¾”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.

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, DO NOT install the flooring and contact your dealer immediately. 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.**

- **The use of stain, filler, or putty stick for the correction of minor defects during installation should be accepted as normal procedure.**
- **5% cutting allowance, depending on layout, must be added to the actual square footage amount needed. (Diagonal, herringbone, or bordered installations will require a higher percentage)**
- **3/4” Solid Flooring is approved for on grade or above grade installation only!!**
- **DO NOT INSTALL BELOW GRADE LEVEL!!**
- **3/4” Solid Flooring <u>cannot</u> be installed over radiant heated sub floor systems.**

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. In cases of severe irritation; seek immediate medical attention. *For further technical or installation questions or to request a Product Specification Data Sheet* contact the manufacturer. 1-800-441-7429

Attention California Installers & Consumers
WARNING
Installation of this product and any wood product may create wood dust, which is known to the State of California to cause cancer.

TOOLS AND EQUIPMENT NEEDED:

Broom or vacuum	**Moisture Meter**	**Safety Glasses/ NIOSH designated dust mask**
Tape Measure	**Hand Saw/ Jamb Saw**	**Colored Wood Filler**
Chalk Line & Chalk	**Miter or table saw**	**Air Compressor w/ in-line regulator**
Hammer	**Manual/pneumatic nailer/stapler**	**Pry Bar, Utility Knife, Nail Set**

PRE- INSTALLATION/ JOBSITE CONDITIONS

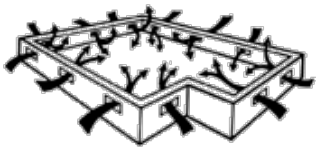
It is the installer/ owners’ responsibility to ensure that the jobsite conditions and jobsite sub floor are environmentally and structurally acceptable prior to the installation of any hardwood flooring. The manufacturer shall not have any responsibility for failures or deficiencies of hardwood flooring 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 flooring 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. Take readings of the subfloor – minimum of 20 readings per 1000 sq. ft. and average the results. In most regions, a “dry” subfloor that is ready to work on has a moisture content of 12% or less. For solid strip flooring (less than 3” wide) there should be no more than a 4% difference between the wood and subfloor. For plank flooring (3” or wider) there should be no more than a difference of 2% between properly acclimated wood and subfloor. Failure to test for proper moisture content of the wood flooring and subfloor

can result in cupping and/or other problems related to or associated with moisture and are 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 18" 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.



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

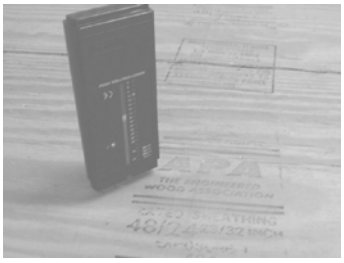
Solid wood flooring should be stored in the same environment in which it is expected to perform. Acclimate the product for a minimum of 72 hours or as long as needed in order to meet the proper installation requirements. Opening of the cartons will help to better acclimate material. Material is acclimated once it has reached 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.

WOOD SUBFLOOR GUIDELINES

Subfloor panels should conform to U.S. Voluntary Product Standard PS1-95, Construction and Industrial Plywood and/or US Voluntary PS 2-04 and/or Canadian performance standard CAN/CSA 0325.0-92 Construction Sheathing. Other CSA standards also apply.

Acceptable Panel Subfloors: Truss/joist spacing will determine the minimum acceptable thickness of the panel subflooring.

- On truss/joist spacing of 16" o/c or less the industry standard for single panel subflooring is nominal 5/8" 19/32", 15.1 mm) CD Exposure 1 subfloor panels, 4x8 sheets.
- On truss/joist spacing of more than 16", up to 19.2" (488mm) o/c, the standard is nominal ¾" (23/32", 18.3 mm) T&G CD Exposure 1 Plywood subfloor panels, (Exposure 1) or nominal ¾" 23/32", (18.3mm) OSB Exposure 1 subfloor panels, 4'x8' sheets, glued and mechanically fastened.
- Truss/joist systems spaced over more than 19.2" (488mm) o/c up to a maximum of 24" (610mm) require nominal 7/8" T&G CD Exposure 1 Plywood subfloor panels, (Exposure 1), or nominal 1" OSB Exposure 1 subfloor panels, 4'x8' sheets glued and mechanically fastened – or two layers of subflooring or brace between the truss/joist in accordance with the truss/joist manufacturer's recommendations and with local building codes. Some truss/joist systems cannot be cross-braced and still maintain stability.



- 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.
- **For information on installing a subfloor over concrete contact the National Wood Flooring Association at 1-800-422-4556**

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.

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, 8-10"s for plank flooring. As you continue working across the floor try to maintain a 6" (8"-10" for plank) 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: As a general rule, a ¾" expansion space must be left around the perimeter and at all vertical

obstructions. To minimize expansion on floors wider than 20 feet, more or less spacing between rows may be needed, depending on the geographical area, interior climate control and time of the year. When additional spacing is needed this can be accomplished by inserting thin spacers 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. Do not use spacers that may cause damage on factory-finished products. Remove the spacers as additional rows are added.

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. The flooring manufacturer is not responsible for damage caused by the mechanical fasteners.

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.

However, by today’s standards, asphalt saturated kraft or felt paper may not be an effective vapor retarder in all applications. The 2006 International Residential Code requires a vapor retarder on the warm-in-winter side of exterior floors (a floor over a vented crawl space, for example), with a vapor permeance of 1 perm or less in Zones 5 and higher. 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 a minimum nominal ½”(15/32) CD Exposure 1 (CDX) plywood underlayment is added.
- 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.
- Snap a working line parallel to the starting wall.

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. To keep the spline in alignment for the next flooring board, use a scrap piece of wood flooring to run along the length of the spline as you nail.
- Install the remaining rows in the opposite direction. Use the nailing practices described prior.

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 ¾” 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.
- 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.
- Continue to blind nail each seceding 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.

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” (8”-10” for plank) apart to ensure a favorable appearance.

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 the proper length staple or cleat and fasten the planks approximately 1 1/2” to 3” from the ends and every 8”-10”s apart for strip flooring. For 3” plank or wider fasten every 6”-8” apart. (Minimum of 2 fasteners per plank)
- 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 ¾" 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

- Sweep or vacuum floor.
- Clean the floor with proper wood 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.
- 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/After Construction:

After installation, if you choose to protectively cover the floor, cover the floor completely, since some species are light-sensitive and uncovered areas may change color. Use a covering material with a vapor permeance (perm rating) of 1 perm or more (tested I accordance with ASTM E-96) to avoid trapping moisture/vapor on or within the floor. Any covering should be taped, using a low-adhesion tape, to base or shoe moldings. Avoid taping to finished flooring. When taping paper or sheets together, tape them to each other, not to the floor.

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.

Floor Care and Maintenance

Remember, like any floor covering, our factory finished 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.

1. 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**.
2. Remove spills promptly using a soft cloth and cleaning products recommended by the manufacturer.
3. **Never** wet-mop, damp-mop, or clean your floor with water or other products. This can severely damage the flooring and will void the warranties. Do not use hardwood floor cleaning machines or steam cleaners. See section on **Improper Maintenance**.
4. Use the manufacturer's recommended Hardwood floor cleaners with a clean terry cloth mop. Always sweep or vacuum the floors prior to using wood floor cleaners. **Do not** allow excess cleaner to remain on the floors surface as this may permanently damage the wood fiber.
5. **Important:** Do not use oil soaps, liquid or paste wax products or other household cleaners that contain citrus oils, 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.
6. **Do not** use 2 in 1 cleaners with polish that may contain acrylics or urethane polish to restore gloss – the use of these products will void the finish warranty and may produce unsatisfactory results when not applied properly.
7. Keep pets' nails trimmed, and paws clean and free of dirt, gravel, grease, oil, and stains.
8. Place protective felt pads beneath furniture legs and feet to reduce scratches and dents. Replace pads as needed.
9. Use a dolly and protective sheets of plywood when moving heavy objects, furniture, or appliances.
10. Make certain furniture casters are clean and operate properly (a minimum 1" wide vinyl surface where it comes in contact with wood is recommended). Clean wheels periodically to remove dirt and debris.
11. Remove shoes with spiked or damaged heels before walking on floor.
12. Exposure to the sun and its UV rays accelerates the oxidation and aging of wood. This can cause 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. Exotic species such as Brazilian Cherry are more susceptible to color change during the aging process. These warranties do not cover damage from the sun and its UV rays.
13. 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.
14. Maintain the proper Relative Humidity in your home between 35% - 55%. The use of a humidifier during heating seasons may help reduce shrinkage of the wood due to low humidity.

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