

NADURRA® imports high quality bamboo flooring. These installation instructions cover all **solid** versions of the Nadurra Composite™ Flooring including the: regular *Composites™*, *Stained Composite™*, *TRAFFIC Composite™*, *Commercial Composite™*, *Formaldehyde-Free* and *FSC™ Certified* series.

ATTENTION! **READ BEFORE INSTALLING**

We recommend that only professional flooring installers are used to install NADURRA® bamboo flooring. Follow all NWFA installation procedures and guidelines for installation. Before you begin read the instructions from start to finish. Carefully examine the flooring prior to installation for grade, color, finish and quality. Ensure adequate lighting for proper inspection. If flooring is not acceptable, contact your supplier immediately and arrange for replacement. NADURRA® is not responsible for floor failures due to inappropriate site conditions or installation methods.

COLOR VARIATION

Bamboo is a natural fibre and colour variations are to be expected. For best visual effect, shuffle planks from several cartons and do not install boards varying greatly in color next to one another. Carefully examine the flooring prior to installation for grade, colour, finish, and quality. If the flooring is not acceptable, contact the seller immediately before opening all of the cartons. . It is the installers' responsibility to work with the end user to determine the expectations of what the finished floor will look like. NADURRA® is not responsible for the installation of material with visible defects. Drastic colour variation may occur from the original samples or in a batch of flooring. This is not a product defect. Dimension and gloss variations from the original samples or within a batch of flooring may also occur. Check the entire batch and each piece of bamboo flooring before installing. Once a flooring plank is installed it is considered to have been accepted and of good quality.

INSTALLATION METHOD

Due to the extreme hardness of NADURRA® Solid Composite™ bamboo flooring, our recommended installation technique is a full-spread glue-down, using NADURRA Zero-VOC Urethane Flooring Adhesive for the Solid Composite series. Composite™ bamboo flooring can be nail down, but NADURRA® is not responsible for installation or floor failures caused by nailing.

APPLICATION

Our *Composite™* planks are twice as dense as red oak, making them perfect for toughening up high traffic homes, and medium traffic retail stores and salons or other commercial applications. The *Solid Composite* collection is designed for use with above, on, or below grade installations. Note that this floor may not be acceptable for bathroom installations due to excessive moisture associated with such environments.

HANDLING AND STORAGE

NADURRA[®] bamboo flooring has been kiln-dried to optimum moisture content for stability. Site installation conditions can have a major impact on the performance of your flooring.

ACCLIMATISATION

Do not ship or unload it in the rain, snow or other excessively humid conditions. Flooring should be stored in an enclosed building that is well ventilated and free of excess humidity. Bamboo should be stored in the actual rooms where it will be installed for at least 3 days before installation to allow for moisture and temperature adjustment. Do not store the boxes of flooring directly on concrete. Open the boxes, remove any plastic wrapping and spread the flooring out to let it breathe.

The temperature and humidity in the storage or acclimatisation room should be the same or close to the occupancy levels. Permanent heat and humidity controls must be installed and operating during and after installation. Failure to acclimate properly may result in shrinkage/gapping or cupping/buckling. **Remember:** *Continual dry heat or excessive moisture will change the moisture content from the manufactured moisture content, which may cause buckling or shrinking of the floor after it has been installed.*

It is important to note that gaps in the floor may come and go seasonally due to temperature and relative humidity changes. The amount of movement depends upon a combination of the effects of temperature, relative humidity, and the moisture content of the flooring and subflooring (wood moves as moisture content rises and falls).

CONDITION REQUIREMENTS

Temperature Range: 60-75°F

Relative Humidity Range: 35-55% (no greater than 15% difference between high and low). Humidity levels below 35% will most likely cause movement in the flooring, including gapping between pieces and possible cupping and checking in the face.

Moisture Content: Flooring with moisture content greater than 2% outside the optimum moisture content of 6-9% should not be installed.

TIPS:

- Run the interior climate controls for at least 6 days to stabilise the moisture conditions prior to storage and installation.
- Arrange to deliver your flooring after the plastering and painting are completed and dried.
- Separate the boxes into small piles to optimise acclimatisation

SUB-FLOOR PREPARATION

The general contractor/owner must take the appropriate actions to ensure that the subfloor is flat, clean, dry, sound and free of abrupt highs and lows. High spots should be ground down and low spots should be filled in with a proper levelling compound. Subfloor must be clean, dry, flat, and level, as well the floor must be free of dirt, wax, oil, paint, curing agents and other foreign material that would interfere with installation. **Warning:** The lack of moisture protection before installation can significantly reduce flooring performance.

CONDITION REQUIREMENTS:

Level Tolerance: 1/8" over 10'

WOOD SUB-FLOORS

Bamboo flooring performs best when installed on a wooden exterior grade plywood subfloor. Use a fir plywood with a minimum thickness of 3/4". *Using thinner plywood is not recommended.* (Note: Hardboard, particleboard and chipboard are not recommended as subfloor material because they are prone to moisture damage). Secure the plywood to the concrete

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using at least 9 nails (shots) per 4' x 8' plywood sheet. In areas with higher humidity, more nailing may be required. A 1/8" spacing should be left between each sheet of plywood at the ends and 1/4" at the edges.

CONDITION REQUIREMENTS:

Minimum: 3/4" Douglas Fir Plywood CSA O121-1978M - Grading Good One Side

Moisture Content: Must not exceed $\pm 2\%$ difference between the subfloor and the flooring

TIPS:

- Adequately securing the subfloor is important; good nailing or screwing prevents creeping caused by shrinkage of lumber as well as irritating floor squeaks.
- Avoid using latex-containing levelling compounds.

CONCRETE SUB-FLOORS

Concrete or levelling compound must be cured a minimum of 30 days. Prior to installation the concrete must be tested for moisture according to the NWFA's guidelines. All concrete should be tested for moisture prior to installation using the Anhydrous Calcium Chloride test method, a non-invasive moisture meter, or a pin/probe meter. When using a Calcium Chloride Test, the result must not exceed 3 lbs per 1000 sq. ft. in a 24 hour period. If the moisture content is higher than recommended, appropriate measures must be taken to prevent problems. For floors exceeding the maximum moisture content, a vapour barrier should be used to mitigate moisture seepage.

If gluing down on concrete that is on or below grade, even if the Calcium Chloride test results are less than 3 lbs., we highly recommended the use of a concrete sealer. Remember, a concrete slab on/below grade that measures dry today may become moist in the future due to rising groundwater. Installing a moisture barrier now may be viewed as an insurance policy against concrete becoming wet in the future. This will lead to subsequent floor failure. NADURRA is not responsible for site related moisture issues.

Ceramic Tile, resilient tile and sheet vinyl must be well-bonded to subfloor, in good condition, clean and level. Do not sand existing vinyl floors, as they may contain asbestos.

CONDITION REQUIREMENTS:

Recommended Levelling Compound: Cementeous type

Moisture Content: ≤ 3 LB / 1000 ft. / 24 hours

RADIANT HEATING SYSTEMS

Please acquire the document "NADURRA[®] Radiant Floor Heating Guidelines" for proper installation and maintenance procedures over radiant floor heating systems. Only those floors purchased with an extended radiant floor heat warranty should be installed over radiant floor heating.

INSTALLATION

PREPARATION

NADURRA[®] bamboo flooring can be installed using the same methods used by flooring professionals when installing tongue and groove hardwood flooring products. Please refer to the Hardwood Flooring Manual produced by the NWFA before installation. NADURRA[®] bamboo flooring can be installed using one of two methods of installation. For the best performance for Solid Composite™ installations NADURRA[®] recommends the glue down installation method.

NADURRA[®] bamboo is supplied in fixed lengths and packaged in cardboard boxes.

Like wood, bamboo has natural appearance variations requiring some over stock allowance for on-site pre-selection, organising and cutting. NADURRA suggests over-ordering by 5% - 10% extra. Planks should be laid out on the floor before installation to allow for visual selection. As with all plank floors, careful selection and placement of joints, colour and grain matched pieces will enhance the visual effect. Work from several open boxes of flooring and "dry lay" the floor before permanently laying the floor. This will allow you to select the varying grains & colors and to arrange them in a harmonious pattern. It also allows you the opportunity to select out very dark/light pieces for use in hidden areas in order

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to create a more uniform floor. Should an individual plank be questionable as to appearance or dimension the installer should not use this piece.

A ½" expansion gap should be left at all walls and vertical obstructions. For spaces wider than 20' (boards running length of room), installers may need to build-in additional spacing at the edge of room.

TIPS:

- When selecting planks to install, always have 3-4 boxes open at a time to select from.
- *Note: The subfloor must be within 2% moisture content of the bamboo flooring before installing*

GLUE DOWN INSTALLATION (*Recommended Method for Solid Composite Collections*)

Glue down installations should only be performed by professional wood flooring installers. NADURRA does not recommend the full-spread glue down installation method directly on to concrete in the basement/below grade. If you want to install NADURRA Bamboo Flooring below grade, build a raised subfloor with a moisture barrier. (eg: Dri-Core® is a pre-made system with moisture protection built in)

Use only NADURRA® approved adhesives (e.g.: NADURRA VOC-FREE URETHANE ADHESIVE for a full spread glue down installation). Using another manufacturer's adhesive may result in failure and void warranty. Do not install over VCT or vinyl.

Follow the curing time, spread rate, trowel size, and installation procedure and guidelines as recommended by the adhesive manufacturer. Use the "Walk on Work" or "Flashed" method for adhesive application. Using a floor jack during installation will help ensure a tight fit between planks, as well as speed up the installation. Remember to use the appropriate trowel to spread the glue. Always check your working lines to be sure the floor is still aligned. A ½" expansion space or isolation barrier should be left around the perimeter. Immediately roll finished installation with 150# roller. Do not place heavy furniture or appliances on the freshly laid floor for 24 hours.

All adhesive spillage should be removed immediately, using methods defined within the adhesive manufacturer's instructions, to prevent permanent damage to the flooring.

TIPS:

- Stagger the end joints between rows at least 6" apart.
- Always tap against the tongue. Tapping against the groove may damage the plank.
- Use 3M® Blue Tape to hold any planks which might have side bow and need to be held straight & tight until the adhesive sets up.

NAIL/STAPLE DOWN INSTALLATION

IMPORTANT: Due to the extreme hardness of solid strand woven bamboo, particular care must be taken by the installer to ensure that the appropriate nailer, proper cleats nails, and the correct PSI settings are used to create a successful installation without damaging the floor. **NADURRA®** takes no responsibility for damage incurred to the floor as a result of improper installation. This includes damage to the surface or tongue of the plank.

Apply a layer of 15 lb felt paper or asphalt laminated Kraft paper over the subfloor to provide both a moisture and dust retarder. Use an air stapler/nailer compatible with profile of flooring planks (or) a stapler/nailer of your choice. Bamboo planks are secured to the plywood subfloor using 1 ¼" to 1 ½" - 18 gauge coated staples or nails (NOTE: Staples or cleats larger than 18 gauge (i.e., 15 gauge) will damage this flooring and void the warranty).

Choice of appropriate power nailer/stapler and selection of proper PSI settings are the sole responsibility of the home owner/installer. The correct air pressure needed to install this flooring will vary with subfloor type, but generally ranges between 55 and 95 psi. Test on a sample to make sure that stapling/nailing will not cause dimpling (localized raised edges) in the finished floor immediately above the staple/nail. (Note: be sure to look at the face of the installed flooring at a low angle from a distance to see if dimpling is occurring as it is hard to see when directly above the floor.) **If**

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dimpling does occur, STOP and adjust the stapler/nailer shoe and angle/place of staple entry in order to avoid it. NADURRA is not responsible for dimpling.

Staples/nails shall be placed no closer than 6" from the ends of each plank and then spaced at 8" to 10" intervals or as required to prevent tongue splitting/damage. Make sure that your nailer has the appropriate spacer plate to reduce down to a 9/16" or 1/2" thick product (depending on which version of the Composite was purchased). To start a new area against a wall, either top/face nail or glue down the first several rows until a pneumatic tool can be used. A 1/2" expansion gap should be left at all vertical obstructions.

Staplers: Carefully monitor stapler pressure to ensure the crown of the staple enters the tongue as deeply as required to allow adjacent plank to fit properly. Ensure staple crown rests cleanly in the "nail pocket".

Nailers: Carefully monitor nailer pressure to ensure that the nail head enters the tongue only as deeply as required to allow the adjacent plank to fit properly. Ensure that the nail head rests cleanly in the "nail pocket".

WARNING:

- Excessive nailing pressure can cause splitting in bamboo.
- Due to the extreme hardness of Composite Bamboo, it is the responsibility of the installer to determine the correct pressure/psi for their stapler/nailer. Test staple/nail a plank to the subfloor to gauge the correct air pressure, surface damage (dimpling), tongue damage (splitting) etc. before proceeding with the installation.

TIPS:

- Stagger the end joints between rows at least 8" apart and avoid 'H' patterns.
- Always tap against the tongue. Tapping against the groove may damage the plank.
- For concrete applications, make sure to choose a staple/nail length that does not penetrate through the subfloor; fasteners which are too long will "blow out" the bottom side of the subfloor (especially on Oriented Strand Board) above subfloors).