum of 3 locations

Proceed to Step 6.

FACTORY-FINISHED DOOR SYSTEM

If the inside of the jamb is not accessible, a 1/8" holes must be drilled through the factory-finished exterior jamb, 1/4" deep at all points where the door system is shimmed (three on each exterior side of a non-operable panel, Figure 20). Drive 2-1/2" installation screws, through the drilled holes in the exterior (thick (stop) section of the jamb, through the shims and into the studs (Figure 21). Some local jurisdictions may require additional security screws through hinges and strikes.

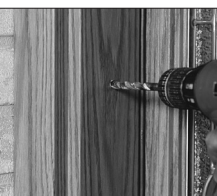


FIGURE 20: Pre-finished systems must have holes drilled before screws are installed.

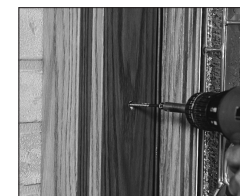


FIGURE 21: Drill holes through the exterior jamb on factory-finished jambs and fill in holes with fill stick provided in hardware bag.

Step 6: Install Dead Bolt and Strike Plates



FIGURE 22: Screws fasten the latch plate to the door slab.

Install the dead bolt strike plate at the correct location, per the manufacturer installation detail (Figure 22).

Step 7: Insulate



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 with fiberglass blanket insulation (Figure 23). Install the interior and/or exterior trim around the door.

FIGURE 23: Insulate between the jambs and the wall studs all around the door.

Critical Point: The use of expandable type foam is not recommended as it may cause the door jambs to warp; this may leave the door inoperable or push the brickmould away from the jamb.

Step 8: Caulk Doorway

- Caution:** 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 brickmould meet (Figure 24)
 - ▶ caulk the front sill edge where the sill and the sub-floor meet (Figure 25)



FIGURES 24 and 25: Caulk the sill crown and the front of the sill.

- ▶ caulk the top corners where the header and jambs meet, starting at the weather-stripping and working to the face of the brickmould (Figure 26)
- ▶ caulk the perimeter where the exterior trim meets the brick or siding trim (Figure 27)

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



FIGURES 26 and 27: Caulk the jambs and the exterior trim.

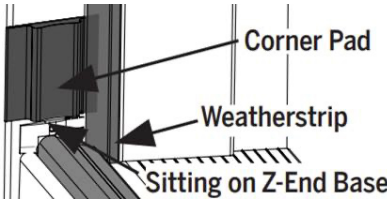
Step 9: Install the Latch and Dead Bolt



FIGURE 29: The latch and dead bolt are installed per the hardware manufacturer installation detail.

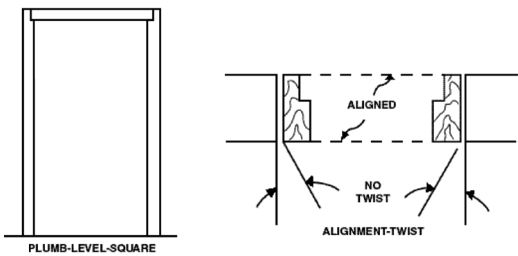
NOTE: Units intended for installation in high velocity windstorm region requires specific grade of latching hardware.

Step 10: Corner Seal (Foam Pad) Installation



Refer to corner seal parts bag instructions for proper installation.

Trouble Shooting



If it becomes apparent that there is some trouble with the operation of the unit, the first thing to check is the installation of the unit into the rough opening. Check to insure that 1/8" gap across the top edge of door panel and frame holds true for the entire width of the door opening AND that weather-stripping is evenly compressed the entire height of the door opening. Secondly, check that the two jambs are correctly aligned with each other and that incorrect nailing on shims have not twisted the jambs.

Check all Critical Points to confirm that unit was installed correctly in proper rough opening.

Warranty

Warranties are available for most products. Please visit masonite.com for current warranty terms and conditions.