



## **Solid Tongue and Groove Flooring Installation Instructions**

### **Pre-Installation guidelines:**

These installation guidelines are at the suggestion of Green Choice Flooring International, Inc. and are intended to help our customers develop a plan to install their Green Choice flooring. It is also recommend that you consult a professional hardwood flooring installer, as well as the National Hardwood Flooring Association at 800-422-4556, or [www.nwfa.org](http://www.nwfa.org) for further instructions.

Please carefully inspect all flooring material before installation. Warranties and claims are not covered after materials with visible defects have been installed. Verify that the correct product has been provided (species, color, grain, size, and quantity). Bamboo, Palm, Mosaic, and Mulberry are products of nature. Variations in color and grain patterns are normal. Stain saturation variation or lack of saturation into the wire brush/distressed voids is considered normal. Be sure to add at least 5% to 10% additional material, based on industry standards, to your actual square footage to allow for cutting and waste. Green Choice Flooring will not be responsible for installation of any defective material, the quality of installation, or any costs associated with a poorly installed floor. If any product is deemed unacceptable, please contact your supplier immediately as any flooring that has been installed is considered accepted by the owner and installer.

### **Job-site conditions and planning requirements**

The building in which the flooring will be installed must be completely enclosed. All windows and doors must be fully functional. Any drywall, masonry, concrete or plaster work must be finished and allowed sufficient time to completely dry. If these conditions are not followed, the moisture level of the air could be too high. HVAC systems must be operational for at least 10 days prior to installation. The room temperature must be within a range of 65 to 75 degrees. The relative humidity level of the air must be between 40% and 60% and remain this way year round. Wood is a product that will expand and contract depending on the moisture content of the air. These conditions are also necessary to properly acclimate your flooring to its new home. Gaps in your flooring can be seasonal and can be greatly minimized by using the HVAC systems to equalize the moisture level of the air. Failure to equalize the moisture level may result in changes to the appearance of your flooring, including gapping, cupping and cracking. Be sure to acclimate your flooring, before installation, by opening boxes and removing shrink wrap film to let air circulate around your flooring. Acclimation should occur for a minimum of 4 days and may progress more slowly in some climates due to the higher density of strand woven bamboo. Suitable acclimation has occurred when the moisture content is within 2% of the subfloor's moisture level. Continue to take moisture readings of the flooring and subfloor throughout installation to ensure even acclimation. Be sure that the moisture meter that you are using is a surface meter designed to read a strand woven product, if applicable, and that you are using the correct setting for the species of wood being installed.

Pin type meters will not give an accurate reading. Please consult the NWFA Guidelines for more detailed information on regional acclimation.

During the inspection of your subfloor, you must determine the moisture level using a metering device for either concrete or wood depending on the type of sub-floor you have. The level of moisture in your subfloor will also be dependent on whether or not you have a crawl space or a full basement. With crawl spaces there should be a minimum of 24" from the dirt floor to your joists. You must also lay down a polyethylene (6 mil) film as a vapor barrier to minimize moisture transfer from the crawl space to your sub-floor. Crawl spaces should also be well ventilated.

### **Beginning your Installation:**

Make sure to open several different cartons of flooring to begin working out of at the same time. This will ensure the best possible color and grain distribution. Please be sure to consult with the end consumer to plan the layout so as to meet their color expectations.

Remove all wall base, shoe molding, and cut door casings. Wall base and shoe molding can be replaced after the floor is installed.

Make sure to remove all debris from the sub-floor as well as any wax, oil, or solvents. Your floor should be flat and should not be more than 3/16" out of level over an 8' radius. If your floor exceeds these measurements then you should use a filling compound that will fill the hollow spots in your sub-floor. Loose areas in the sub-floor should also be checked. To avoid any possible squeaks in your flooring, make sure to nail or screw every 6" along joists. Sub-floors should be a minimum of 5/8" to 3/4" thick. 5/8" thick CDX plywood is recommended for 12" and 16" on center floors. 3/4" CDX plywood is recommended for 24" on center floors.

Wood sub-floors should be checked with a moisture meter, as well as your flooring. There must not be a difference of more than 2% between the moisture level of the flooring and the moisture level of the sub-floor. The moisture content of the sub-flooring must not exceed 10%. If the difference is more than 2%, the source of the moisture must be located and corrected before installation.

Concrete sub-floors should be checked and measured by a qualified person with a concrete moisture meter at each outside wall as well as several times in the interior of the floor. Other concrete moisture tests are also acceptable when performed by a qualified person. Make sure concrete is fully cured for at least 45 days. Please consult with your concrete provider to determine the timeframe for being fully cured. There must not be a difference of more than 2% between the moisture level of the flooring and the moisture level of the sub-floor. The moisture content of the sub-flooring must not exceed 12%. If the difference is more than 2%, the source of the moisture must be located and corrected before installation.

If a calcium chloride test shows moisture content greater than 3 lbs. per 1,000 square feet, there is too much moisture present and the source of moisture must be located and corrected before installation. Do not install over concrete unless you are sure it remains dry year round. Areas that are currently dry may become wet in the future.

A 6 mil vapor barrier or adhesive with vapor barrier qualities is recommended for some installation environments. Please consult with a qualified flooring installation professional. To prevent future issues with cupping, buckling, or expansion it is strongly recommended that all installations utilize a vapor barrier.

### **Nail down installation: *[Not recommended for Strand Woven Floors]***

Recommended tools: Tape measure, hammer, pencil, chalk line, scribing block, carpenter square, table saw, chop saw with an 80 tooth carbide tipped blade, moisture barrier or retarder.

**Traditional Bamboo (Vertical/Horizontal)** - A pneumatic tongue-and-groove flooring stapler or nailer. 2" long power cleat staples or cleat nails are recommended. We recommend a Powernail 50p. In some installations, an adapter pad may be necessary.

**Strand Woven Bamboo, Mulberry, Mosaic, and Palm** - Green Choice does not recommend that you nail down strand woven floors. Glue down application is recommended. For those that do choose to nail down your floor, the Powernail 50p is a common choice among professionals. This pneumatic gun uses a 1 ½" long 18 gauge cleat nail. In some installations, an adapter pad may be necessary. Always test a piece of flooring prior to installation to view your results. View the flooring at an angle to determine if you are experiencing any adverse effects, such as dimpling.

Install a proper vapor retarder, overlap edges a minimum of 4" using a stapler to attach to floor. Make sure staples/nails are completely seated.

Install flooring perpendicular to flooring joists, beginning with the grooved edge toward the wall. Measure the distance from starting wall (longest straightest wall) in two different corners. Mark these points and snap a chalk line connecting them.

Leave a 1/2" expansion gap at edges of floor to allow for expansion and contraction around any walls, pipes, and cabinets. Wood will buckle or gap if expansion gap is not allowed for. Spacers are recommended to achieve a consistent expansion gap between flooring and walls or any vertical objects such as pipes or cabinets. Starter rows should be glued or finish nailed using the longest lengths available. If face nailing, pre-drill holes to prevent damage to the surface. You can use wood putty filler to fill holes later. Stagger end joints a minimum of 4" from each other and nail 3" from each end of rows. Space nail every 6-8" with a minimum of 2 nails per board.

Cleat nails or staples should hit joists whenever possible. PSI of pneumatic nailer will range from 55 to 95 psi. We recommend a Powernail 50p tongue-and-groove nailer. This nailer uses a 1 ½" long 18 gauge cleat nail. Be sure to test the pressure on a test piece before nailing actual flooring. Adjust the pressure, so as not to damage your floor in any way. This will help prevent tongue splitting as well as any surface damage. Green Choice Flooring International cannot be responsible in any way for an improperly installed floor. When replacing molding and trim pieces always fasten to the wall and not the flooring.

For floors that are wider than 20', please consult the National Wood Flooring Association's technical manual. There may be more spacing and transition pieces necessary, in some areas, to allow for proper expansion and contraction.

### **Glue Down installation: *[Acceptable for all Green Choice Flooring Products]***

Tools recommended: Tape measure, hammer, pencil, chalk line, scribing block, carpenter square, table saw, chop saw, premium wood flooring adhesive (Bostik's Best Adhesive, or Bostik's TKO), trowel, and low adhesive painter's tape.

Make sure to always follow the adhesive manufacturer's complete set of instructions to keep your warranty in effect. Make sure concrete sub-floors have fully cured, and then wait an additional 45 days after fully cured before installation. Please consult with your concrete provider to determine the timeframe for being fully cured. Use only 100% urethane based adhesive. Grind off any high spots in the concrete floor and fill low spots with leveling compound. Please be sure to check the compatibility of the flooring adhesive with any of the other products used in the installation.

Spread your adhesive out according to the directions and fit the tongue side into the groove side until they are flush against each other. Use your removable painter's tape and tape rows together after they have been laid. If boards are slightly bowed or the floor is uneven make sure to weight down the floor so as to achieve good contact. Walk the entire floor to make sure it has made good contact. Make sure to immediately wipe off any excessive adhesive from the floor

as you work. Use light application of mineral spirits or Bostick's Adhesive Remover and rub lightly, so as not to damage your factory finish. It is imperative that excess adhesive be removed immediately to avoid permanently damaging the floor. Be sure to give your flooring a minimum of 24 hours to cure before traffic is allowed, then be sure to protect the floor from other construction traffic until your project is complete. Please direct any questions relating to the application of adhesive to the adhesive manufacturer. When replacing molding and trim pieces always fasten to the wall and not the flooring.

For floors that are wider than 20', please consult the National Wood Flooring Association's technical manual. There may be more spacing and transition pieces necessary, in some areas, to allow for proper expansion and contraction.

Radiant heating: Green Choice Flooring is not warranted for use over radiant heat systems heated by electric elements. Hydronic systems are the only suitable types of systems when planning to install a wood floor on the surface. These Hydronic systems must include temperature sensors in the floor and have thermostat(s) outdoors that allow the system to regulate the water temperature allowing for expected heat loss. Installations of flooring in buildings, or multi-level complexes where the water temperature is not regulated individually per room area are not warranted.

Prior to and during installation over radiant heat, moisture testing must be done by a qualified person and documented as explained in these installation instructions.

The subfloor surface must not ever exceed 82°F in any location. The thermostat setting must always remain within 15°F of the normal operational setting, and should never be turned off. Excessive heat, rapid heating, and/or failure to maintain humidity levels between 40% and 60% are likely to cause cracking, cupping and other forms of floor failure. Slight surface checking (cracking), particularly at the ends of planks, should be expected for radiant heat installations and are not a product failure. Concrete must be allowed to properly cure and dry prior to installation. The Hydronic system should then be operated at 2/3 maximum output for a minimum of 2 weeks prior to installation of flooring to allow the moisture levels between the subfloor, flooring and relative humidity to equalize. This procedure must be followed regardless of the time of year. Four (4) days prior to flooring installation, adjust the thermostat to 65°F. As always, relative humidity of the jobsite must be maintained between 40% and 60%. Use of a humidification/dehumidification system may be required to maintain the proper humidity levels, particularly over radiant heat. Failure to maintain proper humidity levels will void all warranties. Beginning 48 hours after installation, slowly raise the temperature of the heating system to its preferred operating temperature over a period of 5 days.

Top coating: A top coat sealer can be applied, and is recommended for areas with higher traffic volumes, and areas which have a higher probability of experiencing moisture related spills. Please consult with a certified floor refinisher to determine the best product for your application.

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## Practical Installation Tips

- It is recommended that the industry standard of 5-10 percent be added to the actual footage of required flooring materials as an allowance for cutting and waste during installation.
- Installation of a factory-finished hardwood floor requires more care than a conventional floor to prevent damaging the floor's finish during installation. Frequent use of a vacuum cleaner during installation is highly recommended to eliminate sawdust and wood chips.
- Care should be taken to remove all sand, grit and any other debris which could act as an abrasive and scratch your flooring.
- A sharp, fine-tooth (finishing) circular/miter saw blade is recommended for cutting. Taping the area to be cut makes for a cleaner cut.
- Always use a tapping block and never hit flooring directly to avoid fracturing the flooring edge. A small piece of your flooring makes a good tapping block.
- Nails and staples are best placed at least three inches from the edge of the boards. For wood sub-floors, nail every six inches.
- It is recommended that door casings be cut at the bottom so flooring will fit under it instead of scribing the flooring to fit around the door jambs.
- Leave approximately 3/8 inch to 1/2" space at each wall for expansion of flooring. The expansion gap can be covered with some base molding.
- Take care of moisture problems or potential problems BEFORE installation. Special precautions should be taken below grade. A vapor barrier or flooring paper placed between the sub-floor and the boards will help keep the humidity content of the flooring more stable. If your bamboo flooring installation is hampered by a moisture problem, contact a professional installer to improve the situation. A moisture test should be performed on any concrete flooring before installation occurs by a qualified person.
- To avoid a pattern of end joints, cut the initial boards in each row at varying lengths so that all the board ends are staggered throughout the installation. Ensure that the joints are at least six inches apart.
- Before installing, lay out the flooring in a rough fashion according to how you would like it to appear. Arrange the flooring's natural range of color in a manner that is pleasing to your eye, keeping in mind the preferences of the owner. Remember, as noted before, like other natural products, some color variation is expected in flooring.
- Slightly bent or bowed boards are not defective. These boards may be a little harder to install, but they will lie flat after installation. Use of weights may assist in this application.
- Use pull straps at three-foot intervals to hold the boards firmly together while installing. You could also use wide masking tape.
- For adhesive installation, use a 100% urethane-based adhesive such as Bostik's TKO or Bostik's Best. Be sure to follow Bostik's instructions so their warranty is in effect.
- Green Choice accessories should be pre-drilled to avoid cracking or splitting. We recommend that a runner be used on all stair installations to minimize scratching caused by the step and scuff tendency of traffic.

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