

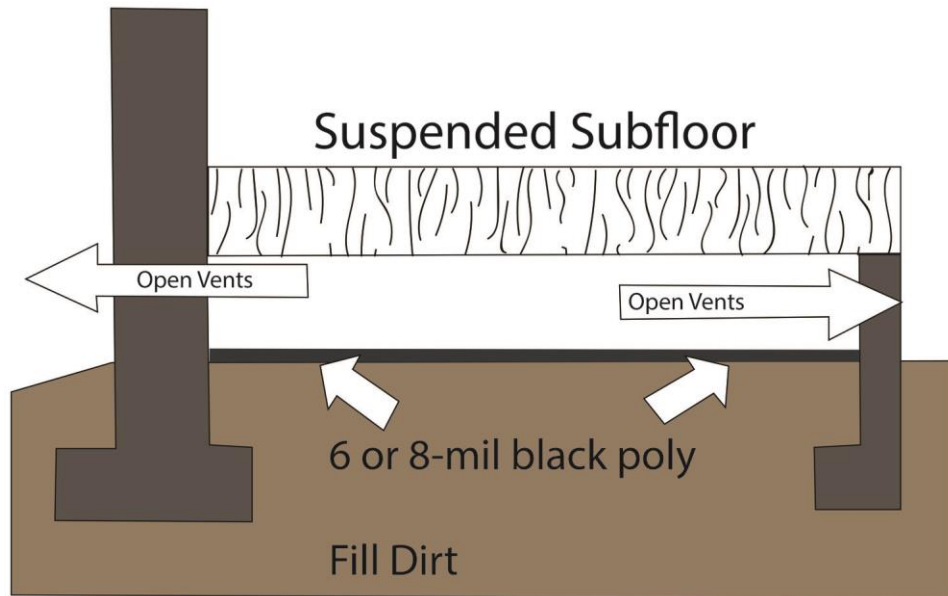
GLUE DOWN INSTALLATION INSTRUCTIONS

For use with Engineered Wood Floors Only

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. All L.W. Mountain, Inc. products are manufactured in accordance with accepted industry standards, which permit grading deficiencies not to exceed 5%. If the material is not acceptable, do not install it and contact the seller immediately.

Climate and Pre-Installation Procedures

- Material should be stored on the job site in rooms where installation is to occur.
- Garages and exterior patios are not suitable for storing wood flooring.
- Do not remove the product from the cartons.
- Do not open just the ends of the cartons.
- HVAC systems must be installed and operating before the flooring is delivered to the job site.
- All concrete, masonry, framing members, drywall, paint and other “wet” work should be thoroughly dry.
 - Exterior Grading should be complete with surface drainage offering a minimum drop of 3’ in 10’.
 - Crawl spaces must be a minimum of 24” from the ground to the underside of the joists. A ground cover of 6-8 mil black polyethylene film is essential as a vapor barrier with joints lapped six inches and taped. The crawl space should have perimeter venting equal to 1.5% of the crawl space square footage.



Make sure the room environment is set at a normal living range 55 – 80 degrees and 35 – 55% humidity. **Normal living conditions** should be achieved and maintained a minimum of fourteen days before flooring is brought into the living area for acclimation purposes. It should be maintained during and after the installation as well. **Proper acclimation is not a measurement of time; it is a measurement of moisture levels.** It requires taking moisture readings of the flooring and the sub-flooring. The flooring is acclimated and ready for installation when it has reached a moisture level consistent with the job site and **normal living conditions**. Using a moisture meter, test the subfloor and hardwood flooring for moisture content. Moisture content of the subfloor should be 6-12% depending on your area. When wood flooring is produced for the North American market, it has a moisture content of between 6-9%. For solid strip flooring (less than 3” wide), there should be no more than 4 percent moisture content difference between properly acclimated wood flooring and sub-flooring materials. For wide-width solid flooring (3” or wider), there should be no more than 2 percent difference in moisture content between properly acclimated wood flooring and sub-flooring materials.

The customer is responsible for maintaining normal humidity conditions (35-55%) within the home throughout the year. L.W. Mountain, Inc. is not responsible for environmental conditions that cause excessive expansion and contraction.

Appropriate Subfloors

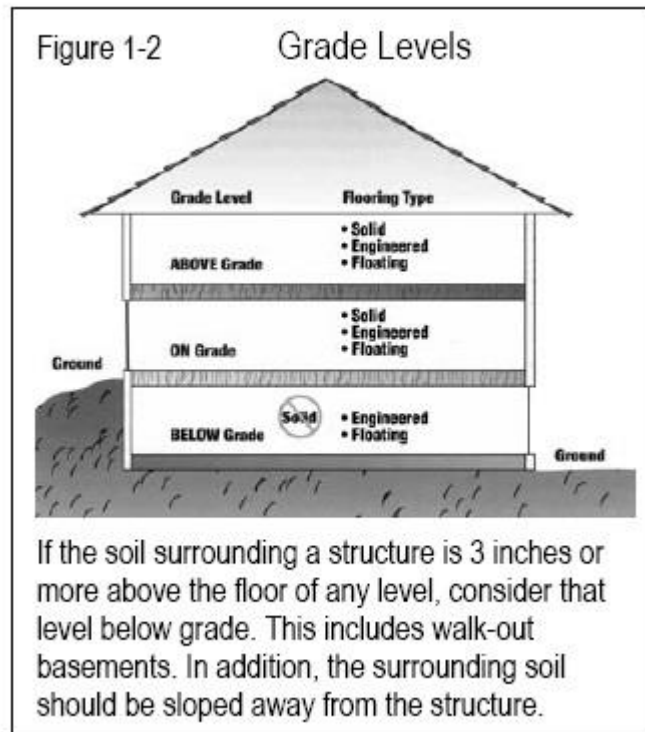
1. Preferred Subfloor
 - 1) ¾ inch CDX plywood in 4 x 8-foot sheets
 - 2) ¾ inch OSB - PS2 rated in 4 x 8-foot sheets
2. Existing wood floors
3. Sheet vinyl or resilient tile as long as it is installed over one of the preferred subfloors.
4. Concrete slabs – Installation should be done by installer with substantial knowledge of N.W.F.A. (National Wood Flooring Association) recommended alternatives for installing over concrete slabs.

5. In-floor Radiant Heat: With radiant heat, heat source is directly beneath the flooring, so flooring may gain moisture or dry out faster than in a home with conventional heating system. For this installation, once slab has cured, turn heat on, regardless of season, and leave it on for at least 5-6 days before installation. Maximum surface temperature should never be more than 85 degrees Fahrenheit (30 degrees Celsius).

Radiant Heated Floors – L.W. Mountain, Inc. only recommends, and warranties certain engineered flooring be installed over in-floor radiant heated subfloors. Contact us for recommended floors. Our solid should never be installed over any kind of radiant heat system.

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. Re-nail 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.



Above Grade - Engineered and Solid floors can be installed.

On Grade - Engineered and Solid floors can be installed. L.W. Mountain, Inc. does not recommend gluing down solid wood on concrete slabs. Solid Bamboo can be glued with appropriate adhesives. *See Technical Letter*

Below Grade - Engineered floors can be installed. Solid wood and bamboo should not be installed below grade.

Installation

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.

Glue Down Method

- LW Mountain, Inc. recommends **moisture testing** and the use of **moisture barriers**. 100% urethane wood flooring adhesives should be used.

Note: If installing over radiant heated subfloor, the adhesive must be approved for use over radiant heat. L.W. Mountain, Inc. ZENITH Urethane and APEX MS Polymer adhesives meet all our installation recommendations.

- To ensure glue transfer, glue manufacturers recommend rolling the flooring throughout installation using an **85-100 lb. roller**.
- For the best result, do not mix adhesive products. Use moisture barriers and adhesives from the same manufacturer's product line.
- Use the trowel size recommended by the adhesive company to get required spread rate and ridging height. Typically, trowel size is determined by board type, size and surface texture. (Ensure a 95% min glue-to-board glue transfer).
- During constant use trowel teeth will wear down. For best glue coverage use a new trowel with each new container of adhesive.
- Discard twisted or warped boards.
- Follow the glue manufacturer's labeling instructions regarding adhesive set time, correct trowel size, removal of surface sealers or contaminants and use of moisture barriers.
- Intermix product from several cartons as you install the floor to insure color, grain and shade mix.
- Install the flooring parallel to the longest wall in the room. Keep the flooring straight using a chalk line.

Blue painter tape #2080 can be used to keep rows or sections of floor boards together until the adhesive has cured. (Incorrect tape can harm the finish.) Tape together 4 or 5 rows at 18" intervals.

Many installers choose to use straps or clamps in an effort to force board rows tighter together during installation. Be aware that **over-strapping** may adversely affect the floor and can result in glue-bond failure, seam peaking, twisted boards, or out-of-square flooring board alignment.

Cured adhesive can cloud, chemically damage or etch the floor's finish. Clean fresh adhesive from the surface of the floor frequently with mineral spirits or manufacturer-recommended remover. Use clean towels, changing frequently to prevent haze and adhesive residue.

Starting Installation

- (1) Determine the starting wall, usually the longest foundation wall. At the two opposite ends of this wall, measure out and mark on the floor the width of several rows of boards, (this could be 12" to 24") include the expansion gap.
- (2) Next, use a chalk line to connect the two marks. Follow this chalked line when applying both the adhesive and boards. **THE FIRST ROWS MUST BE STRAIGHT.**
- (3) Using an approved trowel and wood flooring adhesive, glue the first few rows in the dry area, between the wall and chalk line.
- (4) Start first row by placing the groove side towards the wall with the tongue side facing outwards. Lay flooring into the adhesive following the straight line. Stay off the new hardwood while working.
- (5) Progressively lay-in the next boards by engaging the tongue and groove then drop board into adhesive. Avoid dragging or sliding boards together as this can trap or squeeze glue up in between the boards creating gaps. Continue working 4 or 5 rows together, then measure and cut the last boards as needed to complete the rows.
- (6) The balance of a board cut is used to start a new row, discard lengths under 6". Avoid clustering of end joints. Stagger the ends of the boards correctly. Smaller boards should be intermixed throughout the installed floor. A tapping block can be used to gently tap the boards into proper position. During installation, end gaps between boards can be minimized by temporarily locking a completed row in place by using spacers placed between the wall and the last board of each row, remove when glue has dried.
- (7) Repeat the process. Chalk new lines, spread adhesive and continue working 4 or 5 rows together until completed.

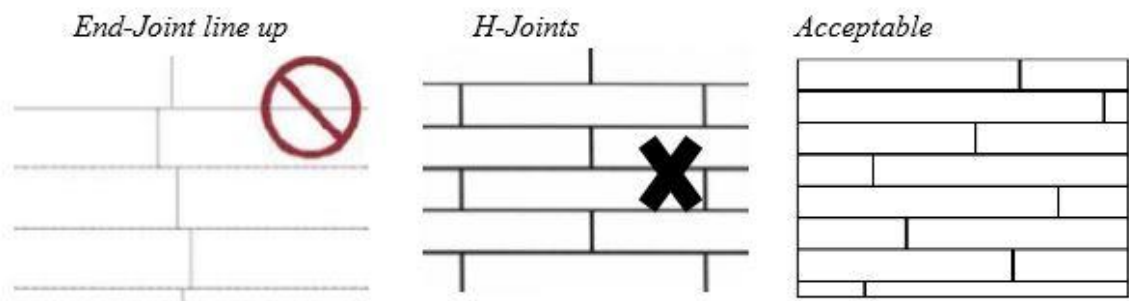


Figure A-1

Racking rule of thumb: Stagger end joints in adjacent rows at least twice the width of the boards, as product allows. **Do not use "stair-step" spacing. Avoid End-Joint line up & H-joints.** See figure A-1.

Installing the Last Row

- Most often, the entire length of the last row will need to be trimmed so that it is narrow enough to fit the remaining space. It should be glued and wedged into place. Leave all spacers in the expansion space until the adhesive has cured, then remove. Keep the floor free from foot traffic, until adhesive has cured.
- Be sure not to spread adhesive too far ahead of your work area.
- If the adhesive skins over and fails to transfer, remove and spread new adhesive to achieve proper bonding to the subfloor. Occasionally lift a board and check for adhesive transfer. Adequate adhesive transfer is necessary to ensure sufficient holding strength.
- When not in use, keep the adhesive container tightly closed to prevent thickening and difficulty in spreading the adhesive. Proper ventilation within the room should be provided. Follow the recommendations on the adhesive container.
- After installation, allow glue to cure for 24 hrs. before replacing furniture and foot traffic.
- For matching milling and finish sheen, save a box of flooring in case of future repairs.

Remember that all walls and other vertical structures in the room must have a $\frac{3}{4}$ inch expansion space left between it and the floor. If your drywall stops at least $\frac{3}{4}$ " above the floor, the thickness of the drywall can be considered part of the $\frac{3}{4}$ " 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.

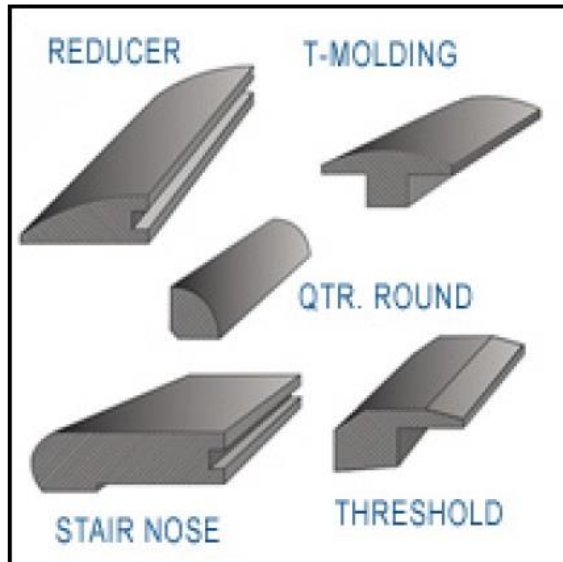
Post Installation

L.W. Mountain, Inc. does not recommend covering the flooring for any extended period. If covering is needed to protect the flooring from additional work, it should be immediately uncovered after the work is performed. Covering the flooring can give other trades the perception that no damage will occur no matter what they do. In addition, foreign matter between the flooring and the cover can cause abrasions to the surface.

This is especially true in NEW home construction. Covering a newly installed floor over a recently poured concrete basement with fresh paint and dry-wall can cause moisture to be trapped under the covering and causing major damage to the new flooring.

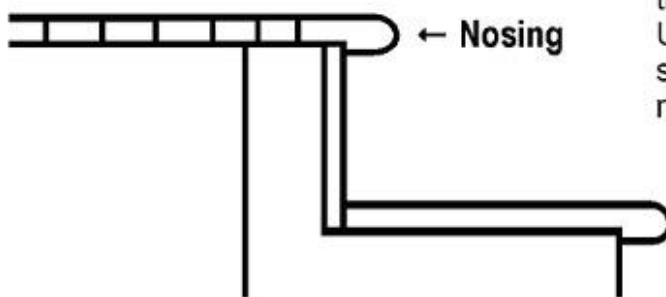
Trims & Transitions

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. These are rough diagrams of common transition pieces, bamboo transitions are different thicknesses.



- T-Mold- The molding is used mostly between tiled surfaces and wood floors. Also used for connecting to existing wood floors.
- Reducer- Used with floors to other floor coverings with lower vertical heights. Also used to transition to carpet.
- Stairnose- Used to transition for step down and staircases.
- Threshold- Used to finish the flooring up to vertical objects and carpet.
- Quarter Round- Used to cover expansion around walls next to base boards.

STAIRS/STEPS



- **NOSING** -- also called stair nosing, bull nose, stairwell trim, landing tread. Thickness same as flooring. Used to create finished edge on top step, around stairwell, sunken living room, etc.

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. 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.