Fundamentals of Door Installation
Course Description

This program provides a general overview of best-practice installation procedures for wood and clad/wood doors, including a discussion on opening and unit preparations. “Surface Barrier” and “Membrane Drainage System” wall /fenestration interface design will be presented.
Learning Objectives

After participating in this program you will be able to:

• Identify varying types of wall conditions

• Explain installation methods for wood and aluminum clad Doors

• Understand basics of ASTM E-2112-07 Standards for Window and Door Installation

• Describe anchoring methods for residential wood and wood clad doors

• Specify for the most successful door installation
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Standard Practice for Installation of Exterior Doors, Windows, and Skylights

1. Scope

1.1 This practice covers the installation of fenestration products in new and existing construction. For the purpose of...
Manufacturer’s Recommended Installation Instructions

General Installation Instructions

1. The key to proper operation is squaring the door frame in relation to the sill.
2. A GOOD INSTALLATION has a FLAT sill that is also LEVEL.
3. The BEST INSTALLATION requires a FLAT and LEVEL sill and a SQUARE and PLUMB opening.

Correcting an out of square opening requires shimming beneath the sill and/or at the corners. These instructions assume an opening is constructed for the BEST installation with a flat and level sill and a square opening.

These instructions are applicable for the following wood and clad products:

- Ultimate Inswing French Door
- Ultimate Outswing French Door
- Ultimate Inswing French Door Transom
- Ultimate Sliding French Door
- Sliding Patio Door
- Ultimate Inswing French Door Direct Glaze Transom
- 2 1/4” Inswing French Door
- 2 1/4” Outswing French Door
- 1 3/4 and 2 1/4” Commercial Door

ABSTRACT: Please read these instructions in their entirety before beginning to install your Marvin window product. These installation instructions demonstrate the installation of a Marvin 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 ASTM E2112-07, “Standard Practice for Installation of Exterior Windows, Doors and Skylights,” for installation suggestions. The same information for ASTM E2112 can be found on the ASTM website, www.astm.org. 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).
Recommended Sill leveling practice

Leveling the Sill
Window and Door Supplemental Instruction

Tools and Supplies Required
Speed square
- Self-leveling horizontal and vertical laser

Level (appropriate length for the opening)
- 5 1/2" (140 mm) wide strips of adhesive-backed sill shim

Determining High Point of Sill Plate
1. Place a self-leveling laser so that the horizontal beam is 1 – 3 inches (25-76 mm) above the RO sill plate. Place a speed square in the center of the opening and make a pencil mark on the laser beam. Run the square along the sill plate to find the high point. See figure 1a, b and c.

NOTE: Sill plates with a variance more than 1/16" (1.5 mm) should be leveled prior to proceeding with installation.

Inspect the Opening
For detailed weather barrier or building paper installation procedures see the online RO (Rough Opening) prep instructions. Inspect the opening to ensure that it has been properly sized for your unit. If not, make the necessary repairs and adjustments. Thoroughly clean the sill plate of dust and debris.

Level the Sill
1. Place the sill shim* at the low point and move the speed square until level with high point of the sill. Cut and remove backers and secure sill shim to the sill plate. See figure 2a.
2. Place successive strips of sill shim on the sill until level. See figure 2b and figure 2c.

* Marvin recommends the use of WinterGuard™ or similar as the adhesive-backed sill shim.

3. Install pan flashing per manufacturer's instructions.
4. Dry fit the door/window to ensure proper fit. (1/4" - 1/2" (6 - 12 mm) space between the RO and unit frame.) Use a 6 foot level to confirm the sill is within 1/16" (1.5 mm) of level across the entire span. See figure 2d and figure 2e.

Figure 1: Use a speed square and laser to determine the sill’s high/low point. Door RO shown but steps apply to window RO as well.

Figure 2: Door RO shown but steps apply to window RO as well.
A1 method of installation
Membrane Drainage System

Air Barrier Applications
(A1 Method)
Sill Anchoring recommendations
Installation and Flashing Details
Abstract Information

ABSTRACT: Please read these instructions in their entirety before beginning to install your Marvin window product. These installation instructions demonstrate the installation of a Marvin aluminum clad window 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 “ASTM E2112-01, Standard Practice for Installation of Exterior Windows, Doors and Skylights,” for installation suggestions. 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 Marvin Service Manual, visit our website at www.marvin.com, or contact your Marvin 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).

The procedures within these instructions are consistent with those used in testing to achieve the advertised DP rating.
Level - Plumb - Square - True

LEVEL, SQUARE, AND PLUMB

Strings Touch If "True"

TRUE
Window and Door Installation

- Who’s Responsible?
This presentation pertains to the following types of window installations of Wood and Aluminum Clad/Wood Windows and Doors in:

1) Surface Barrier Wall condition
2) Membrane Drainage System
Membrane Drainage System

WHERE RECOMMENDED AS PART OF EXTERIOR WALL FINISH SYSTEM. INSTALL WRB, APPLY IN WEATHERBOARD FASHION STARTING FROM BOTTOM TO TOP OF WALL.

BY OTHER TRADES:
INSTALL WRB, INSULATION BOARD, OR OTHER MATERIALS OVER HEAD FLASHING AND OVER TOP OF MOUNTING FLANGE OF WINDOW FRAME.

3rd COURSE OF WRB

2nd COURSE OF WRB

1st COURSE OF WRB

MIN. VERTICAL LAPS PER CODE

MIN. HORIZONTAL LAPS PER CODE

EXTERIOR WALL FINISH:
INSTALL PER WALL FINISH MANUFACTURERS RECOMMENDATION. SEAL BETWEEN EXTERIOR FINISHES AND THE PERIMETER OF THE WINDOW FRAME AT JAMBS AND SILL.

SLIP FIRST COURSE OF WRB UNDER LOOSE ENDS OF SILL AND JAMB FLASHING IN WEATHERBOARD FASHION.

Membrane Drainage System

- All wraps (Weather Resistant Barriers, WRB) and flashings are installed in a weather-board fashion.
- This allows the building to shed any water that may penetrate through the exterior cladding (siding, stucco, shingles, etc.) out the bottom of the wall.
Membrane Drainage System(s)

- **Building Paper**-
  - Typically 36” wide rolls of Asphalt Impregnated Paper
  - Known to ‘self-seal’ at fastener penetrations
  - Temperature resistant

- **Air Barrier**-
  - Building wrapped in ‘Cocoon’
  - Synthetic material
  - Breathable
  - Non-porous, except at penetrations
Flashing Methods (for Membrane Drainage Systems)

- Method “A” - Jamb Flashing applied AFTER door
- Method “B” - Jamb Flashing applied BEFORE door

- Method “A1” - WRB installed BEFORE Door, Jamb Flashing applied AFTER Door
- Method “B1” - WRB installed BEFORE Door Jamb Flashing applied BEFORE Door
Pan Flash

• Install Pan Flashing -

The ASTM E2112 -07 standard provides 5 methods of sill pan flashing that are well adopted for various types of openings, wall types and products.
Pan Flashing - continued

• Type I - *Rigid Sheet - 1-Piece or Multiple-Piece Pan Flashing*. Typically fabricated from sheet metals, plastics or composite. Joints are continuously soldered or chemically or thermally welded.

• Type II - *Rigid Sheet, Multiple Pieces Pan Flashing*, assembled on site, lapped and joined with sealants.

• Type III - *Flexible Membrane Pan Flashings* are ‘Formed-in-place’ from one or multiple pieces of Self-Adhering Membrane (SAF) materials.

• Type IV - *Combination Pan Flashings* are assembled from a variety of rigid, flexible, and self-adhering membrane materials.
Pan Flashing

Type I or Type II
Rigid Sheet

Type III Flexible Membrane
Pan Slope

DEPTH > 6" SLOPE REQUIRED
DEPTH ≤ 6" SLOPE RECOMMENDED
Anchoring Windows and Doors
Anchoring: Through Frame
Removable Clad or Wood Jamb/Head Covers-
French Door
Anchoring: Through Frame

- Through-Frame anchoring Door Head, Side Jambs

NOTE: Pre-drill the screw holes before installing screws.
Door Anchoring Guide

- Supplied by Manufacturer - to assist installation
Anchoring: Through Frame

- It is IMPERATIVE to install LONG SCREWS through minimum of (1) hole at Each of Top (2) Hinges
Anchoring” Through Frame

Anchor-Screw installed at “Contact Point” -on Door Strike
How to Specify for the most Successful Door Installations  

continued

• Specify Installation:
  • Wall Condition Type (i.e. Membrane Drainage System or Surface Barrier)
  • Installation Method (i.e. A,B,A1, B1)
  • Refer to Manufacturers’ recommendations as minimum. If not available refer to ASTM E-2112-07
  • Specify Products that offer Removable Interior Stops, Covers - for Anchoring from Inside-Out
  • Specify Installation to be done by AAMA Installation Masters Certified Installers

• Specify trusted brands only
• Request Shop Drawings
How to Specify for the most Successful Door Installations  continued

- Request Samples
- Request Mock-up
- Allow for proper rough opening provisions
- Compatible materials
- Meet with Reps!
DID THAT HELP?

Group Hug
Questions?

Thank You for Attending!
Credits

• AAMA Installation Masters certification program. See http://www.installationmastersusa.com for further information

• ASTM E2112-07 Standard Practice for Installation of Exterior Windows, Doors and Skylights, © ASTM International (ASTM). A copy of the complete standard may be obtained from ASTM at www.astm.org

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