

INSTALLATION INSTRUCTIONS

For The Exotic Collections

Including 3/4", 5/8" & 3/8" thick Strip, Plank and ThinStrip

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INSTALLER/OWNER RESPONSIBILITIES

Hardwood flooring is a product of nature and its inherent beauty stems from the fact that each piece is unique with no two pieces the same. As wood flooring is a product of nature, the installer and/or owner, have the following responsibilities:

- 1) Understanding how the floor will look once installed – the installer and owner must meet prior to installation to review:
 - a. How was the floor chosen? Review the control samples, (the samples from which the floor was chosen), and compare to the actual flooring batch onsite prior to installation to make sure it meets the owner's expectations as to:
 - i. Grade – is it the correct grade? Also grade from batch to batch may vary slightly so make sure the owner is happy with this batch of flooring you are about to install.
 - ii. Color/Graining - do certain dark/light pieces or wild grained need to be graded out to meet the owner's expectations?
 - iii. Color Variation, Batch to Batch – inspect the production run of flooring you received and make sure it meets your expectations. Wood from different locales can have varying colors and grains and differ from the samples from which the floor was chosen. Tint colors may also vary slightly batch to batch. Make sure the owner will be happy with the batch they received.
 - iv. Color Change - do they understand how the wood will change color over time? The owner may have chosen their floor from samples that have aged so they need to understand in advance of installation the color change to be expected in this wood. (refer to our website at www.wflooding.com for species specific color change descriptions and photos).

Congratulations! You have now made sure that the owner will not be disappointed once the flooring is installed and they see it for the first time!! Wood Flooring International cannot be responsible for visual issues once the flooring is installed.

- 2) Installer responsibilities during installation:
 - a. Receive the floor & make sure it is as ordered and meets the owner's expectations.
 - b. Test the subfloor and relative humidity on site to make sure the flooring will perform satisfactorily on this installation.
 - c. Follow these Installation Instructions.
 - d. Grade out any pieces with visible defects and stop the installation should a reoccurring problem be found, (over the 5% allowed by industry practices). DO NOT INSTALL pieces with visible defects.
- 3) Keep a Permanent Job Record – use [Wood Flooring International's Permanent Job Record](#) to record this on.
- 4) Make sure the owner understands that wood and water, (as well as wood and overly dry conditions), do not mix as wood flooring is a natural material and will shrink/cup/move when over-dried and will expand, delaminate, warp and buckle/cup when over-wetted.
- 5) Make sure the owner understands how to maintain the floor. Give them a copy of [Wood Flooring International's Maintenance Instructions](#) & [Wood Flooring International's Solid UF Flooring Warranty](#).

WARNING: Our flooring is well manufactured and is designed to perform within the typical residential environment. We are not responsible for site conditions, as we do not control them. Only you, the installer can test and correct for too dry or too wet site conditions prior to installation. Note: Wood flooring installed in areas where the relative humidity is below 35% may cup, shrink in width/length, or crack and in these dry conditions a humidifier is necessary to bring relative humidity above 35%. Flooring installed on top of wet sub

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floors may crown, (and then cup), swell, (and then shrink), buckle or edge/tip raise. Flooring that is soaked from above will do the same. **DO NOT INSTALL THIS FLOORING ON WET SUBFLOORS OR IN OVERLY DRY CONDITIONS** without first correcting any deficient conditions.

Where our flooring should not be installed:

Our solid wood floors are NOT recommended for below grade installations. NOR should they be installed in any on-grade installations where there is the possibility of excessive moisture from below.

Our solid wood ThinStrip floors should not be installed in areas with sudden large seasonal variations in equilibrium points (above 25%) or in areas where the subfloor may give off excessive moisture. Nor should they be installed where you cannot control the maintenance whereby they are likely to soak the floors by excessive wet mopping. ThinStrip, due to its thinness, has a pronounced tendency to cup/warp if it is soaked from above, or if it wicks moisture from below, or if seasonally, it varies from low to high humidities.

PRE-INSTALLATION JOBSITE REQUIREMENTS

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 distributor immediately and arrange for replacement. Wood Flooring International cannot accept responsibility for flooring installed with visible defects. Prior to installation of any flooring, the installer must ensure that the jobsite and subfloor meet the requirements of these instructions. Wood Flooring International is not responsible for flooring failure resulting from unsatisfactory jobsite and/or subfloor conditions.

Hardwood flooring should be one of the last items installed for any new construction or remodel project. All work involving water or moisture should be completed before flooring installation. Warning – water and wood do not mix. Installing flooring onto a wet subfloor will likely cause cupping and subsequent gapping.

Room temperature and humidity of installation area should be consistent with normal, year-round living conditions for at least a week before installation of wood flooring. Room temperature of 65-75°F and a humidity range of 35-65% is recommended. Warning - humidity levels below 35% will likely cause movement in the flooring, including gapping between pieces and possible cupping and checking in the face.

Wood Flooring International cannot be held responsible for site conditions.

PRE-INSTALLATION SUBFLOOR REQUIREMENTS

All Subfloor must be:

- Structurally sound
- Clean: Thoroughly swept and free of all debris (If being glued down, subfloor must be free from wax, grease, paint, sealers, & old adhesives etc., which can be removed by sanding)
- Level: Flat to 3/16" per 10-foot radius
- Dry and will remain dry: Subfloor must remain dry year-round. Moisture content of wood sub floors must not exceed 11%, concrete must not exceed 3.5 as measured with a [Tramex Commercial Concrete Moisture Meter](#).

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Wood Sub floors:

- Must be flat to within 3/16" of a straight edge in a 10' radius and without any abrupt height differences. "Hills" should be sanded down flat and valleys should be filled with a self-leveling cement compound developed for use with wood flooring such as [Ardex K-15 Portland Leveling Compound](#) or equal. Follow the manufacturer's instructions for use. Ardex can be reached at (412) 264-4240.
- Must be structurally sound, with the recommended subfloor to be at least a 5/8" min. thick plywood installed onto joists, which are 16" on center and adequately sized for the length of the span. Prior to installing the wood floor, check to make sure the subfloor is well nailed to the joists. Re-nail any loose areas or sections with squeaks. Also check any areas where there is excessive up and down movement of the subfloor and joists and shore them up from below by adding blocking and/or additional support.
- The wood subfloor must be 10% M.C. or below. Take several moisture meter readings from different areas of the subfloor and save them as part of the permanent job record. Make sure, prior to installation of the wood flooring, that the space below the subfloor is not excessively damp as moisture from this area may later "wick" through the subfloor into the wood floor itself.

Concrete Sub Floors:

- Must be flat to within 3/16" of a straight edge in a 10' radius and without any abrupt height differences. "Hills" should be ground down flat and valleys should be filled with a self-leveling cement compound such as [Ardex K-15 Portland Leveling Compound](#) OR EQUAL. Follow the manufacturer's instructions for use. ARDEX may be reached at (412) 264-4240. Avoid leveling large areas of concrete with thin layers of leveling compound due to the inherent weakness of the bond.
- Must be at least 60 days old and dry. Do not install on concrete unless YOU ARE SURE it stays dry year-round. All concrete should be tested for moisture and be below 3.5 moisture content as measured by a [Tramex Commercial Concrete Moisture Meter](#). Other concrete testing methods may be used, see Other Concrete Testing Methods.
- Must have a density of at least 90 lbs./cu. in.
- Must be free from excessive alkaline, as in gluedown installations you may risk bond failure with the mastic used. On all glue down installations first test for pH and if excessive, neutralize using an acid wash and recheck before installation. Follow the specific instructions of the mastic manufacturer in testing for and correcting high pH subfloors.
- Old concrete subfloors should first be roughed up with a sander in order to improve the bond between the subfloor & the mastic – please follow the mastic manufacturer's specific instructions.
- It is highly recommended, that if gluing down on concrete, (even if you believe it is dry), which is on or below grade, to install [Sheet Vinyl](#) first and then glue the wood flooring on top of the vinyl, as this provides an effective permanent moisture barrier. Another alternative to sheet vinyl is to use the [Bostik](#) or [Franklin](#) Moisture Barrier Systems and they provide warranties to you.
- 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. Wood Flooring International is not responsible for site related moisture issues.

EQUALIZING YOUR SOLID WOOD FLOORING

Solid Wood Floors, both unfinished and pre-finished, MUST be equalized properly before installation. Please follow these recommendations for equalizing:

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Background to equalizing Solid Wood Flooring

Wood is a natural porous material, which continues to breathe even after installation and finishing. Wood has a cellular structure, and much like a sponge, expands as it picks up moisture and shrinks when it gives moisture off. It is this movement which can cause cracks, separation, cupping, swelling and lifting of your wood floor.

All wood will eventually acclimate itself to its surroundings. This is known as reaching the equilibrium point. The exact equilibrium point to be reached by all wood elements on a job site can be accurately predicted by taking relative humidity and temperature readings at the site and then use the chart below to find the expected equilibrium moisture content. The numbers in the middle of the chart are the equilibrium, moisture content point that all wood elements will reach.

Temp	Relative Humidity					Relative Humidity					Relative Humidity					Relative Humidity				
	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	98%
30 F	1.4	2.6	3.7	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.4	11.3	12.4	13.5	14.9	16.5	18.5	21.0	24.3	26.9
40 F	1.4	2.6	3.7	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.4	11.3	12.4	13.5	14.9	16.5	18.5	21.0	24.3	26.9
50 F	1.4	2.6	3.6	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.3	11.2	12.3	13.4	14.8	16.4	18.4	20.9	24.3	26.9
60 F	1.3	2.5	3.6	4.6	5.4	6.2	7.0	7.8	8.6	9.4	10.2	11.1	12.1	13.3	14.6	16.2	18.2	20.7	24.1	26.8
70 F	1.3	2.5	3.5	4.5	5.4	6.2	6.9	7.7	8.5	9.2	10.1	11.0	12.0	13.1	14.4	16.0	17.9	20.5	23.9	26.6
80 F	1.3	2.4	3.5	4.4	5.3	6.1	6.8	7.6	8.3	9.1	9.9	10.8	11.7	12.9	14.2	15.7	17.7	20.2	23.6	26.0
90 F	1.2	2.3	3.4	4.3	5.1	5.9	6.7	7.4	8.1	8.9	9.7	10.5	11.5	12.6	13.9	15.4	17.3	19.8	23.3	26.0
100 F	1.2	2.3	3.3	4.2	5.0	5.8	6.5	7.2	7.9	8.7	9.5	10.3	11.2	12.3	13.6	15.1	17.0	19.5	22.9	25.6

From US Dept of Agriculture "Wood Handbook as an Engineering Material"

Wood flooring in service is usually exposed to both long-term (seasonal), and short-term (daily), changes in relative humidity and temperature. Thus, wood is virtually always undergoing slight changes in moisture content even after installation. Different parts of the country have varying equilibrium points. And each area may vary greatly season to season. So a given equilibrium point in June may be different from one in December on the same site. In addition, a wide range of equilibrium points can be experienced between job sites in the same locale, determined by individual heating/cooling systems and/or specific site variables such as being next to a lake, etc.

The practical objective of equalizing your solid wood floor to the individual job site levels, prior to installation, is to minimize the amount of subsequent movement after installation. With no one equilibrium moisture content right for all situations, only your installer, with their critical knowledge of local conditions, used in conjunction with proper testing and planning, can establish the proper equilibrium point at which to install your solid wood flooring.

As manufacturers, we produce our solid wood flooring to industry standards of 6 - 9% moisture content. However, this may not be low/high enough for your installation. Therefore, it is imperative your installer follows these recommendations for equalizing solid wood flooring. Wood Flooring International shall not be responsible for any shrinkage/swelling or other movement of the floor after installation as Wood Flooring International does not control any of the job-site variables - only the installer and end user do so.

Recommendations for equalizing Solid Wood Flooring:

Proper Method to Equalize Solid Wood Flooring - Your installer should:

- 1) Establish the job-site specific target equilibrium point the flooring should be installed at by taking into account all of the following variables:
 - Existing relative humidity and temperature

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- planned or existing heating/cooling systems
 - planned or existing dehumidifying or humidifying systems
 - measure other existing wood elements to see what equilibrium point they have reached
 - projected seasonal variations at the site and estimated average equilibrium point
- 2) Moisture meter the flooring upon job site arrival.
- 3) If the flooring is too high in moisture content for the job-site, it must be allowed to dry out and shrink prior to installation. If it is too low, it must be allowed to pick up moisture. This can be accomplished by removing the flooring from its packaging and completely spreading out all of the individual pieces to allow good air circulation around them, until such time as they fully equalize to the moisture content desired.

Tip - To speed up the equalizing process you can build piles of flooring by criss-crossing the pieces in an open stack and using fans to force air over/through the stack. Periodically take reading of the moisture content of the flooring as you monitor its movement towards the desired equilibrium point. By using a two-pin type moisture meter with insulated pins you can take reading at both the surface and the core of the wood flooring. This will enable you to tell the direction the moisture content in the flooring is moving, how quickly it is moving there and when it has reached the desired equilibrium point. Once the flooring has reached the target equilibrium point it is now ready to be installed.

INSTALLATION TOOLS

For all installation methods:

- Tape measure
- Tapping block (trimmed piece of flooring)
- Pencil
- Pry bar
- Chalk line
- Wood or plastic spacers (3/8")
- Crosscut power saw
- Hammer
- [3M Blue Tape](#)

For the recommended nail-down installation, you will also need:

- Air stapler/nailer
 - For 3/4" Strip/Plank - Bostich 1/2" x 1-1/2" staples
 - For 5/8" Strip/ Plank -
 - For 3/8" ThinStrip –
- Air compressor

For the glue-down installation method, you'll also need:

- Flooring adhesive: [Bostik® Best](#) & [Franklin® 811 Urethane Adhesive/Mastic](#)
(Note: Use only urethane adhesives – **DO NOT USE** water based mastics as they will cause this floor to fail)
- **Sika System**
- On concrete slabs, which are on/below grade, we strongly recommend installing [Sheet Vinyl](#) first and then installing the wood floor on the vinyl or using the [Bostik](#) or [Franklin](#) Moisture Barrier Systems.
- Trowel per flooring adhesive manufacturer's recommendations.

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Acceptable Subfloor types:

- For Naildown:
 - Plywood (at least 1/2" thick)
 - OSB (at least 3/4" thick)
 - Existing wood floor
- For Gluedown:
 - Plywood (at least 1/2" thick)
 - OSB (at least 3/4" thick)
 - Existing wood floor
 - Underlayment grade particleboard
 - Concrete slab
 - Ceramic tile
 - Resilient tile & sheet vinyl

STARTING YOUR INSTALLATION

Make sure subfloor is tested for moisture first and is properly prepared.

Since wood expands with any increase in moisture content, always leave at least a 3/8" expansion space between flooring and all walls and any other permanent vertical objects, (such as pipes and cabinets). This space will be covered up once you reapply base moldings around the room. Use wood or plastic spacers during installation to maintain this 3/8" expansion space.

When laying flooring, stagger end joints from row to row by at least 8". When cutting the last plank in a row to fit, you can use the cut-off end to begin the next row. If cut-off end is 8" in length or less, discard it and instead cut a new plank at a random length and use it to start the next row. Always begin each row from the same side of the room.

Work from several open boxes of flooring and "dry lay" the floor before permanently laying the floor. (But never open more than a few boxes in advance) 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 to create a more uniform floor. Remember, it is the installers' responsibility to set the expectations of what the finished floor will look like with the end user first and then to cull out pieces that do not meet those expectations.

To draw planks together, always use a tapping block, (a short piece of flooring), and hammer, as tapping the flooring itself will result in edge damage. When near a wall, you can use a pry bar to pry close the side and end joints. Take care not to damage edge of flooring. For glue down applications, use [3M Blue Tape](#) to hold any pieces, which might have side bow and the need to hold them straight & tight until the adhesive sets up.

Begin installation next to an outside wall. This is usually the straightest and best reference for establishing a straight working line. Establish this line by measuring an equal distance from the wall at both ends and snapping a chalk line. The distance you measure from the wall should be the width of a plank plus about 3/8" for expansion space. You may need to scribe cut the first row of planks to match the wall in order to make a straight working line if the wall is out of straight. You may want to dry lay a few rows, (no glue or nails), before starting installation to confirm your layout decision and working line.

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NAILDOWN INSTALLATIONS - RECOMMENDED

Most 3/4" Solid Wood Flooring is nailed down. Solid wood 3/4" thick flooring, if ordered in short lengths, (up to 24" long max.), may be glued down instead of nailed.

We recommend nailing or stapling on 8" centers along edge and then nailing a maximum of 3" in from the end of every piece.

Caution: When first starting to nail the flooring down and after nailing down a small section of approx. 25 sqft, please make sure that this initial test section of flooring, once nailed to the subfloor, is firmly affixed. In particular, please check to make sure that the groove side of each piece, being held down only by the tongue of the adjacent piece, does not rock up and down if weight is placed on it and then removed. If the groove side does exhibit up/down movement STOP !!! Call Wood Flooring International immediately at 856-764-2501.

This movement will not sand out nor can this up & down movement be corrected later on! It will be necessary to glue this floor down in addition to nailing it in order to correct this condition, which is caused by a too loose tongue and groove. Loosely milled flooring may be nailed and installed in beads of a non-hardening construction adhesive such as "a Liquid Nails caulking type" laid on 8" centers or the flooring may be laid with a full mastic spread in addition to nailing.

It is the installers responsibility to ascertain whether this "too loose of a T & G" condition exists in the flooring prior to installation. If the flooring is found to have a "too loose T & G condition" Wood Flooring International will, upon notification from the installer prior to installation, correct the problem as follows. At Wood Flooring International's option, Wood Flooring International will either replace the flooring, refund the purchase cost of the flooring, or compensate the installer for the extra cost of the adhesive/mastic now necessary to insure a good installation. Wood Flooring International shall not be responsible for replacing any flooring in excess of the 25 sqft nailed down as the test section and then found to have excessive up and down movement.

GLUE-DOWN INSTALLATION

Make sure subfloor is tested for moisture content first and is properly prepared.

On concrete subfloors, which are on or below grade (ground level), always assume the worst and even if they measure dry, we now recommend taking the following installation steps to ensure a trouble-free installation. The cost of the precaution is little when compared to costs to rip out and replace a floor which has failed due to high moisture from the subfloor.

Method #1: We recommend installing a sheet vinyl floor first and then gluing down our wood floor over the sheet vinyl. Follow the vinyl manufacturers' recommendations. An example is provided here: [Sheet Vinyl Installation Instructions](#).

Method #2: Both Franklin and Bostik now offer Moisture Barrier Systems on which they provide a warranty that moisture will not pass through and damage your wood flooring. For Information:

[Bostik Moisture Barrier System](#)

[Franklin Moisture Barrier System](#)

Flooring adhesive: [Bostik@ Best](#) & [Franklin@ 811 Urethane Adhesive/Mastic](#)

(Note: Use only urethane adhesives – **DO NOT USE** water based mastics)

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Use only the above listed flooring adhesives. DO NOT use water based adhesives ! Follow adhesive instructions for proper trowel size and adhesive set time before beginning installation of flooring.

Once the spread adhesive has setup sufficiently per adhesive manufacturers instructions, lay the first row of flooring with groove facing the wall, and continue laying flooring. Always check your working lines to be sure the floor is still aligned. Use tapping block to fit planks together, but be careful not to let installed floor move on the wet adhesive while you are working.

When first section is finished, continue to spread adhesive and lay flooring section by section until installation is complete. Use a damp cloth to immediately remove any adhesive that gets on flooring surface. Warning – DO NOT allow adhesives to dry on the finished flooring as it is very difficult to remove it once dried without damaging the flooring. For info on an adhesive remover: [Bostik's Ultimate Urethane Adhesive Remover](#) Remember to stagger end joints from row to row.

Always leave at least a 3/8" expansion space between flooring and all walls and vertical objects (such as pipes and cabinets). Use wood or plastic spacers during installation to maintain this expansion space.

Walk each section of flooring in order to make sure it is well bonded to the subfloor within the adhesive working time. Flooring planks on the perimeter of the room may require weight on them until adhesive cures enough to hold them down.

INSTALLATION INSTRUCTIONS

- **Step 1 - Preparing All Existing Wood Trim**
Carefully remove any baseboards, doorway thresholds, or shoe moldings, as they can be re-used once the floor has been installed. Door casings and other vertical trim, which runs to the floor, should be undercut to avoid difficult scribing. A piece of flooring can act as a saw guide. Thoroughly sweep and vacuum all debris from the subfloor.
- **Step 2 - Establishing the Starter Row**
First decide which direction the flooring is to be run. Then you need to layout the starting line for the first row of flooring by snapping a straight chalk line. This is the most important row, as the rest of the floor will be built off of this line so make sure it is straight and square to the room.
- **Step 3 - Installing the Starter Row**
Start with the groove side of the flooring facing the wall and the groove on the end also facing the adjacent wall in a corner of the room. Using the longest pieces possible, so as to minimize the number of end joints in the starter row, lay the first row "dry" to the previously snapped chalk line to reveal any irregularities in the starting wall. If the starting wall is irregular, not straight, or is out of square, then scribe the first row of planks to match the variation. As the first row of planks establishes the basis for building the rest of the floor, it is very important that the first row is square, straight and true. Allow for at least 1/2" expansion space at all walls and other fixed objects.

Firmly set 1/2" temporary shims every 12" between the initial row of flooring and the walls. Make sure to shim firmly every end joint in the starter row by using a shim to span the joint so it firmly shims both pieces of flooring away from the wall. This will eliminate individual pieces of flooring in the first row from moving later on when installing subsequent rows. The shims then must be left in place throughout the installation to avoid movement of the flooring during installation. After first spreading mastic according to the mastic manufacturer instructions, install the first row, checking for a tight end

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fit between boards. Immediately start the second row. When fitting this row be careful to make sure you do not knock the starting row out of straight.

Occasionally, you will run into pieces of flooring which are slightly bowed or out of flat. When racking out the flooring before installing by nailing or mastic, these pieces will become apparent and before using they should be set aside, crosscut and then used for either the starter or ending pieces in a row.

- **Step 4 - Installing Subsequent Rows**

After spreading mastic out as necessary on the subfloor with the proper trowel, start each new row with the cut-off end of the previous row, making sure the ends joints of flooring are staggered at least 6" from the end joints of neighboring rows. Use a softwood "knocking block" or section of flooring against the tongue of the piece being fitted to gently tap the flooring in place, tight against adjacent pieces. Never tap against the groove side of the flooring as this may damage the surface of the flooring. Check all seams for a tight fit and move on to the next row.

- **Step 5 - Installing the Last Row**

Usually, the last row does not allow a full width board. Scribe the last row to accommodate any irregularities in the wall, leaving a 1/2" expansion joint. Pull the last row tight with a prybar and shim if necessary to hold it in place.

- **Step 6 - Remove All the Shims**

Remove all the temporary shims and apply moldings/trim to the wall to cover the expansion space. Never attach the trim to both the flooring and the walls.

AFTER INSTALLATION

- If you decide to cover the floor, (to allow the other construction trades to continue working), in order to protect the floors prior to final cleanup and turnover to the owner, use rosin paper to cover the floors and only use [3M Blue Tape](#) to hold the rosin paper to the floor. Do NOT USE plastic film or other non breathing type coverings as this can cause the floor to become damaged from humidity buildups. Also, only use the [3M Blue Tape](#) as this tape is designed for use on finishes and other tapes may pull and damage the finish when removing it.
- Remove expansion spacers and reinstall base and/or quarter round moldings to cover the expansion space.
- It is suggested that you buff the floor with lambs wool pads in order to "pull any splinters", remove any residues and handprints/foot prints, etc.
- Install any transition pieces that may be needed (reducer, T-moldings, nosing, etc.).
- Do not allow foot traffic or heavy furniture on floor for 24 hours (if glue-down or floating).
- Dust mop or vacuum your floor to remove any dirt or debris.

FINISHING RECOMMENDATIONS

For site finishing in the field of our Un-finished Solid Wood Flooring

- **Background:**

Many of our wood species have certain oils and chemical compounds, which can react adversely with certain types of finishes and either inhibit drying and/or dramatically change the color of the wood/finish. See Wood Flooring International's Exotic Wood Finishing Tips on page 3. Moreover, there is constant change being made by all the finish manufacturers in their product formulations to

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comply with new environmental regulations. This makes it impossible for Wood Flooring International to keep abreast of how these developments might affect each of the woods we offer. Therefore, it is **imperative** that you first test the finish you propose to use on samples of the wood **prior to installation**.

- **Testing:**

When choosing your floor, your selection should be made from flooring samples, which have been pre-finished by your installer using their finish of choice. This way, by working from samples pre-finished with the same finish you will be using on the job site, you can be assured of obtaining the same look as the customer expects, as well as avoid any finish compatibility problems. If the above finish tests have not been performed to date, please **STOP** and with your installer's assistance and recommendations, choose a finish for your floor now and test it.

- **Choosing a Finish:**

Your finish choices will fall into one of the two following types:

- **A penetrating oil with or without wax**

This type of finish is used primarily in commercial settings, as it requires a regular maintenance program. As most of our woods are exceedingly hard they do not need a protective film finish, which under commercial use eventually scratches and then requires re-sanding and refinishing to renew. For commercial applications, especially on dark woods where scratches show up lighter and in great contrast, a penetrating oil allows any wear spots to be simply re-oiled and buffed as part of the regular maintenance program already in place in commercial locations. This finish imparts a deep, rich, if somewhat flat, look to the wood. To build up additional sheen, wax is sometimes used which in turn requires periodic buffing to maintain.

- **A surface film finish**

This is a finish coating that sits on top of the wood forming a protective film. A surface film finish is the treatment of choice for residential use, as it requires little maintenance in low traffic conditions. Film finishes are available in a variety of sheens from matte to satin to gloss. There are three types of film finishes:

- **Water Based Urethanes** – These are the latest finishes out, are quick drying and are being formulated with increasing durability. They tend to inhibit the color change certain woods undergo over time so they are a good choice should you wish to inhibit this change. Water based finishes tend to leave the woods lighter in color and looking somewhat washed out. For those who prefer the richer look an oil based finish provides, a penetrating oil/stain may be applied first and then the floor can be top coated with water based urethane. Please refer to your finish manufacturer for their specific recommendations. Here are several we recommend.

- **Bona Kemi** offers a system that allows for their oil based sealer to be used first and then top coated with water based finishes. Bona Kemi can be reached at 800-872-5515 – www.bonakemi.com.
- **Berger Seidel** offers a system especially formulated for exotic woods. Berger Seidel can be reached at 800-979-9272
- **Basic Coatings** offers several water based systems. They can be reached at 800-441-1934 – www.basiccoatings.com.

- **Oil Based Urethanes** – These are the old standby type of floor finishes now being phased out due to environmental concerns. However, they have proven durability and impart a rich look to imported woods.

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- **Acid Cure and Moisture Cure Urethanes** – These are two part formulations which include the “Swedish” type finishes and moisture cure urethanes, and are among the most durable of all the finishes. They are, however, quite odiferous when applying.

Once again, after having made your finish choice, please test your finish choice on actual samples of the wood to insure compatibility prior to use on the floor itself.

CLEANING, MAINTENANCE, & REFINISHING

Please visit our website for cleaning, maintenance and re-finishing instructions, go to:
[Wood Flooring International's Maintenance Instructions.](#)

PRODUCT LINKS

To find out information about the recommended products listed above, click on the following links:

Underlayment:

[Foam Underlayment](#) – Typical foam underlayment for Floating Floor Installations:

Moisture Barrier Systems for wet subfloors / & all concrete subfloors on/below grade:

- 1) [Sheet Vinyl Installation Instructions](#) – for a sheet vinyl moisture barrier
- 2) [Bostik Moisture Barrier System](#)
- 3) [Franklin Moisture Barrier System](#)

Approved Mastics/Adhesives/Glues:

- 1) [Bostik® Best](#) – approved mastic
- 2) [Franklin® 811 Urethane Adhesive/Mastic](#) – approved mastic

[Bostik mastic remover info](#)

[Mastic remover instructions](#)

[Franklin Titebond 2 PVAC glue](#) - T & G Glues for Floating Floor Installations

Moisture Meter & Tests for Concrete:

[Tramex Commercial Concrete Moisture Meter](#) – concrete moisture meter info

[Taylor Tools Concrete Moisture Test Kits](#)

[Moisturetestkit.com Concrete Moisture Test Kits](#)

[Concrete Moisture Test Instructions](#)

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Blue 3M Tape:

[3M Blue Tape Product Info](#)

Leveling Compound:

[Ardex K-15 Portland Leveling Compound](#)

SPECIAL INSTALLATION TIPS

Nailing Tips For Exotic Woods:

- **Splitting Tongues** - Nailing dense or brittle exotic woods - Sometimes, in order to stop splitting the tongue in these dense woods, it is necessary to adjust the angle or height of entry of the nail. This can be accomplished, through trial and error experimentation, by simply attaching some duct tape to the nailer's faceplate to change the angle or height of the nail's entry. If excessive tongue breakage occurs during nailing, the above adjustments to the nailer will reduce the frequency of the problem.
- **Nailing extremely hard exotic woods** - All our woods, with the exception of ebony, (which usually has to be pre-drilled before nailing), can be nailed with conventional power or air nailers/staplers. In the case of air guns, it may be necessary to increase the pressure to get the nails to fully set.
- **Loose Tongue and Groove** - Due to the extreme hardness of many of the exotic woods we must run the T & G tolerances a little looser than domestic woods in order to make pieces, which may be a bit warped or twisted, installable. Please make sure in the initial stages of installation, before proceeding too far, that the floor, after nailing, is sufficiently affixed and without up and down movement. Should the T & G fit not be acceptable and there is movement after nailing, then the floor will have to be nailed and glued. Using a non-hardening construction adhesive such as Liquid Nails which comes in caulking tubes, the floor may be nailed after it is laid in beads of adhesive placed on top of the subfloor, run on 6 - 8" centers at a right angle to the direction of the floor. This will stop any subsequent movement.
- When face nailing any pieces and then subsequently filling the nail holes, make sure you mix the fill color to the color the wood will change to and not the color of the freshly sanded floor!

Dust from Exotic Woods:

Finish Compatibility Issues with Exotic Woods:

- In general, water based finishes adhere well to all our woods while oil based finishes may experience drying and/or color change problems when used on some of our woods. To date, we have experienced some finish compatibility problems when using certain oil based finishes on the following woods:

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- Ebonies (all types)
- Rosewoods (all types except Caribbean and Patagonian Rosewood)
- Teak
- Walnut, Brazilian and Patagonian
- Walnut, African (mansonia)
- Wenge
- The above list is provided as a service by Wood Flooring International. It was derived from feedback from several of our customers who, when using certain finishes, experienced compatibility problems in the past. However, Wood Flooring International shall not be held liable for **any** finish complications on any of our woods, as it is the installer's responsibility to adequately test the compatibility of the proposed finish they will be using on actual samples of the flooring prior to installation. There are simply too many different finishes, (and changes being made to existing finishes), on the market today for Wood Flooring International to keep current with them all.

WFI's Exotic Wood Finishing Tips:

- Always test first !!!!!!!!!!
- All the woods listed above have experienced some drying issues when finished with certain oil based finishes – use extreme caution and thoroughly test first !!!! We list a few of our most popular species below and recount installer feedback on finish issues. Once again, we suggest you visit our web site for the latest info on any species you are about to finish.
 - **Brazilian & Patagonian Walnut** – has caused more finish problems than all the other species combined. This species has a number of alkalines in its chemical makeup which interfere with drying, adhesion and staining. While some oil finishes will dry on this wood, most will not. Also, some neutral oil finishes have reacted with these alkalines and turned red when used with this wood. Water based finishes are the safest bet.
 - **Australian Cypress** – there are some finish adhesion issues on the knots. Please check the finish you are using first on some hand samples and, once dry, try scratching the finish off the knots. If the finish fails try another finish. Wood Flooring International has researched several finishes and offers specific recommendations in our Special Australian Cypress Instructions below.

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- **Brazilian Cherry** – to date, all finishes seem to work on Brazilian Cherry. Of special note: occasionally, certain trees have a high content of a white silica/sap, which is almost imperceptible to the eye in the freshly milled flooring, before finishing. This silica/sap shows up as faint spots – almost as if drops of skim milk had dried on the wood, once the wood is finished and then, as Brazilian Cherry darkens over time, these white spots, which do not darken, become more prominent against the now darker wood. Also, when finished with some oil based finishes, the finish may not harden fully above these spots, while with water based finishes it does fully cure. There have been many instances when using Brazilian Cherry where several, (to dozens), of boards in a floor may contain these spots, which we stress are in wood itself and not in the finish, even though it may look that way at first. The only way to avoid them is to visually spot them before installing and not use boards with them. Once installed and then found objectionable, the individual pieces would have to be replaced. Many installers/ finishers, the first time they run into this issue, think that by resanding the floor and recoating, that these spots will disappear but this is not the case as the “white spots” are through the entire thickness of the wood and cannot be sanded out. As this is a natural feature of the wood and is not visible when the wood is freshly milled, it is not considered a defect in solid unfinished wood. In prefinished products, it is possible to spot at least the stronger in color white spots once the finish is applied and these are graded out at the mill. However, the installer should still look for those spots not graded out and not install pieces with these spots.
- **Santos Mahogany** – to date, all finishes seem to work on Santos. However, we have had some recent reports that Santos adversely affects the way the flattening agents in some oil based Satin finishes settle – leaving a blotchy finish. Also, in the summer, when you open the packs of flooring, many times there will be spots of oil which have bled out of the flooring when it got heated. This oil, to date as far as we know, has not adversely affected any oil or water based finishes.
- **Southern Chestnut** – to date all finishes seem to work on Southern Chestnut. Peculiar to this species, some trees have large silica spots which show up as circles or half circles of slightly lighter colored material. We attempt to cut most of these out of color clear grade but allow them in the lower grades. When finished, the lighter contrast remains. It is a feature of this wood and if objectionable, care should be taken when installing this wood to select out any pieces exhibiting these spots and cut them out prior to installing as they will not “sand” out.

Special Australian Cypress Installation Instructions:

- Australian Cypress Is available in only one grade which we call Aussie Character Grade, (which has less character than that sold in Australia), and that this grade contains:
 - Numerous knots
 - Checking and cracking in the knots
 - Broken knots on the edges and ends
 - Checking and cracking in the wood itself, which over time may increase as the wood cycles between heating and non-heating seasons
 - Worm holes
 - Contrasting cream color sap wood and darker colored heartwood, which varies from honey tones to occasional darker coffee brown tones\

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- Finish adhesion and cracking on the knots - over time, as the knots and surrounding wood contract and expand at different rates seasonally, the finish may slightly crack and sometimes may loosen and flake above the knots. This happens with all types of film finishes and is just part of the character that is gained over time when using cypress. Please make sure the buyer is aware that this may occur before installing. If objectionable, do not install and choose another wood to use.
- Should the buyer find any of these characters of Australian Cypress objectionable, you should not install the floor and choose another species more to the liking of the buyer. Wood Flooring International is not responsible for claims made after the floor is installed and subsequently rejected should the buyer then decide the floor has too much character for their liking.
- When installing cypress you then have two choices, to fill or not to fill the open defects and cracks. Many installers choose to fill the cracks using two different colors of fill. One color is a dark brown/black used to fill the knot checks and the other color is a honey/straw color used to fill the cracks in the body of the wood. The choice to fill or not to fill is a matter of reference, decided by the final look the buyer desires once the floor is finished. (On all our engineered and pre-finished solid Australian Cypress offerings, we do extensive filling during the pre-finish process in the factory).

Please note: there have been several cases in the past where a buyer has made a decision to use Australian Cypress for their floor after having chosen the floor from just a few hand samples. Then, once the floor is installed, they object to how many knots the floor has or to the cracks/checks or the color range/variation. Avoid this by adequately sampling Australian Cypress to the buyer and reviewing exactly what this specie offers. You may use our web site to view photos of installations to get a better idea of what this wood looks like installed:

- **Equalize your Solid Wood Floor** properly to the specific job site conditions.
- Check to make sure the **T & G Meshes Properly** and once nailed, the underside of the tongue is firmly holding down to the sub-floor, the groove side of the adjacent, fitted piece.
- If you encounter **Excessive Splitting Tongues** when nailing the floor down try this:
- Adjust the angle or height of entry of the nail through trial and error experimentation, by simply attaching some duct tape to the nailer's faceplate, changing the angle or height of the nail's entry.
- **Before Starting to Finish**, always test the finish on test samples – do not make the installed floor your test !
- **Nailing:** Australian Cypress is a dense brittle softwood and the tongue is prone to splitting when nailing. Follow tips listed above to lessen the splitting problem.

- **Finish:** As in most softwood, Australian Cypress contains resins which most of us know as sap. These resins will bleed up through the wood, especially on top of the knots and can adversely affect the finish. Many oil finishes will remain tacky on top of these resinous spots and will not dry. If they do dry, they may still have little adhesion to the wood. We had several major finish manufacturers offer their approved finish solution for Australian Cypress, which we offer below.
- **Cracks/Splits:** Cypress is a naturally dense, brittle wood in which, during the drying process, "star cracks" open up in the knots. In addition, there will be some minor surface checking in the flooring itself. This is part of the natural character of the specie. If any piece or knot has too much checking, simply crosscut out the defect in question when installing the floor and

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- use the remaining good section. Remember, the option to fill or not to fill the cracks/checks should have to be made with the buyer depending on the look they want in the finished floor.
- **Safety – Allergic Reaction Potential:** Australian Cypress contains aromatic resins, which gives this wood its pleasant “piney” scent. This smell, on freshly cut and sanded flooring, can be quite strong. The scent quickly abates over time. Please be aware there are reports of respiratory reactions to the scent and allergic skin reactions when coming in contact with the dust. In the event any visible signs of skin reddening occur or if excessive sneezing or eye/throat irritation occurs, precautionary measures such as increased ventilation/use of respirators and dust avoidance should be taken. Please see Wood Flooring International’s Safety Section on our web site at www.wflooring.com/Technical Info.com for complete details.
 - **General Floor Preparation Instructions Specific to Australian Cypress**
 - Sand the floors with fresh sand paper, which cuts the wood and does not burnish the wood with its own resins. Change your sand paper frequently and do not allow it to gum up and heat the resins.
 - Do not sand with too fine a grit of sandpaper – we recommend a maximum of 100 grit.
 - If you decide to fill the cracks & checks in the floor prior to finishing, we recommend you use two colors, a dark one on the knots and the other matching the wood itself.
 - Finish the floor immediately after sanding, before the resins work their way back to the surface.
 - **Manufacturer Specific Recommendations for Australian Cypress**
 - Basic Coatings – www.basiccoatings.com
 - Hydroline Sealer for 1st coat and Catalyzed Easy Street for top coats.
 - Berger Seidel – 800-979-9272
 - Omni Gold – for all coats
 - L81 Sealer for 1st coat and Omni Gold for top coats
 - Bona Kemi – www.bonakemi.com
 - Stain not recommended
 - Finish with Waterbourne System such as:
 - BonaSeal Sealer 1st coat with BonaTech Traffic for top coats
 - High Build Sealer 1st coat with choice of Mega, pacific Strong or Pacific Ultra for top coats.

Wood Flooring International is partial to the look the Berger Seidel L-81 Sealer imparts to Australian Cypress, (but this is merely a matter of taste, so choose the look you want by sampling various finishes first).

Installing Pre-finished Solid Wood Flooring:

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Installing Pre-finished ThinStrip Flooring: