



Installation Guide

Ancestral Floors

Perform in harmony with nature

www.signaturebsl.com

Installation guide - 1

ANCESTRAL SOLID HARDWOOD FLOORING INSTALLATION GUIDELINES

Adapted from NWFA and WFI 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 vary 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. 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 of 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. Ancestral 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 atleast 15 minutes.

TOOLS AND EQUIPMENT NEEDED

- Broom or vacuum
- Moisture Meter
- Safety Glasses
- Tape Measure
- Hand Saw
- Colored Wood Filler
- Electric Miter Saw
- Ancestral Residential Cleaner
- Hammer
- Manual/pneumatic nailer/stapler
- Pry Bar
- Chalk Line & Chalk

PRE INSTALLATION/JOBSITE CONDITION

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 floors: 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. Concrete should not exceed 5% 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.

- All "wet" work- i.e. -paint, drywall, concrete, masonry, plumbing must be complete and dry well in advance of delivery of hardwood flooring

- Basements and crawl spaces must be dry. Use of 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.

- The sub floor must be flat, meeting a minimum of 3/16" within" or 118" in 6'. Wood sub floors- For nail down application use layers of 15lb. felt or wooden shims to fill low spots. Nails must be able to penetrate for holding power.

- 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.

Installation guide - 2

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 in order to meet the proper installation requirements. Cartons should be stacked no more than 3 high. 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.

RECOMMENDED SUBFLOOR SURFACES:

Wood Sub floors: Preferred Sub flooring $\frac{3}{4}$ " (23/32", 18.3 mm) CDX grade Plywood sub-floor/ underlayment* (Exposure 1), 4'x8' sheets with joist spacing of 19.2" on center or less.

Minimum Sub flooring – $\frac{5}{8}$ " (19/32, 15.1 mm) CDX Plywood sub floor/ underlayment* (Exposure 1), 4'x8' sheets, maximum 16" on center joist construction.

*For other products consult the NWFA recommendations.

Follow panel manufacturer's recommendations for spacing and fastening. Typical panel spacing and fastening for joist systems, $\frac{1}{8}$ " (3.2 mm) around perimeter and fastened every 6" (150 mm) on bearing edges and every 12"(300 mm) 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 $1\frac{1}{4}$ ".

All leftover glue, spackle, nails and staples must be removed and rough or uneven spots sanded or leveled so that there are no differences in height.

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.

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.

PREINSTALLATION AND JOBSITE 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 $\frac{1}{16}$ " 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. 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. Ancestral planks can be rebevelled by hand with sand paper and then touched up with the matching marking pen allowing reuse of cut pieces, end matched.

Expansion space: Expansion space of $\frac{1}{2}$ " 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. Expansion space for below grade installation should be at least $\frac{3}{4}$ " to allow for potentially higher relative humidity conditions.

Installation guide - 3

GETTING STARTED

Step One: Establish a starting point

Wall to Wall Installation

Prior to installing flooring roll out moisture retardant 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 cleat or nail-down applications).

Note: for installations over 5-1/4" in width a moisture retardant paper is not used as the ends of the boards are supported with glue (see Step Four).

- 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. 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/cleat 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 1/4" 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 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 blends the planks and stagger the end joints a minimum of 6" apart to ensure a favorable appearance.

SET UP AND USE OF PNEUMATIC NAILERS

Minor occasional noises within the flooring are inherent to all nail-down installations and can change as environmental changes occur. This is not a manufacturing defect and is therefore not covered under our warranties. 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 nailer is setting the fastener properly, not damaging the planks, and that you are using the correct nailing schedule. When used improperly, cleats can damage wood flooring. If the tool is not adjusted properly the cleats may not be positioned at the proper angle. Larch setting should be 75 to 80 psi., while hardwoods should be 110 psi. Test the tool on a piece of scrap material first - set the nailer flush on the tongue side of the plank and install a cleat.

Should the cleat penetrate too deeply reduce the air pressure, if the cleat is not deep enough then increase the air pressure using an in-line regulator. The crown of the 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.

Installation guide - 4

Step Four: Installation of Flooring

Once enough of the planks are laid out begin installing the planks using either a manual or pneumatic nailer. Check to ensure the fastener is set to the proper depth. Blind nail through the tongue using a minimum 2" barbed cleat and fasten the planks approximately 1-½" to 3" from the ends and every 8" apart. (Minimum of 2 fasteners per plank) For planks 5-¼ wide and up it is recommended that you glue the end of each board using woodworker's glue or subfloor adhesive. Glue should be applied to the underside and ends of the plank to reduce the possibility of noise and cracks. When installing wider planks special attention must be given to maintaining an optimal relative humidity level of 43%. Some spacing variation is considered normal. Lower R.H. will cause the boards to shrink leaving spaces between them. Increased R.H. will cause the boards to swell, closing the spaces.

Continue installing planks across the room ending at the far wall using the manual or pneumatic nailer and following the recommended nailing schedule while periodically checking to ensure that the planks are maintaining parallel lines.

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 ¼" 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 or two rows by pre drilling holes and countersinking the nails. Fill nail holes with a colored wood filler.

Sometimes from one room to another you may need to change plank direction. In this case a spline is necessary to convert a groove to a tongue. The spline should be glued into the groove so as to make a solid connection and allowing the installation to continue in the new direction.

Step Five: Completing the Job

- Install transition pieces -i.e. - thresholds, l-moldings, base boards and quarter round. Nail moldings to wall, not the floor.
- Clean the floor with Ancestral Residential Spray Cleaner.
- 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 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 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 creating a "picture frame" effect.

Thresholds: Used to transition floor coverings or to create a break between floor coverings- wood 10 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 floors. You can also use them to make smooth transitions between the floor and cabinetry.

Wall Base Moldings: Can be stained and finished using Ancestral Impregnating and Finishing Oils 10 blend with the color of the flooring.

Installation guide - 5

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 floors. The following are examples of the reasonable and necessary maintenance you are expected to perform. This is not intended to be an exclusive list. (Refer to the Ancestral Cleaning and Maintenance Guide)

- 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.**
- **IMPORTANT:** Do not use oil soaps, liquid or paste wax products or other household cleaners that contain lemon oil, tung oil, silicon, ammonia or vinegar and water since Ancestral 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 floors.
- Remove spills promptly using a soft cloth and recommended cleaning products.
- The use of approved maintenance and floor-care products, only made by Ancestral is highly recommended.
- 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 floors.
- Exposure to the sun and its UV rays accelerates the oxidation and aging of wood and fabrics. This causes the 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.

DIRECT INSTALLATION OVER RADIANT HEAT AND ON CONCRETE FLOORS:

All Ancestral species are warranted for installation over radiant heat and on concrete, provided Ancestral procedures for installation and maintenance are followed using only Ancestral recommended products. For below grade installations **WITHOUT** radiant heat, Hard Maple should not be used. All other species are warranted for this application. Applicable references above should also apply to radiant and concrete installations. The use of a certified hardwood floor installer is always recommended.

In addition the following must also be considered:

The average surface temperature should be between 78 F. and 85 F. The thermal liquid should not exceed 125 F. It is necessary that the moisture level of the concrete be checked with a moisture meter and it must be 5% or less, measured with a carbon hygrometer. Should moisture levels be higher than that, Bostic's MVP* vapor barrier should be applied to the floor before installation. This will reduce the moisture flow from the concrete to acceptable levels. Follow label instructions for proper application. Ancestral recommends using Bostic's Best urethane adhesive as well as Bostik TKO, Sika T55 or T35 and Mapei UltrC1bond 980*. Spread with a ¼" wood trowel. Ancestral Stain Remover should be used to remove any fresh adhesive residue from the wood surface.

*If primers are needed, primers from the above listed companies can be used and consult their labeling instructions for more details.

For Radiant Heat installations acclimate your floor for 4 to 5 days. Boxes should be stacked no more than three high. At the time of installation, ambient room temperature should be between 64 F and 72 F and a relative humidity between 40% and 50%. Proper application is necessary to develop a strong bond between the flooring and the substrate. Use of strap clamps and rolling after installation will improve the success of the installation. This adhesive will bond to wood, concrete, ceramic, rubber and plastic, providing a strong, moisture resistant and flexible bond. Care must be paid to all warnings and instructions on the label. Concrete surface must be clean and dry, free of all oil residue and old adhesive. The surface must be sound and not flaking or dusty. Pre-heating the floor during acclimation will help stabilize the humidity and stability of the installation. In severe conditions, mixed width planks will increase the floor's stability.

All wood floors should be in climate controlled environments, keeping the relative humidity between 40% and 50%. Radiant heated floors should be kept at the higher end of this range.