Integrity Outswing French Door

INSTALLATION INSTRUCTIONS

Wood-Ultrex® Series

ABSTRACT: Please read these instructions in their entirety before beginning to install your Integrity Outswing French Door product. These installation instructions demonstrate the installation of a Integrity Outswing French Door in new wood frame construction using an industry approved water management system. For installation using other construction methods, such as remodeling, replacement, and recessed openings refer to ASTME2112-01, "Standard Practice for Installation of Exterior Windows, Doors and Skylights," for installation suggestions. Same information for ASTM E2112 can be found on the ASTM website, www.astm.org. For product specific issues, service instructions and other field service guides, refer to the Integrity Service Manual, visit our website at www.integritywindows.com, or contact your Integrity representative. Regional standard practices, environmental conditions, and codes may vary and supersede the procedures contained within. The responsibility for compliance is yours: the installer, inspector, and owner(s).

Integrity® from MARVIN
Windows and Doors

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Painting and Staining

WARNING: Drilling, sawing, sanding or machining wood products generates wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. California Health and Safety Code Section 25249.6.

Technical Installation Specifications

The following details are specified for proper installation and for the unit to meet the advertised design pressure (DP) rating.

- Rough Opening Width: 1/4″-1″ (6-25) wider than window/door frame outside measurement.
- Rough Opening Height: 1/4″-1/2″ (6-13) higher than window/door frame outside measurement.
- Masonry Opening Width: 1/4″-1/2″ (6-13) wider than window/door frame outside measurement.
- Masonry Opening Height: 1/8″-1/4″ (3-6) higher than window/door frame outside measurement.

Architectural Detail Manual Specifications:

- Rough Opening:Width 1″ (25); Height 1/2″ (13).
- Masonry Opening:Width 1/2″ (13); Height 1/4″ (6).

- All doors must be properly flashed and/or sealed at the exterior perimeter.
- Sealants used for installation must be Grade NS Class 25 per ASTM C920 and compatible with the building exterior, window exterior surface, and flashing/water management materials.
- Construction adhesive must be APA rated AFG-01 SPEC.
- Flashing materials must meet ASTM E2112-01, section 5.13 and be compatible with all materials used in installation including panning systems, air barriers and building papers, sheathing, and the window unit. **Flashing materials must not contain asphalt and must be compatible with flexible PVC (vinyl).**
- The following materials were used to develop these instructions:

  Weather Resistant Barriers: DuPont™ Tyvek® HomeWrap or Grade D building paper.

  Flashing Materials: DuPont™ FlexWrap or DuPont™ Straight Flash, DuPont™ Tyvek® Tape.

  Sealant: OSI® Quad Pro-Series®; solvent release butyl rubber sealant or DAP DynaFlex230™.

  Other materials may be used but must be compatible with one another. Refer to each product's technical specifications for compatibility and usage.

- Units installed with nailing fin must be fastened to the sheathing with 2″ (51) galvanized roofing nails spaced no more than 4″ (102) from each corner and spaced no more than 8″ (203) on center around the entire perimeter.
- Optional foams used for installation must be low expansion only. Foam and foam application must comply with ASTM E2112-01, section 5.9.2.
- Fasteners penetrating pressure treated lumber must be a minimum of 0.90 oz/ft^2 zinc hot dipped galvanized or stainless steel type 304 or 316.
- Shim 4″-6″ (102-152) from each corner on jambs and head jambs. Install additional shims at 15″ (381) on center and at all locking points. Always shim at meeting stiles.

Before You Begin

Installer and Builder Information

- **Always** provide a copy of these instructions for the current or future building owner.
- Plan sizing of rough opening and clearance from exterior finishing systems to allow for normal materials shrinkage or shifting (e.g. wood structure with brick veneer; allow adequate clearance at sill). Failure to do so can void the Integrity warranty coverage.
- Refer to the **Technical Installation Specifications** section for technical specifications regarding the installation of this product. These installation requirements as well as the details in this section must be followed to achieve the advertised design pressure (DP) rating of this product.
- It is the responsibility of the builder, installer and subcontractors to protect the interior and exterior of windows or doors from contact with harsh chemical washes, construction material contamination and moisture. Damage to glazing, hardware, weather strip and cladding/wood can occur. Protect with painters tape and/or protective sheathing as required. Follow all guidelines regarding material use, preparation, personal safety and disposal.
- Refer to the enclosed painting and staining instructions on the last page for exterior and interior finish instructions.
- Contact your Integrity supplier if you have any questions regarding product and materials used in manufacturing or questions on replacement parts.
- Alterations to Integrity products including window films, insulating or reflective interior window treatments or additional glazings can cause excessive heat buildup and/or condensation. They may lead to premature failures not covered under warranty by Integrity Windows.
- Before purchasing or applying any product that may affect the installation or performance of Integrity windows contact the manufacturer of aftermarket product/glazings that are not supplied by Integrity and request written product use, associated warranties and damage coverage. Provide this information and warranties to the end user and/or building owner for future reference.

NOTE: Numbers listed in parentheses ( ) are metric equivalents in millimeters rounded to the nearest whole number.

WARNING: Always practice safety! Wear the appropriate eye, ear and hand protection, especially when working with power tools.

Hazard Notations

Please familiarize yourself with the following hazard notations used throughout this instruction.

Icon	Description	Usage
	Caution	Mistakes or misuse could cause damage to the window or result in faulty installation and unit performance.
	Warning	Mistakes or misuse could result in personal injury and/or severe damage to unit, equipment, and/or structure.
	Seek Assistance	Help from another individual is necessary to perform this task safely and correctly.
	Tips/Hints	Information on alternative procedures, definitions, helpful hints.
	Impact Product	Steps related to impact rated products only.

You Will Need to Supply

Safety glasses	Hearing protection	Level (4′ – 6′)
Square	Hammer	Fiberglass insulation
Tape measure	Interior trim	Wood shims
2″ roofing nails	1/8″ drill bit	Silicone Sealant
Drill/ Driver w/ #2 Phillips bit		Construction Adhesive
#8 x 2 1/2″ wood screws (optional)		Flat screw driver
Robertson square drive screwdriver		

Installation Kits Description	Quantities/ Configuration		
	XX	X	O
Nailing Fin Corner Gaskets and Instructions	1	1	1
#8x2 1/2″ Phillips flat head screws (color matched for hinges)	1/hinge	1/hinge	-
#8x2 1/2″ Phillips flat head screws (stainless steel for jamb strike)	-	1	-
#8x2 1/2″ Phillips flat head screws (beige for head jamb strike)	2	-	-
3/16″ x 2 3/4″flat head masonry screw (blue for fastening sill liner to subsill)	1	-	-
Wood Plug	1	-	-

Step 1: Rough and Masonry Opening Requirements

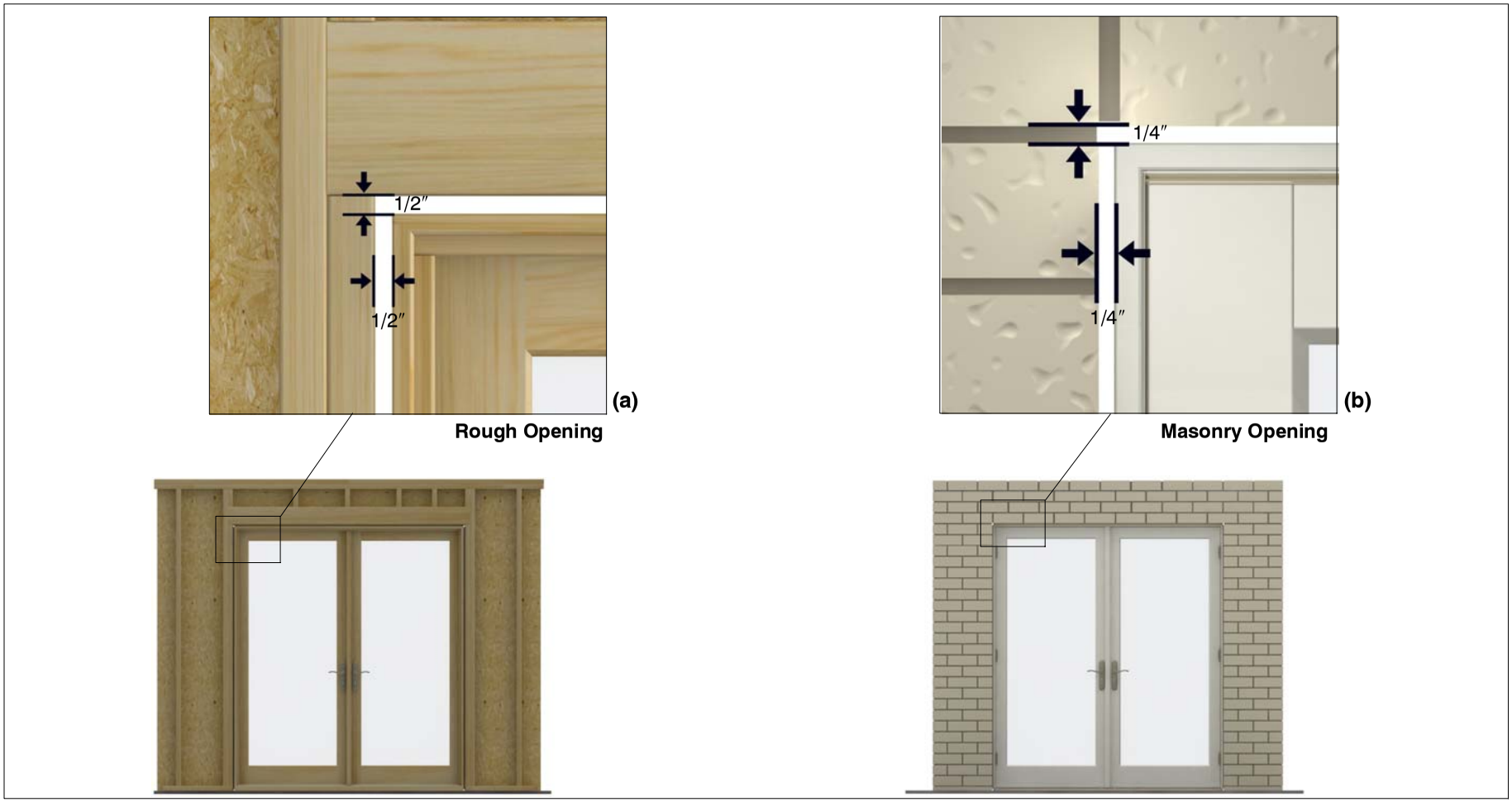

Figure 1: Typical rough and masonry openings.

1. **Rough openings (RO)** should be 1″ (25) wider than the outside measurement of the frame and 1/2″ (13) higher. **Masonry openings (MO)** should be 1/2″ (13) wider than the outside measurement of the frame and 1/4″ (6) higher than the outside measurement of the frame. When framing rough opening, care should be taken to ensure the sill plate is level and the opening is square, straight and plumb.
2. Check the bottom surface of the opening to ensure it is flat and level.

NOTE: For doors not on grade and in standard wood frame construction with brick veneer, make sure there is at least 1/2″ (13) between bottom of window sill (or eventual placement of the door) and the top row of brick to avoid "brick bind".

IMPORTANT! The previous steps are crucial to obtain a trouble-free installation. If previous conditions are not met, the installer must take corrective actions to alter the opening(s) before proceeding. For typical wood frame construction it is also essential that the wall sheathing be a solid surface to ensure that the unit can be secured firmly to the wall.

Step 2: Rough Opening Preparation

The following section demonstrates best practice for a rough opening preparation for both air barrier and building paper scenarios. Refer to ASTM E2112-1 for other situations not covered in this document.

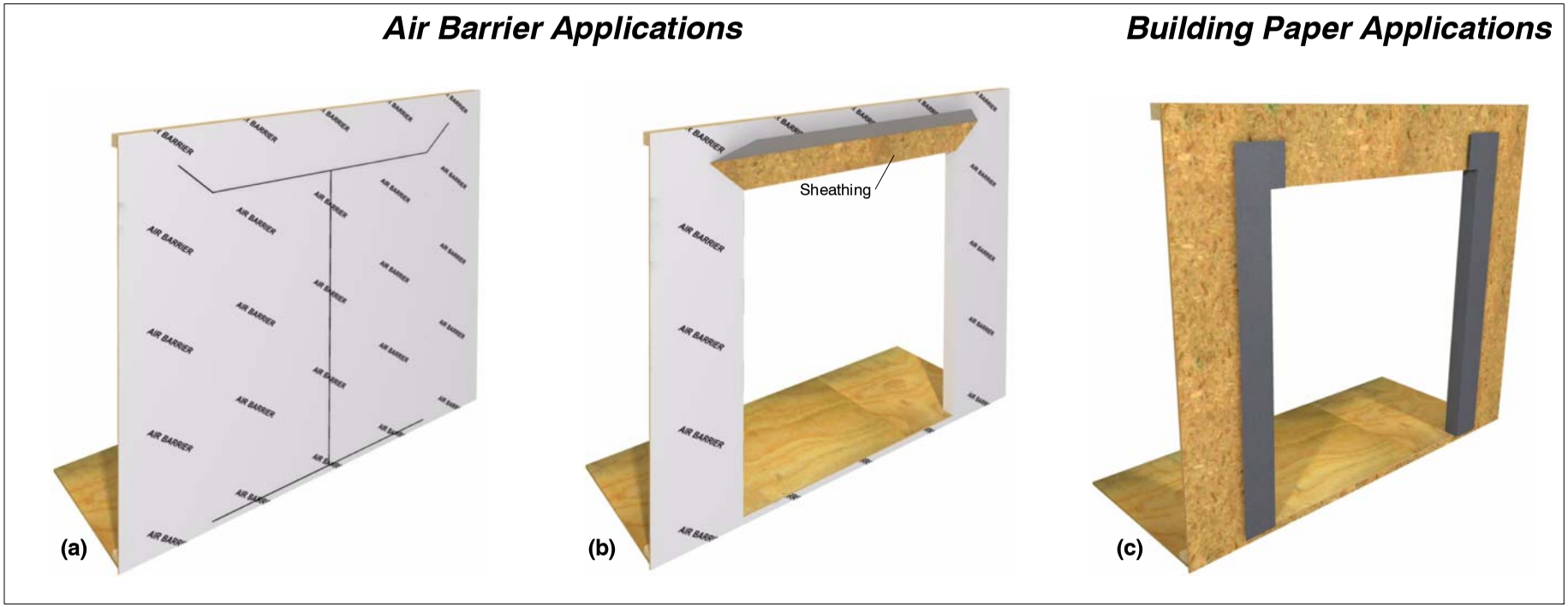

Figure 2: Rough Opening Preparation for construction methods using a continuous air barrier system or building paper.

Air Barrier Applications

1. When trimming away the air barrier at openings, first cut horizontally across the entire width of the rough opening at the head jamb and sill. Then cut vertically in the center of the opening from sill to head jamb. Finally cut the head jamb corners diagonally away from the opening. The complete cut should be in a "I" fashion. **DO NOT cut air barrier diagonally from corner to corner in an "X" fashion.** See figure 2a.
2. Wrap barrier at the sides to the interior and tack in place. Do not tack barrier at head jamb. Fold the head jamb flap up and tack in place or tuck beneath. This will allow the top flap to fit over the head jamb flashing after installation of the door. See figure 2b.

Building Paper Applications

1. Cut two 13″ (330) pieces of Grade "D" building paper 8 1/2″ (216) longer than the rough opening height. (Adjust material width for wall thickness. Add 9″ (229) to the wall thickness to determine width.)
2. Position the pieces in place overlapping the rough opening by as much as the jamb depth. The wrap should extend above the rough opening by 8 1/2″ (216). Tack in place around the edge of the rough opening. Use a utility knife to cut the paper even at the head jamb. Fold to the interior and tack in place. See illustration 2c.

Step 3: Preparing the Unit for Installation

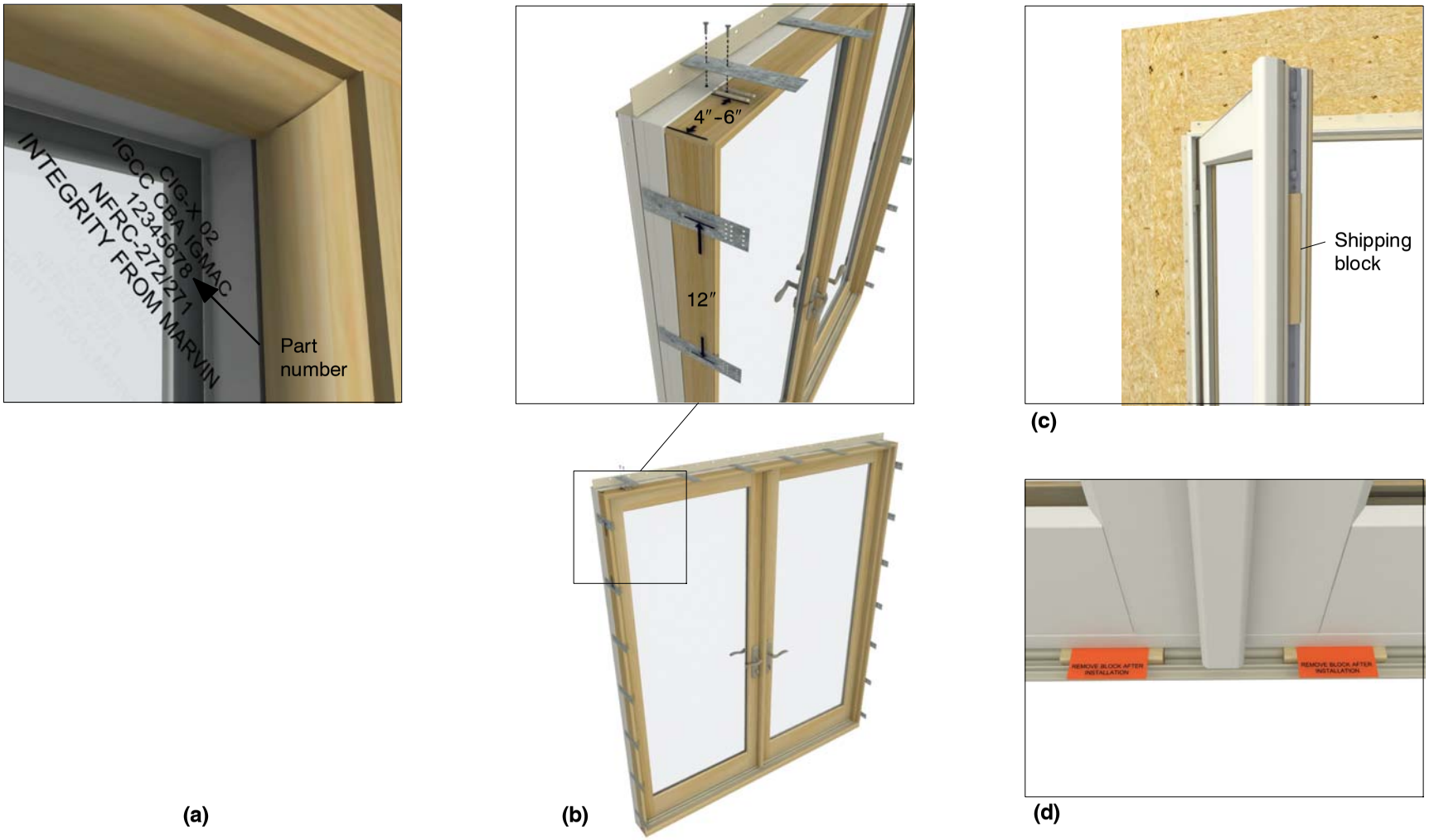

Figure 3: Preparing the unit for Installation

1. Inspect the door for any damage or missing parts. Contact your Integrity representative if there are any problems. If possible, provide the original order number and description of door. The part number and other information is etched into one of the top corners of the glass. This will give the customer service representative information on the size of the unit.

2. If you are installing your door with structural brackets, apply to the door frame now. Follow the instructions included with the brackets. See figure 3b. Place brackets 6″ (152) maximum from the ends of the jambs and head jamb. Space additional brackets every 12″ (305) maximum (including sidelites) around the perimeter.

Follow instructions included with installation clips (if used).

3. **Note the locations of the shipping blocks. Do not remove the shipping blocks until the unit is fastened and square in the opening. See figure C and D.**

Step 4: Installation - Positioning the Door In the Opening

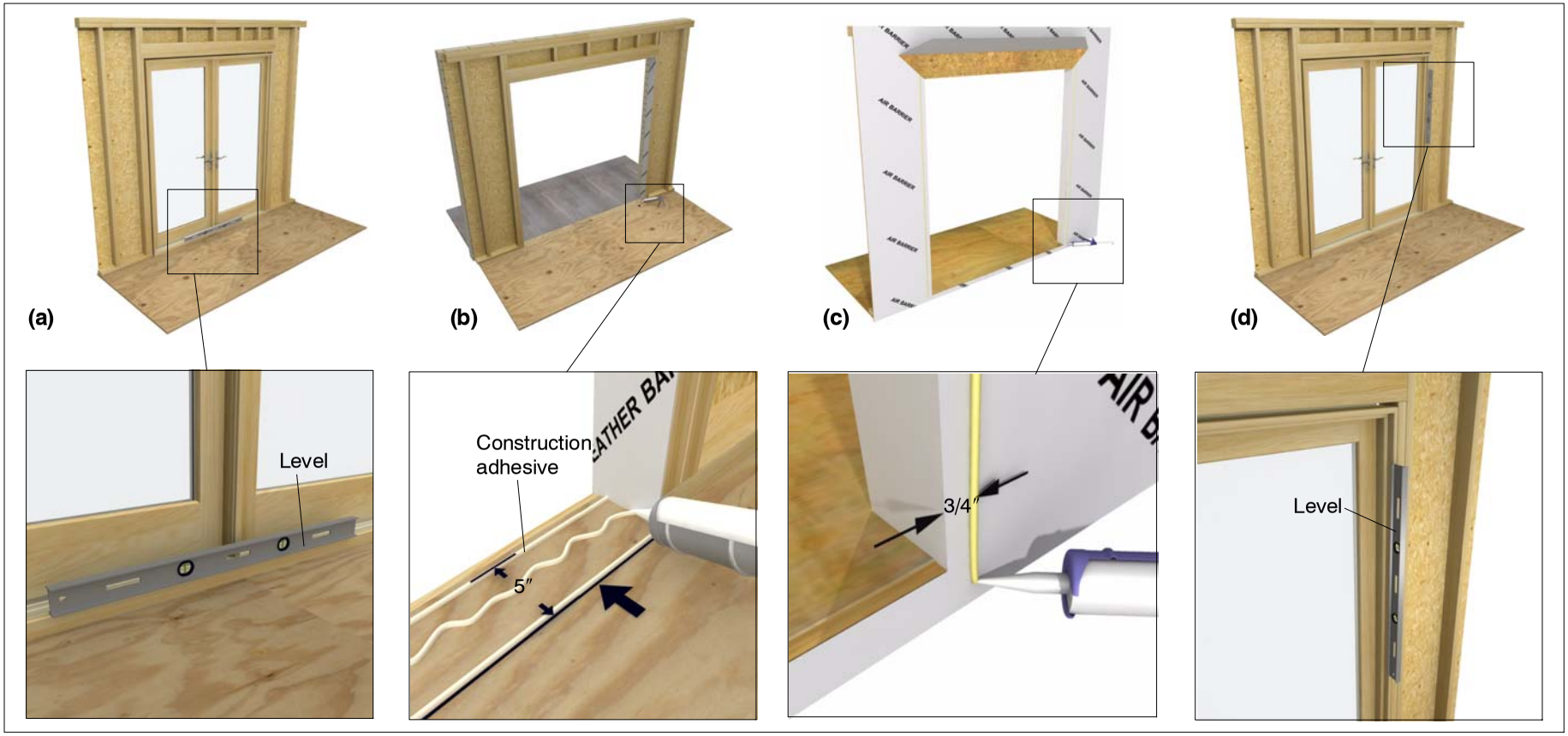

Figure 4: Positioning the door in the opening

Seek Assistance: It is highly recommended that you get help from another person/persons when installing the Integrity Outswing French door. These doors are heavy and it will be hard to position or install with just one person.

1. With help, move the door into position and center in the opening. Make sure the door fits in the opening properly and check to make sure the sill is level. If the sill is not level, remove the door and recheck bottom of the opening for level. Also check for any objects between the sill and opening that may have caused this condition. See figure 4a.
2. When the door fits properly in the opening and the sill is flat and level, from the interior, mark the subfloor near the sill of the unit. See figure 4b. Remove the door from the opening and apply a bead of sealant near the line marked in the previous step. Apply a second bead 5″ (127) from the first. Then lay another bead down the center in slight wiggle pattern. See figure 4b.
3. Apply a continuous bead of sealant 3/4″ (19) from the top and sides of the door opening. See figure 4c
4. With help, move the door back into position and center in the opening, making sure to maintain proper rough opening clearances. Use a level to check that the door is plumb. See figure 4d.

Step 5: Installation - Fastening the Frame

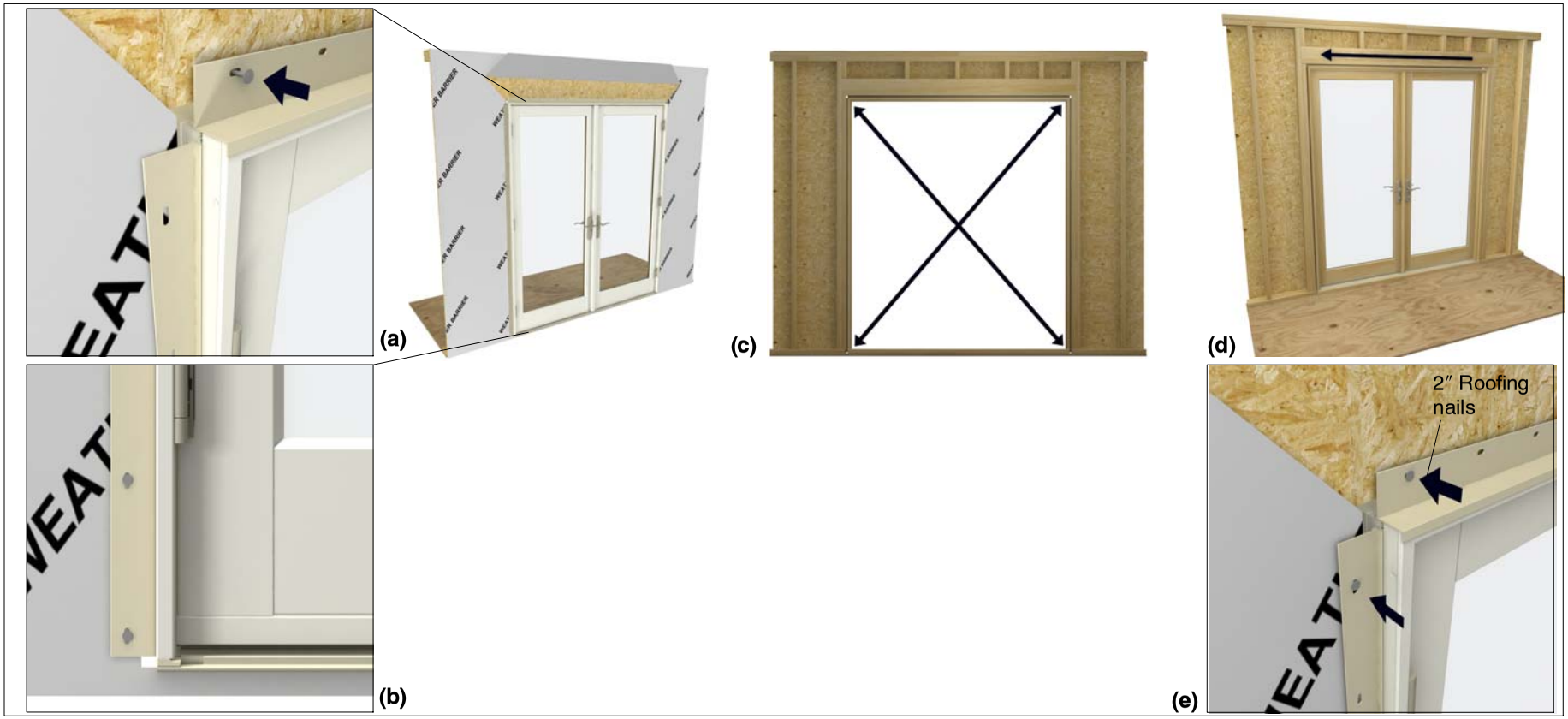

Figure 5: Fastening the Frame

Installation Note: Illustrations above and steps below detail use of nailing fin as the primary method of installation. If you are installing your door using structural brackets or jamb screws follow the steps by attaching the door to the opening at the locations noted. **For information on screwing through the jamb and removing stops see the section, "Alternative Fastening Method - Pinning Through the Jambs."**

1. When the unit is centered and plumb in the opening, temporarily tack the top corners with a 2″ roofing nail using the pre-punched holes in the nailing fin. See figure 5a. Leave the nail head sticking out so that you can easily remove it if necessary and allow for adjustments later. (This will also hold the unit in place until you can fasten the bottom.)
2. Fasten both bottom corners of the unit with 2″ roofing nails. See figure 5b.
3. With the bottom corners fastened, measure the diagonals of the door from corner to corner. See figure 5c. When the diagonals are equal, the frame is square in the opening.
4. Adjust the door by moving the top left or right to achieve squareness. You may need to remove the nails from the top corners and refasten. See figure 5d.
5. Once square fasten the top corners completely. See figure 5e.

Seek Assistance: Check the Ultrex jambs and head jambs with a straight edge or level to make sure they are not bowed in or out.

To correct a bowed jamb or head jamb simply push the Ultrex frame until straight and tack the nailing fin in a few locations.

Step 6: Installation – Additional Fastening Requirements

NOTE: On X and XX configurations fasten through strike plates and hinges into the rough opening framing with screws provided in the installation package. Be sure to shim near each fastener location. Predrill at all fastener locations with 1/8″ (3) drill bit.

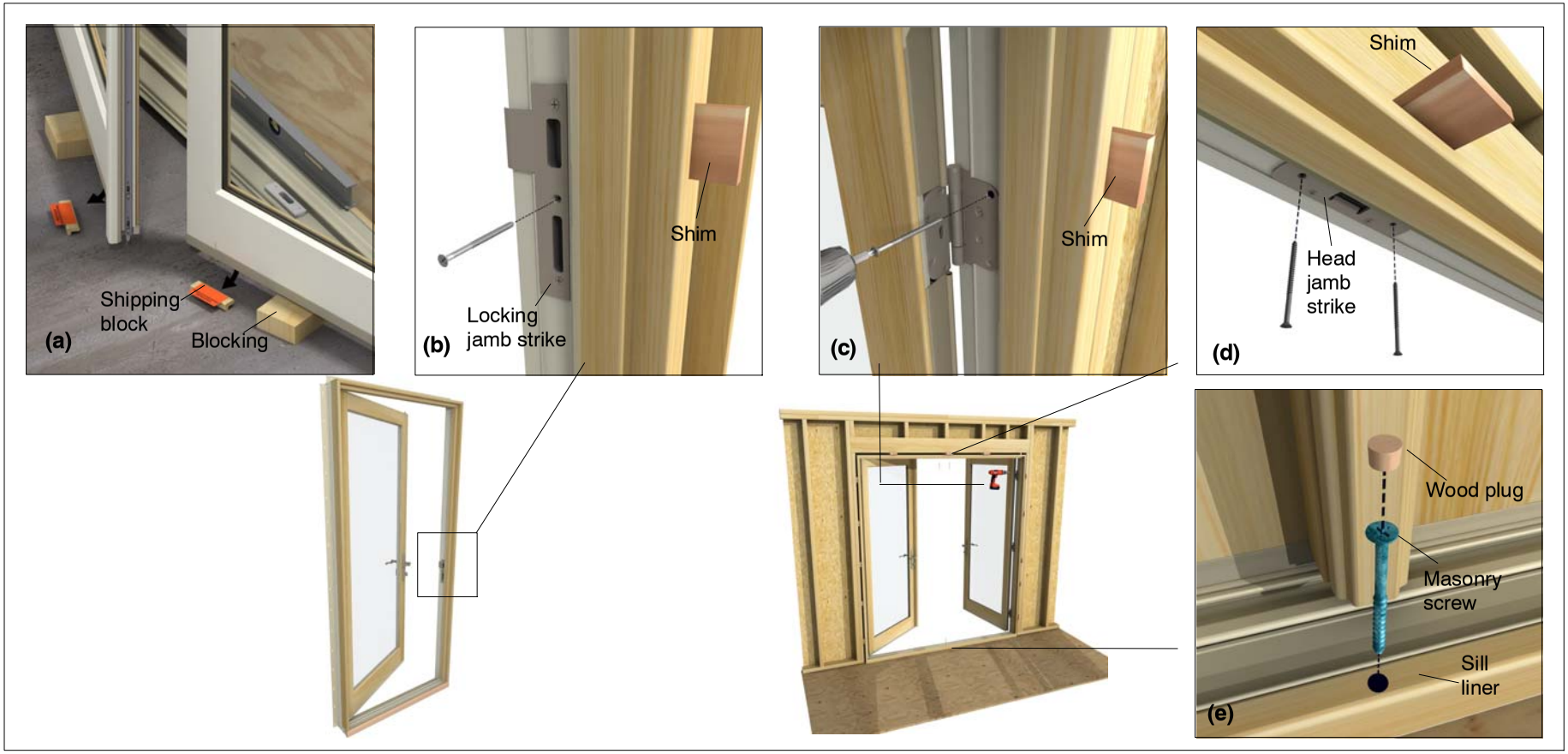

Figure 6: Additional Fastening

1. Open doors and support panel by placing blocking between the floor and bottom of panel, apply shims to plumb the frame in the rough opening. Remove shipping blocks. See figure 6a.
2. On X configurations, replace the center screw on the locking jamb with a #8x2 1/2″ stainless steel screw. See figure 6b.
3. On X and XX configurations, replace the top screw on each hinge with a #8x2 1/2″ color matched screw. See figure 6c.

   On Impact products, replace the top or bottom screws on each hinge.
4. On XX configurations fasten the head jamb strike plate with two #8 x 2 1/2″ stainless steel screws. See figure 6d.
5. On XX configurations fasten the sill to the subsill by driving the 3/16” x 2 3/4″ masonry screw (blue) through the pre-drilled hole in the sill liner. Cover with wood plug provided. See figure 6e.

   When installing Impact mulled IOFD doors (X or XX), additional sill liner screws are required. See Impact mullion instructions for screw information and spacing.

Step 7: Installation – Making Adjustments and Shimming

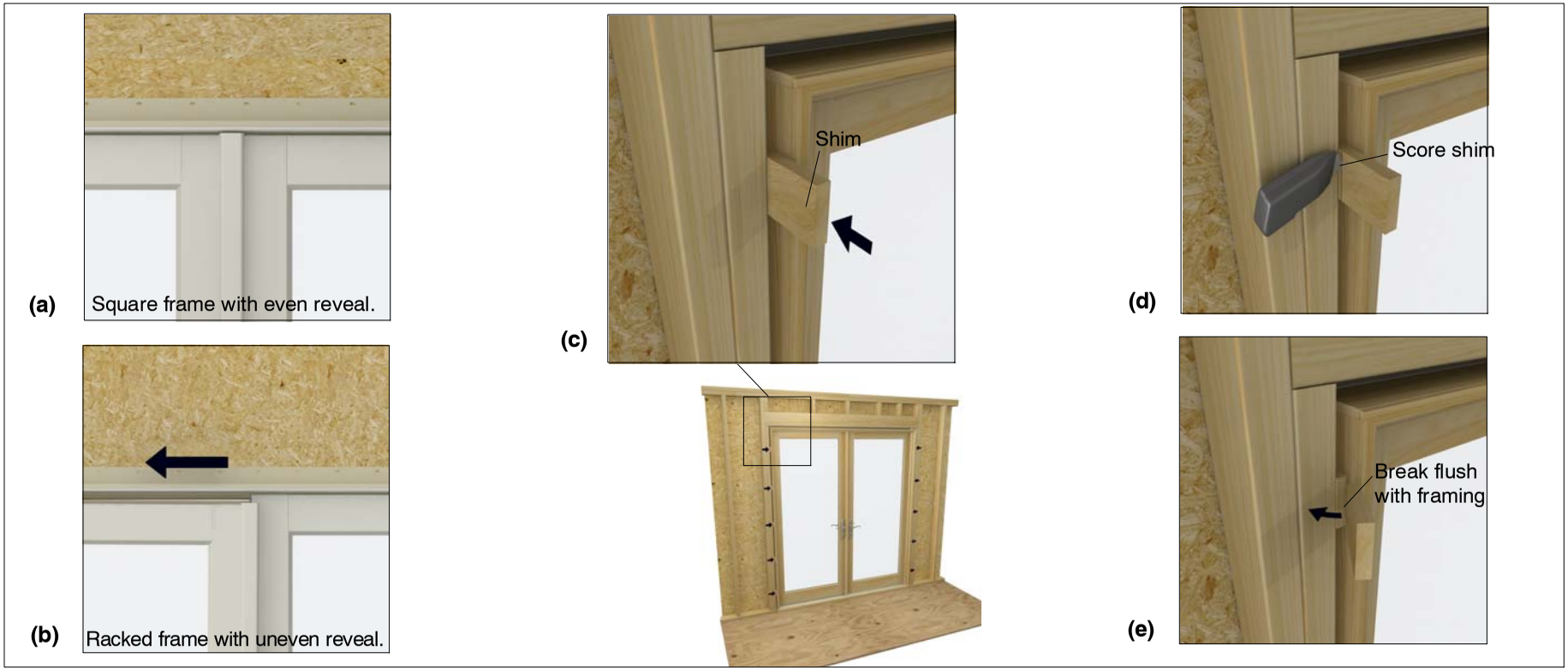

Figure 7: Final adjustments

1. Check the panel(s) for proper alignment. You may need to adjust one or more fasteners. Panels should be flush and align along the head jamb. There should also be an even reveal between the panel and frame. See figure 7a.

Installation Tip: On multiple operator panel units, check to make sure top corners of the panel locking stiles are aligned and flush with each other. On a single operating panel unit check to make sure the margin along the panel top and head jamb are even. If one panel is higher/lower (on multiple panels) or the operating panel margin is not even between the panel and head jamb (on single panel units) move the top of the frame left to right until the panel(s) align. See illustration 6b.

2. Shim between the door frame and rough opening at top and bottom corners. Shims should be snug but not bow the jambs. Recheck diagonals for square. You may need to reposition the frame, refasten and shim.

3. When the panels are aligned correctly and the frame is square and plumb in the opening, continue fastening around the perimeter every 8″ (203). See illustration 7c. Place shims every 15″–18″ (381-451) on center and at hinge and strike locations.

4. Operate the door and check for proper panel alignment and squareness one last time. When complete, score and break the shims off flush with interior. See figure 7d and 7e.

Step 8: Flashing and Sealing the Installation

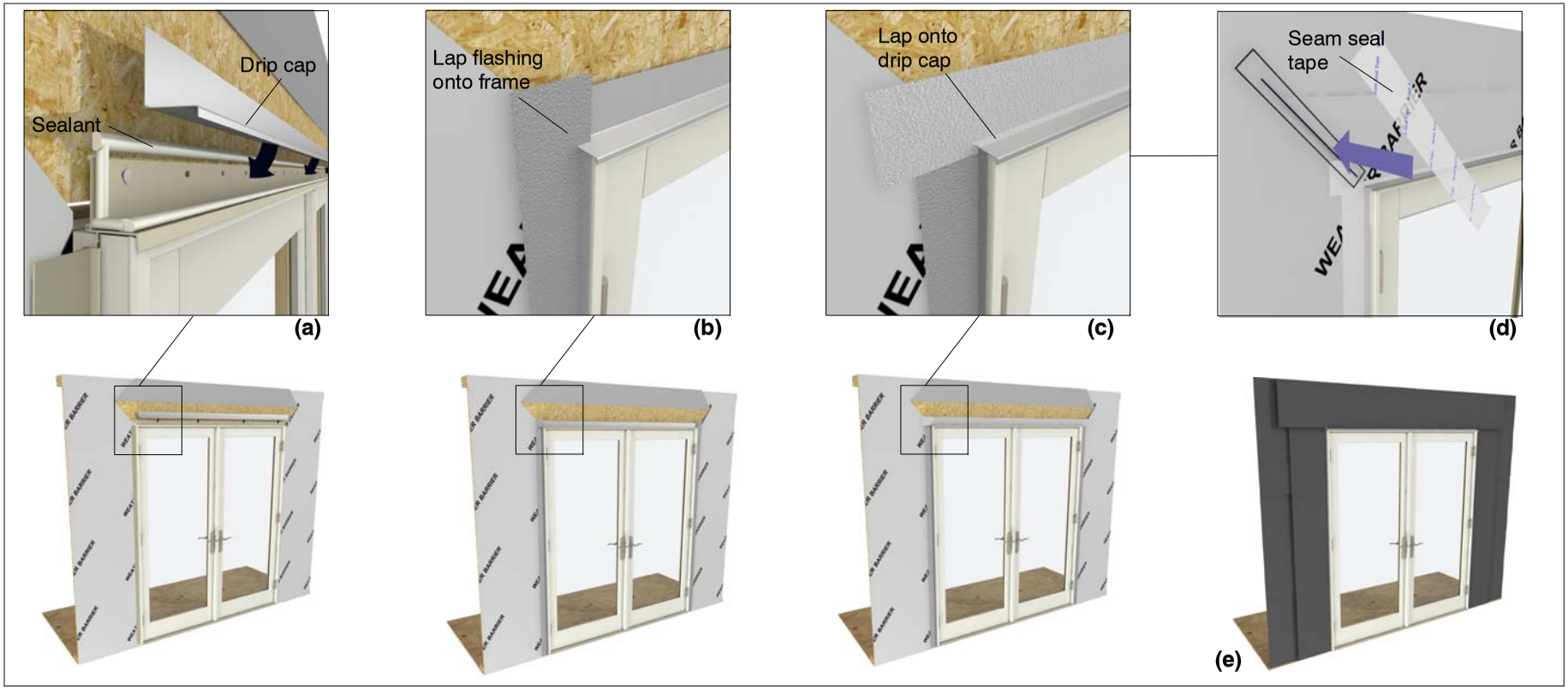

Figure 8: Flashing the Installation

Installation Note: Illustrations above detail those used in air barrier applications but also pertain to those used for constructions scenarios that use building paper.

1. If not done already, install a drip cap at the head jamb. Be sure to apply a bead of sealant along the back sides of both vertical and horizontal surfaces of the cap that come in contact with the door, and/or sheathing. See figure 8a.
2. Lap vertical strips of flashing onto the unit and out over the weather resistive barrier. Make small cuts at the head jamb to allow the flashing to fold back onto the exterior. See figure 8b.
3. Install a layer of flashing over the vertical leg of the drip cap and lapped onto the horizontal leg. The flashing should extend past the jamb flashing installed earlier. See figure 8c.
4. For **Air Barrier Applications**, fold the head jamb air barrier down over the head jamb flashing. Apply seam seal tap over the diagonal cut in the air barrier. Make sure the tape laps onto the unit or casing. Cut 3″ (76) strips of tape and install every 12″ (305) along the head jamb. Tape and seal any seams and fasteners directly above the unit. See figure 8c.
5. For **Building Paper Applications**, install double ply layers of building paper starting at the bottom. One continuous course should extend over the head jamb flashing and beyond the side pieces (installed prior to door installation).

Step 8: Flashing and Sealing the Installation continued

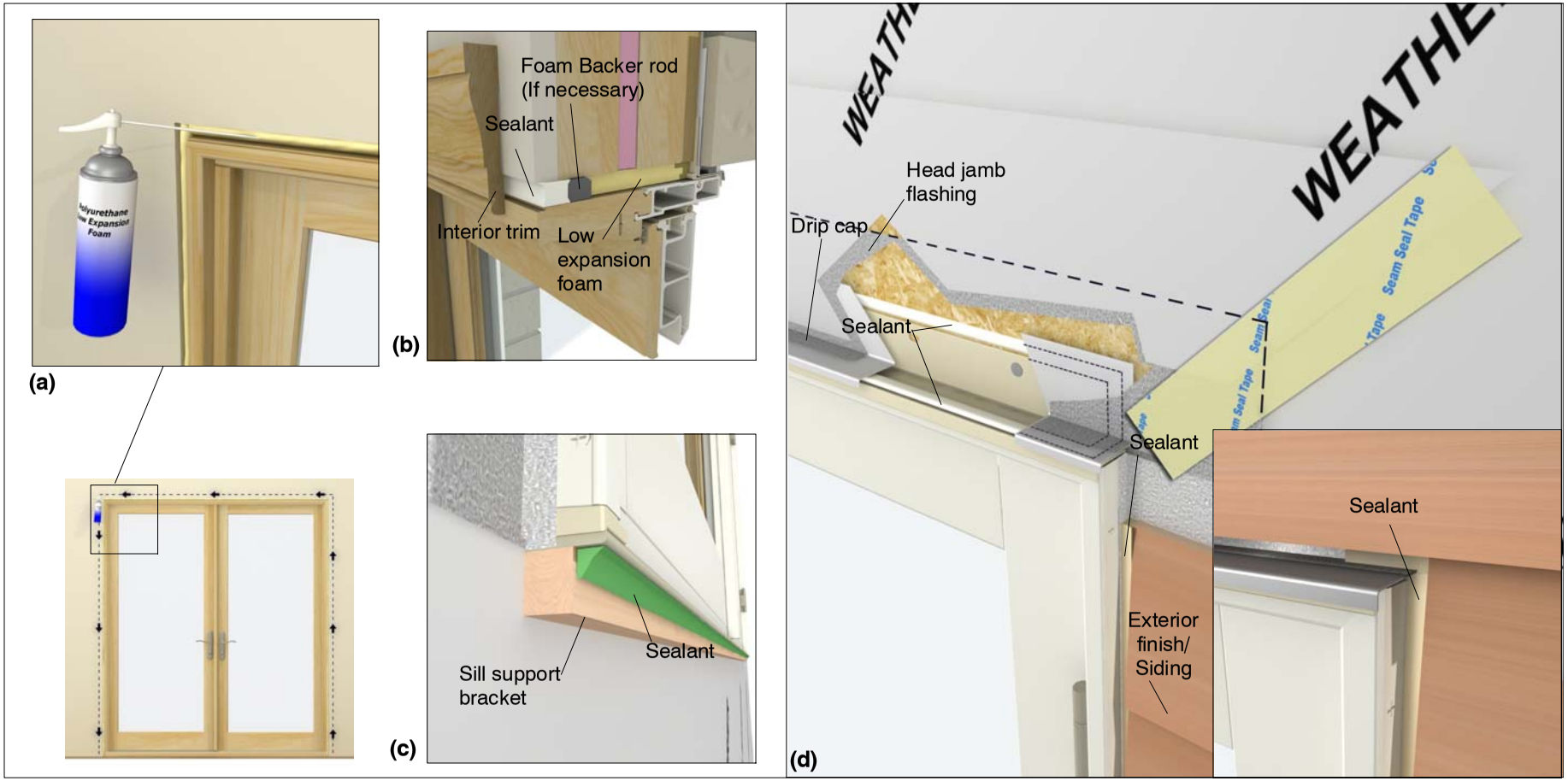

Figure 9: Flashing and Sealing details

1. Apply a 1″ – 2″ (25-151) thick bead of low expansion foam insulation on the back side of the exterior casing. **Don't apply too much as it is possible to bow the jambs.** See figure 9a.

   NOTE: Local code or your preference may dictate the use of loosely packed fiberglass insulation instead of low expansion foam.

2. To integrate the unit with the structure's interior air barrier you can apply a bead of sealant between the jamb and interior finish prior to trim installation. See figure 9b.

3. The installation is now ready for interior trim application.

4. For doors not at grade, support the sill by installing a block of wood beneath the sill and attached to the outside of the structure. Apply a generous amount of sealant along the underside of the sill where it meets the sill support block as shown in figure 9c.

5. Install handle set. Follow instructions included with handle.

6. **For ALL applications:**
   Once the exterior finish or siding is installed, apply sealant between the frame and siding or exterior finish along the sides and approximately 1″ – 2″ (25-151) in from the ends at the head jamb. As needed, insert backing material between the frame and the structure to provide a proper sealant joint. Sealant depth must be equal to width between the unit and exterior finish material (brick and masonry apply). Always refer to the manufacturer's recommendations for proper surface preparation and application. See illustration 9d.

Step 9: Alternate Fastening Method–Jamb Pinning

Instead of using nailing fin as the primary method for fastening the Integrity Outswing French Door to the rough opening, or for recessed masonry openings, you may want to remove the jamb covers and fasten with #8 x 2 1/2″ screws or masonry screws through the jambs and head jamb and into the rough opening framing.

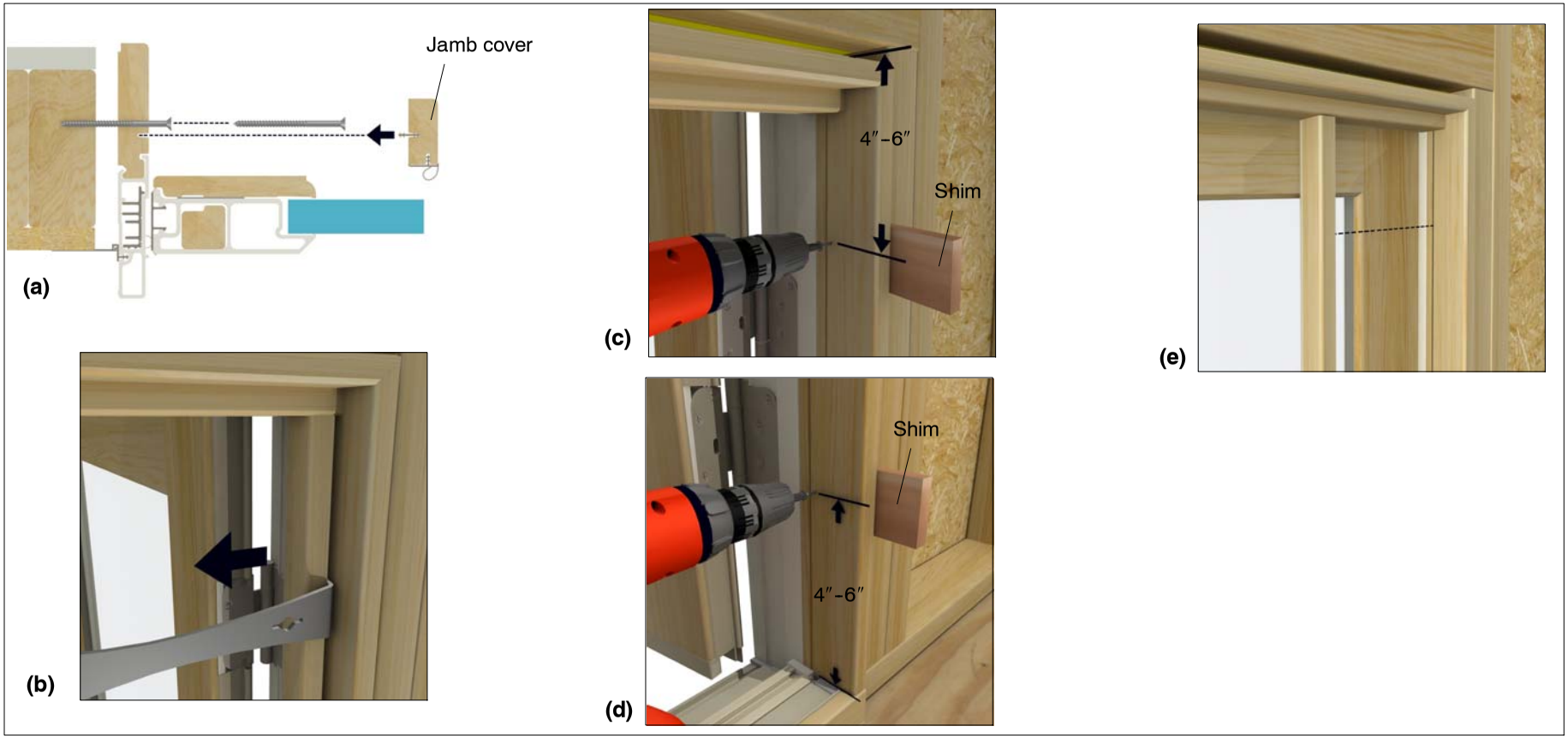

Figure 10: Alternate Fastening Method

NOTE: Pre-drill at all fastener locations.

1. Remove jamb and head jamb covers carefully with a pry bar and set aside. Covers are held in place with a connecting barb that is seated in groove in the frame.
2. Drive an installation screw through the jambs and head jamb and into the rough opening framing. Fasten the jambs 4″–6″ (102–152) from the top and bottom corners and between hinges (or every 12″–15″ (305–381) on non hinged jambs).
3. Be sure to shim at every fastener location.
4. Use the installation techniques outlined previously to square and plumb the frame in the rough opening. Once square, plumb, and the panels work properly, replace your jamb covers. See figure 10e.

Handle Operation – Locking and Unlocking the Door

NOTE: The door handle performs two separate functions. Rotating the handle upward, engages the multipoint lock (at the top, bottom and side jamb). Rotating the handle in a downward motion releases the latch and also the multipoint lock if engaged. The thumb turn is used to lock the handle to prevent it from being rotated down. The thumb turn does not engage the multipoint lock.

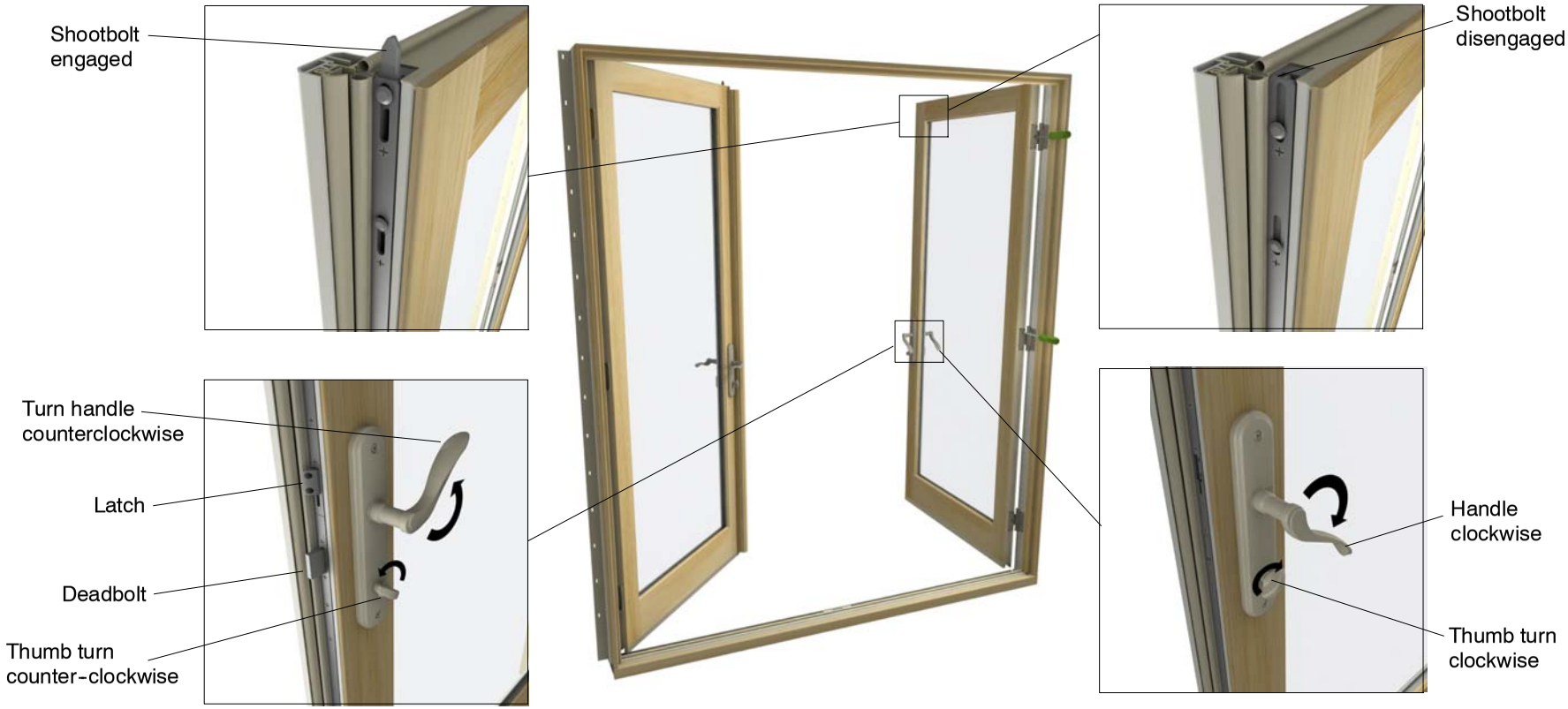

Figure 11: Turn handle and thumb turn counterclockwise to lock; clockwise to unlock.

Locking the Door

1. Close door so it latches.
2. Rotate handle up to engage the shoot bolts and deadbeat on the multipoint lock.
3. Turn “thumb turn” clockwise 1/4 turn to lock the handle.
4. Verify that the handle cannot be rotated down to ensure door is properly locked.

Unlocking the Door

1. Turn the thumb turn 1/4 turn counter-clockwise.
2. Rotate the handle down to disengage the multipoint lock and latch mechanism.

Hinge Adjustment Procedures

NOTE: Should you find it necessary to make minor adjustments to your Integrity Outswing French door after it has been permanently installed, the adjustable hinge system will allow you to do this. During installation, adjustment of door frame shims should be done to correct any alignment or operation problems.

IMPORTANT: Ensure that the unit has been installed square in the opening. Adjustable hinges are not intended to compensate for an improperly installed unit.

CAUTION: Failure to follow adjustment procedures as outlined may damage hinge. To avoid damage, use ONLY the tool provided with the installation kit (figure 12a).

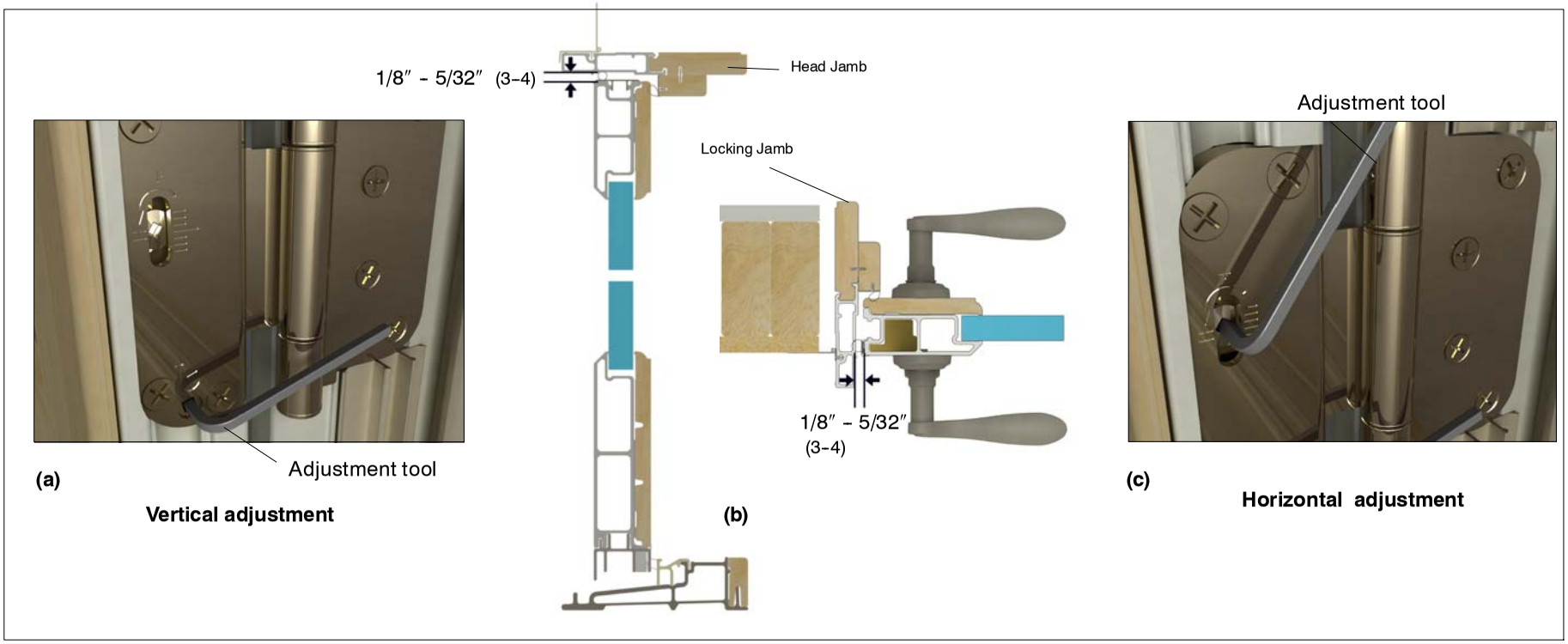

Figure 12: Panel adjustment

1. Adjustments should only be made when panel misalignment is visible or it causes poor operation of the door/lock. **Make any adjustments in small increments (one rotation per hinge), starting with the bottom hinge and working up to the top hinge. Repeat the process as necessary adjusting one rotation at a time.** Check results, readjust or proceed as required. Each hinge has a vertical and horizontal adjustment screw.

IMPORTANT: Adjustable hinges are not intended to compensate for an improperly installed unit.

2. Check panel clearance at the head jamb (figure 12b). The panels should have a minimum of 1/8″ (3) to 5/32″ (4) clearance at the head jamb. The vertical adjustment screw (figure 12a) should be adjusted equal amounts starting with the bottom hinge. **Make any adjustments in small increments (one rotation per hinge), starting with the bottom hinge and working up to the top hinge. Repeat the process as necessary adjusting one rotation at a time.** Check index mark on hinge leaf (horizontal adjustment screw) and adjustment leaf edge to determine amount and direction of panel movement.

3. Check panel alignment with locking jamb (figure 12b) panel should have 1/8″ (3) - 5/32″ (4) clearance along the jamb. Rotate the horizontal adjustment screw (fig 12a) clockwise to increase, counterclockwise to decrease jamb to panel clearance. i.e. If increasing clearance at the top, the bottom hinge may have to be adjusted to decrease clearance and avoid hinge binding.

4. After panel alignment is corrected, recheck latch and deadbolt operation.