

ENGINEERED HARDWOOD GENERAL INSTALLATION INSTRUCTIONS

WARNING

Prior to installation, please ensure that the product received is the correct style and color as well as to the customer's satisfaction. If there are any doubts, do not install the flooring and contact the retailer. Beaulieu will not be held responsible for any costs relating to the installation of unsatisfactory or incorrect product.

ACCLIMATION

Acclimation is a required procedure prior to the installation of engineered hardwood. Store the UNOPENED BOXES in the room where the flooring is to be installed for at least 48 hours prior to installation. Always store the boxes on a flat and level surface; never store the boxes on their sides. Heating and air conditioning should be operational and set between 65 °F - 85 °F (18.3 °C - 29.4 °C) and relative humidity in the room should be 40% - 60% for the acclimation and installation period.

AFTER INSTALLATION

To prevent damage, flooring should be one of the last items to be installed in a building/renovation project. If other trades must complete work after the floor has been installed, rosin paper or cardboard must be used as protection and completely cover the flooring in its entirety. NEVER USE ANY ADHESIVE TAPE DIRECTLY ON THE FLOORING AS IT CAN DAMAGE ITS FINISH. It is imperative to clean the flooring prior to the installation of protective material because it can trap debris underneath and cause damage. Do not use plastic film or other non-breathing protective coverings because they can produce condensation that can damage the flooring.

Remove expansion spacers and reinstall quarter round moldings or baseboards to hide the expansion space between the flooring and the wall.

HOMEOWNER OBLIGATIONS

To maintain warranty coverage and ensure fast and easy warranty service, the homeowner is responsible for the following:

- Keep five (5) planks of the engineered flooring product after installation for testing purposes.
- Keep and be able to provide the original sales receipt or documentation illustrating proof of purchase and installation date of the product.
- Make sure the flooring is installed according to Beaulieu Installation Instructions.
- Keep a list of cleaners used to maintain the flooring.

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TONGUE AND GROOVE FLOATING FLOORING

TOOLS AND MATERIALS REQUIRED

- Safety glasses and dust mask;
- Table type power saw with dust collector, circular saw with (40 to 60 teeth) carbide tipped blade (thin kerf) or a power jigsaw or handsaw;
- Handsaw or door jamb saw for door jambs;
- 5/16" (8 mm) spacing wedges;
- Pull bar, hammer and tapping block
- Recommended adhesive
- Glue scraper or clean damp cloth
- Non-marring blue painters tape
- For installations over concrete or cement type substrates, a vapor barrier with a maximum thickness of 1/8" (3.2 mm) is required (See 'Concrete subfloor' below).

THE SUPPORTING FLOOR

Beaulieu engineered hardwood flooring can be installed on most existing floors, wooden, PVC, and concrete floors. All carpeting and padding needs to be removed. Make sure that the surface is clean, dry, and flat (3/16" – 5 mm over a 10' – 3 m span) with gradual change. Supporting floors must be rigid as too much deflection can result in a failed installation. Surface temperature of the substrate must be maintained between 18,3 °C (65 °F) et 29,4 °C (85 °F), 48 hours prior, during and after the installation.

Wooden subfloor

Wooden and wood-based materials (plywood, OSB, particle board) must be dry, with a moisture reading between 6 – 12% (this should be checked with a moisture meter). Wooden subfloors must not have moisture reading greater than 12%. Ensure that the boards of the subfloor are properly fastened to the supporting beams and that you do not have any squeaking or depressed areas. Patch if needed and fill depressed areas with floor levelling compound. Raised areas must be sanded down. The subfloor must be level and flat to within 3/16" (4.7 mm) over a 10' (3 m) span or 1/8" (3.2 mm) over a 6' (1.8 m) span. Traditional floor joist systems cannot be spaced more than 16" (40 cm) apart; engineered floors truss systems must meet all manufacturer and building code requirements. Surface temperature of the substrate must be maintained between 18,3 °C (65 °F) et 29,4 °C (85 °F), 48 hours prior, during and after the installation.

Concrete subfloor

All types of concrete floors, light concrete floors or ceramics, demand a moisture inhibiting membrane (vapor barrier). Attached underlayment does not qualify as vapor barrier. Use a polyethylene film of 6-8 mils (0.15 – 0.2 mm). This vapor barrier must be applied with a minimum of 8" (20 cm) overlap and taped with a waterproof tape and turned about 2" (5 cm) up the wall. You will also need a separate underlayment material with a maximum thickness of 1/8" (3.2 mm). A vapor barrier can be incorporated into the separate underlayment; however it must be sufficient enough to qualify as a moisture barrier. Check with the underlayment manufacturer's specs. Concrete subfloors must be at least one month old prior to installation, and should be tested for excessive moisture. Surface temperature of the substrate must be maintained between 18,3 °C (65 °F) et 29,4 °C (85 °F), 48 hours prior, during and after the installation.

Maximum levels are:

1. Calcium chloride test of 3 lbs / 24 hours / 1 000 sq.ft.
2. 4% on the Tramex Concrete Moisture Encounter CME4

SUBFLOORS MUST BE CHECKED PRIOR TO INSTALLATION

General information

For Beaulieu engineered hardwood flooring to be installed as a floating floor, you must leave an expansion gap around the perimeter of the room of 5/16" (8 mm) to prevent binding of the flooring. This applies to any obstructions (columns, pipes) in the installation as well. Door jambs should be undercut to allow 5/16" (8 mm) expansion or the appropriate space left and filled with sealant. Installations greater than 20' (6 m) width wise and 40' (12 m) length wise will require the use of transition moldings to provide proper expansion space. Doorways less than 4' (1.22 m) wide also requires transition moldings. Remove base moldings. If necessary, the boards in the first row can be cut to a narrower width to ensure the boards of the final row are at least 2" (5 cm) wide. Before installation, clean, sweep or vacuum the subfloor so it is free of dirt and debris. Check the moisture in the subfloor using a moisture meter or another approved method. The subfloor must be flat. Deviations in the subfloor have to be levelled to within 3/16" – 5 mm over a 10' – 3 m area by either filling or sanding.

RADIANT HEAT

Radiant heat systems must be operating for a minimum of 3 weeks prior to the installation of Beaulieu engineered hardwood floor. The system should be turned off at the time of the installation, or, if in winter, should be set at exactly 65 degrees Fahrenheit (18.3 °C) for a minimum of 48 hours prior to installation. After the installation is complete, or when turning on the radiant heat system from a cold start, the operating temperature may be increased by a maximum of 5 degrees Fahrenheit in a 24-hour period. The maximum allowable surface temperature for engineered hardwood floors is 80 degrees Fahrenheit (27° C). Do not use Beaulieu engineered hardwood flooring with systems that expose the floor to wide variations in temperature, such as hotwire induction mat systems. The installation area of the engineered hardwood flooring shall not contain heated and non-heated areas, unless expansion joints separate them. A vapor barrier is required for all radiant heat systems installed in concrete or self-leveling compound. Keep in mind that loose rugs or carpets may accidentally function as heat insulators and raise the temperature to more than the tolerated maximum surface temperature of 80 degrees Fahrenheit (27° C).

LAYOUT AND MEASURING

First, determine which way to run the planks. Rules of thumb are:

1. Lengthwise in the longest direction of the room.
2. Flooring looks better if it runs in the same direction as the main light source.
3. To avoid straddling a door jamb with a plank, use a T-molding or measure back to the starting wall to ensure a plank connection within the door jamb area. It is recommended that you will not end up with a narrow strip at the end that is less than 2" (5 cm) wide on any wall in the room. It is

recommended to cut the first and last rows so they are equal in width. Undercut all door jambs so that the flooring will easily slide underneath them. Using a scrap piece of flooring and underlayment as guide, undercut the jambs with a jamb saw or regular handsaw. Always leave an expansion space between the flooring and all walls or other fixed objects.

SCANNING AND MIXING PLANKS

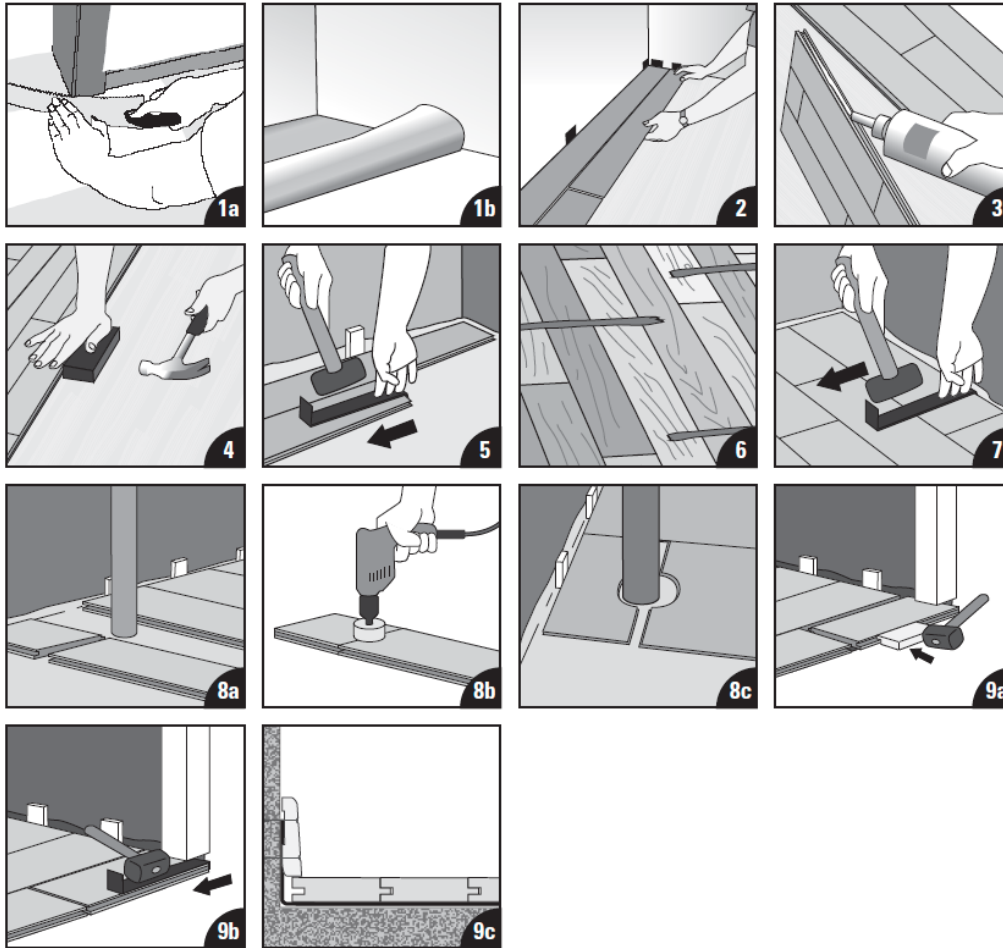
Notice to installer

Planks showing visible defects should never be installed. These boards should be put aside and used for cuts or submitted for a product claim. Claims resulting from the installation of such boards will not be honored. For best results it is recommended that material be mixed from three or four boxes when installing Beaulieu engineered hardwood flooring. Do not put like planks next to each other and randomly stagger end joints for best visual appeal.

Cutting the planks

When cutting engineered hardwood flooring with a circular saw, it is recommended to cut with the decorative side down. When using a table saw, jig saw or handsaw, cut with the decorative side up.

- Remember that airborne wood dust can be explosive hazard and an irritant to eyes, skin and the respiratory system. Use dust collectors on power tools, wear appropriate clothing and an approved dust mask.
- Always start a row with a plank at least 12" (30 cm) long and ensure the minimum end joint offset is 12" (30 cm) apart.



LAYING INSTRUCTIONS

1. Getting started

Check the boards before you start to make sure that they are not in any way damaged or have quality defects. After cleaning the subfloor, you may roll out the first sheet of vapor barrier (if required) and/or underlay material.

2. First two rows

Dry-lay the first two rows prior to gluing. Start installation of the boards in the right-hand corner, groove side against the wall. Make sure to place your spacing wedges along the walls as you go. If the wall is uneven, the floorboards must be adapted to its contours. To do this, remove the first row. Cut the floorboards as required and then re-lay them.

3. Applying the glue

Cut applicator tip at 45° angle with a utility knife. Apply glue to the bottom of the groove along the entire lengths and on the end of each plank, but never completely fill the groove.

4. Start gluing

Installation and gluing sequence is critical and provides stability to the first two rows. Misaligned starter rows can ruin the entire installation. Start by gluing the first plank in the second row to the starter row. Use a tapping block and a hammer to push glued planks together until no gaps are visible. Immediately wipe away any excess glue with a clean damp cloth.

5. Continue gluing the first two rows

Glue the next plank in the first row to the one previously glue to first plank of the second row by applying glue only on the end of the plank. Tap the planks together with a tapping block and hammer. Always remove squeezed up glue immediately with a glue scraper or a clean damp cloth. Then glue the second plank of the second row into the one you just glued in the first row and apply glue to both the length and the width edges. Keep alternating between the first and second row until you reach the left-hand side of the room. When gluing the last plank, use a pry bar to pull the ends of the planks tightly together.

6. Continue laying the floor

Open several boxes at a time and mix planks from different boxes for best results and overall look. Visually inspect flooring for defects prior to installing. Stagger planks to ensure the end joint offset is always at least 12" (30 cm) apart. Starter planks can be taken from the cut piece of the previously installed row. Once the first strip of underlayment is covered, install the second one. Remember to put the spacing wedges as you go.

7. Laying the last row

To lay the last row, measure and cut the board. Do not forget to leave the 5/16" (8 mm) space along the wall and use a pry bar to pull the planks tightly together. Allow a minimum of twelve (12) hours before removing all spacing wedges and allowing foot traffic.

8. Holes for pipes

Measure the diameter of the pipe and drill a hole that is 5/16" (8 mm) larger. Saw off a piece and lay the board in place on the floor. Then glue the sawed-off piece in place.

9. Door molding and skirting

Lay a board and underlayment (with the decorative side down) next to the door molding, leave an additional 5/16" (8 mm) space and saw. Then slide the floorboard under the molding and glue to previous row. Install the moldings over the underlayment, and vapor barrier if applicable, that runs up the wall from under the floor. Never attach the molding to the floor. This method allows the floor to expand and contract under the molding.

Recommended adhesives:

Roberts 1406 (also QEP 1406)

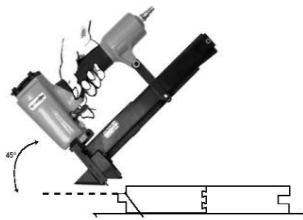
Titebond Tongue and Groove Glue

FOR STAPLE/NAIL DOWN FLOORING**TOOLS AND MATERIALS REQUIRED**

- Safety glasses and dust mask
- Broom or vacuum
- Chalk line
- Table type power saw with dust collector, or circular saw with 40 to 60 teeth carbide-tipped blade (thin kerf)
- Pneumatic floor stapler and recommended staples and nails
- Pneumatic brad nailer
- Handsaw or door jamb saw for door jambs
- PVA wood glue
- 3/16" (10 mm) spacer blocks
- Pull bar, hammer and tapping block
- Embossing leveler/floor patch (if necessary)

SUBFLOOR PREPARATION**Wood subfloor**

- All wood subfloor components must not exceed 12% moisture content.
- Moisture readings between subfloor and flooring must be within a 2% variance of moisture content.
- Surface temperature of the substrate must be maintained between 18,3 °C (65 °F) et 29,4 °C (85 °F), 48 hours prior, during and after the installation.
- Wood subfloors should be a minimum of 3/4" (19 mm) thick, APA approved grade tongue and groove plywood or 23/32" (18.25 mm) OSB, with a smooth finish, free from spring and deflection.
- **Particleboard, Luan or pressure treated plywood are not acceptable subfloors**, remove or cover them with 3/8" (9.5 mm) plywood.
- Staple/Nail down installations are not recommended with radiant heat floor systems.

**NAILING TIPS**

- Test nail a couple of planks in a well-lit area.
- Place fasteners on tongue side that runs the length of the planks. Do not place fasteners into the groove.
- If the staples do not go in far enough, raise the air pressure on the compressor up slightly and re-test until staples sit flush into the wood above the tongue.
- If the staples go in too deep, lower air pressure until staples sit flush above the tongue. Some floor staplers have the ability to adjust the depth of the fastener and may require adjusting for the staples to sit correctly.

- Tongue fractures can be reduced by lowering the compressor's PSI and by using the recommended floor stapler.
- Dimples can be reduced by placing the floor stapler correctly on the board or using thinner gauge fasteners like 20-gauge staples. Make sure the staples are sitting flush in the wood or dimples can occur.
- Only use pneumatic floor staplers designed for engineered wood flooring. Stanley Bostich, Powernail, and similar engineered floor staplers are acceptable.
- Check for squeaks after nailing. Squeaks can occur due to tongue fracture, uneven subfloor, improper fasteners, or improper fastener spacing. Squeaks can be corrected or minimized by adding wood glue to the tongue and groove of the plank before nailing.
- It's best to pre-drill and hand nail the first row using a 3/32" (2 mm) drill bit and 6d finish nail. This will help prevent finish chipping due to the use of a pneumatic stapler or brad nailer.

FASTENER GUIDE FOR ENGINEERED HARDWOOD

- For flooring up to 15/32" (12 mm), use 1 1/2" (38 mm) 16 or 18 gauge staples or nails.
- For flooring over 15/32" (12 mm), use 2" (50 mm) 15.5 or 16 gauge staples or nails.

Fastener Spacing

Place fasteners 4" - 6" (10 cm – 15 cm) apart within 1" - 2" (2.5 cm – 5 cm) from each end. All planks must have a minimum of two fasteners.

Note: Only use floor staplers that are fully adjustable and that engage the top profile over the tongue at the appropriate angle. Make sure that the floor stapler is in good working condition and sits properly against the board to prevent surface damage. Test and adjust air pressure to ensure proper setting of fasteners. Any damage occurring during installation is not covered by the Beaulieu warranty.

GLUE-ASSISTED NAIL-DOWN INSTALLATION METHOD

1. Where mechanical fasteners on a nail-down installation are the primary installation method, the nailing schedule should remain the same as normal installation for the flooring being installed. The addition of adhesive is not intended as a replacement fastener mechanism, rather supplemental to the mechanical fastener.
2. Due to the reduction in the amount of fasteners used per square foot of flooring width, wide plank (>5" widths) solid and engineered wood flooring should be installed using the glue-assisted installation method.
3. The adhesive used should be a wood flooring adhesive with elastomeric qualities to allow for normal movement within the flooring system. The adhesive must also be compatible with the subflooring and any liquid-applied vapor retarder system used.
4. The wood subfloor must be thoroughly vacuumed, and free of any debris to ensure adhesion between the subfloor and the wood floor.
5. Test the adhesive to determine the most effective application method, and for compatibility with the subfloor. The adhesive application method should add supplemental holding power to the installation.
6. The wood flooring adhesive may be applied to the subfloor or the backside of the board itself in a variety of methods to supplement the mechanical fastener.

- a. With any of the following application methods, use a notch trowel, or apply a continuous, minimum ¼" wide, uniform bead of adhesive directly to the subfloor, or to the back of the board using a glue gun to dispense the adhesive.
- b. The adhesive should be applied in a manner that covers the entire width and length of each plank, to within a minimum of 1" from the edges and ends of each board.

INSTALLATION PREPARATION

- Use a manual or electric jamb saw to undercut all door jambs and casing to allow enough clearance for the flooring to easily slide underneath. A credit card thick gap between the top of the flooring and bottom of the door jamb is acceptable.
- Make sure that the surface is clean, dry, structurally sound and flat within 3/16" per 10 foot radius or 1/8" per 6 foot radius (4.7 mm per 3 m / 3.2 mm per 1.8 m). Supporting floors must be rigid as too much deflection can result in a failed installation. Maximum deflection should not exceed 3/64" (1.1 mm).
- Sweep or vacuum the subfloor clean of dust and debris.
- Install moisture resistant underlayment, and staple it down to prevent movement/sliding.

NAIL DOWN INSTRUCTIONS

- Nail flooring perpendicular to the floor joist.
- When nailing over existing solid wood, an additional 3/8" (9.5 mm) plywood must be installed.
- Make sure that the starter rows are straight and square to the room.

STEP 1: THE FIRST THREE ROWS

- 1) Determine the starting wall, usually the longest or outside foundation wall. At the two opposite ends of this wall, measure out the width of the board including the tongue, plus the expansion space, and place a mark. An expansion gap must be left around the perimeter and at all vertical obstructions. This gap will be the same as the thickness of the new flooring. For example: 1/2" (12.7 mm) flooring requires 1/2" (12.7 mm) expansion gap.
- 2) Snap a chalk line connecting the two marks. Align the tongue side of the first row of planks on the chalk line with the groove side towards the starting wall, maintain the expansion space.
- 3) Install the flooring with the tongue side facing away from the starting wall. Use long straight planks for the first two rows.
- 4) Drill and nail the first row of planks using a 3/32" (2 mm) drill bit and 6d finishing nails about 1" (2.5 cm) from the back edge. Pneumatic or brad nailer can also be used. If hand nailing, countersink the finish nail using a nail punch and fill with matching wood filler. Depending on the width of the product being installed, nail the second and third rows using the floor stapler, and place the staples flush with the tongue. Make sure that these rows are completely straight and square to the room before proceeding with the installation.

STEP 2: MIXING THE PLANKS

Ensure that all boxes are of the correct product and when installing, open several boxes at a time and mix planks from different boxes for best results and overall look. Visually inspect flooring for defects prior to installing. Stagger planks to ensure the end joint offset is always at least 12" (30 cm) apart. Starter planks can be taken from the cut piece of the previously installed row.

Note: When installing planks that have the same length, be mindful of stair step patterns. Mix the starter planks randomly.

STEP 3: INSTALLATION CONTINUED

Continue nailing until you get to the last two rows. The last one or two rows may have to be hand nailed. Again, drill using a 3/32" (2 mm) drill bit and 6d finishing nails. The last rows can be pulled tightly together using a pull bar. Protect baseboards before using these tools. The last row may have to be ripped down in width to fit. If the last row is less than 1" (2.5 cm) in width, use a PVA wood glue to join the last piece to the previous row.

STEP 4: FINISHING UP

- Fill in nail holes with matching wood filler.
- Install any baseboard or quarter-round.
- Install transition moldings if applicable.

FOR GLUE-DOWN FLOORING

Many types of floors can be glued down in many different situations. No matter the specific job requirements, there are several items that need to be addressed and followed during each installation.

Recommended Adhesives

Wooden substrate: Mapei 975 or Mapei 980

Concrete substrate: Mapei 985

Follow the adhesive manufacturer installation instructions specifically for substrate preparation and trowel selection.

For additional information please refer to the NWFA's guidelines regarding the glue down method of installation.

Please visit our website at beaulieucanada.com for the most up-to-date version of this document as it may have been revised and updated since this printed version.

Warranty Guide as well as Care and Maintenance instructions can also be found on our website at beaulieucanada.com, or you may contact your retailer.