



Installation Guidelines and Recommended Maintenance Procedures

ATTENTION INSTALLERS

CAUTION: DRY ENVIRONMENTS

Extra caution should be used installing flooring in dry environments. Please note that our flooring products while more stable than traditional wood flooring cannot withstand exposure to extremely dry moisture conditions. For this reason please note that acclimation must take place in a controlled and maintained environment within certain temperature and humidity ranges. HVAC should be in place and operating to facilitate this control. Failure to follow these instructions will void all warranties.

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CAUTION: RADIANT HEAT

Certain species do not perform well over radiant heat. Denser species such as Hickory, Hard Maple, Brazilian Cherry (Jatoba), Tigerwood, Santos Mahogany and Cumaru do not perform well over radiant heat. Species such as Red Oak, Walnut, Rift & Quartered White Oak and American Cherry are more stable and will perform better over radiant. However, be aware, this dry heat can shrink any flooring during the heating months and gaps may be seen in between planks.

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CAUTION: WOOD DUST

Sanding, cutting and machining wood products can produce wood dust. Airborne dust particles can cause respiratory, eye and skin irritation. The International Agency for Research on Cancer classifies wood dust as a nasal carcinogen in humans.

*Power tools should be equipped with a dust collector. If high dust levels are unavoidable and appropriate NIOSH-approved dust mask should be used. Avoid contact with eye and skin.

*First Aid- In case of irritation, flush eyes or skin with water for at least 15 minutes.

I. Important Information

Owner/Installer should carefully inspect material prior to installation. Wood is a natural product and as such will contain variations in grain, color and individual characteristics from board to board. Materials installed with visible defects are not covered by warranty. Any unacceptable material should be returned in full to the vendor. Rejection of material must be done on the full shipment of product, not box-by-box or piece-by-piece. Our flooring is manufactured within accepted industry standards, which allow grading deficiencies not to exceed 5%. It is recommended to add 5% - 10% to order quantities to allow for grading deficiencies and installation waste.

II. Acceptable Jobsite Conditions

*As outlined by the National Wood Flooring Association

- Wood flooring is one of the last jobs of any construction project.
- Prior to delivery of the wood flooring a site evaluation should be done. Check for the following:
 - The building should be completely enclosed.
 - All outside doors and windows must be in place and have latching mechanisms
 - Surface drainage should direct water away from the building.
 - All concrete, masonry, plastering, drywall, and other wet work should be completed and thoroughly dry.
 - All texturing and painting primer coats should be completed.
 - In warm months, the building must be well ventilated each day.
 - Be sure the flooring will not be exposed to extremes of humidity or moisture.
 - Interior humidity should be between 35% and 55% and maintained to prohibit product being exposed to extreme conditions
 - Basements must be dry.
 - Crawl spaces must be dry.
 - Crawl space must be a minimum of 18" (400 MM) from ground to underside of joists.
 - The crawl space earth (or thin "rat slab") must be covered 100% by a vapor retarder of 6 mil black polyethylene.
 - Where a proper ground covering is in place, the crawl space should have perimeter venting equal to a minimum of .1600 of the crawl space square footage.
 - Vents should be properly located to foster cross ventilation.
- The grade level should be noted so that the correct flooring can be specified for the job.
- Subfloor (wood or concrete) should be checked by an appropriate method for establishing moisture content. Average subfloor moisture content

should be within the range as specified for the product and the product specifications.

-Where the minimum jobsite conditions are present, the flooring can be delivered and stored in the rooms in which it will be installed.

-Upon delivery check wood flooring moisture content to establish a baseline for required acclimation.

-Acclimation can be facilitated by breaking the floor units into small lots and/or opening packaging.

-Where building codes allow, operating permanent HVAC systems at least five days preceding installation promotes proper acclimation. Where building codes do not allow operation of the permanent system, acclimation of the flooring must be completed with the temperature and humidity maintained at or near normal living conditions between 60 to 80 degrees Fahrenheit and at the average yearly relative humidity for the area.

Note: The moisture content of the subfloor and wood flooring should be checked by an appropriate method. There should be no more than 4% moisture content difference between properly acclimated wood flooring and subflooring materials, taking into consideration normal living conditions and equilibrium moisture content (EMC).

Note: Local-building codes may differ. Local building codes prevail. Follow local building codes.

-All finished wall coverings and painting must be completed.

Note: Base and shoe mold may be installed and finished after the flooring installation.

-Interior environmental conditions and moisture content of interior wood materials must be at occupied levels. Check moisture content of subflooring, trim, and exposed wood components.

III. Subfloors

-Subfloor must be flat, meeting a minimum of 3/16" within 10' or 1/8" in 6'.

Concrete subfloors - Grind high spots or use a cement based leveling material (minimum compressive strength 3000 psi) to fill all low spots. Follow the leveling compound manufacturer's instruction. Leveling compounds must be allowed to thoroughly cure and dry prior to installation of wood flooring.

Wood subfloors - For staple down application use layers of 15lb. felt or wooden shims to fill low

spots. Staples must be able to penetrate for holding power.

Recommended Subfloor Surfaces

Concrete subfloors- Concrete slabs should be of high compressive strength and constructed to prevent groundwater from permeating the concrete. Engineered hardwood flooring can be installed on, above, or below-grade. In addition, it can be installed over above-ground, suspended concrete floors. The suspended concrete must be a minimum of 1 1/2 inches thick and must be structurally sound. The exception to this is lightweight concrete (which usually contains high amounts of gypsum) having a density of 100 pounds or less per cubic foot. Test for lightweight concrete by using a nail to scratch the surface of the concrete. If the concrete crumbles or turns to powder, it is not sound and you should **NOT** install the hardwood flooring.

Wood Subfloors:

Preferred Subflooring

3/4" (23/32", 18.3 mm) CDX grade Plywood subfloor/ underlayment (Exposure 1), 4'x8' sheets or 3/4" (23/32", 18.3mm) OSB subfloor/ underlayment grade, PS2 rated, sealed side down, with joist spacing of 19.2" (475) on center or less.

Minimum Subflooring

5/8" (19/32, 15.1mm) CDX Plywood subfloor/ underlayment (Exposure 1), 4'x8' sheets, maximum 16" on center joist construction. Follow panel manufacturer's recommendations for spacing and fastening. Typical panel spacing and fastening for joist systems, 1/8" (3.2mm) around perimeter and fastened every 6" (150mm) on bearing edges and every 12"(300mm) along intermediate supports.

Installation of flooring should not be made over joists spacing greater than 19.2 on center or parallel to the joists unless the subfloor has been properly strengthened, applying a second layer of underlayment may be necessary to bring the overall subfloor thickness to 1-1/8".

-Test the moisture content of the wood subfloor and wood flooring with a pin type moisture meter. Wood subfloors must not exceed 13% and the wood flooring should be within 4% of the wood subfloor.

-For existing wood floors install new flooring at right angles to the existing flooring.

-Do not glue, staple, or nail down hardwood flooring over particle board.

-Do not install over existing glue down hardwood floors.

Ceramic tile and terrazzo

All wax and sealers must be removed with an appropriate cleaner/stripper. Ceramic tile and terrazzo should be abraded to allow for proper adhesion. Check for loose tiles by tapping and re-adhere. Fill grout lines with a cementitious latex

fortified leveling compound.

Resilient tile, resilient sheet vinyl

Material must be full spread and secured to the subfloor. Do not install over perimeter glued floors. Do not install over more than one layer that exceeds 1/8" in thickness.

Nail/ Staple Down Only

If old flooring is unsuitable to install new flooring then overlay with new underlayment. Test to conclude that the staples/ cleats are able to properly penetrate and secure the flooring to the subfloor.

Glue Down Only

Do not install over more than one layer that exceeds 1/8" in thickness. Clean flooring with an appropriate cleaner and allow to thoroughly dry. If necessary degloss the floor using an abrasive pad to enhance the bonding of the adhesive, if wax or other coatings are present, completely remove the material with a quality stripper, rinse the floor and allow to dry. Always check for proper adhesion bond prior to installing.

CAUTION: DO NOT SAND any existing resilient tile, sheet vinyl flooring, or flooring felt as they may contain asbestos fibers that are not readily identifiable. Inhalation of asbestos dust can cause serious bodily harm. Check local, state, and federal laws for handling hazardous material before attempting the removal of these floors.

Radiant Heat Installations

Contact your local dealer for installation instructions for radiant heat applications.

IV. Tools Needed for Installation

All Installations

Broom, Tape Measure, Hammer, Chalk Line & Chalk, Hand Saw or Jamb Saw, Recommended Hardwood Flooring Cleaner, Electric Power Saw, Eye Protection, Moisture Meter (wood, concrete or both), Transition and Wall Moldings, NIOSH-designated Dust Mask

Add for Glue-Down

- Recommended Adhesive & Adhesive Remover
- Appropriate trowel

Add for Staple-Down

- Appropriate nailing tool
- Staples for nailing tool
- Compressor and Hose
- Nylon/Plastic Tapping Block

V. Job Preparation

Inspect the Flooring – Inspect material for color, finish, milling, and grade. Hold out pieces that may not be acceptable once installed.

PLEASE NOTE: We do not accept responsibility for any costs incurred when plank(s) with visible defects have been permanently installed.

Undercut Door Casings

Undercut all door casings 1/16" higher than the thickness of the flooring being installed. To do this, use a scrap piece of flooring as a guide. Lay it on the substrate and cut the casing with a handsaw or use a power jamb saw set at the correct height.

Blending of Cartons

To achieve a uniform appearance across the entire floor, we highly recommend that you open and work from several cartons at a time and dry-lay the flooring, mixing the planks from several cartons. This will allow you to blend the planks for maximum aesthetic appearance. Make certain the room is well lit to ensure color is consistent and that any visual defects can be seen and removed.

Match Transition Moldings

For best appearance blend all transitions and moldings to planks that have similar color and graining. Set them aside for use as needed.

Layout of Flooring

"Racking the Floor" is essential to achieve a random appearance. Start by either using random-length planks found in the carton or by cutting four or five planks in random lengths, differing by at least six inches. As you continue working across the floor try to maintain a six-inch minimum between end joints. Randomly install different lengths to avoid a patterned appearance. Never waste materials; the end cuts from starter rows should be used at the opposite side of the room to complete rows or used to start the next row.

Expansion space

Expansion space around the perimeter is required and should be equal to the thickness of the flooring material. For floating installation the minimum is 1/2" regardless of the thickness of the material. For commercial installations use a minimum of 1/2" expansion.

VI. GLUE DOWN INSTALLATION

NOTE: Real Wood Floors recommends using a urethane adhesive similar to Real Wood Adhesive for glue down applications. When using our adhesive we recommend using a 3/16" x 1/4" x 1/2" V-Notch trowel.

Before you begin using the following instructions, please refer to the Acceptable Jobsite conditions and Job Preparation information above.

Getting Started

1. Establish a starting point. An outside wall is best: it's most likely to be straight and square with the room. Measure out from this wall, at each end, the width of two planks including the tongue plus the space needed for expansion.
2. Snap a chalk line from these points, parallel to that wall.
3. Prior to installing the flooring, fasten a straight edge inside the chalk line as a guide and to prevent the row of planks from shifting during installation. When gluing to a slab the straight edge may have to be screwed into the concrete. The straightedge could be a straight piece of lumber or piece of flooring. Alternatively, the first row can be face-nailed with finishing nails into the wood subfloor or sprig nailed into a concrete subfloor.

Spreading the Adhesive

4. Using the proper trowel, hold the trowel at a 45° angle to ensure proper spread rate of adhesive. Apply pressure to allow the trowel to leave ridges of adhesive on the substrate with little adhesive left between the ridges. This will help to achieve the proper spread rate of the adhesive. Temperature and airflow across the adhesive can have an affect on the open time of the adhesive.

Installation

5. Spread adhesive from the chalk line/straightedge out to approximately the width of two pieces of flooring. Install the first row of planks along the chalk line/straightedge and secure into position with the tongue facing the starter wall.

NOTE: Accurate alignment is important. Uneven starter rows can cause sides and ends to gap in proceeding rows of flooring. With the starter rows complete, you can begin the next row. Use blue tape to hold the boards together tight to prevent movement or gapping.

6. When the first two starter rows are straight and secure, spread adhesive 2 to 3 feet wide across the length of the room. Never spread more adhesive than can be covered in 30 to 45 minutes. If the adhesive has skinned over remove and trowel new adhesive.
7. Continue to install planks and push them into place. Place the tongue of the board into the grooves of installed boards and press into the adhesive. As you continue working across the floor try to maintain a six-inch minimum space between end joints. Install different lengths at random to avoid a patterned appearance.

NOTE: Never strike a rubber mallet or hammer directly on the flooring to engage the tongue-and-groove. This practice can damage the flooring and/or the finish. Use a tapping block if necessary.

8. Remove the adhesive from the surface of the installed flooring as you work – this will help to save time. A damp rag with water or mineral

spirits will remove most adhesives. Frequently change towels to avoid leaving a haze on the flooring surface.

9. As you approach the end wall it may be necessary to rip the width of the last row – be sure to allow for the expansion space along the end wall. Once the final cuts are made set planks into place.

10. After the floor is complete remove the straight edge and glue down the first two boards.

11. Foot traffic should be restricted for a minimum of 6-8 hours and wait 24 hours before permitting moving of furniture onto the floor.

12. Carefully remove the blue tape 24 hours after installation is completed. Do not wait more than 24 hours to remove tape since it could leave residue on the floor

13. Clean any wet adhesive from the flooring with a lightly dampened clean cloth or sponge. If the adhesive has dried, use mineral spirits on a clean cloth.

Final Inspection

After the floor has been cleaned, inspect the floor for nicks, scratches, gaps or planks that may have moved during installation, as well as any other imperfections that need attention. Touch up nicks and scratches with touch-up products. In typical climates, the new floor can accept foot traffic within 24 hours. In areas where additional curing time is required, more time may be needed.

VII. NAIL OR STAPLE DOWN INSTALLATION

NOTE: Our flooring is not warranted against squeaking, popping or crackling when using staple-down or nail-down installation methods unless directly related to the manufacturing process. Some squeaking, popping or crackling is normal and possible when using staple-down or nail-down installation methods. These symptoms may be aggravated in drier areas or during dry conditions.

Before you begin using the following instructions, please refer to the Acceptable Jobsite conditions and Job Preparation information above.

Set Up and Use of Pneumatic Staplers and Nailers

Minor occasional noises within the flooring are inherent to all staple/nail-down installations and can change as environmental changes occur. This is not a manufacturing defect and is therefore not covered under our warranties (see warranty brochure for complete warranty coverage). You can help reduce squeaking, popping, and crackling by being sure that the subfloor is structurally sound, does not have any loose decking or joists, and is swept clean prior to installation. You should also be sure that your stapler or nailer is setting the fastener properly, not damaging the planks, and that you are using the correct nailing schedule. When used improperly, staples or cleats can damage wood

flooring. If the tool is not adjusted properly the staples/ cleats may not be positioned at the proper angle and cause blistering, peaking, squeaking, or cracking of the floor. Some models may require the use of an adapter to adjust for proper thickness. Test the tool on a piece of scrap material first - set the stapler/nailer flush on the tongue side of the plank and install a staple/cleat. Should the staple/cleat penetrate too deeply reduce the air pressure; if the staple/cleat is not deep enough then increase the air pressure using an in-line regulator. The crown of the staple/ cleat should sit flush within the nail pocket to prevent damage to the flooring and to reduce squeaking. The flooring manufacturer is not responsible for damage caused by the mechanical fasteners.

IMPORTANT NOTE:

For ½" thick products the minimum length staple/ cleat is 1 ¼".

For ¾" thick products the minimum length staple/cleat is 1 ½".

Read and follow the manufacturer's instructions for complete set-up and operation of equipment.

Getting Started

1. After the subfloor has been properly cleaned and prepared cover the subfloor with 15lb. asphalt felt paper. This material will help to keep the floor clean and help to retard moisture from below. If the subfloor is nailed to a concrete subfloor a proper moisture barrier is required.
2. Establish a starting point. An outside wall is best: it's most likely to be straight and square with the room. Measure out from this wall, at each end, the overall width of the plank including the tongue and the space needed for expansion.
3. Snap a chalk line from these points, parallel to that wall.
4. Install the first row of starter planks along the chalk line/straightedge and secure into position with the tongue facing away from the starter wall (toward you). This first row or two will have to be face-nailed with 1 ¼" or 1 ½" finish nails. Countersink nails and fill with appropriate colored wood filler – remove excess filler from surface.
5. Blind nail at a 45° angle through the tongue 2" from the endjoints and every 8" in between along the length of the starter boards. Depending on the width of the flooring it may be necessary to do this for the first few rows prior to using a pneumatic stapler/nailer.

NOTE: Accurate alignment is important. Uneven starter rows can cause sides and ends to gap in proceeding rows of flooring. With the starter rows complete, you can begin the next row.

Installation

6. Continue to install the flooring making sure to nail/staple 2" from the ends and every 8" thereafter. Make certain the tool is adjusted properly to ensure that the fastener is at the proper angle and is flush within the nail pocket. As you continue working across the floor try to maintain a six-inch minimum space between end

joints. Randomly install different lengths to avoid a patterned appearance.

7. If needed use a tapping block to help engage the boards together until the tongue-and-groove is flush and tight and no gaps are present between adjacent planks.

NOTE: Never strike a rubber mallet or hammer directly on the flooring to engage the tongue-and-groove. This practice can damage the flooring and/or the finish. Use a tapping block if necessary.

8. As you approach the end wall it may be necessary to rip the width of the last row – be sure to allow for the expansion along the end wall. Once the final cuts are made set planks into place.

9. The last few rows will need to be fastened by hand. To fasten the final planks into place, you must either blind nail or face-nail through the surface on the final planks. Countersink nails and fill with appropriate colored wood filler – remove excess filler from surface with a clean rag and approved cleaner.

VIII. Floating Installation

Before you begin using the following instructions, please refer to the Acceptable Jobsite conditions and Job Preparation information above.

IMPORTANT NOTE:

Floating installation is only applicable to 4" and wider width flooring. We do not recommend or warranty floating 3 ¼" or 2 ¾" flooring.

Getting Started

Adjust all door casings and wall moldings for proper installation cutting anywhere necessary to allow flooring to slide under. Plan to leave 5/8" of expansion at all walls and vertical obstructions.

Make sure subfloor is level to within 3/16" in 10' or 1/8" in 6'. Sweep subfloor thoroughly and remove any paint or drywall mud. Install proper underlayment of 1/8" foam, cork or resilient underlayment. Some underlayments do not act as a vapor retarder. When using the floating method over concrete slab install a 6-mil polyethylene vapor barrier overlapping and taping all seams with moisture resistant tape. Moisture test and document slab for moisture content prior to installation.

1. Working from different boxes to ensure color uniformity, select the longest available boards. Lay them out the length of the room. Begin in the right corner of the room with the tongue side facing you and the groove facing the wall. The end groove should be facing the end wall. Align this row with your starting line.

2. Take the second board and place a 1/8" continuous bead of glue on the bottom edge of the **end groove**. There is no need to apply glue to the long side of the board at this time as you'll apply it to the next row. Remove any excess glue with a damp towel. You can use blue painters tape to temporarily hold boards in place as you work across the floor.

3. Cut the final board to length ensuring you've left 5/8" of expansion between the end of the row and the wall. You can use the cut end of the material as a starter board for your next row.

4. Starting back in the right corner now begin selecting boards for the next row ensuring at least 6" of spacing between the end joints.

5. Place a continuous 1/8" bead of glue along the inside bottom edge of the end and side groove. If you see glue come up between the planks you're using too much glue. After 4-5 rows check the floor for square as you will still have time to adjust it before the glue sets. Ensure the floor is aligned properly and continue on as necessary using blue tape to hold the flooring temporarily in place. Remove excess glue as you go.

6. After 24 hours remove all blue tape from floor. Check for gaps or chips and fill accordingly with wood filler. **DO NOT ROLL FLOOR** as this will loosen glued joints.

7. Give glue adequate dry time before finishing as the movement can cause the joints to become loose.

IX. Complete the Installation (all methods)

1. Clean the floor with an appropriate cleaner
2. Install or re-install any moldings or trim.
3. If the floor has to be covered to protect from construction traffic use a breathable material such as cardboard. Plastic could lead to moisture being drawn up through the subfloor causing the floor to move.

X. Maintenance

- Install protector pads on bottom of all furniture
- Place rugs at all points of entrance to capture abrasives and moisture. Shake out rugs regularly.
- Sweep, vacuum and or dust mop regularly to remove abrasives and dirt.
- Do not use household dust treatments to clean the floor as they will contaminate the finish making it harder to refinish the floor later.
- Keep high heels and other shoe bottoms in good repair as they can dent the floor.
- Wipe up spills immediately with a dampened cloth and follow up with approved cleaner.
- Remove stains with a cloth dampened with approved cleaner.
- Do not use petroleum-based cleaners on floors