

SOLID HARDWOOD FLOORING INSTALLATION GUIDELINES

IMPORTANT INFORMATION BEFORE YOU BEGIN

It is **EXTREMELY IMPORTANT** that you read and understand this information completely prior to starting, since improper installation will void the warranties. These guidelines are merely general recommendations and suggestions for the installation of solid hardwood flooring and they assume conditions and configurations that are typical or normal for most installations. An owner should rely on the installation expertise of the owner's professional installer to determine the most appropriate methods of the installation of subflooring and hardwood flooring. Nothing in these guidelines should be construed as a warranty or guarantee that adhering to these guidelines will necessarily result in the proper installation and functioning of hardwood flooring due to the generic nature of the guidelines. **ALL WARRANTIES, INCLUDING ANY RIGHTS AND REMEDIES, ARISING OUT OF THE SALE OF HARDWOOD FLOORING BY ANDERSON HARDWOOD FLOORING OR ANY RETAILERS ARE LIMITED TO THOSE DESCRIBED IN THE "LIMITED RESIDENTIAL FLOORING WARRANTIES" PUBLISHED BY ANDERSON HARDWOOD FLOORING ("ANDERSON WARRANTY"), WHICH DOCUMENT IS INCORPORATED INTO THESE GUIDELINES BY THIS REFERENCE. IN THE EVENT THAT YOU DID NOT RECEIVE A COPY OF THE ANDERSON WARRANTY, YOU MAY OBTAIN A COPY FROM EITHER ANDERSON HARDWOOD FLOORING OR THE RETAILER THAT SOLD YOU THE WOOD PRODUCTS.**

Installer/Owner Responsibility

Carefully inspect **ALL** material prior to installation for defects. Materials installed with visible defects are not covered under warranty. Remember – Wood is a natural product that can vary in color, grain, and contains natural characteristics that varies from plank to plank and is to be expected. We do not warrant against these natural variations from plank to plank or variations from sample to plank. Remember – If you are not satisfied with the flooring prior to installation, simply return the cartons to your dealer for a full replacement. Accepting or rejecting the material must be done on full shipment of quantities only, not carton by carton or plank by plank.

We urge you, as the final inspector to inspect for proper color, finish, style, and quality PRIOR to installation. Verify that the flooring is the correct material. Care should be taken at this time to remove or repair particular characteristics you do not desire. Manufacturer declines responsibility for any costs incurred when plank(s) with visible defects have been installed



CAUTION: WOOD DUST

The International Agency for Research on Cancer has classified wood dust as a nasal carcinogen. The sawing, sanding, and/ or machining of wood products can produce wood dust that can cause respiratory, eye, and skin irritations. Equipment should be equipped with a dust collector to reduce airborne wood dust. Wear an appropriate NIOSH designated dust mask to reduce exposure to airborne wood dust. Avoid contact with eyes and skin. In case of irritation, flush eyes or skin with water for at least 15 minutes. . For further technical or installation questions or to request a Material Safety Data Sheet please call (864)-833-6250.

TOOLS AND EQUIPMENT NEEDED:

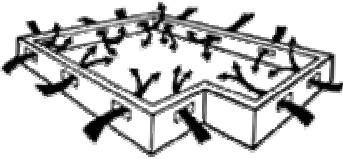
Broom or vacuum
Tape Measure
Chalk Line & Chalk
Hammer

Moisture Meter
Hand Saw
Electric Miter Saw
Manual/pneumatic nailer/stapler

Safety Glasses
Colored Wood Filler
Bona® Hardwood Floor Cleaner
Pry Bar

PRE- INSTALLATION/ JOBSITE CONDITIONS

It is the installer/ owners' responsibility to ensure that the jobsite conditions and jobsite sub floor are environmentally and structurally acceptable prior to the installation of any hardwood flooring. The manufacturer shall not have any responsibility for failures or deficiencies of hardwood flooring resulting from or related to sub-floor, sub-surface, or job-site environmental conditions. All substrates must be clean, flat, dry, and structurally sound.

- All sub floors and sub floor systems must be structurally sound and must be installed following their manufacturer's recommendations. Local building codes may only establish minimum requirements of the flooring system and may not provide adequate rigidity and support for proper installation and performance of a hardwood floor. Whenever possible install the planks perpendicular to the floor joists for maximum stability. Our warranties **DO NOT** cover any problems caused by inadequate substructures or improper installation of said substructures.
 - Test wood sub floors and wood flooring for moisture content using a pin-type moisture meter. The moisture content of the sub floor should not exceed 12% and the moisture content of the wood should be within 3% of the sub floor moisture content. Failure to test for proper moisture content of the wood flooring and sub floor can result in cupping and/or other problems related to or associated with moisture and is not covered under the manufacturer's warranty.
 - Basements and crawl spaces must be dry. Use of a 6 mil black polyethylene is required to cover 100% of the crawl space earth. Crawl space clearance from ground to underside of joist to be no less than 24" and perimeter vent spacing should be equal to at least 1.5% of the total square footage of the crawl space area to provide cross ventilation. (See figure A)
 - The sub floor must be flat, meeting a minimum of 3/16" within 10' or 1/8" in 6'.
Wood sub floors – For nail/staple down application use layers of 15lb. felt or wooden shims to fill low spots. Staples must be able to penetrate for holding power.
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- Figure A
- All "wet" work – i.e. – paint, drywall, concrete, masonry, plumbing must be complete and dry well in advance of delivery of hardwood flooring
 - Gutters and downspouts should be in place and the exterior grade complete to allow for proper drainage of water away from the building's exterior perimeter.
 - Permanent HVAC should be on and operational a minimum of 7 days and maintained between 65 – 75 degrees and a relative humidity of 35%- 55% prior to delivery, during, and after installation of the flooring.

STORAGE AND HANDLING

Solid wood flooring should be stored in the same environment in which it is expected to perform. Acclimate the product for a minimum of 72 hours or as long as needed in order to meet the proper installation requirements. Opening of the cartons will help to better acclimate material. Material is acclimated once it has reached a moisture equilibrium consistent with the temperature and relative humidity of the job site and normal living conditions. Do not store materials directly on concrete – elevate material at least 4" above concrete. Do not deliver material in inclement weather. Always store material in a dry place.

Recommended Sub floor Surfaces

Wood Sub floors:

Preferred Sub flooring 3/4" (23/32", 18.3 mm) CDX grade Plywood sub floor/ underlayment (Exposure 1), 4'x8' sheets or 3/4" (23/32", 18.3mm) OSB sub floor/ underlayment grade, PS2 rated, sealed side down, with joist spacing of 19.2" (475) on center or less.
Minimum Sub flooring - 5/8" (19/32, 15.1mm) CDX Plywood sub floor/ 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 sub floor has been properly strengthened, applying a second layer of underlayment may be necessary to bring the overall sub floor thickness to 1-1/4".

- Test the moisture content of the wood sub floor and wood flooring with a pin type moisture meter. Wood sub floors must not exceed 12% and the wood flooring should be within 3% of the wood sub floor. (See figure B)
- For existing wood floors install new flooring at right angles to the existing flooring.
- Do not install solid hardwood flooring over particle board.
- Do not install over existing glue down hardwood floors.
- Do not install over radiant heated sub floors.
- Do not install below grade



Figure B

Pre installation/ 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. (See figure C)



Figure C

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 appearances 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 space between the 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 of 3/4" must be left around the perimeter of the room and at all vertical obstructions. More or less spacing may be needed depending on the geographical region, interior climate, and or time of the year. When additional spacing is needed this can be accomplished by inserting thin spacers or washers above the tongue every 10 to 20 rows and then removed after several adjacent rows have been installed and/or start in the center of the room working in two directions.

Getting Started

Step One – Establish a Starting Point

Wall to Wall Installation

Prior to installing flooring roll out 15 lb. asphalt saturated felt paper – overlap joints 6" and staple if needed. This material will help to keep the floor clean and help to retard moisture from below (there is no complete moisture barrier system for staple or nail-down applications).

- Determine the direction of the floor joists – Run the flooring perpendicular (90°) to the floor joists. Do not run plank flooring parallel to floor joists unless sub floor is a minimum of 1 1/4" in thickness.
- Establish a starting point – preferably the longest exterior wall running parallel with direction of flooring and perpendicular to the joists.
- Measure the width of the material plus 1" for expansion and width of the tongue.
- Measure out the distance (width of plank + 1") in at least 2 places from the starting wall and 12" from the corners. (See Figure D) Snap a working line parallel to the starting wall.

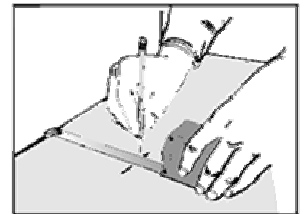


Figure D

Center To Wall Installation

- Alternative method to install flooring when the area is greater than 20' in width.
- Measuring out from an exterior wall, snap a line in the center of the room.
- Top nail a sacrificial row along the chalk line with the groove side aligned with the chalk line.
- Install 3-4 rows of flooring and nail/staple into place.
- Remove sacrificial row and insert spline (slip tongue) into the groove, glue and blind nail the spline into place.

Step Two: Lay Out

- Chose the longest and straightest boards and align the planks tongue with the working line, cut the last plank to the proper length leaving a 3/4" from the end wall.
- Pre-drill holes spaced approximately 6" apart and 1" from the back edge (groove side) and top nail the board into place using 7d or 8d nails, use a nail set to avoid damage to the flooring.
- Continue to blind nail each succeeding row until the nailer/stapler can be used to install the flooring .
- It is critical to make sure the starting row is properly aligned and straight.
- Pre-drill holes spaced 6" to 8" apart at a 45° angle along the tongue and blind nail the plank – countersink nails with a nail set.

Step Three: Racking the floor

- Once the first row is in place continue to lay out the planks. Working from several cartons blend the planks and stagger the end joints a minimum of 6" apart to ensure a favorable appearance.

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 sub floor 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. 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. (See Figure E) The flooring manufacturer is not responsible for damage caused by the mechanical fasteners.



Figure E

Step Four: Installation of Flooring

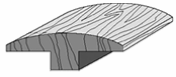
- Once enough of the planks are laid out begin installing the planks using either a manual or pneumatic nailer/stapler. Check to ensure the fastener is set to the proper depth. Blind nail through the tongue using a minimum 2" staple or barbed cleat and fasten the planks approximately 1 1/2" to 3" from the ends and every 8" apart. (Minimum of 2 fasteners per plank)
- Glue the end joints together using a PVA wood glue.
- Continue installing planks across the room ending at the far wall using the manual or pneumatic nailer/ stapler and following the recommended nailing schedule.
- As you reach the far wall it may be necessary to blind nail by hand until top nailing is required.
- It may be necessary to rip the last row to allow for the 3/4" expansion. If the last row is 1" or less glue the pieces to the last full uninstalled row and install them together. If needed use a pry bar or lever to fit the remaining rows tight to the installed planks.
- Top nail the last one to two rows by pre drilling the holes and countersink nails. Fill nail holes with a colored wood filler.

Step Five: Completing the Job

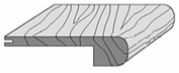
- Clean the floor with Bona® Swedish Formula® Hardwood Floor Cleaner
- Install transition pieces -i.e. – thresholds, t-moldings, base boards and quarter round. Nail moldings to wall, not the floor.
- Inspect final floor for nicks and or minor gaps – fill with appropriate color wood putty.
- Leave Warranty and Maintenance brochure with customer.
- Unused material should be left with owner and stored in a dry place in case of future repairs are needed.
- Use plywood or hardboard when moving heavy appliances or furniture across floor.

Floor Protection During Construction: Always protect the surface of the installed flooring during construction by laying a quality rosin paper or other paper that will allow the floor to breathe, taping it to the baseboards. Never use plastic or polyethylene sheeting to cover the floor since they will trap moisture that will damage the flooring.

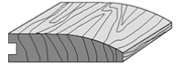
Moldings Help You Make Easy Transitions



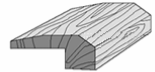
T-Moldings: Used to create a transition between floor coverings of similar heights or to cover an expansion gap.



Stair Nosing: Used in conjunction with flooring installed on steps or provide a finished edge. Secure by gluing and nailing/ screwing down into place. Pre drill holes to avoid splitting



Reducer Strips: Used to transition floor coverings of differing heights- wood floor to vinyl, vinyl composition tile, or low-pile carpet. Reducer strips can also be used to border a fireplace.



Thresholds: Used to transition floor coverings or to create a break between floor coverings – wood to carpet, can be used as a trim molding around fireplaces or sliding glass doors.



Shoe Base Moldings: Used to cover the expansion space between the floor and vertical surfaces. Can be used as a substitute for Quarter Round moldings when space is a limitation.



Quarter Round Moldings: Used to cover the expansion space between the Wall Base and your hardwood floor. You can also use them to make smooth transitions between the floor and cabinetry.



Wall Base Moldings: Can be stained and finished to the color of the flooring to be used as an alternative to painted baseboards.

FLOOR CARE AND MAINTENANCE

Remember, like any floor covering, our real wood floors will show signs of wear over time, depending on the size and lifestyle of your family. By observing a few precautions and setting up a regular cleaning routine and maintenance program, you can expect years of beauty from your floor. The following are examples of the reasonable and necessary maintenance you are expected to perform. They are not intended to be an exclusive list. See warranty brochure for complete details of maintenance instructions

- Sweep or vacuum regularly since built-up grit can damage the surface of the wood. The vacuum head must be a brush or felt type. Be certain the wheels of the vacuum are clean and do not damage the finish. **DO NOT USE A VACUUM WITH A BEATER BAR HEAD.**
- Remove spills promptly using a soft cloth and recommended cleaning products.
- NEVER wet-mop, damp-mop, or flood your floor with water or other products. This can severely damage the flooring and will void the warranties. The use of Dry Swiffer® by Proctor & Gamble, or other similar product, is highly recommended. Do not use hardwood floor cleaning machines.
- The use of approved maintenance and floor-care products, including but not limited to BonaX Swedish Formula Hardwood Flooring Cleaner and Basic Coating Squeaky Hardwood Floor Cleaner, is highly recommended.
- **IMPORTANT:** Do not use oil soaps, liquid or paste wax products or other household cleaners that contain lemon oil, tung oil, silicon or ammonia since these warranties do not cover damage caused by non-recommended products. Use of these and other such products will harm the long-term performance of your floor and may also affect its recoat ability.
- Keep pets' nails trimmed, and paws clean and free of dirt, gravel, grease, oil, and stains.
- Place protective pads beneath furniture legs and feet to reduce scratches and dents.
- Use a dolly and protective sheets of plywood when moving heavy objects, furniture, or appliances.
- Make certain furniture casters are clean and operate properly (a minimum 1" width is recommended).
- Remove shoes with spiked or damaged heels before walking on floor.
- Exposure to the sun and its UV rays accelerates the oxidation and aging of wood and fabrics. This causes the stain and/or wood to fade and/or to change color. We recommend that you rearrange rugs and furniture periodically so the floor ages evenly. These warranties do not cover damage from the sun and its UV rays.
- Use area rugs in high traffic areas and pivot points (e.g., stair landings, room entries, etc.), especially if you have a large family or indoor pets. Do not use rubber backed rugs.