L. W. Mountain
Solid Wood Installation Instructions

These instructions are a guide to installing wood floors. They are to compliment other resources you need to look at before attempting to install your own hardwood floor. L.W. Mountain does not guarantee that you will be able to install your wood floor by yourself. It all depends on your experience levels with the materials and the tools needed to complete installation.

Inspect the job site carefully before you begin the installation. Some conditions require specific installation methods. A level, flat, clean, dry, and firm subfloor is always necessary.

Climate and Pre-installation Procedures

Material should be stored on the job site (in rooms where installation is to occur) for a minimum of 72 hours before being installed. Quicker acclimation can be achieved by opening the ends of the boxes, but DO NOT remove the product from the cartons. Make sure the room temperature is set at a normal living temperature. Normal living conditions should be achieved a minimum of five days before flooring is brought into the living area for acclimation purposes. The flooring is acclimated and ready for installation when it has reached a moisture level consistent with the job site and normal living conditions.

The customer is responsible for maintaining normal humidity conditions (40-60%) within the home throughout the year. L.W. Mountain is not responsible for environmental conditions that cause excessive expansion and contraction.

Using a moisture meter, test the (plywood) subfloor for moisture content. Moisture content of the subfloor should be 6-12% depending on your area. It is imperative that the subfloor not be +/- 4% different than the new hardwood floor that you are about to install.

Appropriate Subfloors

1. Preferred Subfloor
    1. ¾ inch plywood in 4 x 8 foot sheets

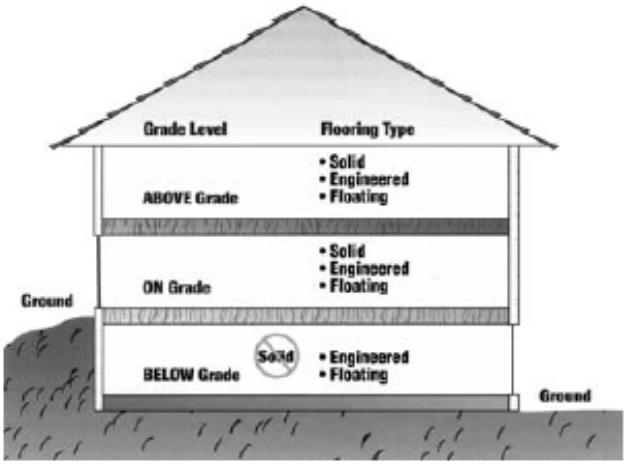
2. ¾ inch OSB in 4 x 8 foot sheets
2. Existing wood floors
3. Sheet vinyl or resilient tile as long as it is above one of the above subfloors.
4. Concrete slabs require a screed system for any nail down installation. Recommended installation would be floating installation of engineered floor over a poly liner and foam pad.

Subfloor Preparation

1. Subfloors must be cleaned. This can be scraping or sanding the floor to remove all foreign materials.
2. Subfloors must be flat. ¼ inch in 10 feet. Sand all seams and high spots.
3. Subfloors must be free of loose areas and squeaks before installation can start. Renail or screw down sections that are loose or squeak. Replace any subfloor that is damaged.
4. The subfloor must be dry before you begin your installation.

Grades and Floors

Figure 1-2 Grade Levels




If the soil surrounding a structure is 3 inches or more above the floor of any level, consider that level below grade. This includes walk-out basements. In addition, the surrounding soil should be sloped away from the structure.

Above Grade- Engineered, Solid Strip, and Solid Plank floors can be installed

On Grade- Engineered, solid Strip, and Solid Plank floors can be installed. L.W. Mountain does not recommend glue down of solid strip on solid plank installation on concrete slab.

Below Grade- Engineered floors can be installed. Solid strip and plank should not be installed below grade.

Concrete slabs on grade or above require a screed system with a minimum of ¾ inch plywood on top of subfloor material for nail/staple down installation.

INSTALLATION

## Important Notice

**The installer is the final inspector of this product. Once a board is nailed or glued to the floor, it is deemed to be acceptable to the installer and homeowner. If the installer is not sure whether or not the floor's milling or grading is acceptable, work should stop immediately and a call should be made to the person that sold the floor.**

A. Before installing wood flooring, place an approved vapor retarder. Some examples of acceptable vapor retarders over wood subfloors include:
    1. An asphalt laminated paper meeting UU-B-790a, Grade B, Type 1, Style 1a.
    2. Asphalt-saturated kraft paper of #15 or #30 felt that meets ASTM standard D-4869 or UU-B-790, Grade D
    3. Red Rosin Paper

B. Unfinished and factory finished solid plank should be installed perpendicular to joists or on a diagonal for any single layer subfloor (exceptions: Over diagonal, solid subfloor boards, install perpendicular to joists or subfloor direction.)

C. Wall Line Layout
    1. Choose a starting wall according to the most aesthetically or architecturally important elements in the room, taking into consideration fireplaces, doors, cabinets, and transitions, as well as the squareness of the room. The starting wall will often be the longest unbroken wall in the room.
    2. Snap a working line parallel to the starting wall, allowing a ¾ inch expansion space between the starting wall and the edge of the first strip or plank run.
    3. As a general rule, a ¾ inch expansion space must be left around the perimeter and at all vertical obstructions.
    4. Random-width plank is laid out with alternating courses varying by widths. Start with the widest board, then the next width, etc, and repeat the pattern.
    5. Lay one row of strip or plank along the entire length of the working line.
    6. Top-nail and blind-nail the first row (hand-nail if necessary), using appropriate fasteners. Denser species may require pre-drilling. Each succeeding row should be blind-nailed with the nailing machine whenever possible. At the finishing wall and other obstructions, it may be necessary to blind-nail by hand until top nailing is required.
    7. Racking rule of thumb: Stagger end joints in adjacent rows at least three times the width of the boards, as product allows. Avoid H-joints. See figure A-1.
    8. To minimize expansion on floors wider than 20 feet, more or less spacing between rows may be needed, depending on geographical area, interior climate control, and time of the year.

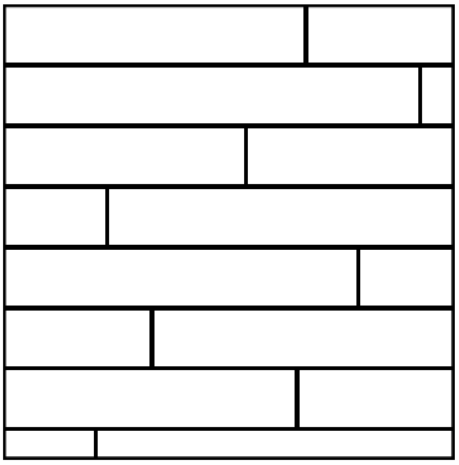


Figure A-1: Acceptable

9. Where spacing is required: use a washer or removable spacer to leave additional space every few rows and/or start in center of room and work out to both sides. Do not use spacers that may cause damage on factory-finished products.
10. Nailing: Blind-nail through the tongue using 1 ½ inch to 2 inch fasteners. Use 1 ½ inch fasteners with nominal ¾ inch plywood subfloor direct to concrete slab. Face-nail boards where needed using 6d-8d casing or finish nails. Fasteners should be spaced every 6-8 inches on blind-nailing, or every 10-12 inches on face-nailing.
11. Blind-nail and face-nail, as necessary, to complete the final rows.

## NOTE: <u>IF installing BAMBOO flooring</u>, see Bamboo Fastener Selection section found at the end of this document.

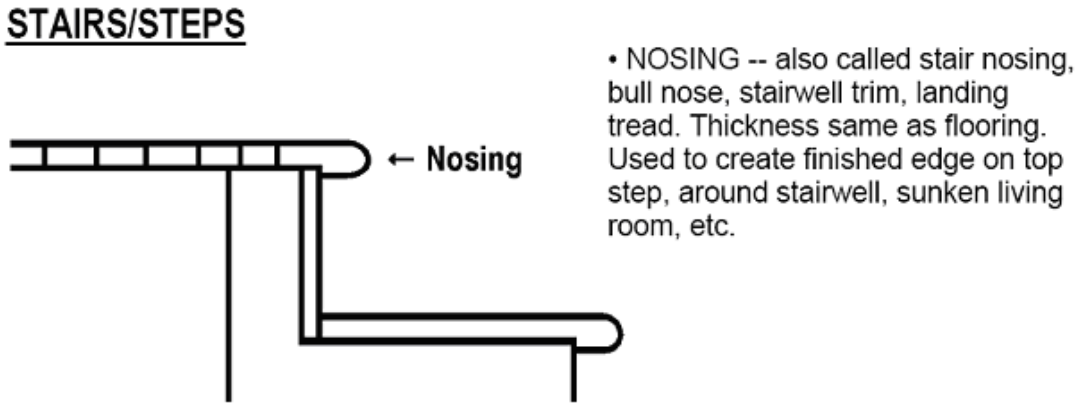
Remember that all walls and other vertical structures in the room must have a ¾ inch expansion space left between it and the floor. If your drywall stops at least ¾" above the floor, the thickness of the drywall can be considered part of the ¾" expansion space requirement.

- Once the floor has been completed the base and the quarter round can be reinstalled into the room. This will cover the expansion gaps left between the wall and the floor.
- Sweep or vacuum the floor using a soft brush attachment.
- Finish by cleaning the floor with an approved hardwood floor cleaner.
- Enjoy your new hard wood floor.

About Trims and Transitions

There is a variety of trims and transitions to accent a floor by covering expansion gaps or transitioning from one flooring surface to another. Before completing your floor it is important to know what trim pieces you will need for your floor.

- T-Mold- The molding is used mostly between tiled surfaces and wood floors. Also used for connecting to existing wood floors.
- Overlap Reducer- Used mostly with floating floors to other floor coverings with lower vertical heights. Also used to transition carpet and floating floors.
- Square Nose Reducer- Used to transition in thickness from wood floor down to thinner surface




Moldings must always be nailed to the wall or subfloor, never to the hardwood flooring.

Additional Information

Waste Factor
Additional square footage ordered for an installation is commonly referred to as a waste factor. During installation, boards are cut to specifically fit your floor. Once boards are cut, the remainder is typically unable to be used elsewhere in your floor. In addition, some boards may not be suitable for installation because of milling or color preferences which means it becomes waste. Finally, unfortunate damage during the life of your floor may call for replacing a board, and having spare flooring from the same stock can help to keep your floor's appearance. The standard in the flooring industry is to order five - ten percent of additional flooring to cover cuts and other waste.

# BAMBOO FASTENER SELECTION

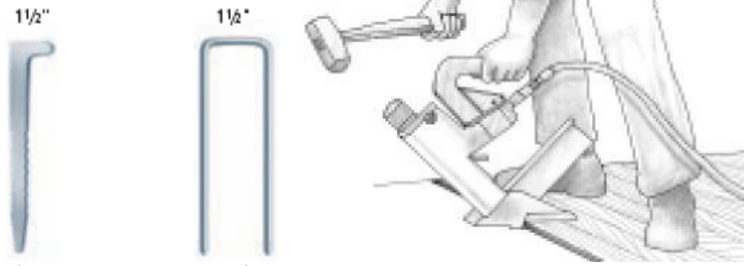
## Nail Down

### Special nailers, shims, shoe accessories or fasteners are usually required to accommodate bamboo flooring

**Note:** Only use flooring machines that are fully adjustable and that engage the top profile over the tongue at the appropriate angle. Make sure that the base is smooth, in good working condition and seats properly against the board to prevent top edge and surface dimple damage. Test and adjust the air pressure to ensure proper setting of staples.

**FASTENER SELECTION (examples only)**

**CLEAT NAILER,** 18-20 gage Cleat nails 1½" long
**Powernail Flex 50m,50p or M200,M250**
**Primatech Q500,Q550**
**STAPLER,** 15 gage Staples 1/2" wide 1 ½"- long
**Bostich MIIIFS**
**Powernail 445FS**




Cleats Staples

**Important:** Set air compressor to 70-80 PSI. **Test and adjust** the air pressure to ensure proper setting of staples. If tongue damage occurs, lower the air pressure.

**Note:** Only use flooring stapler/nailers that are fully adjustable and that engage the top profile over the tongue at the appropriate angle. Make sure that the flooring stapler/nailer is in good working condition and seats properly against the board to prevent top edge and surface dimple damage.

**TEST THE NAILER:** Using one of the recommended staple or cleat type nail guns, test by fastening a sacrificial board to the floor. Check for surface damage in a **well-lighted area**, verify air pressure setting and tongue damage, make all adjustments and corrections before installation begins, remove the test board. **Tongue fracture** and **surface dimpling** during installation is common and can be minimized by (1) using the correct nail thickness, (2) using the recommended shoe adaptor, or (3) changing the angle of nail entry. Many installers will temporarily adjust the nailer angle by applying layers of duct tape to the bottom foot plate of the nailer. In addition, to reduce the occurrence of surface dimpling, the use of flooring nailers with a thinner **18-20 gage cleat nail** is recommended for bamboo especially the much harder **Strand Bamboo**. The use of the over-size base plate in order to distribute the driving force is encouraged. If however, surface dimpling or tongue fracture still occurs, drilling pilot holes and hand nailing may be required. Use caution when fastening Strand Bamboo with Staplers. The drive bar in Staplers are wider and if the fasteners are overdriven can act like a wood chisel, splitting the tongues. Do not mix fasteners when nailing. Staples and cleats hold differently and when mixed can result in irregular seasonal gapping and or movement. When face or top nailing, pick areas of the grain or pattern that would best hide touch-up fillers. Pounding boards together during assembly with a rubber mallet may damage unprotected board edges.

# Solid Bamboo Glue Down

To: Whom It May Concern

From: Tom Miessler
Technical Advisor & COO
L.W. Mountain, Inc.

RE: Gluing bamboo flooring

L.W. Mountain, Inc. only recommends the gluing of "Solid" bamboo flooring to concrete with the following conditions:

1) The concrete must be at or above grade.

2) The concrete must be fully cured.

3) Moisture tests should be done before installation.

4) Only use a Urethane Adhesive which will act as a moisture barrier.

5) Proper techniques for adhesive application and flooring installation are followed.

*Tom Miessler*
*L.W. Mountain, Inc.*