



Engineered Wood Flooring

Installation Instructions

Warranty coverage will be voided due to failure to strictly abide by all the installation instructions, maintenance and recommendations in this manual. This includes the use of improper tools and materials.

Read all instructions carefully.

Product Description:

Envifloors Engineered Wood Floors planks are designed for use in multiple locations. Acceptable location includes basements, ground floors or high-rise buildings. Hardwood flooring can be floated on, directly nailed or glued to a wooden or concrete sub-floor. Professional advice should be sought for the type of glue and method of glue-down installation to ensure trouble free installation. Hardwood flooring is made of a wear layer of solid wood lamella mounted under high pressure to produce premium quality flooring. These products are pre-finished under ideal conditions that meet or exceed industry standards.

Where to install and Installation Method:**Engineered Multiply Tongue and Groove Hardwood Flooring:**

Grade Type	Staple Down	Glue Down	Floating
Above Grade	Yes	Yes	Yes
On Grade	Yes	Yes	Yes
Below Grade	No	No	Yes

Sub-floor Type	Staple Down	Glue Down	Floating
Concrete	No	Yes	Yes
Plywood & OSB	Yes	Yes	Yes
Old wooden floor, particleboard, pressed board & other non- wood sub-floor	Site Specific	Site Specific	Yes

Sub-floor Type	Nail Down
Plywood & OSB*	Yes
Concrete	No
Old wooden floor, particleboard, pressed board & other non-wood sub-floor	No

Site Specific – depending on the degree of levelness, firmness and soundness of the sub-floor. Sub-floor should be sound, level and free of debris.

The following is as defined by NWFA Hardwood Flooring Installation Guidelines - Section V for moisture testing:

Concrete moisture readings are not to exceed 4.5% on Tramex Concrete Moisture Encounter meter.

Calcium Chloride Test is not to exceed 3 lbs. per 1000 square feet in 24 hours.

Plywood must be CDX-rated at least 3/4" thick. OSB must be 3/4", PS2 rated, and sealed side face down.

Specific installation with Radiant Heating:

- Prior to installation, radiant heat system must have been tested and in operation for at least a few weeks.
- Do not raise or lower the temperature of subfloor by more than 5°F per day when turning radiant heat system on and off. The wood surface temperature must never exceed 80°F.
- The radiant heating system must be buried in concrete.
- Glue down installation is the **ONLY** recommended installation method over radiant heat.

IMPORTANT: Examine each plank carefully. Contact the dealer immediately if the material is not acceptable. Materials installed with visible defects are not covered under warranty. Manufacturer will not assume any responsibility for any materials that have already been installed. The manufacturer will not assume any liability for product damage caused by the use of unsuitable tools or the improper use of materials.

Crucial Points to Remember:

1. Installation should not be started until the wood has been at the jobsite for at least 4 days; however, materials should be allowed to acclimate for as long as necessary to meet minimum installation requirements for moisture content in your area.
2. Install your floor under good lighting conditions. Installation site should be warmed up for 5 to 6 days before wood delivery, regardless of the season, to remove residual moisture in the sub-floor. The floor surface must never be warmer than 85°F (29.5°C) or colder than 50°F (10°C) during or after installation.
3. Plan your project by making an installation sketch. Determine the installation starting point. Consider if it is one regular-shaped room; a number of rooms with landings; or rooms on one floor, including a hall or main room. Think about how to get the most out of your budget. If in doubt, ask your dealer for advice.
4. Choose the floor plank direction. It is strongly recommended that you install boards at a 45° or 90° angle to the joist direction. This is NOT applicable for installation on concrete.
5. Take precautions at all times not to damage the finish. For example, place tools on a protective mat during installation. Vacuum or sweep floor frequently to eliminate sawdust and abrasives. Do not use vacuums with beater bars or hard plastic attachments.
6. Before starting installation, cut the bottom moldings around door frames to insert the floor planks underneath. Leaving an expansion joint is necessary. This allows the wood to react to changes in ambient humidity. The expansion joint will be hidden by wood flooring moldings such as T-molding, quarter round, etc. Moldings will be nailed to the walls and not the floor.

Jobsite Preparation:

Laying the floor should be the last step of your installation. Prior to the delivery of your flooring, make sure that:

- The jobsite is properly enclosed, with all doors and windows installed.
- Concrete, plaster, paint and the sub-floor are completely dry (Always measure!).

- The heating or ventilation system is working properly and that the conditions inside your home have been kept at an approximate temperature of 60-70°F (20°C) and a relative humidity of 35% to 50% for at least two weeks.
- The floor of the crawl space (if there is one) is completely covered by 6-8 mil black polyethylene film and has had adequate cross ventilation.
- The sub-floor should be free from any surface defect. If it is not, fill gaps with leveling material that is designed for your subfloor type or sand down uneven areas.
- The sub-floor must be level. **Any depressions in the sub-floor should not exceed 3/16" (5 mm) and the floor must be level. (not to exceed 1 inch over a 6' length (1860 mm)).**
- The surface must be clean and free of all debris.

Wood Sub-floor:

- The sub-floor (plywood or OSB) moisture content should be between 6-10% but should not exceed 12%. The difference in moisture between the sub-floor and floor planks should not be greater than 4%. If the difference is too high, do not carry out the installation. Please refer to the Equilibrium Moisture Content of Wood Map to determine acceptable moisture levels for your area.
- Wooden sub-floors must be securely screwed down to joists to prevent any movement or squeaking. Inspect the existing subfloor and replace any subfloor that exhibits signs of water damage or structural weakness.

Concrete Sub-floor:

For concrete sub-floors, a minimum of 45 days drying time is necessary for a reliable moisture reading. As defined by NWFA (National Wood Flooring Association), moisture readings must not exceed 4.5% with a moisture meter for concrete (Tramex Moisture Encounter). In the presence of moisture, perform a calcium chloride test. The moisture level measured using the calcium chloride test must not exceed 3 lb./1,000 sq. ft. /24 hours. If the reading exceeds 3 lb. but is below 7 lb., install a waterproof membrane such as Bostik MVP or equivalent.

IMPORTANT: When it comes to floor installation, moisture is an important element that should be emphasized. The installer and the homeowner are jointly responsible for checking the sub-floor moisture content. If the moisture content is too high, installation of flooring must be postponed. Never install a hardwood floor on a wooden sub-floor if a moisture test reading exceeds 12%. Any responsibility for failures or deficiencies related to job site quality is declined by the manufacturer.

Installation Work:

Once desirable conditions have been reached, bring the cases of floor planks to the installation site. Open a case to check that product species, grade, color, size and quality are correct. If all job-site conditions are in order, set the un-opened cartons indoors and spread across the sub-floor. Once product is properly acclimated, you may start installation. Open several cartons of flooring at the same time. This will allow you to balance plank length, color and variations in the grain of the wood. This will ensure that planks can be arranged to reflect a homogenous floor covering.

Please advise your dealer immediately if any problems occur. To avoid any variation in internal wood moisture levels before installation, avoid exposing the cases to rain or snow. Never store planks in unsuitable locations such as a shed, unheated garage, or basement.

IMPORTANT: Prior to installing the floor, the installer and the homeowner must ensure that the installation site and sub-floor meet the conditions in this document. The installer and the homeowner are responsible for inspecting floor planks prior to installing them. Depending on the type of installation, you may also need special moldings for your floor such as nosing and reducer strips. Installer is responsible to ensure the proper selection and installation of molding pieces.

NAIL DOWN INSTALLATION

Nail installation is only used with PS-2 rated oriented strand board (OSB) or plywood sub-floors. Manufacturer recommends using 3/4" (18 mm) OSB or plywood on joists spaced no more than 19.2" (450 mm) apart, center-to-center. OSB or plywood must be structurally sound.

Recommended tools

1. Moisture Meter
2. Hardwood Flooring Cleat-Nailer with 1/2" adapter plate (L-cleats only)
3. Chalk reel, Tape measure, Speed Square
4. Hammer, Pull bar, Knocking block
5. Electric Drill and 3/32" bit, Floor Screw
6. Finishing spiral nails, and nail set
7. Use non-tarred felt paper on sub-floor surface to reduce normal mechanical friction, and a 6 mil. Poly sheeting, if additional moisture protection is required.
8. Electric saw or Hand saw

Preparing and leveling the sub-floor:

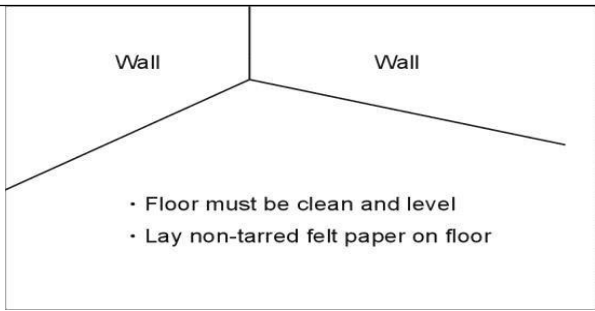
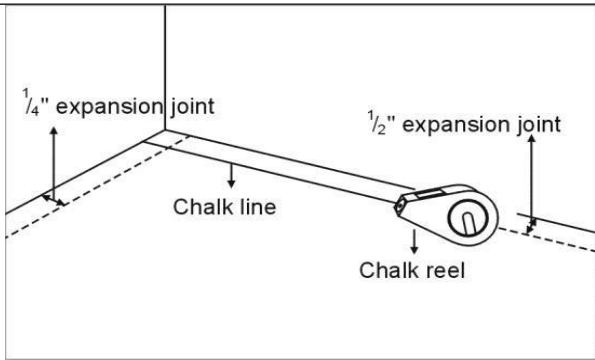
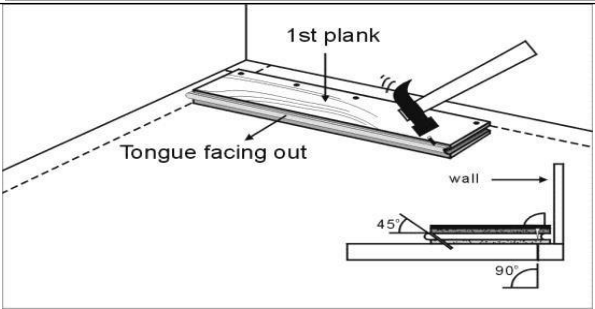
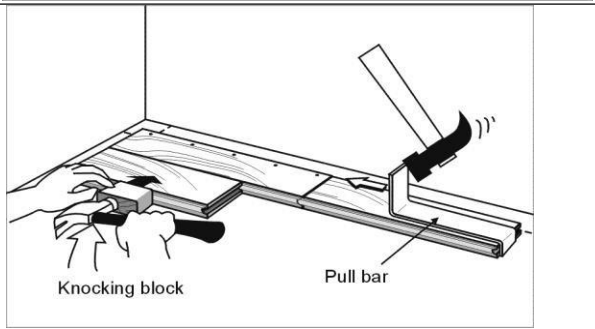
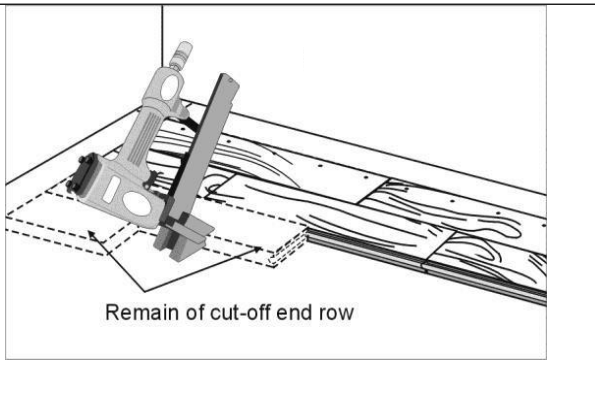
- The sub-floor must be firmly fixed to the joists to avoid any panel movement that could cause creaking. Use flooring screws if necessary to prevent creaking.
- The sub-floor surface must be level. The difference in level must not exceed 3/16" (5 mm) over a distance of 6' (1830 mm). Eliminate small surface irregularities with a sander or floor leveler.
- The surface must be clean. Remove glue residue and staples, and drive in protruding nails. Remove debris and dust with a broom or vacuum.
- It is recommended that you use non-tarred felt paper on the sub-floor surface to reduce normal mechanical friction between materials and facilitate installation. Lay the felt paper in the direction of the boards using staples, overlapping the ends by 3" to 4". Drive in staples.

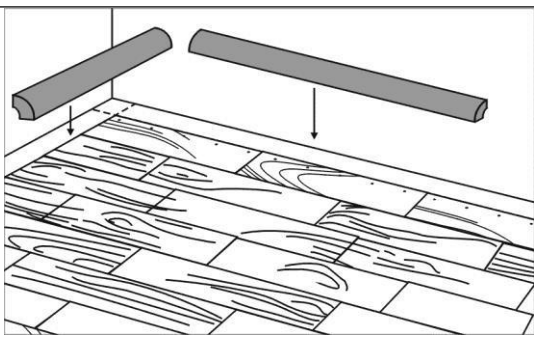
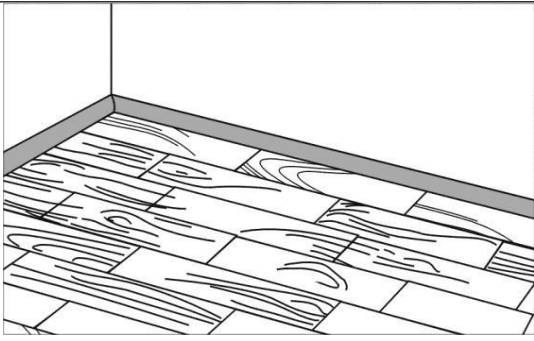
Using the nailer:

Practice using the floor nailer on a scrap plank. Follow the safety tips and instructions of the nailer manufacturer.

- Clean the nail base plate regularly to ensure it does not damage the finish.
- If you are using a pneumatic nailer, adjust the compressor air pressure for the hardness of the species and to insure proper nail placement in tongue (about 80-90 psi). Follow the safety tips and instructions of the nailer manufacturer.

Nail Down Installation Steps:

 <p style="text-align: center;">Wall Wall</p> <ul style="list-style-type: none"> • Floor must be clean and level • Lay non-tarred felt paper on floor 	<p>Use chalk line to trace starting line with $\frac{1}{2}$" expansion joint at the side and $\frac{1}{4}$" at row end. Lay out 4 to 5 rows of planks ahead of time that match in terms of joints and color. Cut out imperfections on planks or place them in less visible areas.</p>
 <p>$\frac{1}{4}$" expansion joint $\frac{1}{2}$" expansion joint</p> <p style="text-align: center;">Chalk line</p> <p style="text-align: right;">Chalk reel</p>	<p>Lay 15 lb. non-tarred felt paper or equivalent (with 3" to 4" overlapping end) in the direction of the boards using staples. This will reduce the normal mechanical friction between materials and facilitate installation.</p> <p>Felt paper is not required if floor has an acoustic membrane.</p>
 <p style="text-align: center;">1st plank</p> <p style="text-align: center;">Tongue facing out</p> <p style="text-align: right;">wall</p> <p style="text-align: right;">45°</p> <p style="text-align: right;">90°</p>	<p>Install the 1st plank along the starting line with the tongue facing out and groove facing the wall. 1st row must be hand-nailed. Drill holes at a 90° angle on the surface of the plank. Drive nails head in with a nail driver. Then drill holes at a 45° angle in the tongue and fasten with spiral nails.</p>
 <p style="text-align: left;">Knocking block</p> <p style="text-align: right;">Pull bar</p>	<p>Cut plank to fit end row, allowing for $\frac{1}{4}$" expansion gap and fasten with pull bar.</p> <p>Start subsequent row using the remainder of the cut-off end plank from previous row. The remainder should be at least 6". Fasten with knocking block at the side.</p>
 <p style="text-align: center;">Remain of cut-off end row</p>	<p>Use manual or pneumatic nailer for subsequent rows. Each plank should be nailed every 6". Do not nail less than 2" from plank end to prevent the tongue from splitting. Fasten each plank with at least 2-nails.</p> <p>For best results, stagger the joints 6" to 8" from the previous row and alternate board lengths.</p>

	<p>The final planks should be installed the same way as the 1st plank.</p> <p>You may have to rip the last row lengthwise to leave a 1/2" for expansion joint.</p>
	<p>Complete installation with moldings.</p>

Glue Down Installation

Hardwood flooring can be glued directly to a concrete sub-floor, wood sub-floor on the ground floor and second floor. Must not be installed over any type of vinyl; vinyl must be removed. Subfloor must be free of wax, paint, oil and debris.

Recommended tools

- Moisture Meter
- Bostik BEST or equivalent moisture-cured urethane adhesive
- Bostik MVP moisture barrier (if required)
- Notched Trowel-- follow Glue Manufacturer's guidelines for recommended size
- Bostik Ultimate Adhesive remover or wipes
- Guide Strip, Chalk reel, Tape measure, Speed square
- Hammer, Pull bar, Knocking block
- Flooring straps
- 100 lb. Roller
- Electric saw or Hand saw

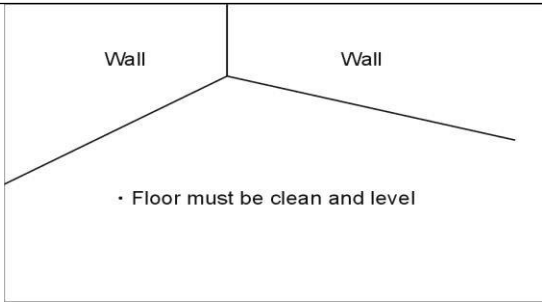
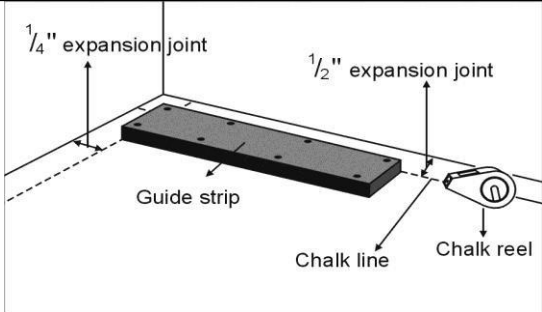
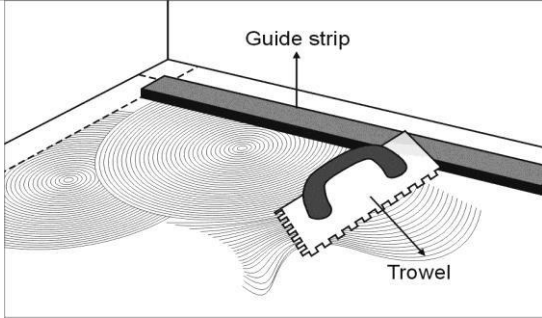
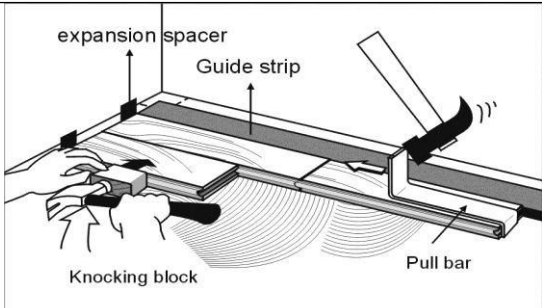
IMPORTANT: Do not apply any tape to the surface of your floor at any time during installation, or thereafter. This includes "special" tapes that say they are made for wood flooring.

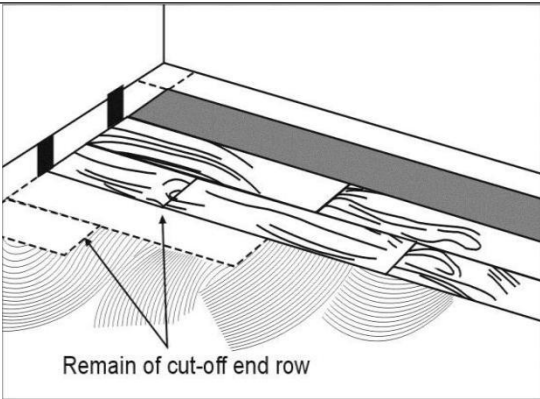
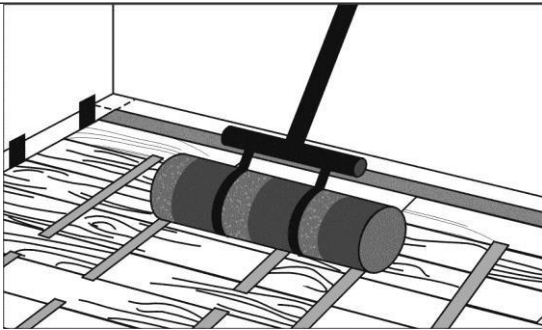
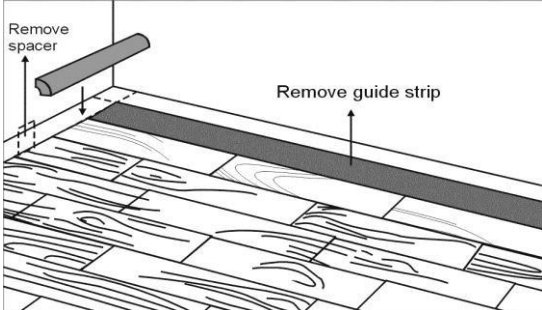
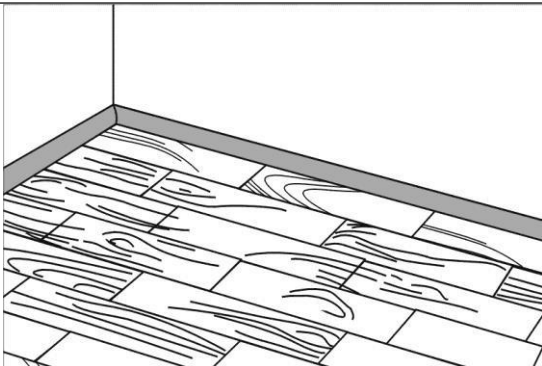
Preparing and leveling the sub-floor:

- The sub-floor should be free of any surface defect. If it is not, fill gaps with a Portland-based leveling cement (for concrete floors only) or sand down uneven areas.
- The sub-floor must be level, i.e., **Any depressions in the sub-floor should not exceed 3/16" (5 mm) and variations must not exceed 1 inch over a 6' length (1860 mm).** The surface must be clean and free of any debris and contaminants such as wax, paint, grease, dust, oil, nails, staples, etc.

- For concrete installation, ensure that the concrete is not low-density (below 3000 psi) or friable.

Glue Down Installation Steps:

 <p style="text-align: center;">Wall Wall</p> <p style="text-align: center;">• Floor must be clean and level</p>	<p>Lay out 4 to 5 rows of planks ahead of time that match in terms of joints and color. Cut out imperfections in planks or place them in less visible areas. For concrete installation, ensure concrete is not low-density (below 3000 psi.).</p>
 <p>$\frac{1}{4}$" expansion joint $\frac{1}{2}$" expansion joint</p> <p style="text-align: center;">Guide strip</p> <p style="text-align: right;">Chalk line Chalk reel</p>	<p>Use chalk line to trace starting line with $\frac{1}{2}$" expansion joint at the side and $\frac{1}{4}$" at row end. Nail the guide planks along the starting line. The plank will serve as a guide for the 1st row of plank. The width of the guide plank will be the same as the width of the flooring you choose.</p>
 <p style="text-align: center;">Guide strip</p> <p style="text-align: right;">Trowel</p>	<p>Use the trowel and apply adhesive at a 45° angle from the starting line outward. Install the first plank along the guide strip with tongue facing you and the groove facing the starting wall. The adhesive should not be applied if the subfloor or room temperature is above 85°F (29.6°C) or below 50°F (10°C).</p>
 <p>expansion spacer Guide strip</p> <p style="text-align: left;">Knocking block</p> <p style="text-align: right;">Pull bar</p>	<p>Proceed from left to right to install other planks in the rows. Do small sections to ensure adhesive does not dry before the planks are laid. Use knocking block and pull bar to fasten the joint. As you work, immediately clean any adhesive from the wood surface</p>

 <p>Remain of cut-off end row</p>	<p>Start subsequent row using the remainder of the cut-off end plank from previous row. The remainder should be at least 6".</p> <p>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.</p> <p>For best results, stagger the joints 6" (150 mm) to 8" (200 mm) from the previous row and alternate board length.</p>
	<p>Use 100-150 lb. roller to apply pressure to installed sections while the adhesive is still active (approximately 45-60 min).</p> <p>Remove all dust and debris prior to rolling.</p>
 <p>Remove spacer</p> <p>Remove guide strip</p>	<p>Once the entire surface is covered, remove the guide planks and replace with flooring plank. Remove the expansion spacer to install molding to cover the expansion joint.</p>
	<p>Complete installation with moldings.</p> <p>Do not walk or place any personal belongings on newly installed floor for at least 24 hours, this will enable Adhesive to properly cure.</p>

IMPORTANT: During Installation, immediately wipe any adhesive from the floor surface.

Floating Installation

Hardwood floor 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.

Recommended tools

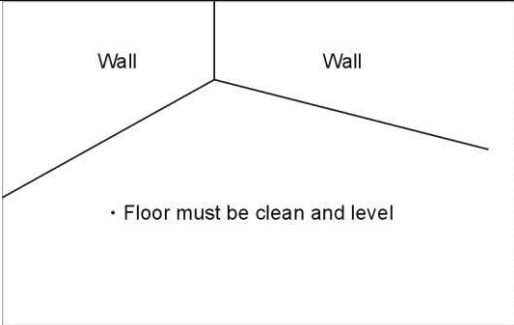
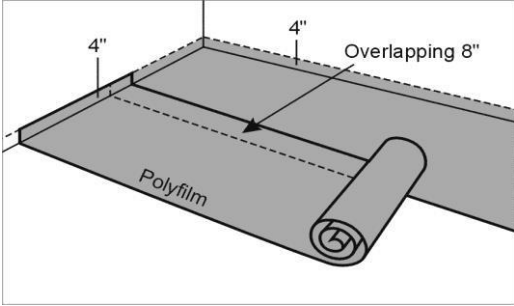
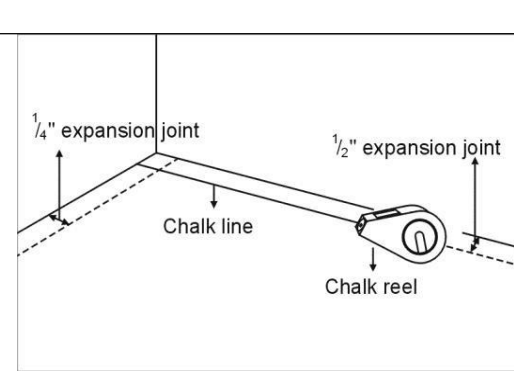
1. Moisture Meter

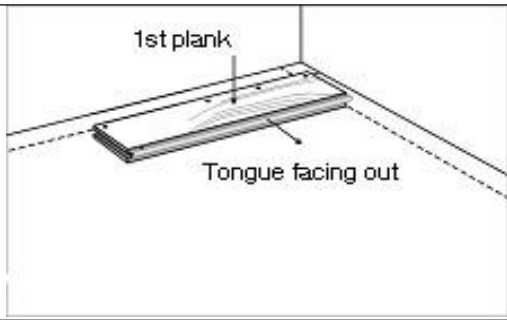
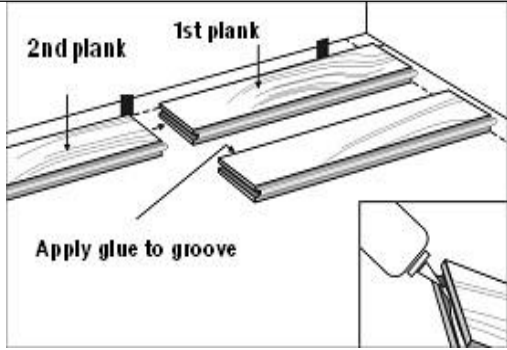
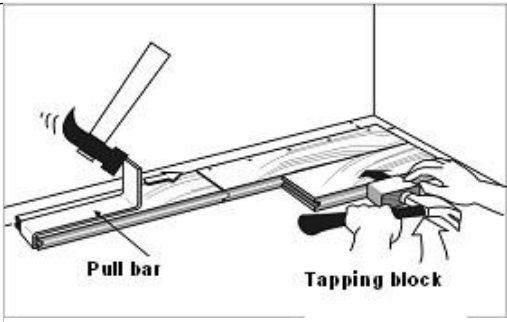
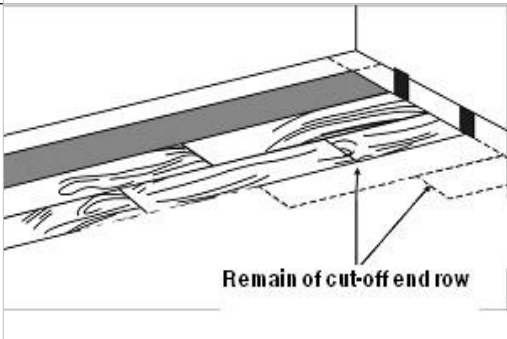
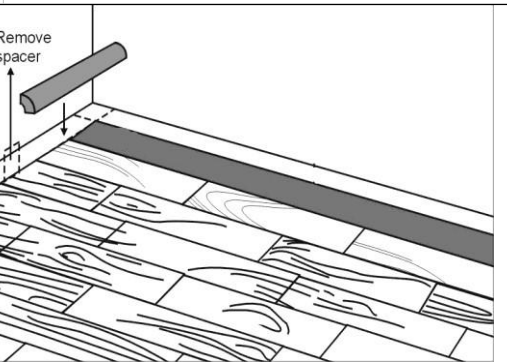
2. 6 mil. Polyfilm and Foam underlayment OR 2-in-1 foam underlayment
3. Poly or Duct tape
4. Titebond Tongue & Groove wood glue or any urethane base glue. **DO NOT** use a water base glue.
5. Flooring straps, Expansion Spacers, Chalk reel, Tape measure, Speed Square
6. Hammer, Pull bar, Tapping block
7. Electric saw or Hand saw

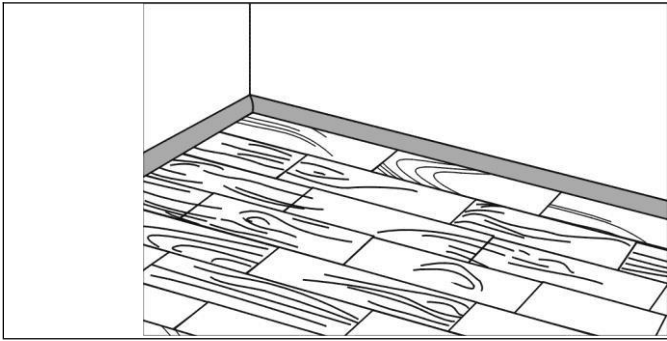
Preparing and leveling the sub-floor:

- 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 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.

Floating Installation Steps:

	<p>The sub-floor should be free from any surface defect. If it is not, fill gaps with Leveling material designed for your subfloor type. Lay out 4 to 5 rows of planks ahead of time that match in terms of joints and color. Cut out imperfections in planks or place them in less visible areas.</p>
	<p>Lay out a layer of 6 mil Polyfilm and layer of foam underlayment OR 2-in-1 foam underlayment. Run 4" of the Polyfilm up against the perimeter walls.</p>
	<p>Use chalk line to trace starting line with 1/2" expansion join at the side and 1/4" at row ends. Place expansion spacers every 12" along walls to prevent movement during installation.</p>

	<p>Install 1st plank along the starting line with the tongue facing out. Start installation on right side of room.</p>
	<p>Install from right to left.</p> <p>Apply bead of Titebond T & G glue to upper inside of groove. Never apply glue to tongue. As you work, immediately clean any adhesive from the wood surface.</p>
	<p>Use pull bar to tighten end joint and knocking block for the side. Use flooring straps if needed, but Do Not over tighten, this will cause undue stress to joint, and prevent proper adhesion.</p>
	<p>Start subsequent row using the remainder of the cut-off plank from previous row. The remainder plank must be at least 6" in length. For best results, stagger the joints 6" to 8" from the previous row and alternate board lengths.</p>
	<p>Once the entire surface is covered, remove the expansion spacers to install molding to cover the expansion joint.</p>



Complete installation with moldings.

Do Not walk or place any personal belongings on newly installed floor for at least 24 hours, this will enable Adhesive to properly cure.

IMPORTANT: During Installation, immediately wipe any adhesive from the floor surface.

**Customer Relations Department
Warranty Service Line: 404 835 3122
www.envifloors.com**