

1. **General Information**
	1. Solid bamboo flooring installation is not much different from standard hardwood flooring installation in general. It is recommended that three methods of installation for solid bamboo flooring: nail down, fully spread glue down and float (only applied to 5” or wider planks). The two basic acceptable sub-floors are wood (plywood, OSB) and concrete. These will be addressed separately. It is also recommended that installation should be made by experienced professionals who subscribe to installation standards as set forth by NOFMA, NWFA.
	2. It is not recommended installing solid bamboo flooring over particle board, MDF, wafer board, masonite or luan underlayment or and radiant heat system.
	3. The installation of solid bamboo must be conducted after kitchen cabinet or counter is installed. No flooring should be installed underneath any kitchen cabinet or counter. Otherwise, it will be treated as improper installation.
	4. Solid Bamboo flooring is machined to exacting tolerances. Its use is limited to on-grade or above grade applications. Full bath installations are not recommended because of moisture issues encountered there.
	5. Use of approved products during installation as described in this installation instruction is required to validate all warranty.
	6. Sawing, sanding or machining of solid bamboo flooring can cause respiratory, eye and skin irritation. If using power tools, a dust collector is recommended, as is a dust marks NIOSH approved. Avoid contact with the eyes or skin when in proximity to wood dust. Use of a protective device for the eyes is also recommended.
2. **Responsibilities of Purchaser/Installer**
	1. The purchaser/installer should inspect all of the flooring before installation. Being a natural product, solid bamboo flooring rarely will be perfect. Industry standards of manufacture allow for grading deficiencies up to 5% that may be composed of natural or manufacturing deficiencies. The purchaser/installer should carefully examine the flooring for color quality and finish. DO NOT INSTALL IF THE PRODUCT IS NOT ACCEPTABLE. Sellers should be contacted immediately. Installation of flooring denotes installer and owner accepts the materials, even if the owner is absent at the time of installation.
	2. It is noted that stain-putty filler is an accepted part of the installation procedure throughout the industry.
	3. It is the purchaser/installer’s responsibility to determine the suitability of the job site environment and sub-surfaces involved. Installation must follow recommendations of the construction industry and the material’s manufacturer as well as local codes.
	4. FERMA declines any responsibility for job failure or non-acceptability from or associated with sub-floor/substrates or job site environmental deficiencies.
3. **Pre-Installation**
	1. Unlike unfinished flooring, pre-finished solid bamboo flooring is needed extra caution during installation to prevent scratch and damage.
	2. Solid bamboo flooring must be installed on grade or above grade. It is not recommended that solid bamboo flooring is installed below grade.
	3. The building should be closed in doors and windows in pace. Paint and masonry work must be dry.
	4. Basements and crawlspaces must be dry and well ventilated. Crawlspaces must be a minimum of 24” from the ground to bottom of joists. A ground cover of 6-8mil poly should cover the soil in the crawlspace 100%. Seams lapped at least 12” and sealed. Edges should be lapped up the perimeter walls 3”-6” to divert moisture to the outside. This vapor barrier is REQUIRED.
	5. Perimeter venting is necessary to provide for cross ventilation. Minimum combined venting should be equal to at least 1.5% square feet of the crawlspace or exceed where applicable. Local codes prevail. No dead walls allowed impeding cross flow of air movement.
	6. As solid bamboo flooring expands with an increase in moisture level, a 1/2" expansion space should be left between flooring and all walls and vertical objects (such as pipes and cabinets). This will be covered during the reapplication of base moldings around the room.
	7. Always use a tapping block and hammer to pull planks together. The tapping block should be used against the tongue only, never against the groove of the plank.
	8. Always begin each row from the same side of the room.
	9. Take care not to damage the edge of flooring.
	10. The installation site should have at or near environmental living conditions 68F-72F temperature, 35%-55% relative humidity, prior to, during installation and or until site is occupied. Moisture testing is still necessary.
	11. Exterior grading must drop at least 3” in 10 feet or according to local codes. All gutters and downspouts must be in place and divert run-off away from the structure.
	12. Flooring must be stored in a clear dry environment. Do not deliver materials to a site that is not environmentally controlled. This means building must be closed in, windows and doors on, all wet work complete, heat air or equivalent environmental controls functioning permanently. Moisture control is necessary for at least 10 days prior to delivery.
	13. Acclimation time for solid bamboo flooring is determined by the moisture content of the sub-floor and bamboo flooring at time of delivery, but at least 15 days acclimation (with the carton fully opened) is needed prior to installation which is to allow bamboo flooring to adjust to the room temperature and humidity.
4. **Installation over Wood or Ply-Wood Sub-floors**
	1. Sub-floor should be flat within 1/8” in 6 feet or 3/16” in 10 feet. Wood sub-floors must be clean, free of paint, sealers, adhesives, wax or any other debris.
	2. If installing over existing hardwood floor, a layer of 5/8 plywood or OSB is recommended before proceeding. Plywood sub-floor should meet APA-PS2-92 standards. Plywood should be tongue and groove. Plywood must be minimum 3/4”CDX.
	3. Oriented strand board, OSB, when used must be tongue and groove, installed sealed side down, minimum thickness 23/32”, must conform to US VOL product std PS2-92. OSB must be tongue and groove, exposure 1, preferably exterior grade. It must meet US VOL STD PSI-95 performance STD for 16” on center joist system.
	4. Particle board or wafer board are not acceptable as a sub-floor.
	5. Solid bamboo flooring is manufactured at 6-9% moisture content. The tolerance between new bamboo flooring and sub floor should not exceed 4% point’s maximum, preferably 2% points. All wet work should be completed before delivery of flooring. This includes but is not limited to, ceramic, masonry, painting, drywall work, patching, plaster work... Moisture content should not exceed 12% in the sub-floor.
	6. Check floor substrate for deflection. The formula in general is L/360. Nail or secure any loose areas. Any excess vertical movement must be corrected as this will affect long term performance. As the manufacturer of specialty flooring, it is not able to evaluate each and every residence’s engineered structural system. Spacing span lengths, sub-floor thicknesses as well as their engineering methods are the responsibility of the builder, engineer, architect or consumer, who are better positioned to evaluate the expected end result based on the site related conditions.
	7. When nail down method is used, a hardwood-appropriate nail gun and a nail application chart are required. Also, a layer of 15lb. roofing felt is required between sub-floor and bamboo flooring. Fastener should be used 4”-6” apart or more as needed to secure product. Fasten each end 1-3” from end. Gluing ends of tongue and groove to minimize shrinkage. Be sure to experiment on a scrap piece first and adjust the compressor setting to avoid damaging the tongue.
	8. H Joints should be avoided. Ends should be staggered with at least 6” from preceding joint. Avoid a conspicuous stair step pattern. This helps to promote a pleasing overall appearance. FERMA DDT series adhesive or DriTac equivalents applied to end joints helps prevent longitudinal shrinkage. If using 3M blue tape to hold pieces in place, it must be removed within 24 hours. If left on longer it may affect the finish.
5. **Installation over Concrete-Glued Down**
	1. Solid bamboo flooring could be glued on concrete, but it is ONLY applied for 3 ¾” wide solid bamboo flooring.
	2. Concrete must be clean, free of wax, adhesives, anti-freeze chemicals, paint, patching compound, curing compounds or sealers, admixtures that are hygroscopic. If in doubt, do not install.
	3. Concrete testing on slab 30 days old is the minimum time frame allowable. Less than 30 days old is not a reliable indicator. Concrete must be a minimum of 60 days old before flooring can be installed. It may be necessary to test for moisture multiple times or until acceptable.
	4. Some self-leveling cement compound used to correct concrete floor may have shorter curing time. Always check with the manufacture of the self-leveling cement before proceeding with the installation.
	5. Concrete sub-floor must be flat to 1/8” in 6ft or 3/16” in 10 ft. Concrete may have to be shot blasted, sacrificed, or ground down until acceptable.
	6. Moisture testing is necessary by concrete moisture meter or calcium chloride test.
	7. Moisture meters are used to qualify moisture content of bamboo flooring, sub-floor, and concrete slab. Installer has the choice of many manufacturers of professional meters. Reading is not to exceed 4.5 on the meter scale. The use of calcium chloride test is also acceptable. Moisture emissions are not to exceed 3lbs per 1000sf. in a 24 hour time period.
	8. PH testing is also recommended. A Ph factor of 5-9 is acceptable. 7 is neutral, above 9 requires corrective action. A high Ph factor may affect adhesive stability. Concrete must be at 30 days old before moisture content testing takes placing.
	9. Acoustic concrete and light weight concrete Installer must check with the concrete manufacturer for product compatibilities and any special needs to be addressed concerning installation/performance. FERMA does not accept responsibility for any problems resulting from failure to follow concrete/gypsum manufacturer’s recommendations.
	10. If using the glue down method, use the adhesive manufacturers' specified trowel size for bamboo. The recommended adhesive is FERMA DT-7300,DT-7300 or DriTac equivalents. Always check for a proper bond. Glued down flooring must have a minimum 90% coverage preferably 100%. Pull up occasional boards and observe whether proper coverage is followed.
6. **Installation over Concrete-Floating**
	1. Solid bamboo flooring could also be installed with floating method, but it is ONLY applied for 5” wide or wider click solid stand woven bamboo flooring (with locking system).
	2. Concrete must be clean, free of wax, adhesives, anti-freeze chemicals, paint, patching compound, curing compounds or sealers, admixtures that are hygroscopic. If in doubt, do not install.
	3. Concrete testing on slab 30 days old is the minimum time frame allowable. Less than 30 days old is not a reliable indicator. Concrete must be a minimum of 60 days old before flooring can be installed. It may be necessary to test for moisture multiple times or until acceptable.
	4. Some self-leveling cement compound used to correct concrete floor may have shorter curing time. Always check with the manufacture of the self-leveling cement before proceeding with installation.
	5. Concrete sub-floor must be flat to 1/8” in 6ft or 3/16” in 10 ft. Concrete may have to be shot blasted, scarified, or ground down until acceptable.
	6. Moisture testing is necessary by concrete moisture meter or calcium chloride test.
	7. Moisture meters are used to qualify moisture content of bamboo flooring, sub-floor, and concrete slab. Installer has the choice of many manufacturers of professional meters. Reading is not to exceed 4.5 on the meter scale. The use of calcium chloride test is also acceptable. Moisture emissions are not to exceed 3lbs per 1000sf. in a 24 hour time period.
	8. PH testing is also recommended. A Ph factor of 5-9 is acceptable. 7 is neutral, above 9 requires corrective action. A high Ph factor may affect adhesive stability. Concrete must be at 30 days old before moisture content testing takes placing.
	9. Acoustic concrete and light weight concrete Installer must check with concrete manufacturer for product compatibilities and any special needs to be addressed concerning installation/performance. FERMA does not accept responsibility for any problems resulting from failure to follow concrete/gypsum manufacturer’s recommendations.
	10. Underlayment generally serves for protecting bamboo flooring from water damage, acoustical dampening and stability. If using floating method over concrete, It should be placed on all concrete sub-floors prior to the installation. Roll the underlayment out over the concrete sub-floor, overlap the edges and use duct tape to keep in place and ensure a waterproof seal. Overlapping will prevent any moisture from seeping through the edges. Also be sure to place the underlayment all the way to the wall and slightly up the wall to ensure a good seal. Do not use masking tape instead of duct tape as it makes a noise when walked on and is not waterproof.
	11. In general, click solid strand woven bamboo flooring is designed and produced for DIY and saving the cost than the installation of nail-down or glue-down.Following is the steps to install click solid strand woven bamboo flooring:
	12. Start in a corner of the room with the locking strip (lower edge of the lock) facing into the room. Using spacer wedges, maintain a ½” gap between the wall and the edges of the planks being installed. Install the first plank. Install the second plank, pressing the short end of the second plank against the leading edge of the first plank and then, in one movement, laying it down flat to engage the locking mechanism. Ensure that the edges of all planks being installed are parallel and even. Continue with this method until you are ready to install the last plank of the first row.
	13. Carefully measures the required length of the last plank in the row, allowing for a minimum of a ½” gap at the end of the row. Cut the last plank of the first row to size using a saw with a carbide blade, then install as done for the previous planks, leaving ½” gap at the end. After the first row is complete, ensure that all edges are perfectly even and parallel. Note: It is practical to fine-tune the gap between the long sides and the wall later, after the first three rows have been laid.
	14. Start the second row beginning with (if available) the piece left over (cut off) from the first row - piece must be at least 30cm (11.8”) in length. If the piece is too short (or if there is no leftover piece), start with a new board, cut in half. Always ensure that the end joints (between planks in adjacent rows) are staggered at least 25cm (9.84”) apart.
	15. Maintaining a ½” gap between the end of the plank (row 2 plank 1) and the wall using a ½” spacer, begin the second row by inserting the long edge of the locking mechanism of the first plank (row 2 plank 1) into the long edge of the locking mechanism of the adjacent plank of the first row. Push the plank forward and press down at the same time to fully engage the locking mechanism. With the plank resting flat on the floor, ensure there is no gapping at the joint between it and a first row. If necessary, use a tapping block to ensure that the plank’s locking mechanism is fully engaged and that there is no gap between it and the adjacent plank.
	16. To install the second plank (row 2 plank 2), place the long edge of the plank into the adjacent plank of the first row. Slide this plank to the left until the short end of the second plank is flush against the leading edge of the first plank (row 2 plank 1). Then, in one movement, lay the plank down flat, ensuring that there is no gapping on either the short end or the long side of the. Use a rubber mallet and tapping block to correct any gapping. Note: If gapping cannot be corrected by a rubber mallet and tapping block, ensure that there are no splinters or other obstructions keeping the locking mechanism from fully engaging.
7. **Molding**
	1. **Finish installations with following choices of moldings that will enhance the appearance of any installation. Refer to the illustrations and descriptions below for the proper use of each molding.**