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SP-IGUENGENG 11/07

Installation **Guide** Engineered

Glued and nail installation

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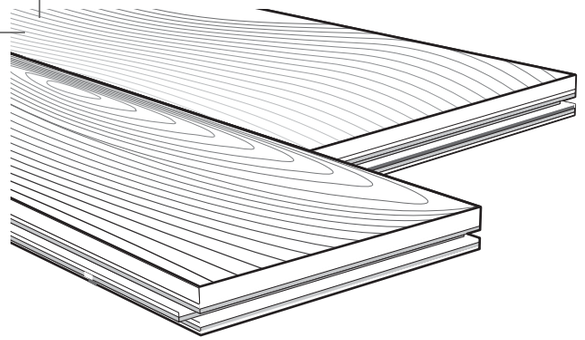

Product Description

Engineered flooring is specially designed for use in any situation, including basements, radiant floors, or directly glued to a concrete subfloor. *Engineered* looring is made of a 5/32" (4 mm) layer of solid wood glued to premium quality hardwood plywood. *Engineered* products are factory sanded and finished under ideal conditions to the same exacting standards that have earned Mercier solid 3/4" (19 mm) floorboards a name for excellence.

Recommended use

- Above grade yes
- On grade yes
- Below grade yes

Duties and responsibilities of installers and homeowners

Mercier floorboards are made of solid wood, a natural material that may have some imperfections. Mercier products meet rigorous quality standards and comply with current wood industry standards, which stipulate that the imperfection rate cannot exceed 5% of the floorboards purchased. This also includes natural imperfections in the wood as well as manufacturing and grade selection defects.

Mercier floor experts conduct meticulous quality tests to ensure floorboards comply with the established criteria. Installers must use discretion when choosing boards and omit, place in a less visible area, or cut those with serious defects as needed, regardless of their origin. If installers have doubts about the grade and finish or manufacturing quality and can neither place boards in a less visible place or eliminate the imperfection, they should not install them.

Once boards are installed, they are considered to have been accepted by the installer and homeowner.

Depending on the location and installation type[1], order 4% to 6% more flooring than needed to compensate for cutting losses. Mercier will only replace products with a defect rate above the acceptable 5% loss (excluding the 4% to 6% margin for cutting losses). Mercier will not be held liable for the careless installation of its products or the poor judgment of installers. Mercier will not cover labor or installation costs.

Before installing the floor, installers and homeowners must ensure that the installation site and subfloor meet the conditions in this document. **Installers and buyers** are responsible for inspecting floorboards prior to installing them.

1 Angle installation causes greater cutting losses, up to 7% to 9%.

Materials and recommended tools

1. Vacuum or broom
2. Miter saw
3. Measuring tape
4. Chalk line reel
5. Square and bevel square
6. Crowbar
7. 4" (10.2 cm) or 5" (12.7 cm) wide putty knife
8. Handsaw
9. Mercier touchup kit
10. Hammer
11. Mercier maintenance kit
12. Table saw for ripping boards in the last row (if required)
13. Electric sander to level subfloor (if required)
14. Leveling product for subfloor (if required)
15. Slip tongue and wood glue (if required).

Note: This is not an exhaustive list of installation tools that could be used, and Mercier makes no warranty, nor can we give technical support for their use. Mercier is not liable for damages caused by unsuitable tools or the improper use of materials.

Depending on the type of installation, you may also need special moldings for your floor such as nosing and reducer strips. These moldings are the same color and wood species as your floor and are available at your Mercier retailer.

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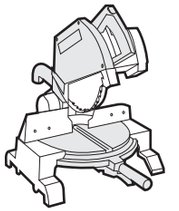

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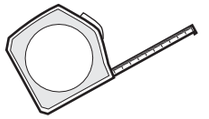

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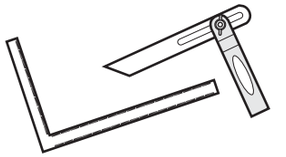

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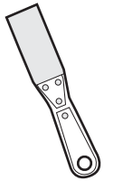

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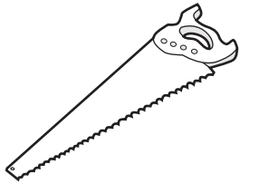

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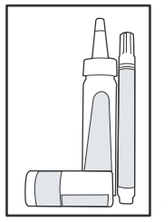

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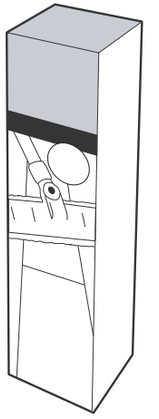

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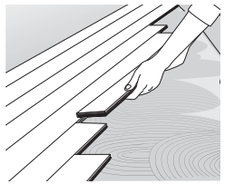


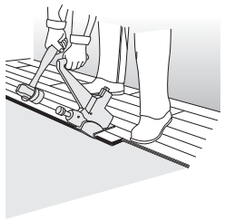
Glued installation

Adhesive and recommended trowel

- Bostik Best and 3/16" x 5/32" V trowel
- Bostik EFA and 1/4" x 1/8" square notched trowel
- Bostik MVP and 3/16" x 5/32" V trowel if required
- Taylor # 2071 Tuff Lok Xlink and 3/16" x 1/4" x 5/16" V trowel.

  - Taylor 2022 X-treme Concrete Sealer (if required)

- 3M blue adhesive tape[2] or equivalent
- Guide strips and nails (to secure starting row in place)
- 100 to 150 lb. roller
- Bostik's Ultimate adhesive cleaner
- Bostik's Ultimate towels for hand and tool cleaning

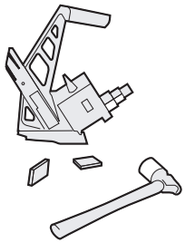


Nail installation

Hardwood nailer or stapler (pneumatic or manual)

- Primatech P-210 pneumatic nailer[3] with A-002D Trak-Edge adapter plate and 1-1/2" nails
- Primatech manual H-300 or H-330 (multiple hit) nailer with A-002D Trak-Edge adapter plate and 1-1/2" nails
- Primatech P-220 pneumatic stapler with A-002D Trak-Edge adapter plate and 1-1/2" staples
- Powernail 200 pneumatic nailer with U-1 adapter plate and 1-1/4" nails
- Powernail 50P pneumatic nailer with 1-1/4" nails

2 This product helps keep floor strips in place and does not damage the finish when removed.
3 Pneumatic nailers require less force and are easier to use for less experienced installers.



- Drill and 3/32" bit
- Finishing spiral nails, and nail set
- 15 lb. non-tarred felt paper or equivalent (not recommended for radiant floor installation)
- Stapler
- Floor screws

Floating installation

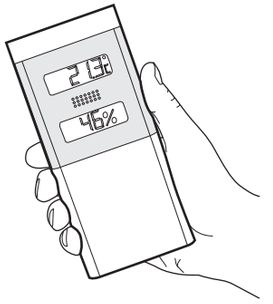
Adhesive and recommended membrane:

- Finitec PVA Type II wood flooring glue
- Finitec Premium membrane

Preparing the environment

Laying the floor should be the last step of your project. Even before the flooring is delivered, make sure that:

- Your house is closed, with all doors and windows installed
- Concrete, plaster, paint, and the subfloor are completely dry
- The heating or ventilation system is working properly and that the conditions inside your home have been kept at an approximate temperature of 20 °C (70 °F) and a relative humidity between 35% to 50% for **at least one week**
- The floor of the crawl space (if there is one) is completely covered by 6–8 mil black polyethylene film



The installer and buyer are jointly responsible for checking the subfloor moisture level. If the moisture level is too high, postpone floor installation. Speed up drying with extra heating and ventilation devices, then conduct a new test a few weeks later.

The installer or homeowner must verify the moisture level of the subfloor (plywood or OSB) in various locations using a wood moisture meter[4]. The subfloor moisture level must not exceed 12%, and the difference between the subfloor and floorboards must not be greater than 4% of the floorboards' internal moisture level, which is 6% to 9%. If the subfloor moisture level or floor/subfloor difference is too high, provide the site with more heat and ventilation and delay floor installation.

For concrete slab subfloors, allow a minimum of 30 days drying time for a reliable moisture reading. **Readings must not exceed 4.5% with a concrete moisture meter** (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 / 1000 sq.ft. (1.36 kg X 92.9 m²) /24 hours.** If the reading exceeds 3 lb. (1.36 kg) but is under 7 lb. (3.2 kg), install a waterproof membrane.

- Create a skim coat moisture barrier by applying an over the entire subfloor surface with a flat trowel. Use according to manufacturer directions.
- For users of Taylor 2071 Tuff X-Link adhesive, apply Taylor 2022 X-Treme Concrete Sealer according to manufacturer directions.

Never install a hardwood floor if the calcium chloride moisture test reading exceeds 7 lb./ 1000 sq. ft. (3.2 kg X 92.9 m²)/24 hours.

Once conditions are right, bring the boxed floorboards to the installation site. Open a box to check product species, grade, color, size, and quality. If everything is fine, if all job-site conditions are in order, you may begin installation right away as this product does not require an acclimation period. Please advise your dealer immediately of any problem. To avoid any variation in internal wood moisture levels before installation, avoid exposing the boxes to rain or snow. Never store boards in unsuitable locations such as a shed, unheated garage, or basement.

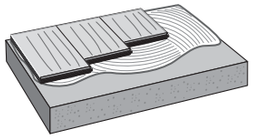
4 You can rent this device at your dealer or a rental center.

Installation techniques for laying floorboards

- Install your floor under good lighting conditions. This lets you balance board length and color variations in the wood.
- Open several boxes at a time to mix the strips and ensure that flooring characteristics are evenly distributed over the entire floor.
- Take precautions to not damage the finish. For example, place tools and the flooring hammer on a protective mat during installation. Vacuum frequently to eliminate sawdust and abrasives.
- Before starting installation, cut the bottom moldings around doorframes to insert the floorboards.
- Plan your project by making an installation sketch.
- Determine the installation starting point. Is it 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 your project. If in doubt, ask your Mercier dealer for advice.
- Choose the floorboard direction. It is strongly recommended you install boards at a 45° or 90° angle to the joist direction (not applicable for installation directly on concrete).
- The expansion joint is necessary to allow the wood to react to changes in ambient humidity. The expansion joints will be hidden by baseboards and quarter rounds, which will be nailed to the walls and not the floor. If baseboards are very thin or there are no quarter rounds, you may hide the expansion joints by removing a strip of drywall the thickness of a board at the base of the wall.

Steps for glued installation

Mercier 1/2'' (13 mm) *Engineered* flooring can be glued directly to a concrete subfloor, wood subfloor, ceramic tiling, or linoleum on the ground floor, second floor, or even in the basement.

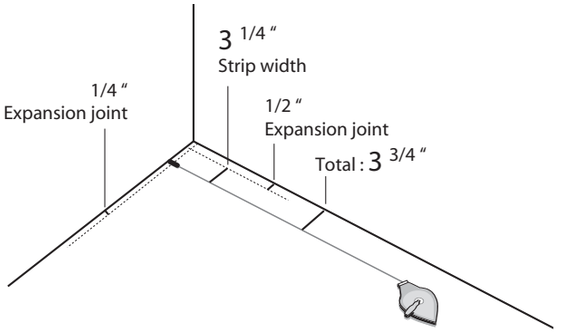


Preparing and leveling the subfloor

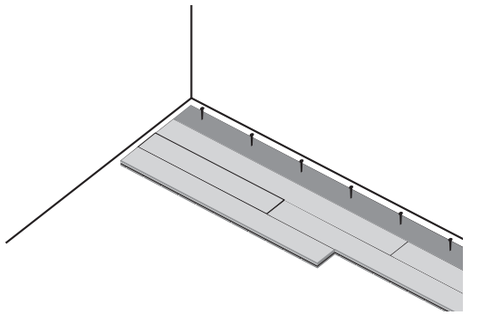
- The subfloor should be free of any surface defect. If it is not, fill gaps with leveling cement or sand uneven areas.
- The subfloor must be level, i.e., a slope no more than 3/16'' (5 mm) / 10' (3 m).
- The surface must be clean and free of contaminants such as grease, dust, oil, nails, staples, or other.
- On vitrified surfaces (high gloss ceramic tile) covered with paint or waterproof sealant, sand with emery paper so that concrete adhesive will adhere.
- For concrete slab installation, ensure that concrete is not low-density (under 3000 psi) or friable.
- Where applicable, ensure that ceramic tiles, acoustic membranes, or former floor coverings adhere firmly to the subfloor.

Installing the strips

- Use a chalk line to trace a starting line parallel to the starting wall at a distance of 3 3/4'' (95 mm) (i.e., the width of a strip plus the 1/2'' (13 mm) expansion joint. The space between the wall and the starting will be the last section of floor laid.



- Nail the guide strips along the starting line on the side closest to the wall. The strips will serve as a guide for the first rows of strips.



- Be sure to start straight and square.
- Lay out 4 to 5 rows of boards ahead of time that match in terms of joints and color. Cut boards 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 by the manufacturer in order to apply the proper quantity of adhesive.**
- Install the first board along the starting line with the tongue facing you and the groove facing the starting wall. Always keep a 1/4'' (6 mm) expansion joint at row ends.
- Do a few small sections at a time to ensure the adhesive does not dry before the strips are laid.
- Proceed from left to right to install the other strips in the row
- The last board in the row will have to be cut. An easy way to measure the length of the board that will finish the row is to turn it lengthwise to quickly establish the cut mark. The remainder (leave at least 6'' (15.2 cm) in length) will serve to start the next row.
- For subsequent rows, insert the tongue end into the groove and lower the strip 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 strips remain firmly in place.
- Use a 100-150 lb. (45.4-68 kg) 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'' (15.2 cm) / 8'' (20.3 cm) from the previous row and alternate board length.
- Once the entire surface is covered, remove the guide strips and lay strips in the 3 3/4'' (95 mm) space left at the start of installation.

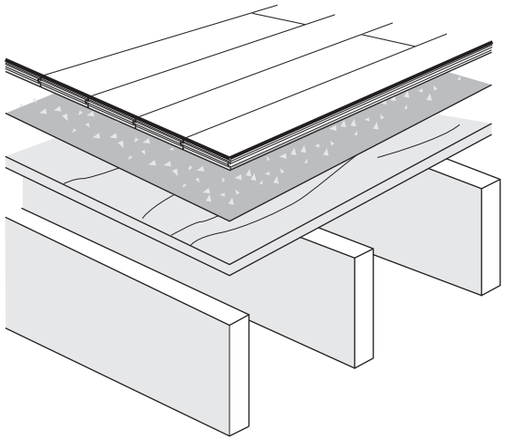
Important: During installation, immediately wipe any adhesive from the floor surface using Bostik's Ultimate solvent and towels or Taylor wipes. Use paint thinner if adhesive persists.

Steps for nail installation

Nail installation is only used with oriented strandboard (OSB) or plywood subfloors. Mercier recommends using 3/4'' (19 mm) OSB or plywood on joists spaced no more than 19.2'' (48.3 cm) apart, center to center.

Preparing and leveling the subfloor:

- The subfloor 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 subfloor surface must be level. The difference in level must not exceed 3/16'' (5 mm) over a distance of 6' (1.8 m). 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 subfloor 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'' (76 mm) / 4'' (102 mm). Drive in staples. **Do not use felt paper if the floor has a radiant heating system or acoustic membrane.**



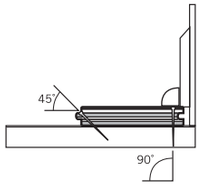
Using the nailer

- Practice using the floor nailer on a scrap board. Follow the safety tips and instructions of the nailer manufacturer.
- Clean the nailer 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 (about 80–90 psi). Follow the safety tips and instructions of the nailer manufacturer.

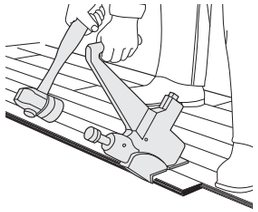
Steps for nail installation

- Use a chalk line to trace a starting line parallel to the starting wall at a distance of 3 3/4'' (95 mm) (i.e., the width of a strip plus the 1/2'' (13 mm) expansion joint.

- Be sure to start straight and square.
- Lay out 4 to 5 rows of boards ahead of time that match in terms of joints and color. Cut boards with imperfections or place them in less visible areas.
- Install the first board along the starting line with the tongue facing you and the groove facing the starting wall. Always keep a 1/4'' (6 mm) expansion joint at row ends.



- The first row should be handnailed. Drill holes at a 90° angle on the surface of the boards as close as possible to the wall and fasten them with finishing spiral nails. Drive nail heads in with a nail driver. Then, drill holes at a 45° angle in the tongue (male part) and fasten with finishing spiral nails.
- The last board in the row will have to be cut. An easy way to measure the length of the board that will finish the row is to turn it lengthwise to quickly establish the cut mark. The remainder (leave at least 6'' (15.2 cm) in length) will serve to start the next row.



- Use the manual or pneumatic nailer for the next rows. The boards should be nailed at every 6'' (15.2 cm). Fasten each board with at least two nails. Never nail less than 2'' (51 mm) from board ends, to prevent the tongue from splitting.
- You may need to use a tapping block for best tongue and groove fit.
- For best results, stagger the joints 6'' (15.2 cm) / 8'' (20.3 cm) from the previous row and alternate board length.
- The final boards should be installed the same as the first boards. You may have to rip the last row lengthwise to leave a 1/2'' (13 mm) expansion joint.

Steps for Floating Installation

Mercier 1/2'' (13 mm) Engineered flooring can be safely installed using a floating installation method provided the following instructions are followed.

Preparing and leveling the subfloor

The subfloor must be free of any surface defect. If it is not, fill gaps with leveling cement or sand uneven areas. The subfloor must be level, i.e., a slope of no more than 3/16'' (5 mm) over 10' (3 m). The surface must be clean and free of contaminants such as grease, dust, nails, staples, etc.

Installing the underlayment

Roll out or place the underlayment on the subfloor according to the manufacturer's recommendations.

NOTE: For installation over concrete or below grade, Mercier recommends the use of Finitec Premium vapor barrier.

Installation of boards

The first few rows of the floor are the most important. They should be straight and all the joints need to fit perfectly. Use clamps or straps to keep all the connections tight. You need to keep the boards you've already installed from coming apart when you tap the next ones into place.

Choose the longest strips possible in order to make the first row as straight as possible against the longest and straightest wall.

Install the first board along the starting line, the tongue toward you and the groove toward the starting wall. Be sure to leave a 1/4'' (6 mm) expansion joint at each end of the row. If the wall is not square, use wedges or shims between the flooring strips and the wall to achieve the required 1/2'' (13 mm) expansion joint.

- Carefully apply glue to the top of the tongue, covering its entire length and width.

NOTE: It is very important to follow the proper gluing instructions. Insufficient or improperly applied glue can cause the joint to come loose, while too much glue can make the job unnecessarily difficult. Apply a smooth and even ribbon of glue at least 1/16'' (1.6 mm) but not more than 1/8'' (3 mm) wide.

Install the remaining strips in the row, proceeding from left to right.

Wipe away any excess glue immediately with a dry cloth.

The last board in the row will probably have to be cut. A simple way to measure the length of the last board in the row is to turn it lengthwise to quickly establish the cut mark. The remaining portion (leave at least 6'' (15.2 cm)) can be used to start the next row.

Continue the same way for the rest of the floor.

It may be necessary to use a special tapping block in order to get the boards to fit tightly together.

For best results, stagger the joints 6-8" (15.2 - 20.3 cm) with the preceding row and alternate the length of the boards;

You may need to use blue 3M tape to hold the pieces in place while the glue sets.

Rip the boards for the last row to the required width, taking the 1/2'' (13 mm) expansion joint into account. Use a prybar to get the boards well seated into each other.

Use shims between the walls and the flooring to keep the boards in place while the glue dries. Remove the shims 24 hours after the floor is laid.

IMPORTANT

Unlike flooring that is nailed or glued to a subfloor, the pieces of a floating floor do not expand or contract individually but as a whole. That means that when the floorboards expand or contract, the floor reacts as a whole unit. That is why it is very important to maintain an expansion joint along walls and around any vertical obstacles.

Installation on a radiant floor

Mercier 1/2'' (13 mm) Engineered flooring, **with the exception of Brazilian Cherry (Jatoba)**, can be installed on a radiant heating system on the ground floor, second floor, or in the basement by following the instructions below. As there is a wide array of systems on the market, each with its own features, it is recommended that you consult your radiant flooring dealer to ensure your installation method is the right one. Wood floors can be successfully installed on radiant floors, provided you know how the latter work and how they may interact with flooring.

Preparing the subfloor for concrete slabs with a radiant system is the same as for slabs without such a system. Follow the instructions in the Glued Down or Floating Installation section.

Preparing the subfloor for a beam and joist floor with a radiant system is the same as for a conventional system. Follow the instructions in the Nail Installation section. With this type of system, it is important to ensure that fasteners are not so long that they penetrate and damage the heating elements.

Precautions and recommendations:

1. Heat the installation site for 5 to 6 days before board delivery, regardless of the season, to remove residual moisture in the subfloor.
2. Ensure that ambient humidity and temperature are the same as when the area is occupied.
3. The radiant floor surface must never be warmer than 85°F (29.44°C) during installation or while the floor is in use.
4. To minimize sudden fluctuations in ambient humidity and temperature that could impact wood moisture levels, it is recommended that you install 3 thermostats. The first is to mo nitor the temperature of the underfloor radiant system, the second is to monitor room temperature, and the third is to monitor temperature outside the room. This combination allows rooms to warm gradually in relation to outside temperatures.

Special situations

Transition molding

During installation, you may have to use nosing and reducer moldings, which are generally nailed or glued to the subfloor. You can use a slip tongue (thin strip of wood inserted into groove and glued with wood glue) to join moldings to floorboards. **Before installing the floor, it is recommended that you select boards that are a good match with the moldings to ensure an appealing visual transition.**

Acoustic membrane

An acoustic membrane can be installed between the subfloor and Engineered flooring for noise reduction. Engineered floors can be glued directly to an acoustic membrane that has been glued to a concrete slab. Mercier recommends Tech 3500, Tech 5000, and Tech 7000 membranes by Acousti-Tech (1 866 889-0001)

Finishing and upkeep

You can hide the small holes left by finishing nails with a Mercier wood putty.

1. Fill the hole with the wood putty.
2. Wipe excess wood putty immediately with a clean cloth and Mercier cleaner.
3. Apply a thin coat of urethane to the surface.
4. Let dry for about an hour.

Once installation is done, vacuum the floor and clean with Mercier cleaner and the specially designed mop.