INSTALLATION INSTRUCTIONS FOR PREFINISHED SOLID HARDWOOD FLOORING

We recommend using NWFA certified professionals to install your new wood product. For more information, visit www.nwfa.org.

PRODUCT INSPECTION

Wood is a natural product, containing natural variations in color, tone, and grain. Color variation between planks is to be expected in a wood floor. BTP Floors cannot guarantee against natural variation in each plank, nor minor differences between samples and the color of the floor.

With BTP Floors, you're protected by our exclusive Pre-Installation Limited Warranty. Return any planks you are not satisfied with, uncut, BEFORE installation and we'll replace them. No questions asked.

We urge you to inspect for color, finish, and graining BEFORE installation. Care should be taken during installation to remove or repair characteristics you do not desire. We suggest you use cut planks as starter strips to begin each new row and to "rack" the flooring to ensure a random appearance. (See "racking" instructions below.) Some starter planks may be included in your carton of BTP Floors Hardwood. Look for planks labeled "Cut End". These may be used to start or end a row.

These instructions also apply to WIDE PLANK flooring (page 8) APPLICATIONS Nail or Glue Prefinished solid hardwood floors are typically installed using standard flooring nailers or staplers. The harder, denser exotic species can be very hard, somewhat brittle during nailing and can be more efficiently nailed using thinner 18-gauge cleat nails. Natural variations and characteristics within species such as hardness and brittleness can affect installation time or workability and is not considered a manufacture defect. This flooring is not intended for below-grade or radiant heat applications, engineered or floating floors (flooring not attached to the substrate) are most recommended. In addition, approved underlayment can be applied under this flooring to meet the needs of customers, building specifiers and condominium associations desiring a quieter and warmer floor.

HANDLE WITH CARE

It is understood that wood products are sensitive to moisture, temperature and humidity. Therefore, store your new flooring inside in the area to be installed not in buildings, garages, sheds without climate controls or directly on bare concrete or next to outside walls. It is important to keep wood flooring dry, protect the flooring from rain or snow during transportation. Lay the flooring flat in a dry, level place. Provide air flow under and around cartons. Cartons should be placed close to the center of the installation area as possible. Keep out of direct sunlight and away from heat/air vents. To prevent board warping, twisting or bowing do not cut the outside plastic banding straps or remove product from the box until ready to install.

OWNER/INSTALLER RESPONSIBILITIES

Wood flooring is a product of nature characterized by distinctive variations in grain, pattern, and color. These natural variations are neither flaw or defects, but rather the natural beauty and uniqueness of wood, and should be expected. Only stained products will have the most uniformity in color or shade. Before beginning the installation, first determine if the job site and subfloor conditions are acceptable. The in-home environment, weather fluctuations and product storage can adversely affect all organic materials - SEE ACCLIMATION.

The customer/installer is responsible for final inspection of quality, and for moisture testing the subfloor and wood flooring. During installation, use reasonable board selectivity and good judgment. From a standing position any individual board deemed unacceptable in appearance should not be used. Defects should be cut off placing the remainder in closets or near walls. To minimize gapping, boards of similar widths should be placed together in the same row. A reasonable amount of installed flooring (up to 25% or 100sqft whichever is less) is enough to determine acceptance of quality. Because use constitutes acceptance, once the flooring is completely installed, it is deemed appropriate for use by all parties concerned.

The manufacturer shall not be responsible for costs associated with repairing or replacing flooring installed with visible defects. Our floors are manufactured in accordance with accepted industry standards that may allow possible defects not to exceed 5%. Depending on layout, custom installations and species selection additional material should be included in the order to complete the project. The use of putty, stains, wood blend sticks or markers to touch-up prefinished hardwood flooring before, during and after installation is considered normal practice.

JOB SITE INSPECTION

The yard around the workspace should be graded to allow water to run away from the building. The building must be enclosed. The crawl space or basement must be dry. Crawl space should be a minimum 18" from the ground to the underside of the joist. To prevent moisture related issues such as buckling or cupping, all wet trades involving water or moisture (plumbing, ceramic tiles, drywall finishes, painting, etc.) should be finished with ample time allowed for complete drying prior to wood floor installation. Gutters should be in place and function properly to direct water away from the foundation. For best performance, wood flooring should be one of the last items installed. (HVAC) Heating, Ventilation and or Air conditioning systems should be fully operating and running with temperature between 60F and 80F with humidity between 30% and 50%, before, during and maintained after installation.

NOTE; Some regions of the country are moderate in both temperatures and humidity. Homes in these regions may not have typical (HVAC) Heating, Ventilation and Air-conditioning systems to regulate the indoor environment. Therefore, in this and in all cases, it is the flooring professional or homeowner's responsibility to determine the indoor environment or moisture content of the wood flooring is suitable for installation and its on-going maintenance.

VENTILATED CRAWL SPACES

Per (IRC) International Residential Code, inspect the under-floor crawl space. It must have vents for proper cross-ventilation. Venting allows damp areas to dry-out, reducing the likelihood of mold growth, and to minimize moisture pressure or build-up under homes. Provide year-round air circulation with multiple vents, a minimum of 1 square foot for each 150 square feet of under-floor space area. One ventilating opening shall be within 3 feet of each corner. Ventilation fans can be used in the crawl space area to circulate the air, promote drying and reduce dead air spaces. Ground cover; under the home in the crawlspace completely cover 100% of the soil to guard against ground moisture. Use black 6-mil virgin polyethylene sheet plastic as a moisture vapor barrier. When connecting, overlap any seams 6" and duct tape seams completely.

ACCLIMATION/CONDITIONING OF THE FLOORING

After harvesting, wood flooring is kiln-dried for optimum service. During transit, delivery and storage, wood flooring must be protected from moisture. Wood is hygroscopic, meaning its size and shape changes with the absorption or release of moisture. The amount of change varies with wood species, cut, and type of flooring. Therefore, wood movement (shrinkage or expansion) is to be properly controlled and achieved at the worksite. First, acclimate the new flooring while in the boxes in the areas to be installed to the expected environment that the floor will service. If products are packaged in plastic, remove the plastic wrapping from the outside of the boxes to speed up the acclimation process. The length of acclimation time is not the determining factor. The goal is to reach a moisture balance between the new flooring and its normal indoor surroundings before assembly, fastening or installation. Extended conditioning is not unusual for exotic species having natural oils or for very dense species like Brazilian Teak, Brazilian Cherry, and Mahogany, Rosewood, Redwood, Brazilian Walnut and others. For best performance, condition and maintain the flooring to consistent indoor temperatures of 60°-80° F and indoor humidity levels of 30% - 50%, before, during and after installation. Depending on your local conditions the use of a dehumidifier or a humidifier may be necessary to maintain the desired results. Very dry or humid regions of the country usually require extended conditioning to balance the wood to the environment it will service. Proper jobsite conditions, acclimation, moisture testing of the subfloor and new flooring all work together for the success of the installation and is the responsibility of those overseeing the project. Not following the above recommendations can negatively impact board performance and can result in excessive movement, squeaks, board gapping, board-edge cupping, finish splits and other related issues. This is especially true regarding flooring placed in seasonal or vacation homes without proper ventilation and climate conditions.

GENERAL INFORMATION - all installations

- Install flooring in normal proper lighting.
- Save a box of flooring for future repairs.
- Do not install in full bathrooms or areas with steam.
- Inspect subfloor for flatness, squeaks, and moisture.
- Do not install this product over radiant heat systems
- Do not install this product below-grade or in basements.
- Avoid board grouping board sizes should be intermingled.
- Use breathable materials like paper when protecting a newly installed floor.
- Inspect flooring during installation select out boards have milling and finish defects.
- The customer is advised to be home during the installation for consultation/direction.
- Customer and installer should discuss installation and layout to maximize satisfaction.
- It is helpful to save the item number found on the packaging box ends for future references.
- Jobsite subfloors can be dry today and wet tomorrow. The use of moisture barriers is recommended.
- Floor should be installed from several cartons at the same time to ensure good color, shade and appearance.
- An Expansion space must be left around the perimeter and at all vertical obstructions. This space is normally the same as the thickness of the new flooring. For example, 1/2" flooring requires 1/2" expansion.

NAILDOWN OVERVIEW MOISTURE TESTING

Most wood flooring failures result from jobsite moisture. Do not unpack or deliver flooring to the jobsite until moisture problems are corrected. The goal of moisture testing is two-fold.
(1) To determine when the installation can begin and
(2) to verify that proper moisture balance between the new floorboards and that of the existing subfloor has been achieved.
Verify by using a moisture meter that will have individual species settings. Pin or probe meters that have adjustable species settings are most accurate. Contact the meter manufacturer directly for your alternate or substitute species settings.

Test the subfloor

Set the meter to the type of subfloor. Obtain an average by meter testing the subfloor (10 locations per every 500sqft). Test around exterior doorways, near plumbing and foundation walls and in the center of the room. On average, the subfloor moisture range must not exceed 12%. Test the new flooring. Set the meter to the proper wood species. Obtain an average reading by testing (20 boards out of every 500sqft) of new flooring. The flooring can have acceptable moisture range between 4%-8%, with no more than 5% variance up to 10%. After thoroughly testing both the subfloor and the flooring, be sure that the moisture content of both doesn't differ by more than 4% for strip flooring (boards 2 ¼" or less) and 2% for plank flooring (3" or wider). If high moisture readings are found in either the new floor or subfloor identify the moisture source and correct. Extend acclimation time. Postpone the installation until the proper conditions have been met. It is recommended to document moisture test results with notes should future questions arise; include a record of the customer's name, the order number and digital pictures showing the meter actually used, including the time and date.

WOOD SUBFLOORS

Wood subfloors All wood subfloor components must not exceed 12 percent moisture content. Do not install flooring directly over floor joist without subflooring. Subfloors provide strength and a proper nailing base.

- Install subflooring sealed side down. Square-edged or non-tongue and grooved panels used as a subfloor will require a minimum 1/8˝ (3 mm) expansion space placed between all plywood seams. Panels must meet minimum CD grade Exposure 1 and US Voluntary Product Standard PS1-95, PS2-04 or Canadian performance standard CAN/CSA 0325-0-92 for construction sheathing.
- See acceptable subfloor types on the last page of these instructions. Particleboard, Luan or Masonite is not recommended for nailing solid wood, remove and replace with minimum recommended subfloor material to meet minimum thickness requirements or cover with 3/8" plywood underlayment.
- Minimum of 3/8˝CD panel thickness is recommended when used as an underlayment when needed.
- Avoid pressure treated plywood for interior use. These can have elevated moisture or latent with rot resistant chemicals. Note that joist spacing determines minimum subfloor thickness.
- Joist spacing 16" (oc) on center or less Plywood: Minimum of (5/8˝, 19/32) Oriented Strand Board (OSB): minimum (3/4˝, 23/32") Advantech minimum (3/4˝, 23/32")
- Joist spacing 16" up to 19.2" (oc) Plywood: Minimum of (3/4˝, 23/32") Oriented Strand Board (OSB): minimum of (3/4˝, 23/32")
- Joist spacing over 19.2" up to maximum 24" (oc) Plywood: Minimum of (7/8") Oriented Strand Board (OSB): Minimum of (1") or two layers of subflooring, or brace between truss/joists in accordance with local building codes. Wood floor orientation
- Nail wood flooring perpendicular to the floor joist.
- Nailing wood flooring parallel to the floor joist is an option using a combination of plywood, OSB, Advantech or similar approved subfloors. Floor joist (16" to 19.2 oc) The total subfloor thickness minimum must be 1-1/4" Floor joist (19.2 to 24"oc) The total subfloor thickness minimum must be 1-7/16" When nailing over existing solid wood tongue and groove flooring, install over an additional 3/8" plywood or run the new floor perpendicular or at a 45 degree angle to the direction of the existing flooring.

Flatness

All subfloors should be flat to within 3/16" in 10 feet or 1/8" in 6 feet radius. Wood subfloors must be securely nailed or screwed to joists to minimize movement or squeaks. Install over 16" minimum center-to-center joist sub-structure. Thoroughly inspect and replace existing floor or subfloor that shows evidence of water damage or structural weakness. Repair any sagging or loose sections of the subfloor. Squeaky or loose boards should be re-secured. An uneven or cupped subfloor can be an indication of excess moisture or rot, identify and correct. High spots/joist may be sanded down. Low spots should be cut out and repaired or may be filled with old pieces of firm vinyl or build up with 30 lb. black roofing paper. Do not fill-in low areas under naildown flooring with cement patching materials as these may break down over time.

New construction: It is the builder's or general contractor's responsibility to provide the wood flooring contractor with a subfloor that is within the tolerances listed above. Postpone the installation until corrections have been completed.

CAUTION: Do not sand any surfaces containing lead-based paints, finishes, or asbestos. For buildings built in 1978 and earlier, contact the EPA for lead based testing prior to any sanding (www.epa.gov).

WOOD SUBFLOOR OVER CONCRETE

A Floating Subfloor System over concrete (not attached to the subfloor)

- Concrete should be flat to within 1/8" over 6' or 3/16" over 10'
- Install 6 mil (plastic) poly sheeting completely covering the concrete overlap seams 6" and duct tape.
- Minimum two layers of 1/2" minimum CD Exposure 1 Plywood subfloor panels (CDX) 4' x 8' sheets.
- Square-edged plywood panels should be placed with 1/8" gaps between sheets and a ¾" minimum expansion space at all vertical obstructions and wall lines.
- Place the first plywood layer with edges parallel to wall, without fastening. Leave ¾" space between wall and plywood.
- Lay the second layer perpendicular or at 45-degree angle to the first.

• Screw and glue (with urethane or construction adhesive) the second layer to first layer on 12” interior grid pattern (6” on the perimeter). Use fasteners long enough to secure the flooring to the subfloor and not penetrate the (plastic) poly sheeting.

Nail-Down Subfloor System over Concrete (attached to the subfloor)

• Use minimum ¾” (23/32, 18.3mm) CD Exposure 1 Plywood subfloor panels (CDX), 4’ x 8’ sheets.
• Concrete compressive strength must equal 3000 psi or better.
• Concrete should be flat to within 1/8” over 6’ or 3/16” over 10’.
• Install 6 mil (plastic) poly sheeting completely covering the concrete overlap seams 6” and duct tape.
• Note: Fasteners may be powder-driven pins, pneumatic driven nails, or other fasteners suitable for concrete application. Check with fastener manufacturer for specification such as length, drill size, and/or shot load where applicable.
• Stagger panel joints allowing approximately 1/8” expansion space around all panels to prevent edge peaking due to compression caused by panel swell.
• Allow ¾” minimum expansion space at all vertical obstructions.
• Panels should be mechanically fastened. For powder load or pneumatic pressure information, contact the manufacture.
• Nailing requirements, minimum 32 shots per 4’ x 8’ panel.
• Areas with higher humidity may require additional fasteners.
• Use 1-1/2” long fasteners when nailing ¾” flooring to this subfloor.

Glue-Down Subfloor System over Concrete (attached to the subfloor)

• Follow the adhesive manufacturers recommendations for type of adhesive, floor prep, moisture barrier and trowel size
• Concrete compressive strength must equal 3000 psi or better.
• Concrete should be flat to within 1/8” over 6’ or 3/16” over 10’.
• Use minimum ¾” (23/32, 18.3mm) CD Exposure 1 Plywood subfloor panels (CDX), 4’ x 8’ sheets.
• Cut 4’ x 8’ sheets into (4) 12”x8’ planks
• Place 12”x8’ planks into wet adhesive, stager joints min 12” allow planks to fully bond/cure before wood installation.

NAILERS/STAPLERS Nailing tips

Tongue fracture and surface dimpling is not a manufacturer defect and can be minimized by installing the flooring in proper lighting, using the correct nail thickness or gauge, using the recommended shoe adaptor, or changing the height/angle of nail entry.

1 To further reduce the occurrence of surface dimpling and tongue fracture the use of thinner 18 gauge cleat nails is recommended especially for harder exotic floors but is no guarantee to prevent all surface dimples. In addition, many installers will sometimes adjust the nailer angle temporarily by applying layers of duct tape to the bottom nailer foot plate. The use of an over-size base or foot plate to distribute the nailing force is encouraged. If, however, surface dimpling still occurs, pre-drill and hand nail the flooring using a 3/32” drill bit and 6d steel finish nails.

2 Use caution when using staples on exotic flooring. Staples may increase the risk for tongue fracture and surface dimples. Do not mix fasteners when nailing. Staples and cleats hold differently when mixed can result in irregular fastening and or may allow excessive movement. When face or top nailing, pre-drilling is recommended. Pick areas of the grain or pattern that would best hide touch-up fillers.

3 Do not use significantly bowed, crooked or twisted boards. Use a wood spline or slip tongue whenever a change in board direction is needed. Splines should be glued with PVA wood glue and nailed into place. Forcing or pounding floorboards together with a rubber mallet during assembly can bruise or damage factory finished board edges. When using air compressors. Adjust the regulator to ensure proper air pressure and setting of fasteners. Set air compressor to 70-80 PSI, test the nailer. Do not exceed the nailer or air hose limitations. Make sure that the fastening machine is recommended for the floor, is in good working condition, is fully adjustable, is at the appropriate angle and secures fasteners properly against the tongue of the board to prevent top edge and surface dimple damage.

Cleat nails Staples (Use either cleats or staples; do not use both types on the same floor each holds differently)

INSTALLATION PREP

Use a jamb saw (manual or powered) to undercut all door jambs/casing to allow enough clearance for the wood flooring to easily slide underneath. A gap (business card thick) between the top of the wood flooring and bottom of the door jamb is acceptable. Sand down any high spots or high subfloor seams. Correct low spots (See subfloor prep). Sweep or vacuum the subfloor clean of dust and debris. Install moisture retardant underlayment and staple it down to prevent movement/sliding.

STEP 1: THE FIRST THREE ROWS

• Determine the starting wall, usually the longest or outside foundation wall. At the two opposite ends of this wall, measure out the width of the board, plus the expansion space, and place a mark. (Do not include the tongue of the board when measuring). An Expansion gap or space must be left around the perimeter and at all vertical obstructions. This space is normally the same as the thickness of the new flooring, for example, 1/2” flooring requires 1 /2” expansion gaps.
• Snap a chalk line connecting the two marks. Align the tongue side of the first row of boards on the chalk line with the groove side towards the starting wall, maintain the expansion space.
• Install the flooring with the tongue side facing away from the starting wall (Use long straight planks for first two rows). Nail on the tongue side of the flooring.
• Pre-drill and top nail the first row of boards using a 3/32” drill bit and 6d finishing nails about 1” from the back edge. Countersink the finish nail using a nail punch and fill with close matching wood filler. Pre-drill and blind nail the 2nd and 3rd rows using 6d finish nails above the board tongue until nailing machines can be used (set finish nails with a nail punch).

STEP 2: FLOORING LAYOUT (Racking)

After installation of the first three rows, loose lay about 100sqft of flooring about 4” or 5” away from the last secured row. Pull from several boxes to mix board color and sizes to create a random appearance. Visually inspect flooring for defects while racking. Stagger boards randomly as possible, avoid creating patterns. See picture for proper layout guidance. Staggering board randomly adds strength to the total floor Avoid “stair step” and “H” patterns. Avoid lining-up board ends and spacing boards closer than 6”.

STEP 3: INSTALLATION CONTINUED

• After laying-out or racking 100sqft of flooring begin nailing the floor using a hardwood flooring nailer (See nailer recommendations). Visually inspect board for defects while nailing. Use proper fastener spacing (See fastener spacing. Continue nailing until you get to the last one or two rows. The first and lasts few rows usually need to be top nailed. Pre-drill using a 3/32” drill bit and use 6d finishing nails.
• The last row may have to be ripped down in width to fit. If the last row is less than 1” in width use carpenter’s wood glue to join the last piece to the previous row.

WIDE PLANK INSTALLATION Tips (Board width sizes 4” and over)

Wide planks are milled to strict tolerances, however, factors such as weather, shipping, storage and acclimation can cause wood to change shape; expand or contract after milling. The following recommendations can help you perform a successful installation using wide plank flooring.

• No two planks are alike. The inner heartwood and outer sapwood will have dimensional and color variations. To minimize gapping during installation boards of similar widths should be placed together in the same row. Defects should be cut off placing the remainder in closets or near walls.
• Seasonal gapping or cupping is common with all wood flooring. To minimize the occurrence of board movement, maintain a constant indoor humidity of 30%-50% and temperatures to 60-80 before, during and after installation. Humidifiers and dehumidifiers are used to maintain the proper environment and minimize wood floor movement.
• To reduce the occurrence of cupping with wide plank flooring in room areas over 20 ft. wide, many installers will nail and glue the boards to the subfloor. When doing so follow the recommended nailing schedule and use an approved wood floor adhesive. Note that the greatest influence on control board movement is maintaining the recommended indoor environment and providing moisture control. When installing wood floorings over crawl spaces or rooms over basements and garages use moisture papers such as (white Silicon Vapor Shield® or 15 lb. black roofing felt paper) or similar as a minimum to provide protection against moisture vapors.

• Depending on your geographical area, interior climate controls and installation time of the year additional spacing between rows may be needed to provide additional expansion during seasonal times of elevated humidity. During the installation washers or dimes can be placed temporarily between rows to ensure the additional space, placed at every 4’ to 5’ intervals. Remove the washers after installation. Contact the manufacturer for details.

STEP 4: FINISHING UP
• Fill in nail holes and minor gaps with close matching wood filler.
• Install any base board molding and shoe molding
• Install transition moldings
• Use felt pads under furniture legs
• Protect against moving appliances and heavy furniture.

GLUE DOWN OVERVIEW
[CAUTION]
Most installation failures result from jobsite moisture. Follow the adhesive manufacturer’s recommendations can prevent installation failure and maintain your warranty. Do not unpack or deliver flooring to the jobsite until moisture problems are corrected. Note that flooring adhesives may have special requirements and limitations of use. Follow closely the adhesive labeling instructions and adhesive Technical Data Sheet pertaining to moisture testing procedures, moisture barriers, and trowel size recommendations. Depending on the selection and application of a particular adhesive, you may be required to use moisture barriers. Adhesive Technical Data Sheets can be found on the adhesive manufacture’s website. When in doubt about an adhesive application or requirement call the adhesive manufacturer.
[TIPS]:
• Place saw equipment outside in an area where they can be reached without having to walk across the flooring
• Install the flooring parallel to the longest wall or foundation wall in the room. Keep the flooring straight using a chalk line
• Select flooring from several cartons to mix color, grain and shade.
• Discard twisted or warped boards.
• Do not mix adhesive products or glue to concrete sealers
• Follow the glue manufacturer’s labeling instructions regarding adhesive set time, correct trowel size, removal of surface sealers or contaminates and use of moisture barriers
• Glue manufacture may or may not require rolling the floor throughout installation to ensure glue transfer, refer to adhesive labeling instructions.
• Apply adhesives perpendicular to the direction of the flooring. Check adhesive bucket for proper trowel size and spread rate recommendations. Typically, trowel size is determined by board type, size and surface texture.
• Occasionally pull up a plank to verify if proper adhesive transfer is being achieved.
• Use the trowel size recommended by the adhesive company to get required spread rate and ridging height. Typically, trowel size is determined by board type, size and surface texture. Check adhesive bucket for trowel size recommendations.
• During constant use trowel teeth will wear down, for best glue coverage use a new trowel with each new container of adhesive.
• Blue painter tape #2080 can be used to keep rows or sections of floorboards together until the adhesive has cured.
• Incorrect or aggressive tape can harm the finish do not leave on overnight. Tape 4 or 5 board rows together during installation.
• Many installers choose to use straps or clamps to force board rows tighter together during installation. Be advised that over-strapping can adversely affect the floor and may result in glue-bond failure, seam peaking, twisted boards or out-of-square floorboard alignment.

SUBFLOOR PREPARATION
Acceptable wood substrates for Glue-Down applications See acceptable subfloor types on the last page of these instructions. Always follow the adhesive manufacturer’s guidelines for acceptable wood substrates for Glue-Down applications. Do not glue directly over subfloors attached to cement or to unsuitable substrates such as but not limited to; particleboard, Luan, Masonite, adhesive residue, exterior grade plywood, pressboard, solid-board subflooring, strip hardwood flooring, cement board. These types of substrates are approved for floating installations only and must be covered with a minimum of 3/8˝CDX plywood underlayment when gluing or nailing this product to the subfloor. Moisture testing (Concrete Subfloors) Test concrete substrates in several locations for best averages. If test results show moisture vapor exceeds the maximum requirements for the adhesive do not install. Concrete substrates must free of surface sealers or contaminates. Because concrete generally takes 15 days to dry for every 1 inch (25 mm) of thickness, the concrete must cure at least 90 days prior to moisture testing.

Flat concrete
• A flat cement surface is very important when gluing down ridged solid wood. To minimize squeaks and gaps the final surface must be flat to within 1/8" in 6’ radius or within 3/16” in 10’ radius. Sand or grind down high spots. Fill valleys or low areas with cement based leveling compounds compatible with the flooring adhesives. Allow extra drying time for the leveling compounds. Concrete that is not properly leveled can cause improper adhesive transfer, hollow spots, and squeaks. Check Concrete for Sealers
• All paint, adhesives, dust, debris, and sealers must be removed from the concrete prior to gluing down solid wood flooring. To check for a sealer on the concrete spill a small cup size amount of water onto the concrete surface. If the water beads up, and does not soak into the concrete, a sealer is present. The sealer will have to be removed before continuing with the glue down installation of wood flooring. Check with adhesive manufacture for recommendations on sealer removal.
• CAUTION: Do not sand any surfaces containing lead-based paints, finishes, or asbestos.

RECOMMENDED ADHESIVES
Note that flooring adhesives have special requirements and limitations of use. Follow closely the adhesive labeling instructions and adhesive Technical Data Sheet pertaining to moisture testing procedures, moisture barriers, and trowel size recommendations. Depending on the selection and application of a particular adhesive, you may be required to use moisture barriers. Adhesive Technical Data Sheets can be found on the adhesive manufacture’s website. When in doubt about an adhesive application or requirement call the
adhesive manufacturer.
[CAUTION]: Cured adhesive may cloud, chemically damage or etch the floor’s finish. Clean wet adhesive from the surface of the floor frequently using the manufacturers recommended remover. Use clean towels, changing frequently to prevent haze and residue. Contact the adhesive manufacturer for their dried adhesive removal remedies

GLUE DOWN INSTRUCTIONS STEP 1:
Install in good lighting. Inspect the flooring often. Adjust as needed. If satisfied, continue with the installation. 100sqft of installed flooring is enough to verify quality or 20sqft for areas under 100sqft.
• Determine the starting wall, usually the longest wall. At the two opposite ends of this wall, measure out the width of 5 planks, add the expansion space to that measurement, and place a mark on the subfloor.
• Next, use a chalk line to connect the two marks. Tack down furring wood strips along the straight chalk line. You can also use carpet tack strips. This will give you support to push your first row of flooring against. Use concrete nails when attaching the furring strips to concrete subfloors.
• Measure out from your first chalk line the width of 5 planks on each side and pop another chalk line. This chalk line will run parallel to the first chalk line.
• Rack out 5 rows of flooring starting at the second chalk line. Be sure to pull from several flooring boxes at a time to mix color, while keeping proper seam stagger.
• Using an approved trowel and wood flooring adhesive, spread the glue between the furring wood strips and second chalk line.

• Start placing the racked-out flooring into the adhesive. If you're facing the starting wall, install the flooring left to right. The groove side of the planks should be facing away from the starting wall. Push the first row up tight against the furring wood strips.
• Progressively lay-in the next rows by inserting the tongue into the groove of the previous row at a 30-degree angle, then drop board into adhesive. Avoid dragging or sliding boards together as this can trap or squeeze glue up in between the boards creating gaps. Continue working 5 rows together. The last board in each row will need to be cut to fit.
• The balance of a board cut may be used to start a new row, discard lengths under 6". Avoid clustering of end joints. Stagger the ends of the boards correctly. A tapping block can be used to gently tap the boards into proper position. During installation, end gaps between board ends can be minimized by temporarily locking a completed row in place by using spacers placed between the first and the last board of each row, remove when glue has dried.
• Continue adding new chalk lines using the previous techniques. Spread adhesive and continue installing 5 rows at a time until job is complete. Tape planks together as needed to keep them from separating. Apply #2080 blue painters' tape to the plank surface perpendicular to the installed floor.
• Remove wet adhesive immediately using mineral spirits or the adhesive manufacturer's remover product.

STEP 2: INSTALLING THE LAST ROWS
• Most often, the entire length of the last row will need to be trimmed so that it is narrow enough to fit the remaining space. It should be glued and wedged with wood shims into place. Leave all spacers/shims in the expansion space until the adhesive has cured, then remove. Keep the floor free from foot traffic, until adhesive has cured.
• Go back to the starting wall and pull up the furring wood strip or carpet tack strip. Spread adhesive onto the subfloor, and install the last boards needed to finish the job. Install these boards right to left. Use wood shims between the wall and floor to keep the last few boards tight together. Blue painters tape #2080 can be used.
• Do not to spread adhesive too far ahead of your work area. If the adhesive skins over and fails to transfer, remove and spread new adhesive to achieve proper bonding to the subfloor.
• Occasionally lift a board and check for adhesive transfer. Adequate adhesive transfer is necessary to ensure sufficient holding strength. Solid wood flooring planks must have adequate adhesive transfer to the back of the flooring planks.
• When not in use, keep the adhesive container tightly closed to prevent drying and difficulty in spreading the adhesive. Proper ventilation within the room should be provided. Follow the recommendations on the adhesive container.

Post-installation
• Remove blue painters' tape after 8 to 10 hours being on the flooring.
• After installation, allow glue to fully cure for 24 hrs before replacing furniture and heavy foot traffic.
• Protect flooring before moving any heavy furniture or appliances. (damages from furniture and appliances are not covered)
• Fill in minor gaps with close matching wood filler
• Check for adhesive on floor finish and remove with appropriate adhesive manufacture remover.
• For best matching of sheen or milling save a box of flooring for future repairs.

MOLDINGS & TRANSITIONS
• Use urethane adhesives to bond wood transitions to concrete walls and subfloors.
• Install transition moldings directly to the subflooring.
• Attach wall base or quarter round moldings to the wall, never into the floor.
• Transition moldings should be predrilled to avoid splitting, use 6d finishing nails.
• Air tools are ideal for fastening moldings; use 16/18gauge nailers for quarter round moldings and 15gauage nailers for baseboards
• Adjust air tank pressure to minimize splitting.
• Carbide tipped saw blades makes the best cuts.
• Mitered cuts hide better when joining moldings.
• Be sure the saw blade rotation is positioned to cut into the finished face.
• The tool of choice for cutting hardwood moldings is a 10"/12" power miter saw with pre-set adjustments for the basic miter cuts at 22.5°, 45°, and 90°.

HARDWOOD REPAIRS (Scratches, nicks, dents)
•Minor white scratches can be touched up using Scratch-Away or repaired with a wood stain marker. Nicks and dents can be filled with a wood blend stick or color wood putty. Major damage may require individual board replacements or up to 10% of the total installed floor. Board replacements are best accomplished by professional flooring installers.

SEASONAL CHANGES
What to expect (all installation methods) Seasonal gapping should be expected in all wood flooring and does not constitute a product failure. It is normal that wood floors will be affected by fluctuating levels of humidity within the building. Care should be taken to control humidity levels to within the 30-50% range and temperatures of 60°-80° F. To protect your investment and to assure that your floors provide lasting satisfaction, note recommendations below:
• (Dry) Heating Season - A humidifier may be needed to prevent excessive shrinkage in wood floors due to low humidity levels. Wood stoves, radiant floor heat and electric heat will create dryer conditions.
• (Humid, Wet) Non-Heating Season - Proper humidity levels can be maintained by use of an air conditioner or dehumidifier. Avoid excessive exposure to water during periods of inclement weather. Do not obstruct expansion joints around the perimeter of your floor.

RADIANT HEAT Do not install this product over radiant heat

ROUTINE MAINTENANCE
1. Use a damp cloth to blot up spills as soon as they happen. Never allow liquids to stand on your floor.
2. For tough spots, such as oil, paint, markers, lipstick, ink, or tar apply mineral spirits on a clean white cloth, then wipe the area with a damp cloth to remove any remaining residue.
3. Sweep, dust, or vacuum the floor regularly with a recommended hard floor attachment (not a beater bar) to prevent accumulation of dirt and grit that can scratch or dull the floor finish.
4. Do not use flood or wet mop the floor with soap, water, oil-soap detergent, or any other liquid household cleaning material. This could cause swelling, warping, delamination, joint-line separation and void the warranty.
5. Do not use steel wool, abrasive cleaners or strong ammoniated or chlorinated type cleaners.
6. Do not use buffing or polishing machines, these can generate heat or hot spots.
7. For spots such as candle wax or chewing gum, harden the spot with ice and then gently scrape with a plastic scraper, such as a credit card. Be careful not to scratch the flooring surface. Wipe clean with a damp cloth.
8. A more frequent dust-mopping or vacuuming schedule may be required in very sandy areas such as a beach home.

Protection
1. Entry mats made of natural fibers are recommended and will help collect the dirt, sand, grit, and other substances such as oil, asphalt, or driveway sealer that might otherwise be tracked onto your floor.
2. Do not use plastic foam backed mats as they may contain solvents harming the flooring finish. To prevent slippage, use an under rug underlayment approved for urethane finishes.

3. Use floor protectors and wide load bearing leg bases/ rollers to minimize indentations and scratches from heavy objects. As a rule, the heavier the object, the wider the floor protector.
4. Avoid excessive exposure to water during periods of inclement weather.
5. Do not walk on your floor with stiletto heels, shoes with sports cleats or exposed metal parts.
6. Do not allow sharp, pointed, or rough textured objects to be exposed to the hardwood flooring.
7. Keep pet nails trimmed to prevent scratching the floor.
8. UV sunlight will enhance –lighten or darken- the tone of different species of hardwood to varying degrees. Periodically rearranging your area rugs and furniture will allow the floor to antique or age evenly.
9. Use a dolly when moving heavy furniture or appliances; use a piece of quarter inch plywood or Masonite to protect the floor. Never try to slide or roll heavy objects across the floor.
10. A protective felt, pads or castors should be used for furniture, rubber wheels or protective mats for office chairs.
11. We do not endorse the use of hot steam cleaning machines on hard wood products, use at your own risk.
12. Toys and tools can scratch and dent the finishes, are site related and not warrantable.
13. If using the glue-down installation method, do not allow foot traffic or heavy furniture on floor for 24 hours.

APPROVED UNDERLAYMENTS FOR SOLID WOOD
Depending on the application, our flooring can be installed (nailed or glued) over an approved underlayment to meet the needs of customers, building specifiers and condominium associations desiring greater thermal insulation and sound isolation qualities. Note that when using an approved underlayment, pad or cushion there can always be some slight movement, deflection or friction, squeaks or floor noise with any application. Floor noise is normal, to be expected and will vary from one installation type to the next or related to sub-floor type, flatness, deflection, and or related to the type of flooring material, species, the fasteners, relative humidity and the amount of topside pressure applied to the flooring. Therefore, for these reasons floor noise is not considered a product defect.

CAUTION: WOOD DUST Cut flooring outside Sawing, sanding and machining wood products can produce dust. Airborne wood dust can cause respiratory, eye and skin irritation. The International Agency for Research on Cancer (IARC) has classified wood dust as a nasal carcinogen in humans. Precautionary Measures: Cut flooring outside. Equip power tools with dust collection. If high dust levels are encountered; use an appropriate NIOSH-designated dust mask. Avoid dust contact with eye and skin, **USE EYE AND EAR PROTECTION.** First Aid Measures in case of irritation: flush/rinse eyes or skin with water for at least 15 minutes.

This warranty is provided by Brasil Tropical Exotic Flooring USA, Corp., 3275 W Hillsboro Blvd Ste 305, Deerfield Beach, FL 33442, USA. And Brasil Tropical Pisos Ltda. Rod. MT 208 Km 140, Alta Floresta, Mato Grosso, Brazil, CEP 78580-000