

Engineered Hardwood Flooring Installation Guidelines

We make every effort to ensure that the finest hardwoods are used to create our wood planks, that the natural characteristics of the wood are preserved, and that our finish provides the protection needed to help preserve the look of your hardwood flooring for years.

IMPORTANT

In order to preserve the natural beauty of your new wood flooring, it is important to read all the following installation and maintenance guidelines, prior to installation. Please note: Complying with the following installation and maintenance guidelines will ensure the full benefit of your hardwood flooring warranty. With wood's natural beauty you can expect variations in color, tone, and grain. Therefore, we cannot warrant against color variation within a floor, or variation between samples, printed materials, and the installed floor.

- Installers: Please review with your customers the information under the section: "Installers–Advise Your Customers of the Following."
- Prior to installation, all wet work should be completed, and building must be fully enclosed. Wood flooring should be one of the last items installed in any project. Installation guidelines require that the subfloor be dry, clean, secure, and flat. The manufacturer declines any responsibility for job failure resulting from, or associated with, sub-surface or job-site environmental deficiencies. It is the responsibility of the installer to determine that the job-site environment and subfloors meet or exceed all applicable standards and recommendations of the construction and materials industries.
- Install out of several cartons simultaneously to achieve proper color and shade mix.

Installer/Owner Responsibility

Your hardwood floors are manufactured in accordance with accepted industry standards, which permit a natural or manufacturing defect tolerance, not to exceed 5%.


- Please ensure that a 5% overage in material is ordered to allow for cutting and grading waste factors. Floors installed in a pattern or on a diagonal may require additional material.
- Prior to installation, the installer must inspect all flooring material. Installer assumes all responsibility for final inspection of product quality. Carefully examine flooring for grade, color, manufacturing, finish, and overall quality before installing. The installer must use reasonable selectivity and separate out or cut off pieces with defects, whatever the cause. If the material is not acceptable, do not install it, and contact the seller immediately. Installation implies acceptance of the grade, color, finish, and overall quality of the flooring material.

INSTALLATION INSTRUCTIONS

Tools Needed for Installation

- Electric Miter saw, Circular saw or Jigsaw
- Chalk-line
- Hammer/Rubber Mallet
- Handsaw
- Tape measure
- Pull bar
- Wooden or plastic spacers/wedges
- Broom
- Adhesive and Adhesive Remover
- Trowel
- Tapping Block
- Moisture Testing Equipment

For glue down installations, use quality urethane or cross-link wood flooring adhesive (consult your distributor for adhesive recommendations). Follow manufacturer's guidelines and trowel recommendations when using adhesive. For nail-down or staple-down installations, use the proper nailer (see Nail-down or Staple-Down Installation). For floating installations use quality PVAC wood glue.

 **CAUTION:** By not using the proper tools, "puckering" may result on the face or edge of the plank. Manufacturer is not responsible for damage caused using improper products or installation tools. See your distributor for tool recommendations and use. **Never strike the plank edges directly with a hammer - always use a tapping block to protect the edges of the boards.**

WARNING: Do not use tape to secure flooring planks when installing your prefinished hardwood floor. Use of tape may leave adhesive residue or may harm the finish of your new hardwood floor. Damage resulting from use of tape during or after installation will void your finish warranty.

INSTALLERS - ADVISE YOUR CUSTOMER OF THE FOLLOWING

SEASONS: HEATING AND NON-HEATING

Hardwood flooring product dimensions are affected by varying levels of humidity within your installation area. Use care to control humidity levels within the 35-55% range (humidity may vary with regional conditions). In addition, we recommend the following:

- Heating Season (Dry) - A humidifier is recommended to prevent excessive shrinkage in wood floors due to low humidity levels. Wood stoves and electric heat tend to create very dry conditions.
- Non-Heating Season (Humid, Wet) - Proper humidity levels can be maintained by use of an air conditioner, dehumidifier, or by turning on your heating system periodically during the summer months. Avoid excessive exposure to moisture during periods of inclement weather. Do not obstruct in any way the expansion joint around the perimeter of your floor.

FLOOR REPAIR

Use of stain, filler, putty, or a touch up kit to repair minor damage can be repaired should be considered normal.

Major damage may require board replacement, which should be performed by a professional wood flooring installer. Retain several planks for potential repairs.

PRE-INSTALLATION PROCEDURES

ACCLIMATING THE HARDWOOD FLOORING

HVAC systems should be fully operational at least 14 days prior to flooring installation, maintaining a consistent room temperature between 60°–80° Fahrenheit, and relative humidity between 35-55%. This not only stabilizes the building's interior environment, but also is essential when acclimating hardwood flooring to the job site. Flooring should be acclimated in the area where it will be installed for a minimum of 72 hours. Hardwood flooring should be handled and unloaded with care and stored within the environmentally controlled site. Flooring stored upon "on-grade" concrete floors should be elevated four inches to allow air circulation under cartons. Do not open cartons until you are ready to begin installation.

ROOM PREPARATION

Remove existing baseboards, quarter round and thresholds. Door frames should be undercut using a piece of flooring material as a guide to ensure proper fit and allow for required expansion space for the installed wood flooring.

PRE-INSTALLATION INSPECTION

It is the responsibility of the installer to inspect each board for visible defects prior to installing the board. Any board with visible defects will be replaced at no cost. Installation implies acceptance of material. If a defective board is installed, manufacturer will not assume cost of labor for repair or replacement of defect.

SUBFLOOR TYPE

Engineered hardwood flooring can be installed over the following properly prepared subfloors:

- Concrete: On, above, or below grade installations are acceptable. Must be clean, dry, and smooth to within 3/16" over 10'. Concrete slabs must be at least 90 days old prior to installation with a minimum of 2500 PSI.
- Terrazzo: Should be lightly sanded and cleaned with mineral spirits prior to spreading the adhesive. Allow the mineral spirits to dry prior to spreading the adhesive.
- Ceramic Tile: Tiles must be securely fastened to the subfloor. Surface should be roughened up with a sander or grinder and cleaned to remove all dust. If grout lines are too deep, they must be filled.
- Wood Subfloors: Exposure 1 rated plywood and OSB; or 40 lb. density underlayment grade particleboard. Must be smooth and dry. Squeaks and popping areas should be secured prior to installation. Suspended wood subfloors shall have at least 18" of well-ventilated space below. The ground under crawl spaces must be covered with 6-mil poly film to reduce moisture vapor transmission.
- Vinyl: sheet vinyl and vinyl tile. Vinyl must be securely adhered to the subfloor with full spread adhesive. Loose laid or perimeter glued sheet vinyl must be removed. De-gloss flooring as necessary to create a good adhesive bond using an abrasive pad. Do not sand sub-surfaces such as vinyl or synthetic tiles that may contain asbestos. Do not install over floors that exceed one layer, as the thickness of the flooring materials will prevent an adequate mechanical bond.

Warning: Existing resilient floor coverings and black asphalt adhesive may contain asbestos, asbestos fiber, or crystalline silica. Do not sand, scrape, or abrade these materials. If removal of existing resilient floor covering is necessary, be certain that all precautions are taken, and proper procedures are followed. For information regarding proper removal procedures in the US, please refer to "Recommended Work Practices for the Removal of Resilient Floor Coverings" published by The Resilient Floor Covering Institute.

SUBFLOOR PREPARATION

Subfloor must be:

- Dry, clean, and free of wax, paint, oil, debris, or other contaminants. Scrape smooth and sweep thoroughly prior to installation.
- Flat to within 3/16" per 10' radius. If subfloor levelling is required, "hills" should be sanded down and "valleys" filled with a cementitious underlayment patch, suitable for use with hardwood flooring.
- Structurally sound prior to installation. Secure loose areas to reduce squeaking, and replace water damaged or delaminated sub-flooring or underlayment.

TESTING FOR MOISTURE CONTENT

All concrete subfloors must be tested for moisture content. Several tests are outlined below. These tests do not guarantee a dry concrete slab year-round. With that in mind, a moisture barrier using a minimum of 6-mil poly film should have been established between the ground and concrete. A minimum of at least three test locations for areas up to 1,000 sf are recommended; add one additional test for each 1000 sf or fraction thereof.

- Tramex Concrete Moisture Encounter Meter. Moisture readings obtained should not exceed 3.5 on the upper scale.
- Calcium Chloride. Moisture emission should not exceed 3 lbs./1,000 square feet during a 24-hour period with this test. Per industry standards, 0-3 lbs. is dry, over 3lbs. requires moisture barrier (see below), and over 7lbs is too wet.
- RH (relative humidity) probe: RH testing is determined by in-situ probes at a depth of 1.5" or 40% of the slab depth. Readings should not exceed 75% RH. Installations over a concrete floor with readings over 75% RH require use of a vapor retarder.
- If the above tests reveal excessive moisture or relative humidity levels, install an impermeable vapor retarder or vapor-resistant membrane with a permeance rating of one perm or less. Follow manufacturer's instructions for use when applying any vapor retarder.

Moisture content of a wood substrate must be tested using a moisture meter approved for use testing wood. The difference in moisture content of the wood substrate and the flooring must not exceed 2% prior to onset of installation.

SET UP

- In order to have sufficient material on hand, calculate area and add 5% more flooring material to allow for cutting waste and for minor natural or manufacturing defects. When installing on a diagonal or in a pattern increase your cutting waste accordingly.
- Work out of several cartons at the same time to insure color and shade mix.

LAYOUT

- Layout should be designed to save labor and materials, as well as to enhance the appearance of the floor. Lay the floor so that the end joints are staggered at least 8 inches on adjacent rows to avoid a stair step or H pattern. Staggered or irregular joints mean less material waste and a better overall appearance.
- Plan the layout so that the last row of flooring (which usually needs to be cut lengthwise) is not too narrow. In some cases, it may be necessary to cut the first row as well as the last row.
- Allow expansion space equivalent to the thickness of the flooring to be installed along all walls and vertical obstructions.
- Flooring should be laid at right angle to the floor joist and, if possible, parallel to the longest wall.

FLOATING INSTALLATION

INSTALL UNDERLAYMENTS

Install 6-mil polyethylene vapor barrier over entire flooring surface. Overlap sheets of polyethylene 16" and tape edges creating an airtight seal. Using closed cell foam padding, roll out one roll at a time over vapor barrier being careful not to poke holes or otherwise damage material during installation. Run padding up walls 1" to 1.5" and secure in place with tape. Join padding sections with tape. Tape down any additional loose edges. A "2-in-1" foam padding /moisture barrier specifically for use with wood floors may be substituted for polyethylene.

INSTALLING THE FLOOR

Boards are installed left to right with the groove side facing the wall. Stagger the ends of the boards a minimum of 8 inches on adjacent rows to avoid creating a stair step or H pattern. Leave a minimum expansion space or use spacers (equivalent to the thickness of the floor) around all vertical objects such as walls, poles, and stairs. If starting wall is uneven, trace the contour of wall, using a scribe, onto first row of planks and cut to size.

APPLICATION OF ADHESIVE

To secure the wood floor in a floating application, the boards must be bonded with adhesive in the tongue and groove. We recommend a quality waterproof PVAC glue (polyvinyl acetate). The glue must be applied in a continuous 1/8" bead on the tongue on both the long and short edges, stopping 1/8" from the end of the planks.

GLUING

Dry fit first row using stair-step pattern. Number each plank in the order of installation. When you reach the last plank in first row, turn plank 180° so tongue is flush against tongue of previous plank. Mark the plank and cut to length. Dry fit final plank of row. Begin dry fitting second row, starting with (if possible) left over piece from previous row. Be sure to stagger end of boards at least 8" to achieve effective staggered pattern. Floating installation is completed by gluing flooring profiles together. Separate first two rows noting installation order. Apply a thin bead of glue to the tongue on the side and end of the board. Repeat process with subsequent planks. Press each board firmly together, tapping profiles lightly with a block and hammer if necessary. Clean excess glue from between boards with a damp cloth. If necessary, you may use straps to hold planks together to prevent gapping between rows.

Note: Do not use tape on the surface of the floor. Tape may damage the surface and will void the finish warranty.

Often the last row will not end with a full plank. When this happens, place a full row of planks on top of the last row installed. Insert a spacer against wall, and using a full width plank, trace distance from wall onto final row. Cut planks for final row to designated width. Apply glue and fit into place. Allow 12 hours before placing furniture on floors and 24 hours before introducing heavy objects or full traffic.

Note: Do not install cabinets or walls on top of floating floors.

INSTALLATION OVER RADIANT HEAT (FLOATING INSTALLATION ONLY)

HEATING SYSTEM

- Maximum allowable temperature is 80° Fahrenheit.
- System must be fully operating at normal temperature for a minimum of 21 days prior to floor installation.
- The heating system must be turned off 24 hours prior to, during, and must remain off for 24 hours after installation.
- **Not all wood floors and species are suitable for installation over radiant heat. Please check with your retail sales advisor for suitability of this product over radiant heated subfloors.**

SUBFLOOR

- The subfloor should be completely dry. Moisture on a dry weight basis must not exceed 1.5% for concrete, and 6–8% for wood subfloors.
- A vapor barrier should be installed on all concrete, stone, or mineral subfloors.
- Starting 2 days after completion of installation, gradually increase the temperature over a 7-day period to normal operating level in increments of 5° Fahrenheit per day. Never allow the floor surface temperature to exceed 80° Fahrenheit.
- Maintain recommended interior humidity levels of 35-55% at all times, if necessary, by means of humidifiers.
- Room temperature should not vary more than 15° Fahrenheit season to season. Maintain 35–55% humidity in radiant heated rooms.
- Heating pipes must be covered with 1" of concrete or be a minimum of 1/8" below bottom of plywood subfloor.
- Under plywood subfloors, heat transfer plates or insulation must be in place.

Important Note: Not all species or types of wood flooring are suitable for installation over radiant heat. There is a great risk of gaps or face checking occurring especially when installed over radiant heating systems. Such occurrences are not manufacturing defects. Take the above into consideration when choosing a wood floor to be installed over radiant heat. Only pre-installation and structural warranties are applicable when installing over radiant heat.

NAIL-DOWN OR STAPLE-DOWN INSTALLATION

SUBFLOOR PREPARATION

Remove all dirt and rough areas by thoroughly cleaning, sanding, and leveling. Note: Particle board and radiant heated subfloors are not suitable subfloors for nail-down or staple-down installation. The clean subfloor should be covered wall-to-wall with 15 lb. roofing felt, overlapping 4" along the edges, and securing with tape.

INSTALLATION

To determine a straight first starting row, snap a chalk line the width of a few boards plus required expansion space (equivalent to the thickness of the floor) from the wall. To keep first rows straight and in place, nail a straight 1 x 2 or 1 x 4 holding board on the chalk line. For nailer or stapler, use correct shoe based on thickness of flooring. Use pneumatic nailers or staplers with correct shoe base for the thickness of the product (Powernail® Model 2000 Pneumatic nailer or manual Model 250). When using a pneumatic fastener, set the compressor pressure to recommended PSI and adjust accordingly using a "practice" board. Check for surface and tongue damage before proceeding with installation. Begin installation by racking out several rows at a time, tightening boards as necessary to reduce gaps before fastening. Nail/staple each board placing fasteners every 3-4" and 1-2" from the ends. The last 1-2 rows will need to be face nailed where clearance does not allow blind nailing with stapler or brad nailer. Brad nail or face nail on tongue side. Rip the final row to fit and face nail. If the final row is less than 1" width, it should be edge-glued to the previous row, before installation. The two joined rows can be face nailed as one board. Go back to the starting wall, remove the starting block and complete final rows using 6d nails, counter sunk and filled.

GLUE-DOWN INSTALLATION

To determine a straight first starting row, snap a chalk line the width of a few boards plus expansion space (equivalent to the thickness of the floor) from the wall. To keep first rows straight and in place, nail a straight 1"x 2" or 1" x 4" holding board on the chalk line. Snap another chalk line at a comfortable working distance from the holding board (about 24"). Spread adhesive in first working area. Do not spread more adhesive than can be covered within 20 minutes. When the first section is complete, strike another parallel chalk line from the last row installed, spread the adhesive and complete the section. Repeat section by section until the job is finished. Remove the starting board, spread adhesive and complete the area from the starting board to the wall.

To fit the last piece, lay it upside-down with the tongue edge parallel to the tongue edge of the piece next to it, the short end butting up against the wall. Mark the cutting line on the back of the board and cut it to the correct width (save the cut off piece for the second row). Turn it over, fit and glue it in place.

Note: Do not use tape on the surface of the floor. Tape may damage the surface and will void the finish warranty.

ALL INSTALLATIONS: COMPLETING THE JOB

Remove spacer wedges and cover all expansion gaps along walls and vertical protrusions with baseboard, quarter round, or other

suitable moldings. Affix molding to the wall – NEVER affix molding to the installed flooring.
Clean, sweep, and vacuum installed flooring before use. Avoid damp mopping the flooring for 24 hours after installation.
Avoid moving heavy furniture or appliances over a newly installed floor for a minimum of 24 hours.
Avoid placing area rugs on your newly installed hardwood floor for a minimum of two weeks to prevent discoloration.