

GENERAL INFORMATION

Owner/Installer Responsibility

Beautiful hardwood floors are a product of nature and therefore, not perfect. Our hardwood floors are manufactured in accordance with accepted industry standards, which permit grading deficiencies not to exceed 5%. These grading deficiencies may be of a manufacturing or natural type. When flooring is ordered, 5% must be added to the actual square footage needed for cutting and grading allowance (10% for diagonal installations).

- The owner/installer assumes all responsibility for final inspection of product quality. Inspection of all flooring should be done prior to installation. Carefully examine flooring for color, finish and quality before installing it. If material is not acceptable, do not install it. Contact the seller immediately.
- Prior to installation of any hardwood flooring product, the owner/installer must determine that the job-site environment and the sub-surfaces involved meet or exceed all applicable standards. These instructions recommend that the construction and subfloor be clean, dry, stiff, structurally sound and flat. The manufacturer declines any responsibility for job failure resulting from, or associated with, subfloor and substrates or job-site environmental deficiencies.
- Prior to installation, the owner/installer has final inspection responsibility as to grade, manufacture and factory finish. The installer must use reasonable selectivity and hold out or cut off pieces with deficiencies, whatever the cause. Should an individual piece be doubtful as to grade, manufacture or factory finish, the installer should not use the piece.
- Use of stain, filler or putty stick for touch-up and appropriate products for correcting subfloor voids is accepted as part of normal installation procedures.

Tools & Accessories Needed

NOTE: IT IS EXTREMELY IMPORTANT TO USE THE PROPER ADAPTERS, FACE PLATES, AS WELL AS STAPLES OR CLEATS. IMPROPER FASTENERS, MACHINES AND AIR PRESSURE CAN CAUSE SEVERE DAMAGE. THE MANUFACTURER OF THIS FLOORING PRODUCT IS NOT RESPONSIBLE FOR DAMAGE CAUSED BY USE OF IMPROPER TOOLS OR MISUSE.

- Chalk line & chalk • Recommended hardwood flooring cleaner • Nail set • Tape measure • Hammer
- Electric power saw • NIOSH-designated dust mask • Electric drill and bits
- Compressor and hose w/in-line regulator for pneumatic tools
- "Blind" fastening machine for 3/4" (19 mm) flooring (see note below)* w/1-1/2" or 2" (4-5 cm) fasteners
- Pneumatic finish nailer with 1-1/2" or 2" (4-5 cm) nails • 6-8d finish nails
- Moisture meter (wood, concrete or both) • Broom • Hand saw or jamb saw
- Eye protection • Transition and wall moldings
- Urethane construction adhesive for floors wider than 4" (10 cm)

*Use a "Blind" nailing machine designed for installing 3/4" (19 mm) hardwood flooring

using staples or cleats. The nailing machine MUST HAVE a protective foot attachment to prevent edge bruising and finish damage. Use one of the following: Stanley Bostitch (multiple models) with M-4 foot, Powernail (multiple models) with NailerShoe, Primatech (multiple models) with Trak-Edge.

PREPARATION

Storage and Handling

Solid hardwood flooring should be stored in the environment in which it is expected to perform. Deliver the materials to an environmentally controlled site. The wood subflooring materials must not exceed 13% moisture content. Using a reliable wood moisture meter, measure and document the moisture content of both the subfloor and the hardwood flooring to determine proper moisture content. The difference between the moisture content of the wood subfloor and the wood flooring must not exceed 4% (3% for plank). Acclimate the hardwood flooring on or off the job, as necessary, to meet these requirements. Store in a dry place, being sure to provide at least a four-inch air space under cartons which are stored upon "on-grade" concrete floors. Flooring should not be delivered until the building has been enclosed, with windows and doors in place, and until cement work, plastering and all other "wet" work is completed and dry. Concrete should be at least 60 days old.

Job-Site Conditions

- The building should be enclosed with all outside doors and windows in place. All concrete, masonry, framing members, drywall, paint and other "wet" work should be thoroughly dry. The wall coverings should be in place and the painting completed, except for the final coat on the base molding. When possible, delay installation of base molding until flooring installation is complete. Basements and crawl spaces must be dry and well ventilated.
- Exterior grading should be complete with surface drainage, offering a minimum drop of 3" in 10' (7.6 cm in 3.05 m), to direct flow of water away from the structure. All gutters and downspouts should be in place.
- Solid hardwood flooring may be installed on- or above- grade level. Do not install in full bathrooms. Installation of a suitable subfloor is required over concrete.
- Crawl spaces must be a minimum of 18" (46 cm) from the ground to the underside of the joists. A ground cover of 6-20 mil black polyethylene film is essential as a vapor barrier with joints lapped 6" (15 cm) and sealed with moisture resistant tape. The crawl space should have perimeter venting equal to a minimum of 1.5% of the crawl space square footage. These vents should be properly located to foster cross ventilation (Figure 1). Where necessary, local regulations prevail.
- Permanent air conditioning and heating systems should be in place and operational. The installation site should have a consistent room temperature of 60-75° F (16-24° C) and humidity of 35-55% for 14 days prior to and during installation and until occupied.

Subfloor Conditions

- CLEAN - Subfloor must be free of wax, paint, oil, sealers, adhesives and other debris.
- LEVEL/FLAT - Within 3/16" in 10' (5 mm in 3 m) and/or 1/8" in 6' (3 mm in 2 m). Sand high areas or joints. Flatten low spots with a maximum 6 layers of 15# builders felt, plywood or shims (not leveling compounds).

- **DRY** – Check and document moisture content of the subfloor with the appropriate moisture test. Install moisture retardant materials if needed or desired. Moisture retardant materials must meet minimum perm standards of $3 > 50$ ASTM D4869-88, Type I or F.S. UU-B-790a, Type I, Grade D, Style 1a. Most asphalt saturated papers, #15 felt or Grade D kraft paper meet this perm rating. Common brown kraft builder paper and red rosin generally do not qualify as vapor retarders. Concrete subfloors must be a minimum of 30 days old before testing begins.

- **STRUCTURALLY SOUND** – Nail or screw any areas that are loose or squeak. Wood panels should exhibit an adequate fastening pattern, glued/screwed or nailed as system requires, using an acceptable nailing pattern. Typical: 6" (15 cm) along bearing edges and 12" (31 cm) along intermediate supports. Flatten any swollen edges as necessary. Replace any water-damaged, swollen or delaminated subflooring or underlayments.

NOTE: Avoid subfloors with excessive vertical movement. Optimum performance of hardwood floor covering products occurs when there is little horizontal or vertical movement of the subfloor. If the subfloor has excessive vertical movement (deflection) before installation of the flooring, it is likely it will do so after installation of the flooring is complete.

Subfloors with Radiant Heat

NOTE: Do not install this product over Subfloors with Radiant Heat.

INSTALLING THE FLOOR

General Installation Tips

- Floor should be installed from several cartons at the same time to ensure good color and shade mixture.
- When possible, preselect and set aside boards that blend best with all floor mounted moldings used to ensure a uniform final appearance. Install these boards adjoining the moldings.
- Be attentive to staggering the ends of boards at least 4" to 6" (10–15 cm), when possible, in adjacent rows. This will help ensure a more favorable overall appearance of the floor.
- Large spans exceeding 20" (6 m) in hardwood flooring width, in areas of high humidity, may require the addition of internal or field expansion. This can be accomplished by using spacers, such as small washers, every 10–20 rows inserted above the tongue. Remove the spacers after several adjoining rows have been fastened. Do not leave spacers in for more than two hours.
- When installing products of uniform length, begin the rows with starter boards cut to various lengths. Avoid staggering the rows uniformly to prevent stair-stepping. Boards cut from the opposite end of the row may be used for the next starter boards.
- Always allow a minimum $\frac{3}{4}$ " (19 mm) expansion around all vertical obstructions.
- Always use a protective foot on the fastening machine to prevent mallet damage and edge bruising.

STEP 1: Doorway and Wall Preparation

- Undercut door casings and jambs. Remove any existing base, shoe mold or doorway thresholds. These items can be replaced after installation. All door casings and jambs should be undercut to avoid difficult scribe cuts.
- Install the moisture retardant (if used) parallel to the flooring. Overlap the rows 6" (15 cm). Overlap (top) should be on the same side as the groove of the flooring so that the hardwood will slide smoothly into place. Staple the moisture retardant material as necessary to prevent excessive movement.

STEP 2: Establish a Starting Point

- Installation parallel to the longest wall is recommended for best visual effects; however, the floor should be installed perpendicular to the flooring joists unless subfloor has been reinforced to reduce subfloor sagging.
- When possible, always begin layout or installation from the straightest wall, generally an outside wall.
- In at least two places at least 18" (46 cm) from the corner, measure out equal distance from the starting wall the face width of the starter board plus 1" (2.5 cm) (do not include the width of the tongue in this measurement). Mark these points and snap a chalk line through them. This measurement allows for the required $\frac{3}{4}$ " (19 mm) expansion and the width of the tongue.

STEP 3: Installing First & Second Rows – Starting from Wall

- Use the longest, straightest boards available for the first two rows. For random and alternate width products use the widest plank for the first row. Align tongue of first row on chalk line. The groove should be facing the starting wall.
- Use a pneumatic finish nailer to face-nail the groove side $\frac{1}{2}$ " (13 mm) from the edge at 6" (15 cm) intervals and 1"–3" (2.5–7.6 cm) from each end. Then, blind nail using a finishing gun held at a 45° angle. Nail down through the nailing "pocket" on top of the tongue every 6"–8" (15–20 cm).
- If using finish nails, pre-drill the nail holes with a $\frac{1}{32}$ " (2 mm) bit approximately $\frac{1}{2}$ " (13 mm) from back (groove) edge, 1"–3" (2.5–7.6 cm) from each end, and at 6" (15 cm) intervals. Pre-drill at the same intervals at a 45° angle down through the nailing "pocket" on top of the tongue. Face-nail the groove side where pre-drilled. When complete, blind-nail at a 45° angle through the tongue of the first row. Fasten using 6 or 8d finish nails. Countersink nails to ensure flush engagement of the groove. Avoid bruising the hardwood by using a nail set to countersink the nails.
- Continue blind-nailing using this method with the following rows until blind nailer can be used.

STEP 2–3 Alternative: Installing First & Second Rows – Starting from Center of Room

- Snap a chalk line down the center of the room.
- Install a sacrificial row that extends the entire length of the room on the centerline.
- Install three rows of flooring.
- Remove the sacrificial row and insert wood glue in the groove followed by a slip tongue (spline) in the exposed groove.
- Always glue and nail the slip tongue in place.
- Installation can now continue from the center in both directions.

STEP 4: Dry Lay (Racking) the Floor

- “Dry” lay (rack) materials to cover approximately two-thirds of the room. Begin dry laying (racking) approximately 6” (15 cm) from the edge of the previously installed rows. Avoid pulling boards too tightly together on the sides, as they must move freely when fastening begins.
- Do not cut final board until row has been installed. Cutting the board in advance may result in a board that is too short.
- Visually inspect flooring, setting aside boards that need to have natural character flaws cut out.
- Use these boards for the starting and finishing rows after objectionable characteristics have been removed.

STEP 5: Installing the Floor

- Use the blind nailer to fasten a sacrificial board to the floor. Check for surface damage, air pressure setting, tongue damage, etc., before proceeding. Make all adjustments and corrections before installation begins. Once proper adjustments have been made, remove and destroy the board.
- Begin installation with several rows at a time. Use the fastener schedule for proper spacing based on board width. Fasten each board with a minimum of two fasteners 1”–3” (2.5–7.6 cm) from the ends. To ensure a more favorable overall appearance end-joints of adjacent rows should be staggered a minimum of 4”–6” (10–15 cm) when possible.
- The last 1–2 rows will need to be face-nailed where clearance does not permit blind nailing with the stapler or brad nailer. Pre-drill and face-nail on the tongue side following the nailing pattern used for the first row.
- Rip final row to fit and face-nail. If the final row is less than 1” (2.5 cm) in width, it should first be glued to the previous UNINSTALLED row and the two joined units should be face-nailed as one.

STEP 6: Complete the Installation

- Remove all tape and clean the floor with the recommended hardwood flooring cleaner.
- Install or re-install any transition pieces, reducer strips, T-moldings, thresholds, bases and/or quarter round moldings that may be needed. These products are available pre-finished to blend with your flooring. Nail moldings into the wall, not the floor.
- Inspect the floor, filling all minor gaps with the appropriate blended filler.
- If the floor is to be covered, use a breathable material such as cardboard. Do not cover with plastic.
- Leave warranty and floor care information with the owner. Advise them of the product name and code number of the flooring they purchased.
- To prevent surface damage, avoid rolling heavy furniture and appliances on the floor. Use plywood, hardboard or appliance lifts if necessary. Use protective castors/castor cups or felt pads on the legs of furniture to prevent damage to the flooring.

Maintenance

Wood floors are one of the easiest flooring options to maintain. In fact, with regular cleaning, your wood floors can look beautiful for a lifetime. With today’s advances in wood flooring stains and finishes, cleaning your wood floors has never been easier. Regular maintenance requires little more than sweeping with a soft bristle broom, and vacuuming with a soft floor attachment if your wood floor includes a beveled edge that could collect debris. You also should clean your floors periodically with a professional wood floor cleaning product recommended by a wood flooring professional.

There are other steps you can take to minimize maintenance and maintain the beauty of your wood floors as well.

- Do not use sheet vinyl or tile floor care products on wood floors. Self-polishing acrylic waxes cause wood to become slippery and appear dull quickly.
- Use throw rugs both inside and outside doorways to help prevent grit, dirt and other debris from being tracked onto your wood floors. This will prevent scratching.
- Do not wet-mop a wood floor. Standing water can dull the finish, damage the wood and leave a discoloring residue.
- Wipe up spills immediately with a slightly dampened towel.
- Do not over-wax a wood floor. If the floor dulls, try buffing instead. Avoid wax buildup under furniture and other light traffic areas by applying wax in these spots every other waxing session.
- Put soft plastic or fabric-faced glides under the legs of furniture to prevent scuffing and scratching.
- Avoid walking on your wood floors with cleats, sports shoes and high heels. A 125-pound woman walking in high heels has an impact of 2,000 pounds per square inch. An exposed heel nail can exert up to 8,000 pounds per square inch. This kind of impact can dent any floor surface.
- When moving heavy furniture, do not slide it on wood flooring. It is best to pick up the furniture completely to protect the wood flooring.
- For wood flooring in the kitchen, place an area rug in front of the kitchen sink.

- Use a humidifier throughout the winter months to keep wood movement and shrinkage to a minimum.

Warranty

Pre-Installation Warranty:

We will either replace or refund the purchase price of any flooring found to be defective, prior to installation, in excess of the 5% of miss-milled/miss-graded/miss-finished product allowed to be included under Standard Industry Trade Practices. We will either replace or refund, upon return to us, the purchase price of any uninstalled flooring found to be at a higher moisture content, when taken from the plastic sealed carton, than the 6 - 9% moisture content.

Note: It is the installer's responsibility to check the moisture content first and deem it acceptable for the site. The installer must also inspect the flooring as it is installed and set aside or crosscut out defects found prior to installation. Once the flooring has been installed, the installer has deemed the flooring acceptable and we assume no further responsibility for defects visible at the time of installation which has been installed anyway.

Finish Warranty:

- Pre-finished flooring is flooring supplied with a film finish already applied at the Factory. Industry Standards allow up to 5% of the flooring shipped containing milling, handling, grade defects, as well as occasional finish defects.
- Pre-Installation Warranty, above, covers the replacement/refund for any flooring returned to us in excess of 5% of the total flooring shipped with visible defects, including finish defects, prior to installation.
- 25 year residential
- 3 year light commercial