



Installation Recommendations for Flange Frame Doors

These installation recommendations are made available by MI Windows and Doors, LLC (MI) to assist with the integration of finless or flange sliding glass doors into a typical wood-framed structure three or less stories in height. Installation into other structures and frame types are not addressed here.

Please contact MI or visit www.miwindows.com for additional information.

Important Design Considerations

Read this entire document before proceeding with installation of MI's products. Responsibility for product selection and installation rests with the owner, architect, and installer. Do not proceed with installation unless all factors necessary to properly integrate MI's products into a building's water management system have been addressed.

MI makes no representation or warranty that these recommendations include all information necessary to ensure proper integration into every building. State and local code requirements may impose different or additional demands which will supersede these recommendations. For additional guidance regarding installation of door products, refer to applicable industry standards (e.g., AAMA 2400, AAMA InstallationMasters™, ASTM E 2112).

Failure to follow these recommendations, local requirements, or good building practices may affect the availability of remedies under MI's warranty. Provide a copy of these recommendations and the applicable MI warranty to the owner before installing. MI does not permit adoption of its installation recommendations into the contracts of others without its prior, written consent.

Important Pre-Installation Considerations

- Door installation may disturb finish surfaces and paint in existing structures. Specific notice and work site precautions may be required. Additional information is available at www.epa.gov/lead. Comply with all applicable federal, state, and local requirements.
- Special disposal considerations may be necessary for materials used during installation. Materials removed from an existing structure may also have their own disposal or recycling requirements. Comply with all applicable federal, state, and local requirements.
- Job site and worker protections are recommended and may be required. Follow all manufacturers' instructions for appropriate and safe use of protective equipment, tools, materials, hardware, and site protections necessary for installation.
- Product specification sheets include important information regarding your product and may include additional installation recommendations, such as fastener use with impact resistant doors, finishing instructions, and appropriate use of low expansive foam insulation.

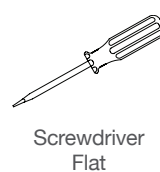
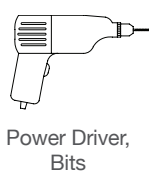
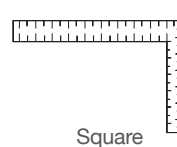
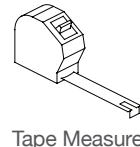
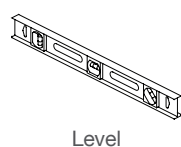
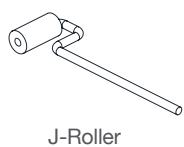
Contact MI for product specifications and additional product information for your MI product.

Materials Required

- Non-compressible shims.
- Sill pan flashing.
- Fasteners. Type and number as required by code. At a minimum, fastener type should be sufficient to properly affix the frame and penetrate opening as shown in *Figure 1* of instructions.
- High quality compatible exterior grade sealant.
- Seal tape for the weather resistive barrier*.
- Self-adhering flashing, in a width required by code but no less than 4". AAMA 711 compliant flexible butyl tape flashing or equivalent is recommended.*
- Backer rod.*
- Low-expansive, low-pressure foam or batt type insulation.*

* Use and placement of these materials may be required by code, plan, or good building practices.

Tools Required



Inspect and Prepare the Product for Installation

1. Inspect the door product thoroughly before beginning installation.
 - Confirm the door matches the size needed for the opening, measuring $\frac{1}{2}$ " smaller than the rough opening dimensions in width and height.
 - Confirm the door's features match the requirements of the project, order, and opening; e.g., Low-E, color, code, rating, operating direction, egress.
 - Confirm there is no damage to the product and that all necessary pieces are in place for a complete installation; e.g., locks, labels, weather stripping.

Do not proceed with installation if there are any concerns about the condition or suitability of the product for installation or compliance with project, order, code, or opening requirements.
2. Keep the jambs plumb and square with the head and sill on the door throughout installation. Keep panels closed and locked throughout installation if this is not a knocked down (KD). Avoid "crown up" or "bow down" conditions at both sill and head. Avoid "bowed out" installations by confirming equal jamb widths throughout installation.

Inspect and Prepare the Rough Opening

3. Make sure the rough opening is in good condition and sits plumb, level, and square. *See Figure A.* Confirming measures should not exceed permissive tolerances in ASTM 2112: $\frac{1}{8}$ " nominal square tolerance for units less than 20 sq. ft. or $\frac{1}{4}$ " for units more than 20 sq. ft. Framing conditions at the rough opening must be sufficient to support the door unit, framing header above, and permit appropriate integration of the door into the building's water management system. Rough openings should be $\frac{1}{2}$ " larger than door frame in width and height.
4. If the building already has a weather resistant barrier (WRB) installed, it is necessary to prepare an opening in the WRB to accept the door. MI recommends that the installer follow the WRB manufacturer's recommendation to prepare this opening. The installer must confirm rough opening preparation will not impact the WRB manufacturer's warranty or otherwise inhibit drainage before proceeding.
 - A) MI recommends the use of a pan flashing system combined with a complete interior air dam.
 - B) Interior leg height of pan flashing system should be selected based on the expected performance level of the fenestration product being installed. *See Figure B.*
 - C) Many pan flashing systems are readily available. Choose one that best suits your construction application. Follow the instructions of the pan flashing supplier.
 - D) The fenestration product, WRB, flashings and pan flashing must be sealed to allow the system to inhibit air and water flow to the interior while allowing any incidental water to drain to the exterior of the building or to the drainage plane.
 - E) The interior side of the pan flashing and the ends should be turned upward to prevent water from flowing off the flashing into the wall or other finishes. Incorporating end dams at both sides of the pan flashing is intended to prevent water from entering the walls at the lower corners of the product.

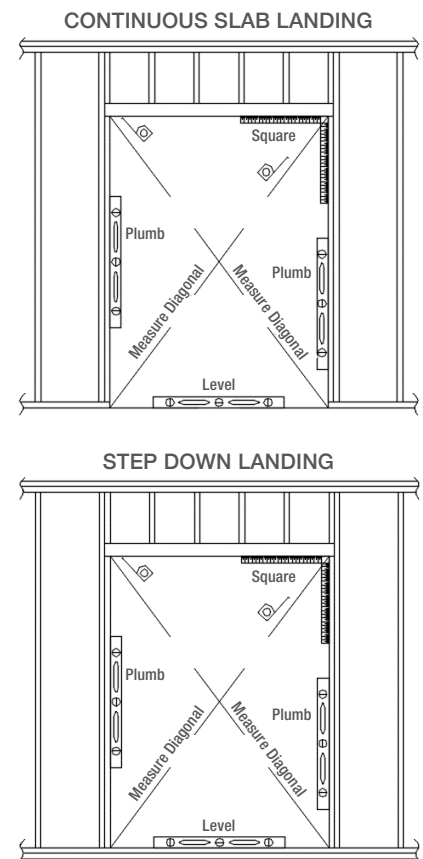
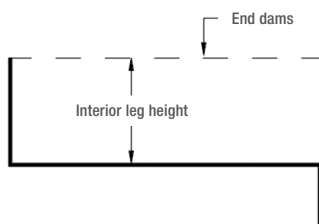


Figure A



Water Test Pressure (P.S.F.)	D.P. Design Pressure (P.S.F.)	Water Height Minimum Leg Height
2.86	15	11/16"
3.0	20	3/4"
3.75	25	7/8"
4.5	30	1"
5.25	35	1 1/8"
6.0	40	1 5/16"
6.75	45	1 7/16"
7.5	50	1 5/8"
8.25	55	1 3/4"
9.0	60	1 7/8"

Figure B

Door Preparation

If your mainframe was shipped assembled, remove packaging/shipping materials such as wrap, corner pads, or shipping support blocks. Inspect frame to assure there are no concerns.

If your door was shipped as KD, remove frame members and hardware from frame kit carton and assemble as directed on the assembly instruction sheet included in the frame kit carton.

Block/Masonry Construction

If construction is block/masonry, in most instances a 2x buck (by others) is used for framework. Ensure the 2x buck is securely attached and sealed to the opening and is constructed to be code compliant.

Ensure all gaps in construction are sealed properly before proceeding. *See Figure C.*

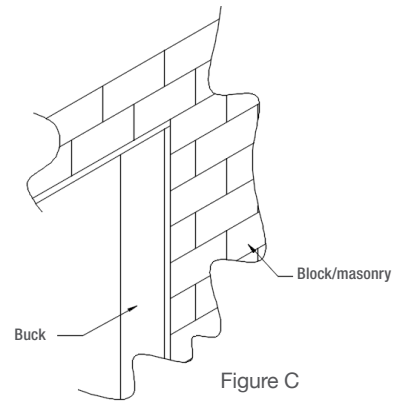


Figure C

Stud Wall Construction

Ensure wall is properly sheathed prior to door installation following sheathing supplier's recommendations and is compliant to applicable building codes. *See Figure D.*

Install Pan Flashing

As there are numerous types of pan flashing available, the example shown below in *Figure E* is for a one piece pan flashing system. If you are installing a different type, follow all the recommendations of the pan supplier. **Note: If using a metal pan on concrete, use a piece of self-adhesive flashing full length of pan and adhere it to the bottom surface where pan will sit on concrete.**

- Set sill pan into the rough opening. Align the front edge (for continuous opening), or folded down edge (for step down) with the exterior of the rough opening.
- Mark a line across the front and back of the sill pan. Remove the pan.
- Apply three $\frac{3}{8}$ " diameter beads of sealant between the lines and continue 6" up the jambs.
- Place sill pan into the rough opening. Firmly press the sill pan into the sealant using a J-roller.
- For buck/masonry installation, seal all joints between buck and masonry with sealant. Cover buck and surrounding masonry at head and jambs (also apply over sill pan if installing a job site fabricated sill pan) with liquid applied flashing per manufacturers instructions.
- If using a pan system other than one piece, follow supplier instructions to install and seal end dams.

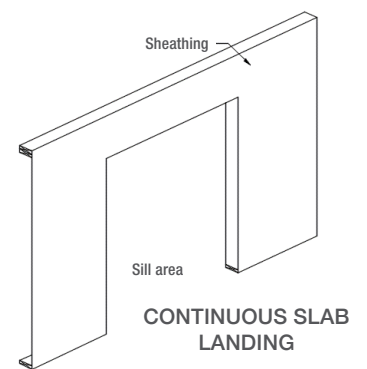


Figure D

Prepare Building Wrap

- Trim wrap flush with the edges of rough opening.
- If door extends beyond exterior plane of the building and a drip cap is incorporated, cut a slit in the wrap 6" at 45 degrees at the head. *See Figure F.* Tape material up as shown.

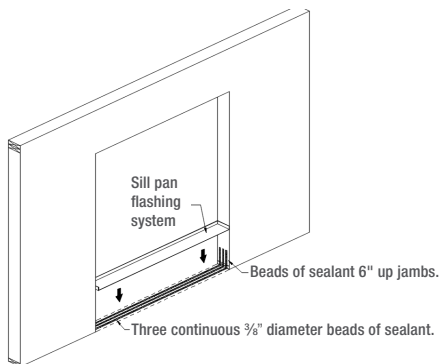


Figure E

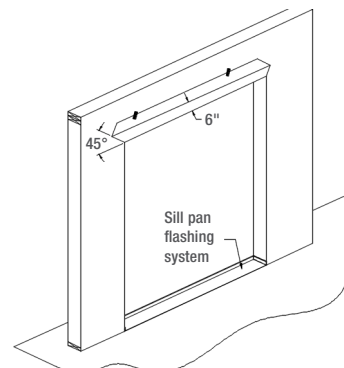


Figure F

Flash Sill Pan End Dam

Follow pan manufacturer's recommendations to flash sill pan end dam. *Figure G* shows an example. Seal all gaps as shown.

Install Frame

To avoid injuries, two people are recommended for installation. Support frame until fully installed.

- Apply at least one $\frac{3}{8}$ " diameter bead of sealant around rough opening where flush fin/flange will make contact when installed. If the product has a flange at sill as well, leave 1" void in sealant 3" in from ends to allow pan to weep.
- Apply a $\frac{3}{8}$ " diameter bead of sealant to the sill pan back dam. When frame is installed, ensure the frame makes solid contact with the sealant. Apply additional sealant if required.
- If you purchased your door KD, tilt the frame which was assembled earlier into the rough opening. Align exterior plane of the frame with the most exterior surface of the structure, (exterior face of masonry wall, framing, or sheathing).
- If you purchased your product as set-up (with panels installed), carefully tilt the product into the rough opening. Align exterior plane of the frame with the most exterior surface of the structure, (exterior face of masonry wall, framing, or sheathing).
- Support frame while holding in opening as you begin with fastening frame as described below.

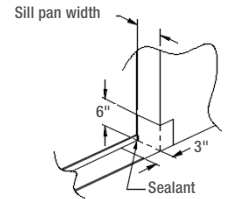
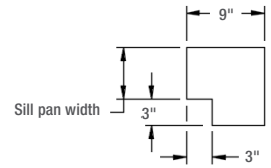
Shim Head and Jamb

From the interior, shim head and jambs 4" from corners and spacing as required to ensure frame is level, square, and plumb. Ensure shims are incorporated where the strike plate will be attached to frame jamb. See *Figure H*.

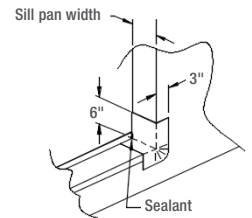
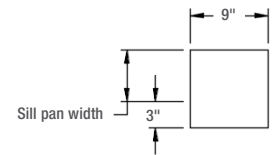
Fasteners

Note that some areas such as Florida and Texas require fastener quantities and spacing much more stringent than those employed on the physical test unit. For fastener information regarding these areas, visit www.floridabuilding.org or www.tdi.texas.gov. Search for the product series you are installing and follow the schedule shown rather than the following.

- All aluminum product mainframes are pre-punched for fasteners. Fasten through each pre-punched hole.
- Some vinyl door frames require field drilling for fasteners. See *Figure I*.
- For areas other than Florida and Texas, for design pressures 30 or less, locate fasteners 18" on center. For design pressures greater than 30, refer to fastener schedules posted on www.floridabuilding.org or www.tdi.texas.gov.
- Do not over tighten fasteners. Do not allow fasteners to deform frame materials.
- Beginning in one corner, secure door frame with fasteners. Maintain frame in a square, level, and plumb condition while fastening to rough opening.
- Install installation screw hole covers if provided.



CONTINUOUS SLAB LANDING



STEP DOWN LANDING

Figure G

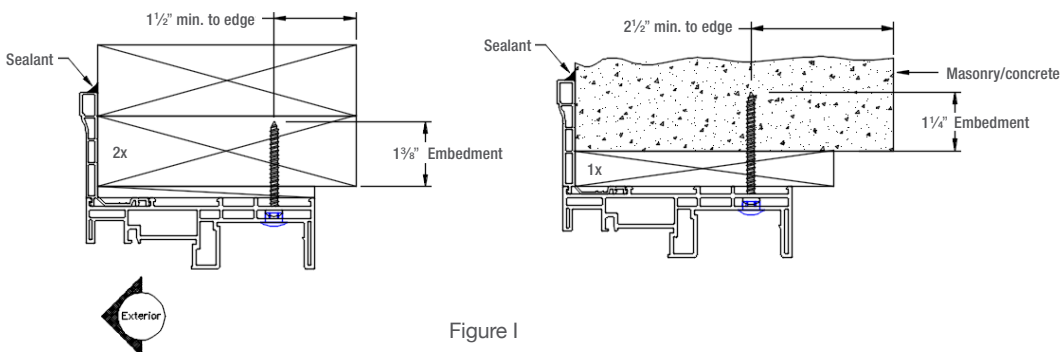


Figure I

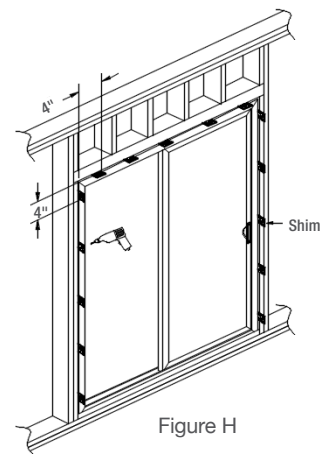


Figure H

Seal Exterior Perimeter

- A) For flush fin frames with flush fin on all four sides, apply sealant on exterior where flush fin meets the wall. Discontinuous bead at sill in order to allow pan to weep any incidental moisture.
- B) For units without flush fin at sill end, do not apply sealant to perimeter in a fashion that plugs the weeps at sill. Leave 1" gap in weeps as shown in *Figure J*.
- C) The use of a drip cap is recommended. Install Z flashing and integrate into the weather barrier.

Panel Installation (KD Only)

- A) If your door came as KD, install panels into the frame as directed in the instruction sheet included in the frame kit carton. Install panels in the sequence necessary for the panel configuration you have.
- B) Install all brackets, adapters, stops, handle sets, keepers, etc. as shown on instruction sheet included in your frame kit carton.

Finishing Touches

Adjust Operating Panels

- Locate roller adjustment screws at panel lower rail. Depending on the door type, adjustment screws can be at panel ends, on interior face of panel, or exterior face of panel.
- Using a #2 Phillips head screwdriver, turn adjustment screw clockwise to raise panel, counter clockwise to lower. Adjust panel so it is raised off the roller track enough that panel rolls smoothly, grids align, sightline at frame jamb is even from top to bottom, and panels interlock properly.
- Test panel operation again. Adjust as necessary until desired results are achieved.
- Apply panel adjustment hole plugs (units with adjustment holes on interior or exterior face only).

Lock and Keeper Adjustment

- If keeper/strike was not installed at the factory, attach at this time using the slotted holes which will allow for strike adjustment later.
- Close and lock panel. If lock does not engage with keeper properly, loosen screws through strike and lower or raise strike until lock does engage with keeper.
- If additional adjustment is required and the panel is fitted with a mortise type lock, turn the lock hook adjustment screw to provide more or less lock throw as needed.
- When proper locking is achieved, drive longer screws through strike into construction. This provides better holding power for keeper.

Install Continuous Air Seal

- Using backer rod and sealant, low pressure low expansion foam or loose batt insulation, create an air seal barrier on the interior between rough opening and door. Use caution when using foam to ensure frame is not distorted.

Finish as desired adhering to good construction practices.

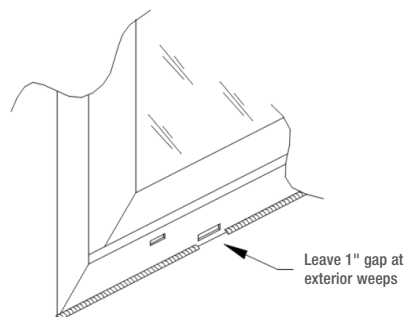


Figure J

Considerations and Cautions

Exterior Considerations

- Care should be taken to ensure proper integration of the door into the building's water management system and with the selected cladding. A properly designed ¼" sealant joint between all sides of the door frame and exterior cladding may be recommended. Consult the responsible architect, owner, or builder, as well as the cladding manufacturer's instructions.

Important Cautions

- ⚠ Use of solvents or acids will damage components of this product and will limit rights under the warranty.
- ⚠ Stage and store door products with caution. Do not store in the sun or lay flat before or during installation.
- ⚠ Care must be taken to ensure material compatibility of the door unit and surrounding building conditions. Where necessary, steps should be taken to isolate the door from reactionary building elements.

Post-Installation Reminders

- With the exception of logo and NFRC labels, all MI applied labels should remain in place and not be removed after installation is complete (e.g., AAMA labels, warranty labels, warning labels).
- MI recommends a yearly inspection of its products and the surrounding materials, inside and outside the home. Upkeep of sealant joints, hardware and weather stripping can ensure longevity and proper functioning of the door products.

Please contact MI or visit www.miwindows.com for additional information.