



## elements+ installation instructions

### installer/owner responsibility

There are inspections that must be performed before installation including careful examination of the flooring for style, grade, color, finish, dimension and quality, job-site and environmental conditions. The installation of our flooring and these instructions are intended for experienced hardwood installers. All others, including the owner/installers, assume all risks of every kind respecting examination of flooring, job-site, and environmental conditions as well as the installation. If you require additional or more detailed information on the installation of hardwood flooring, please contact the National Wood Flooring Association (NWFA) AT 1-800-422-4556 or visit [www.nwfa.org](http://www.nwfa.org)

**Hardwood floors are a product of nature** and Hardwood flooring is a natural product and variations in color, grain, pattern, and texture occur normally and are not considered defects and are not warranted. ecofinishes® proudly manufactures all engineered hardwood Floors within tolerances accepted by the industry as standard, which allows for up to 5% defective product (natural or manufacturing related) based on the original hardwood flooring purchase. Be sure to order at least 5% additional flooring material beyond actual square footage requirements to allow for cutting and grading of material. If your installation will be on a diagonal, order 10-15% extra material.

-  ecofinishes is not liable for defective flooring that is noticeable prior to installation. Do not install defective flooring. ecofinishes will only replace such defective flooring that exceeds the allowable 5% tolerance, above, provided that it has not been installed. You may discard or trim and use such defective flooring in hidden areas.
-  ecofinishes is not liable for any defective flooring that results, in whole or in part, from any jobsite or sub-surface condition that is not in compliance with standard industry standards, these instructions or environmental conditions.

**note:** WARRANTY COVERAGE ON ECOFINISHES ELEMENTS+ FLOORING WILL BE LOST DUE TO FAILURE TO STRICTLY FOLLOW ALL INSTALLATION AND CARE INSTRUCTIONS AND RECOMMENDATIONS OR THE USE OF IMPROPER MATERIALS OR TOOLS. READ ALL OF THESE INSTRUCTIONS CAREFULLY.

### choosing a professional flooring installer

Installing hardwood flooring is considered a highly skilled operation and it is critical that the owner choose an installer carefully. ecofinishes® recommends choosing a reputable installer who can provide a list of references or customers that you can contact. Also, the installer should demonstrate previous job experience and have the proper business licenses for your particular area.

Remember also that the contract for installation is exclusively between the owner and the installer. ecofinishes® is in no way responsible for the owner's choice of installer or any failure by the installer to satisfy the owner.

### moisture protection

ecofinishes' elements+ flooring may be installed on grade, above grade, or below grade, subject to appropriate moisture vapor emission levels and compliance with industry standards and these instructions.

ecofinishes highly recommends the use of these products when gluing down the 3/8", 1/2", and 9/16" engineered hardwood flooring to concrete slabs where moisture tests indicate moisture content and vapor emission levels beyond recommended thresholds. **However, ecofinishes does not warrant such installations.**

The following are sealer and glue systems that may offer another manufacturer's warranty against damage incurred due to sub-floor moisture intrusion, which you must verify independently and be satisfied with. ecofinishes does not warrant such systems:

-  Franklin Titebond 531 Epoxy Moisture Control System - See website [www.franklinflooring.com](http://www.franklinflooring.com) for details.
-  Bostik Moisture Vapor Protection (MVP) - See website [www.bostik-us.com](http://www.bostik-us.com) for details.
-  Sika Primer - See website [www.sikausa.com](http://www.sikausa.com) for details.
-  Dri Tac - MCS 7000 Concrete Moisture Control - See website [www.dritac.com](http://www.dritac.com) for details.

## adhesives

ALL ecofinishes' elements+ flooring REQUIRES THE USE OF A MOISTURE CURED URETHANE ADHESIVE. DO NOT USE WATER BASED ADHESIVES WITH ECOFINISHES GLUEDOWN PRODUCTS.

The following moisture cured urethane adhesives may offer another manufacturer's bond warranty, which you must verify independently and be satisfied with. ecofinishes does not warrant such adhesives, and note that no bond warranty includes any moisture protection warranty:

-  Franklin Tilebond 811 or Franklin 811 Plus Urethane Adhesive
-  Bostik's Best, Bostik Fast Tack, Bostik's BST Urethane
-  DriTac 7600
-  Parabond 4002
-  Sika Bond T55

## trowel

Insure your installer is using the correct trowel as required by the glue manufacturer for a 3/8", 1/2", and 9/16" Engineered hardwood flooring product.

## urethane adhesive cleaner

Many of the leading glue manufacturers offer their own adhesive cleaner. Please use it. Where no cleaner is specified, clean gently with a light application of mineral spirits on a clean terry cloth.

## installation overview

### Pre-Installation Job Requirements

#### Job-Site Inspection Prior to Delivery of Flooring:

Make sure that:

-  The building is structurally complete and the jobsite is properly enclosed with all doors and windows installed.
-  Concrete, plaster, masonry, drywall, paint, wall coverings, and the sub-floor are completely dry so as to not raise moisture (humidity) content within the building.
-  HEATING, AIR CONDITIONING AND VENTILATION SYSTEMS ARE FULLY OPERATIONAL AT LEAST 14 DAYS PRIOR TO FLOORING INSTALLATION AND REMAIN SO THROUGHOUT THE LIFE OF THE FLOORING AND THE INTERIOR CONDITIONS FOR THIS ENTIRE PERIOD MAINTAIN A TEMPERATURE BETWEEN 60-75 DEGREES FAHRENHEIT AND BETWEEN 30%-50% RELATIVE HUMIDITY.
-  Exterior grading is complete with drainage directed away from the structure and all gutters and downspouts are installed and functional.
-  Wood Floors are not recommended in full bathrooms.
-  If flooring is to be installed on a sub-floor under which there is a crawl space, then the floor of the crawl space must be at least 18" - 24" from the ground to underside of joists, a ground cover of 6 mil black polyethylene must be utilized as a vapor barrier and joints must be overlapped 6" and sealed with moisture-proof tape. The crawl space must also have perimeter air venting equal to 1.5% of the crawl space square footage.

## materials and recommended tools:

- Measuring tape
- Chalk line reel
- Rubber mallet
- 3-M Blue Tape
- Broom
- Putty knife
- Floor protectors
- Pencil
- Portable saw and hand saw
- Table saw or band saw
- Crowbar or last plank puller
- Hammer
- Calcium Chloride Test (may be needed)
- Leading brand of hardwood flooring cleaner
- Quality moisture meter with manufacturer's relevant exotic species calibration figures
- Additional Tools for Staple-Down Installations
- Drill with 1/16" Drill Bit
- 4d-6d Flooring Nails
- Nail Set

## equalizing your floor

All solid wood flooring must be properly equalized (as explained below) before installation. Wood is porous material which expands as it picks up moisture in most environments. It is this movement which can cause cracks, separation and warping of your wood floor if not properly equalized before installation.

All wood will eventually acclimate itself to its environment, reaching the "equilibrium point" or equilibrium moisture content. Although it is not necessary to acclimate engineered flooring, it is best to store the materials in the environment where the flooring will be installed.

## recommendations for equalizing solid wood flooring

- Flooring stored upon "on-grade" concrete floors should be elevated at least four inches to allow air circulation under cartons.
- Hardwood flooring must acclimate for as long as necessary to meet minimum installation requirements for moisture content. Using the equilibrium moisture content chart below, determine the proper moisture content for the installation.
- Always use a moisture meter to determine where the flooring and present job site conditions are in relation to the projected final equilibrium point taking into account seasonal changes.
- Monitor the flooring and job-site conditions as the flooring acclimates. If the wood is neither gaining nor losing moisture, an equilibrium condition has been reached.

## pre-installation sub-floor requirements

- All sub-floors must be dry and free of wax, paint, oil and debris.
- Replace any water-damaged, delaminated or gypsum-based (white) sub-flooring or underlayment.
- Scrape smooth and sweep prior to installation. The sub-floor must be level (that is, flat) with no highs or lows exceeding 3/16"
- If the sub-floor is concrete, a minimum of 30 days drying time for a reliable moisture reading is necessary.
- DO NOT use gypsum-based (white) patching compounds. Follow the manufacturer's recommendations for applying the leveling compound. Areas containing new leveling compound must be completely dry (meeting moisture vapor emission tolerances) before proceeding with the installation of the wood floor.
- If the sub-floor is plywood or equivalent, high areas or joints must be sanded flat, be structurally sound prior to installation and properly secured with nails or screws every 6 inches along joists to reduce the possibility of squeaking after final installation.
- The owner and installer are responsible for checking the sub-floor. Appropriate moisture tests must be performed as outlined in the "Testing for Moisture Content" section listed below.
- Even when floated, the edges should be glued
- A 1/8" closed cell foam pad is recommended

## recommended sub-flooring installations

AI Concrete Slabs:	Glue-down or float
Acoustic Concrete:	Glue-down or float
Plywood:	Glue-down, float or staple <b>(Do not staple over particle board or similar product)</b>
Resilient Tile or Sheet Vinyl:	Glue-down, float or staple
Cork:	Glue-down or float
Ceramic, Terrazzo, Slate, or Marble:	Glue-down or float

## testing for moisture content

### For Wood and Other Similar Sub-Floors Types:

Using a quality pin moisture meter, measure the moisture content of both the sub-floor and the hardwood flooring. Sub-Floors must not exceed 12% moisture content and the difference between sub-floor and hardwood flooring cannot exceed 4%. If sub-floors exceed this amount, do not begin or continue the installation until the source of moisture has been located and eliminated.

### For Concrete Sub-Floors:

A minimum of 30 days drying time for a reliable moisture reading is necessary. Concrete is never completely "dry"; so, concrete sub-floors should always be checked for moisture prior to wood floor installation. Two of the more common moisture tests are:

#### Calcium Chloride Test

Moisture vapor emissions should not exceed 3 lbs/1000 square feet per 24 hours with this test. One test must be performed every 250 square feet. Calcium Chloride Tests can be found in Flooring retail stores or retail websites on the internet such as [www.taylorltools.com](http://www.taylorltools.com) or [www.moisturetestkit.com](http://www.moisturetestkit.com) [1-888-216-TEST (8378)].

#### Tramex Concrete Moisture Encounter Meter

Moisture readings using a metering device should not exceed 4.5 on the upper scale. Please visit the manufacturer's website [www.tramexltd.com](http://www.tramexltd.com).

### Moisture Barrier Systems

The following moisture barrier systems (outlined above) may carry warranty from their manufacturer, which you must verify independently and be satisfied with. ecofinishes does not warrant such systems.

Franklin ([www.franklinflooring.com](http://www.franklinflooring.com))

– Tech Services: 1-800-669-4583

Bostik-Findley ([www.bostik-us.com](http://www.bostik-us.com))

– Tech Services: 1-800-523-6530

Sika Primer ([www.sikausa.com](http://www.sikausa.com))

– Tech Services: 1-800-933-SIKA

Dri Tac ([www.dritac.com](http://www.dritac.com))

– Tech Services: 1-800-394-9310

Please visit the moisture barrier systems manufacturer's websites for full details. Each of the sealer systems may require a specific type of test for the concrete sub-floor (for example, Calcium Chloride Tests). Important: While installers often use asphalt felt and sheet vinyl as "moisture barriers," they are not true moisture barriers and carry no warranties. If installing over subfloor, use vapor retarders such as asphalt, saturated craft paper or 15lbs. felt.

**NOTE:** Over a wood subfloor do not use an impermeable vapor retarder material with a perm rating of .7 or less, such as 6 mil polyurethane film or other polymer materials, as it may trap moisture on or in the subfloor.

## sub-floor preparation

### Concrete Slabs:

**Glue-Down Applications** — ecofinishes' elements+ floors can be glued directly to high compression strength concrete slabs or floated using the appropriate adhesive. If a glue-down application, ecofinishes recommends Calcium Chloride Tests be conducted on the slabs. If high moisture is indicated, then use a sealer for protection. All concrete sub-floors must be tested for moisture content, especially adjacent to exterior walls and plumbing fixtures. Visual checks are not acceptable. Please refer to the above section entitled "Testing for Moisture Content".

**Floating Application** — Make sure sub-floor is level. A moisture barrier is required along with the appropriate foam padding or a 2 in 1 Pad may be used. Perform appropriate moisture tests.

**Acoustic Concrete:**

**Glue-Down Applications** — Acoustic concrete sub-floors must have a minimum compressive strength of 2500 PSI. Because acoustic concrete contains large quantities of gypsum, the surface must first be coated with a primer/surface hardener as recommended by the concrete manufacturer. As high PH levels can attack glue lines always check with the adhesive manufacturers regarding the use of their products on acoustic concrete. Perform appropriate moisture tests.

**Floating Application** — Make sure sub-floor is level. A moisture barrier is required along with the appropriate foam padding or a 2 in 1 Pad may be used. Perform appropriate moisture tests.

**Plywood (or equivalent) Over Wood Structural Panel:**

**Do Not Nail or Staple Over Particleboard or Similar Products.**

**Preferred** – 3/4" (19mm) CDX Grade Plywood or 3/4" (23/32") OSB PS2 Rated Underlayment with a minimum 40 lbs. density

**Minimum** – 5/8" (15mm) CDX Grade Plywood or existing wood flooring. (3/4" x 3" wide maximum)

**Staple-Down Application** — In the staple-down application, a suitable vapor retarder must be established over plywood (or equivalent) with joints overlapped 8" and taped.

**Glue-Down Application** — In glue-down applications, a moisture barrier is not required unless moisture readings from the sub-floor are at unacceptable levels. Please refer to the above section entitled "Testing for Moisture Content". Minimum thickness sub-floor material recommendations are satisfactory for 16" on center joist spacing. Thicker sub-floor recommendations will allow up to 19.2" joist spacing. When joist spacing is greater than 19.2" on center, flooring will exhibit minimum performance. Minimum performance may result in movement, gaps, and/or noises. A second layer of sub-flooring material bringing the overall thickness to 1" to 1-1/8", will provide optimum results when joist spacing exceeds 19.2" on center. Hardwood flooring should, whenever possible, be installed perpendicular to flooring joists. Perform appropriate moisture tests.

**Floating Application** — Make sure sub-floor is level. A moisture barrier is required along with the appropriate foam padding or a 2 in 1 Pad may be used. Perform appropriate moisture tests.

**Resilient Tile or Resilient Sheet Vinyl**

**Staple-Down Application** — Vinyl or tile must be in good condition, level and permanently bonded to the sub-floor with full spread adhesive. Do not install over more than one layer that exceeds 1/8" in thickness over suitable sub-floor. Vinyl or tiles should not be loose, crumbled, or in poor condition. Be sure that the staple will penetrate these materials and that breakage does not occur. This application is not recommended if any part of sub-floor is particleboard or fails to meet plywood sub-floor requirements. Perform appropriate moisture tests. A moisture barrier is required (6 mil polyethylene film). Perform appropriate moisture tests.

**Glue-Down Application** — Vinyl or tile must be in good condition, level, and permanently bonded to the sub-floor with full spread adhesive. Do not glue-down hardwood floors on resilient floors that exceed two layers. Vinyl or tiles should not be loose, crumbled, or in poor condition. Clean surface thoroughly with a good quality household detergent and de-gloss flooring as necessary to create a good adhesive bond using an abrasive pad. If necessary, remove wax coating when present on vinyl, using an appropriate stripper. Perform appropriate moisture tests.

**Floating Application** — Vinyl or tile must be in good condition, level, and permanently bonded to the sub-floor with full spread adhesive. Vinyl or tiles should not be loose, crumbled, or in poor condition. If floating application, a moisture barrier is required along with the appropriate foam padding or a 2 In 1 Pad may be used. Perform appropriate moisture tests.

**Cork (Acoustic):**

**Glue-Down Applications** — Make sure cork is level and permanently bonded to the sub floor with full spread moisture cured urethane adhesive. The minimum density required for cork is 11.4 lbs./cubic foot; maximum density should not exceed 13 lbs./cubic foot. The cork should be no more than 1/4" thick and constructed of pure cork with polyurethane binders, installed to the manufacturer's specifications. Cork must be rolled into adhesive. Cork is not a moisture barrier. Perform appropriate moisture tests.

**Floating Application** — Make sure cork is level and permanently bonded to the sub-floor with full spread adhesive. If floating application, a moisture barrier is required along with the appropriate foam padding or a 2 In 1 Pad may be used. Perform appropriate moisture tests.

### **Ceramic, Terrazzo, Slate, or Marble Tiles:**

**Glue-Down Applications** — The above tile products should be in good condition, level and permanently bonded to the sub-floor by the appropriate methods. These tile products should not be loose, crumbled, or in poor condition. Clean and abrade surfaces to remove any sealers or surface treatments to insure a good adhesive bond. Loose tiles must be re-adhered to the sub-floor, and grout joints that exceed 1/16" must be filled with a leveling compound. Follow the manufacturer's recommendation for applying the leveling compound. Any area containing the leveling compound must be completely dry before proceeding with the installation of the wood floor. A moisture barrier may be required. Perform appropriate moisture tests.

**Floating Application** — The above tile products should be in good condition, level and permanently bonded to the sub-floor by the appropriate methods. These tile products should not be loose, crumbled, or in poor condition. Loose tiles must be re-adhered to the sub-floor, and grout joints that exceed 1/16" must be filled with a leveling compound. Follow the manufacturer's recommendation for applying the leveling compound. Any area containing the leveling compound must be completely dry before proceeding with the installation of the wood floor. A moisture barrier is required along with the appropriate foam padding or a 2 In 1 Pad may be used. Perform appropriate moisture tests.

### **Sub-floor Conditions / Radiant Heat:**

ecofinishes does not recommend installation of our elements+ collection flooring over radiant heat.

## starting the installation

### **Additional Requirements – Helpful Tips**

Make sure the sub-floor is properly prepared and is tested for moisture. See above.

When laying flooring, stagger end joints from row to row by at least 6". 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 use a new plank at a random length to start the next row. No two end joints should be within three rows of each other. Installation parallel to the longest wall provides the best visual effect. Always begin each row from the same side of the room. For floating application, stagger seams 12" to 15".

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 arrange the varying grains & colors 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 installer's responsibility to set the expectations of what the finished floor will look like with the owner.

Doorway and Wall Preparation: Undercut or notch-out door casings 1/16" higher than the thickness of the flooring being installed to avoid difficult scribe cuts during installation and remove existing base and shoe molding as well as doorway thresholds - each can be replaced after installation is complete.

## installing the floor

### **Additional Requirements – Helpful Tips**

#### **nail/staple-down installation**

All solid wood flooring should be nailed or stapled on 8" centers along edge, per NWFA Guidelines.

An exterior wall is usually the straightest and best reference line to start the installation. Use a chalk line to trace a starting line parallel to the starting wall at a distance of about 5- 3/8" (138mm), i.e., the width of a plank plus the 1/2" (12.7mm) expansion joint. This starting line should leave a minimum 1/2" expansion gap around all vertical obstructions. Direction of finished flooring should be at right angles to the floor joists whenever possible. On the first row of flooring use 6d or 8d flooring nails to top nail surface of flooring and countersink (pre-drilling nail holes will prevent splits).

**CAUTION: Wood expands and contracts with changes in humidity. Wood will buckle and/or cup if an adequate expansion space is not provided. Always allow for expansion when making end or side cuts around vertical objects.**

After nailing down the first 22 sq/ft, test to make sure that this section of flooring is firmly affixed. Check 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, it will be necessary to glue this floor down in addition to nailing it in order to correct this condition. It is the installer's responsibility to determine which conditions are in the flooring prior to installation

**CAUTION: It is extremely important to use the appropriate adapters as well as staples or cleats. Improper fasteners, machines, and air pressure can cause severe damage.**

Make sure to properly space fasteners every 3" – 4" along the length of the board with a minimum of 2 fasteners per piece 1" – 2" from each end. Top and/or hand nail enough rows to allow adequate spacing from wall; continue installation with a recommended floor-stapling machine. Stagger the ends of boards at least 6" in adjacent rows creating a stair-step pattern. Continue across the room until finished. Remember to provide adequate spacing for expansion gap.

### glue-down installation

Preparing and leveling the sub-floor:

-  The sub-floor must be firmly fixed to the joists to avoid any panel movement that could cause creaking. Use flooring screws if necessary to prevent creaking.
-  The sub-floor surface must be level. The difference in level must not exceed 3/16" (5 mm) over a distance of 6' (1830 mm). Eliminate small surface irregularities with a sander or floor
-  The surface must be clean. Remove glue residue and staples, and drive in protruding nails.

### steps for glue down installation:

-  Use a chalk line to trace a starting line parallel to the starting wall at a distance of 5-3/8" (138 mm), i.e., the width of a plank plus the 1/2" (12.7 mm) expansion joint. The space between the wall and the starting will be the last section of floor laid.
-  Nail the guide planks along the starting line on the side closest to the wall. The planks will serve as a guide for the first rows of planks.
-  Lay out 4 to 5 rows of planks ahead of time that match in terms of joints and color. Cut planks with imperfections or place them in less visible areas.
-  Using your trowel, apply adhesive at a 45° angle from the starting line outward. It is important to use the trowel recommended in this manual in order to apply the proper quantity of adhesive.
-  Install the first plank along the starting line with the tongue facing you and the groove facing the starting wall. Always keep a 1/4" (6.3 mm) expansion joint at row ends with expansion shims.
-  Do a few small sections at a time to ensure the adhesive does not dry before the planks are laid.
-  Check for a tight fit between all edges and ends of each board. Occasionally lift a board to check for adequate adhesive transfer.
-  Proceed from left to right to install the other planks in the rows.
-  The last plank in the row will have to be cut. An easy way to measure the length of the plank that will finish the row is to turn it lengthwise to quickly establish the cut mark. Leave at least 6" (150 mm) in length to remain which will serve to start the next row.
-  For subsequent rows, insert the tongue end into the groove and lower the plank as close as possible to the adjacent one, avoiding contact with the adhesive as much as possible.
-  You may need to use a tapping block for best tongue and groove fit.
-  Use blue adhesive tape every five or six rows to ensure planks remain firmly in place.
-  Use a 100-150 lb. roller to apply pressure to installed sections while the adhesive is still active (app. 45-60 min.).
-  Repeat these steps for the rest of the floor.
-  For best results, stagger the joints 6" (150 mm) to 8" (200 mm) from the previous row and alternate board length.
-  Once the entire surface is covered, remove the guide planks and lay planks in the 5 3/8" (138 mm), space left at the start of installation.
-  To maintain the expansion gap throughout the installation, use 1/2" spacers between floor board and wall or object.

- Apply recommended urethane adhesive with an adhesive manufacturer's recommended trowel. Follow manufacturer's recommendations for the application of the adhesive. **DO NOT USE A WATER-BASED ADHESIVE WITH THIS HARDWOOD FLOORING PRODUCT.**
- During Installation, immediately wipe any adhesive from the floor's surface using the adhesive remover that is compatible with the adhesive used. Visit the adhesive**

### additional reminders:

- Please verify the proper item and color is being installed per manufacturer's standards. Always plan for 5% to 7% defect and or waste.
- Verify that the delivered wood flooring is between 8%-10% moisture content and is free of defects
- No acclimation is required. Wood flooring can be left encased in plastic in the box.
- Concrete slab should be tested for moisture content.
- A moisture retarded system may be required to seal the concrete when installing engineered flooring. A recommended moisture retarded system is Bostik MVP or Franklin Titebond 531
- If the sub floor is raised. A moisture barrier may not be required. (Check for moisture)
- ecofinishes elements+ flooring should be installed with urethane-based adhesives such as Bostik's BST or Franklin Tilebond 811.
- Please follow the glue manufacturer's instruction, which is printed in detail on the glue container along with the proper trowel recommendations and installed methods.

### floating installation:

ecofinishes' elements+ flooring is suitable for floating installation at any grade level, be it above grade, on grade or even below grade onto a concrete sub-floor, wood sub-floor, ceramic tiling, or linoleum with proper site preparation.

#### NOTE:

- Even when floated, the edges should be glued
- A 1/8" closed cell foam pad is recommended

### preparing and leveling the sub-floor:

- The sub-floor must be level, i.e., a slope of no more than 3/16" (5 mm) over 10' (3048 mm).
- The surface should be relatively clean and free of particles.
- If below grade, lay a 6-mil polyfilm with seams overlapping 8" (200 mm).
- Fasten seams every 18" to 24" (450 to 600 mm) with duct tape or poly tape.
- Run 4" (100 mm) of poly-film up against the perimeter of wall.
- Lay foam underlayment by butting edges and duct tape the full length of the seam.

### steps for floating installation

- Install leading brand pad with built in moisture barrier - 2 in 1 or 3 in 1. Follow pad manufacturer's instructions.
- Direction of finished flooring should be at right angles to the floor joists whenever possible.
- Use a chalk line to trace a starting line parallel to the starting wall at a distance of a single plank width plus the 1/2" (12.7 mm) expansion joint.
- Lay out 4 to 5 rows of planks ahead of time that match in terms of joints and color. Cut planks with imperfections or place them in less visible areas.
- Install the first plank along the starting line with the tongue facing you and the groove laid out facing the starting wall. Use expansion shims spaced every 12" (300 mm) along all walls to prevent movement during installation. Always keep a 1/4" (6.3 mm) expansion joint at row ends. First row must be square to ensure a true fixed base from which to build the entire floor.
- Proceed from left to right to install the other planks in the row. Apply PVAc adhesive to upper inside of grooves on planks. Always apply adhesive to groove instead of tongue.

-  Start each subsequent row with cut-off end of last plank from previous row. Stagger end joints by minimum of 20" (500 mm). Tighten each seam with knocking block and each end joint with last board puller or crowbar.
-  The last row will generally not fit perfectly, thus scribe row to allow expansion gap, engage all seams with last board puller.
-  Once the entire surface is covered, remove expansion spacers and reinstall base and/or quarter round moldings to cover the expansion space. Install any transition pieces that may be needed.
-  Tape may be removed within one hour. Allow 12 hours before placing furniture on floors and 24 hours before introducing heavy objects or full traffic.

**During Installation, immediately wipe any adhesive from the floor's surface using the adhesive remover that is compatible with the adhesive used. Visit the adhesive manufacturer's website for more details.**