

Installation Guide Thermally Broken Aluminum Entry Doors

For contractors and experienced installers. Covers single, double and sidelight/transom units installed in wood-framed, masonry and steel-framed walls.

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01

Before you start

Read this guide from beginning to end before you start, and keep it on site until the job is signed off.

The wall must be prepared by the builder or contractor before the door arrives: weather-resistive barrier installed, and the opening built for air, water and structural performance as required by local code.

Vault Built doors are made to order and are installed by the customer's own contractor. Vault Built does not take site measurements and is not responsible for structural design, site conditions or local code compliance. Your wall type, building materials or code may call for methods different from those shown here. Check with your local building official.

HEAVY DOOR

A Vault entry door with frame typically weighs about 265–330 lb, and large or double units weigh more. Plan for at least three or four people, or use glass suction lifters or a lifting device. Keep the door supported until it is fully fastened.

WHO SHOULD INSTALL

We recommend an experienced door installer or a licensed contractor. Improper installation can affect performance and may void the warranty.

YOUR ORDER DRAWING

Every door is built to the approved order drawing (size, handing, swing, glass, threshold and hardware). Keep it with this guide and check it at every step.

02

Receiving, unpacking and inspection

WARNING

Doors are heavy. When you open the crate, the door can tip toward you. Brace it and keep people clear of the open side.

PACKAGING

Your door ships in five layers of protection inside a wood crate. Keep all packaging until the door has been inspected.

Delivery

- ☐ Count the crates and boxes against the delivery paperwork before the driver leaves.
- ☐ Photograph any visible crate damage and note it on the delivery receipt.
- ☐ Store crates flat, dry and off the ground until installation day.

Unpacking

- 1** Follow the opening instructions printed on the crate. Open the top cover first, then the side that is marked.
- 2** Use a pry bar, or a drill to back out the crate screws. Do not strike the crate near the glass.
- 3** Use safe lifting techniques and enough people to lift the door out without twisting the frame.
- 4** Find the accessory box. It holds the handles, lock cylinder, keys and any loose parts.

Inspect before you install

Every unit carries a label with its item number, description and size, so you can match it to its opening.

- ☐ **Damage:** remove the protective wrap from the frame and check for dents, scratches, finish defects and cracked or broken glass.
- ☐ **Correct product:** confirm size, colour, handing and swing, glass, grid pattern, threshold and hardware against your order drawing.
- ☐ **Hardware:** confirm the metal installation straps are attached to the frame. If they're not, check the accessory box.

DO NOT INSTALL A DAMAGED OR INCORRECT UNIT

Report it to Vault Built with photos before installation. Once a door is installed, visible damage and wrong-size claims can't be accepted.

03

Materials and tools

The installer supplies installation materials and is responsible for their quality. Follow each material manufacturer's instructions.

Fasteners

Use #10 × 1½" flat-head or washer-head screws (stainless steel recommended) through the metal straps and through the frame into the rough framing. Fasteners must go at least 1" into the framing, or deeper where local code requires.

WALL CONSTRUCTION	MINIMUM FASTENER	MINIMUM EMBEDMENT
Wood frame	#10 wood screw	1½"
Concrete / masonry	3/16" masonry screw	1¼"
Steel frame	#10 self-tapping screw	3 full threads past the steel

This schedule is a minimum example. Requirements can vary by product, building type, application, wind zone and region.

Materials

- Exterior and interior window/door-grade sealant
- Non-compressible, water-resistant shims (composite or plastic)
- Sill pan or formable sill flashing
- Low-expansion polyurethane window/door foam
- Self-adhered flashing tape, at least 6" wide
- Backer rod, where joints are wider than ¼"

Tools

- Laser level (required)
- Drill/driver with bits
- Utility knife
- Hammer / rubber mallet
- Hex keys 4 mm & 6 mm
- Framing square
- Caulking gun
- J-roller
- Glass suction cups
- Torx T25 key
- Tape measure
- Foam gun
- Pry bar
- Air wedge or wood wedges
- Safety glasses and gloves

WARNING

Using the wrong materials can cause the installation to fail, resulting in injury or property or product damage.

GLASS AND TOOLS

Always wear safety glasses. Handle glass with care; broken glass can cause serious injury. If an injury occurs, get medical attention immediately.

INSTALLATION · WOOD STUD-FRAMED WALL

STEP 1

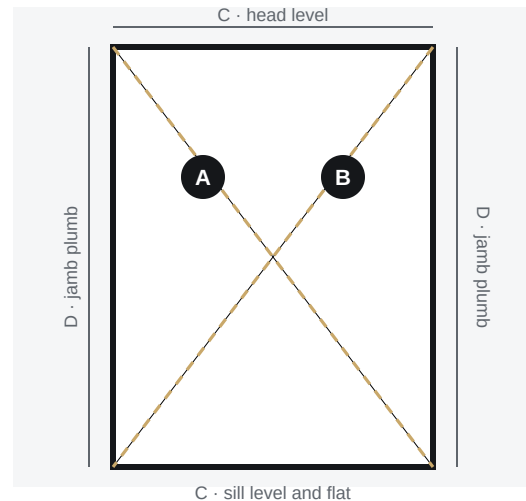
Verify the rough opening

The rough opening (RO) should be about $\frac{3}{4}$ " **wider** and $\frac{3}{4}$ " **taller** than the outside frame size of the door shown on your order drawing.

- ☐ **Square:** the two diagonals (A and B) must match.
- ☐ **Level and plumb:** check the head, both jambs and the sill (C, D). The sill must be level and flat. Shim or correct the framing if needed.
- ☐ **Flat:** the exterior face of the opening must be in one plane, with less than 1/8" twist from corner to corner.

WARNING

An opening that is out of level, plumb or square will affect how the door operates and seals. Correct the opening before setting the door.



Diagonals A and B equal · head and sill level · jambs plumb

STEP 2

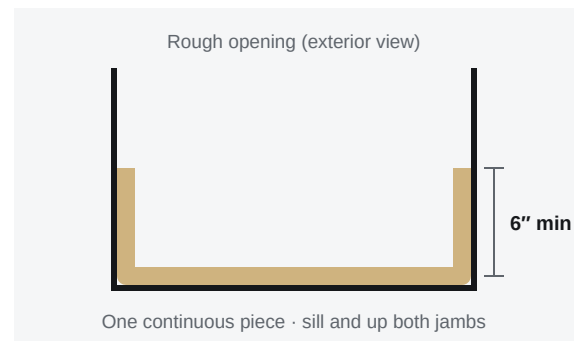
Flash the sill

Apply formable self-adhered sill flashing across the sill and at least **6" up both jambs** in one continuous piece. Smooth out bubbles and creases with a J-roller.

A rigid sill pan or liquid-applied flashing also works when applied correctly. Use the product your local code requires and follow the flashing manufacturer's instructions. Lap all flashing shingle-style so water runs to the outside.

NOTE

Sill pans and flashing are supplied by the installer.



Self-adhered sill flashing

STEP 3

Set the shims

Set support shims on top of the flashing. Check with a laser level and adjust the shim height to get a perfectly level sill. Confirm with the builder or owner exactly where the door sits in the depth of the wall, so the shims land directly under the threshold.

Sill shims

- ☐ One shim **4" (100 mm) in** from each end.
- ☐ Additional shims no more than **24" on centre**.
- ☐ Double doors: a shim at the **centre line**.
- ☐ Joined units: a shim **½" either side** of each joint.

Jamb shims

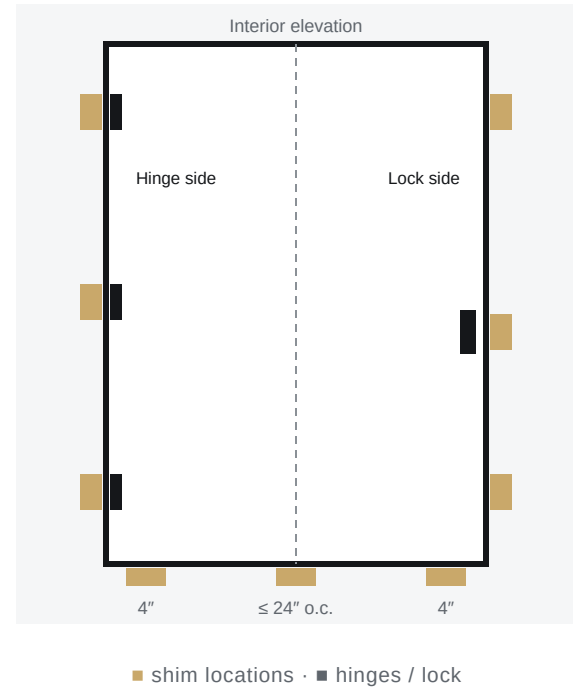
- ☐ Hinge side: behind each hinge, and just above the bottom metal strap.
- ☐ Lock side: level with the top hinge, and at the lock/strike.
- ☐ At every through-frame fastener (see Step 4-H).

NOTE

Never set the door directly on the sill. Shims can be held in place with a dab of sealant. The foam under the door in Step 6 must form a continuous seal along the sill.

DO NOT OVER-SHIM

Over-shimming bows the jambs, which affects sealing and operation.

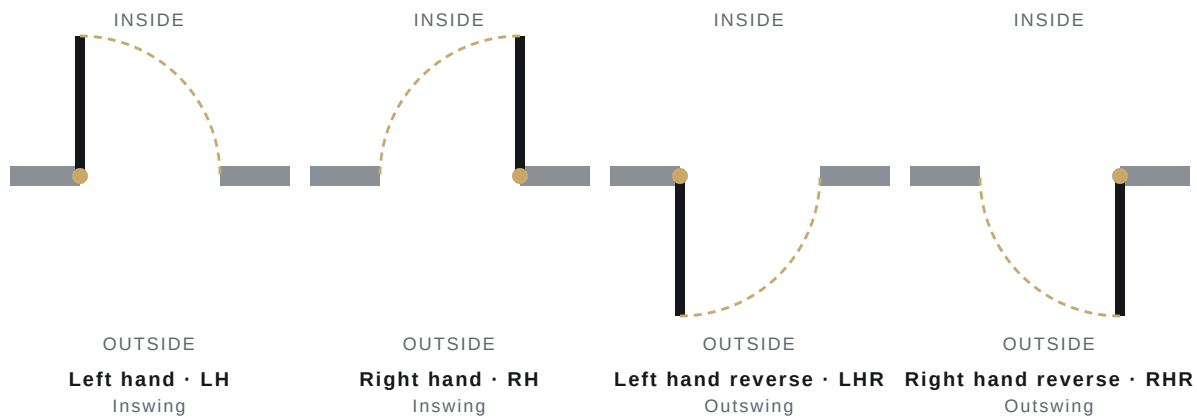


STEP 4

Set, level and fasten the door

Before you lift the door, confirm the swing and handing against the approved order drawing, and check that the metal installation straps are on the frame (head and side jambs; there are no straps on the threshold).

Door handing



Plan view, standing outside facing the door · ● hinge side. Double doors are named by the active (first-opening) leaf. Always go by your order drawing.

- A Set the door.** Tilt the door into the opening bottom edge first, onto the sill pan and shims. Both jamb legs must sit on the sill shims.

WARNING

Use enough people or a lifting device and keep the door supported until it is fully fastened.

- B Turn the straps out.** Rotate the metal straps on the head and side jambs until they are at right angles to the frame, pointing toward the interior.
- C Centre and tack.** Centre the door in the opening, right side up. Screw the straps at the top of both jambs and the bottom of the hinge jamb to hold the door temporarily.

RIGHT SIDE UP

Check swing and handing and never set the door upside down. The label on the glass shows which way is up.

D Level with a laser. Using a laser level, check that:

- ☐ the head and sill are level (floor level and laser height the same at both ends);
- ☐ both jambs are plumb and straight;
- ☐ all four sides of the frame are in one plane (not twisted).

A LASER LEVEL IS REQUIRED

The door must be perfectly level, plumb and flat, or the panel will not close, lock or seal properly.

E Adjust. Use wood wedges or an air wedge and adjust the shims until the door is perfect. Do not over-shim.**F Fasten the straps.** Once level, screw the remaining straps into the framing. Bend straps over the inside edge of the rough opening where needed. No straps are used at the aluminum sill.**G Install the handles and lock.** Each door comes with interior and exterior handles, a spindle, handle screws, a cylinder screw, a lock cylinder and keys. *(Doors ordered with a smart lock come with that hardware factory-installed. See the note on page 9.)*

1. Insert the spindle into the handle and through the door.
2. Insert the lock cylinder into the lock body.
3. Turn the thumb-turn toward the hinge side to unlock, press the handle and open the door.
4. With the door open, tighten the cylinder screw.
5. Fit the second handle and screw the handles together from the inside.

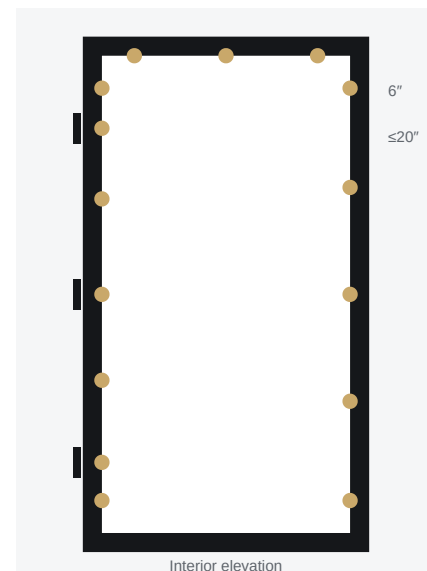
H Through-frame fasteners. In addition to the straps, fasten through the frame into the framing:

- ☐ near every hinge;
- ☐ top and bottom, 6" from each corner;
- ☐ the rest at **20" on centre** maximum.

Peel back the rubber gasket to find the pre-drilled holes, place a shim behind each fastener location, drive the screw, then press the gasket back in to cover the holes.

DON'T OVER-TIGHTEN

Snug the screws only. Over-tightening pulls the frame out of line. Re-check level after fastening.



● through-frame fasteners

I Threshold. Your door has one of three thresholds, chosen when you ordered. Check your order drawing.

THRESHOLD	WHAT IT'S FOR	INSTALLER CHECK
High-performance	Best water and air resistance; the standard choice for exposed entrances.	Sill fully supported by shims and a continuous foam/sealant bed.
Low profile	A lower step-over for a cleaner transition.	Raise the sill or add a sill plate so the interior floor finish meets the threshold.
Accessible (ADA-style)	Near-flush entry for wheelchair and stroller access.	Plan the floor build-up and exterior slope so water drains away from the door.

Smart lock doors

If you ordered a keypad or fingerprint smart lock, it's installed and set at the factory as part of the lock body.

- ☐ Don't drill, re-bore or remove the lock hardware. It's built into the door and can't be changed on site.
- ☐ Install the door exactly as above; a perfectly level door is even more important for motorized locking.
- ☐ Follow the separate smart lock manual in the accessory box for batteries, codes and fingerprints.
- ☐ Keep the mechanical keys somewhere safe as a backup.

GOOD TO KNOW

Smart locks are factory installed and have no "keep unlocked" (passage) mode. Plan how the door will be used day to day, for example during parties or deliveries.

STEP 5

Test the door and locks

A Operation. Open and close the door several times. It should swing freely without rubbing and close without force. If it doesn't, re-check level with the laser and re-adjust before going further.

B Locking. Test the lock from both sides:

To lock

1. Close the door firmly so the latch engages.
2. Lift the handle up. The deadbolt and multi-point locks engage.
3. Turn the key (outside) or thumb-turn (inside) toward the **lock-side jamb**. The handle now won't move and the door is locked.

To unlock and open

1. Turn the key (outside) or thumb-turn (inside) toward the **hinge-side jamb**.
2. Press the handle down.
3. Push or pull the door open.

IF THE HANDLE IS STIFF TO LIFT

The locking points are catching the keepers. Check that the door is level and that the gap around the panel is even, then see Adjustments (page 13).

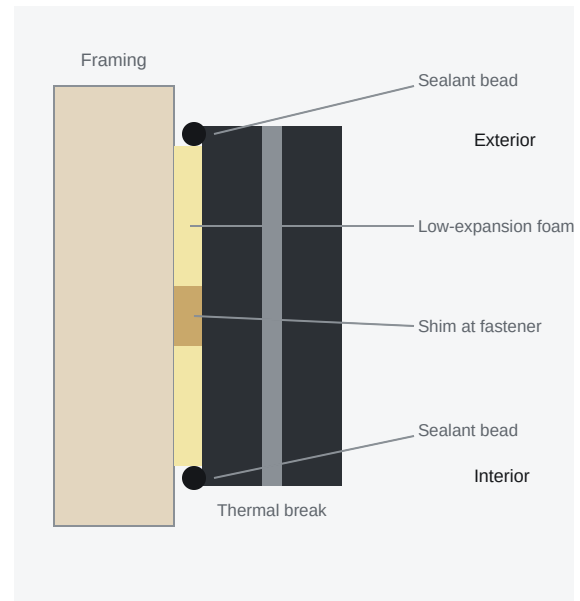
STEP 6

Seal and finish

- A Foam.** Fill the gap between the frame and the framing with low-expansion window/door foam all the way around, including a continuous bead under the sill. Never use high-expansion foam; it can bow the frame.
- B Trim.** Once cured, trim the excess foam flush and clean off foam and dust.
- C Seal.** Run a continuous bead of sealant around the frame on the outside and inside. You can leave this until the other trades are finished.
- D Integrate.** Tie the head and jamb flashing into the weather-resistive barrier, shingle-lapped so water runs down and out.
- E Protect.** Leave protective film on, and mark the glass or add guards so it isn't hit while construction continues.

FILM

Remove the protective film within the time the film label specifies. Film left on in sun can bond to the finish.



Jamb section (plan view)

STEP 7

Joining doors, sidelights and windows

Some large door-and-glass combinations are too big to ship as one piece, so they're built and shipped as separate units and joined on site with factory joint connectors. Joints are reinforced to suit the height of the unit, with steel-reinforced connectors on the tallest units.

Check the sizes first

Overall unit width	Sum of the individual unit widths + $\frac{3}{4}$ " (20 mm) per joint
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Rough opening width	Overall unit width + $\frac{3}{4}$ " (20 mm)
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The units go in one at a time, so confirm the combination fits and will be centred before you set the first one.

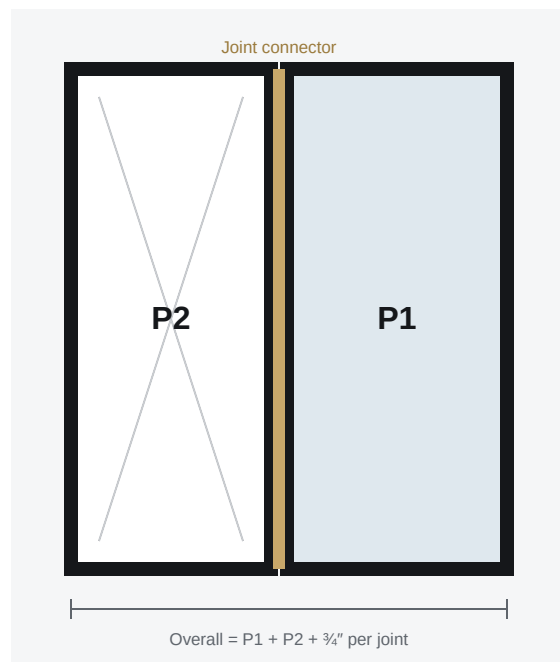
Joining sequence

1. Set the first unit (P1, with the joint connector factory-fitted). Level it with the laser, shim, and fasten the straps.
2. Remove the nylon strips from the connector and apply sealant to the connector.
3. Set the second unit (P2) and engage it on the connector.
4. Level P2 perfectly (Step 4-D) and fasten its straps.
5. Open the door, fit the handles (Step 4-G) and peel back the gaskets on the joined jambs.
6. Screw through the frames into the framing and into the joint connector, then press the gaskets back in.
7. Re-check level. Tap the nylon strips back into the connector with a rubber mallet.
8. Run continuous sealant along both sides of the nylon strips, foam the perimeter and seal as in Step 6.

For three or more units, repeat one unit at a time.

LASER LEVEL REQUIRED

Improper installation of joined units may void the warranty.



Door (P2) joined to a fixed glass unit (P1), interior view

ADJUSTMENTS AND TROUBLESHOOTING

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Fine-tuning the door

Most operating problems come from the frame being out of level or twisted, so check that first with the laser level. Small corrections can then be made at the hinges. Vault doors use German-made adjustable hinges; check which type your door has before you start, because the adjustment is different.

SYMPTOM	LIKELY CAUSE	FIX
Panel rubs at the bottom / on the threshold	Panel has dropped or frame is out of level	Check level, then raise the panel (vertical adjustment)
Panel rubs on the lock side	Panel sits too far toward the lock	Move the panel toward the hinges (horizontal adjustment)
Handle hard to lift, or locks won't engage	Locking points misaligned with the keepers	Even up the gaps, then move the keepers/strike plate up or down
Draft or light at the seal	Frame twisted, or gasket not fully seated	Check the frame is in one plane; re-seat the gasket

Hinge type S: vertical adjustment (raise or lower the panel)

Range: 2 mm up or 2 mm down from the factory setting.

1. Open the door. Prise the plastic cap off the bottom of each hinge with a small flat screwdriver.
2. Insert a 6 mm ($\approx 1/4$ ") hex key into the screw in the bottom of the hinge.
3. Turn **clockwise to raise** the panel, or **counter-clockwise to lower** it.
4. Adjust **every hinge by the same amount**, then refit the caps.

Hinge type S: horizontal adjustment (move toward hinges or lock)

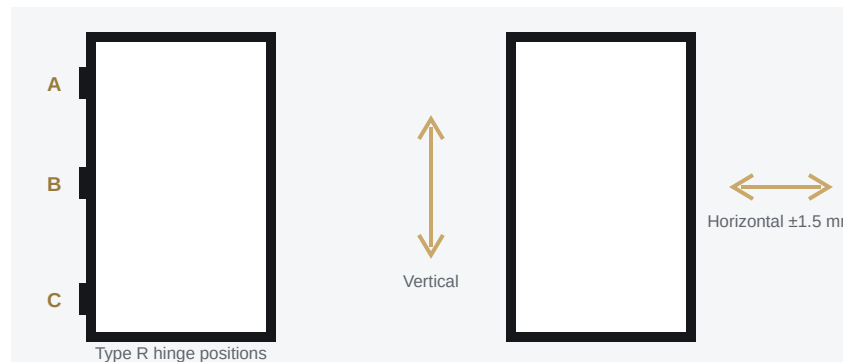
Range: 1.5 mm either way.

1. Open the door. Using a 4 mm ($\approx 5/32$ ") hex key, loosen the small locking screw on each hinge (counter-clockwise).
2. On the outside of the hinges, remove the small caps to expose the adjusting screws.
3. Turn **clockwise to move the panel toward the hinges**, or counter-clockwise toward the handle side (max 1.5 mm).
4. **Re-tighten the locking screw on every hinge** and refit the caps. Loose hinges will let the door move out of adjustment.

Hinge type R: vertical adjustment

Range: up to 4 mm up or 2 mm down. On this type, the upper hinges (A and B) and the bottom hinge (C) are different.

1. Open the door. Using a T25 Torx key, loosen the screws on hinges A and B (counter-clockwise).
2. Loosen the screws on hinge C the same way.
3. With a 4 mm hex key in the top of hinge C, turn **clockwise to raise** the panel (max 4 mm) or **counter-clockwise to lower** it (max 2 mm).
4. Re-tighten all hinge screws (A, B and C) with the T25 key.
5. Test the door. After a height change, loosen the locking keepers and strike plate on the lock jamb and slide them up or down to line up again.



Hinge type R: horizontal adjustment

Range: ± 1.5 mm.

1. Using a 4 mm hex key, turn the side adjusting screw on each hinge **clockwise to move the panel toward the handle side**, or counter-clockwise to move it toward the hinge side.
2. Adjust all hinges evenly, re-tighten and test.

DIFFERENT HARDWARE?

Very large, pivot and heavy-duty doors may use other hinge systems. If your hinges don't look like either type described here, contact Vault Built before you adjust them, and we'll send the adjustment sheet for your hardware.

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Care, warranty and support

Care

- ☐ Clean the frame with mild soap and water and a soft cloth. Don't use abrasives, solvents or pressure washers.
- ☐ Keep the sill track and weep openings clear of dirt so water can drain.
- ☐ Check the gaskets and exterior sealant once a year and renew the sealant as needed.
- ☐ Lightly lubricate the lock points and hinges once a year with a non-gumming lubricant.
- ☐ Check that the hinge screws are tight.

Installer sign-off

- ☐ Door level, plumb and flat (laser checked)
- ☐ Shims at sill, hinges, lock and every fastener
- ☐ All straps and through-frame screws in; gaskets re-seated
- ☐ Door operates smoothly; all locks engage
- ☐ Continuous foam and sealant, interior and exterior
- ☐ Glass and finish protected

Warranty

Vault Built doors carry a transferable warranty. The full terms and what each part is covered for are at vaultbuilt.ca.

PROTECT YOUR WARRANTY

Damage or poor performance caused by improper installation, an out-of-level or out-of-square opening, missing flashing or sealant, or modifications to the door or hardware isn't covered. Labour for removal and reinstallation isn't included.

Keep your order drawing, this guide and photos of the installation (sill flashing, shims and fasteners before foam and trim) with your records.

Need help?

Contact Vault Built with your order number and photos of the issue.

vaultbuilt.ca

These instructions are general guidance for experienced installers. Building design, construction methods, materials and site conditions vary, and your project may need methods different from these. Always follow local building codes and the instructions of the material manufacturers. Vault Built is not responsible for site measurements or for the structural and architectural requirements of the installation.