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INSTALLATION GUIDE

INSTALLER/OWNER RESPONSIBILITY

BELLEFLOOR Engineered Hardwood Floors are manufactured by WoodWalk International Co., Ltd. to meet the highest standard for quality and beauty. While a comprehensive warranty is offered on our product, proper installation and continuing care of your new BELLEFLOOR are also essential to ensure years of enjoyment. Therefore it is extremely important that the installer and owner read this information and understand it completely prior to starting. Improper installation will void the warranty.

Hardwood is a product of nature and therefore, is not perfect. While BELLEFLOOR Engineered Hardwood Floors are manufactured to meet the highest quality standard in the industry, a defect tolerance and grading variance of up to 5% is permitted. The defects may be of manufacturing or natural type. Therefore we urge you as the final inspector to inspect for proper color, finish, style, and quality prior to installation. The manufacturer declines responsibility for any costs incurred when strip(s) with visible defects have been installed.

When ordering BELLEFLOOR, it is recommended to add approximately 5% to the actual square footage needed as an allowance for cutting waste and grading variance.

The installer and the owner of BELLEFLOOR have the final inspection responsibility as to grade, manufacture, and factory finish. The installer must use reasonable selectivity and hold out or cut off pieces with defects, whatever the cause. Use of stain, putty stick, touch-up pen, or filler stick for defect correction during installation should be accepted as normal procedure. Should a piece be doubtful as to grade, manufacture or finish, the installer should not use the piece.

INSTALLATION CONSTITUTES ACCEPTANCE

Prior to installation, the installer must determine that the installation environment and the sub-surfaces involved meet or exceed all requirements specified in this Installation Guide. The installer must make use of appropriate tools and products in preparing the sub-floor prior to installation. The manufacturer declines any responsibility for any cost incurred from or associated with sub-surface or job-site environment deficiencies.

PRODUCT SPECIFICATIONS

BELLEFLOOR Engineered product is 9/16-inch thick by 3 ½-inch wide prefinished hardwood floor strip, tongued and grooved on all 4 sides, with a Micro-bevel (eased edge) on the top surface. The strip is a 2-ply product, with a 7-ply plywood base, scored on the back. The hardwood wear layer is 1/8 inch thick.

PRODUCT USE

BELLEFLOOR Engineered product can be glued down over concrete or plywood sub floor, nailed down with blind nails (cleats or staples) over a plywood sub floor with a pneumatic stapler/nailer, or edge-glued and laid as floating floor.

BELLEFLOOR Engineered product can be installed above, on, or below grade (the outside soil line). It is not recommended for bathroom installation. This product can also be installed over radiant heat systems.

When installing BELLEFLOOR over radiant floor, Installer/Owner should consult with the retailer or inquire into NWFA guidelines for proper installation and maintenance procedures. For BELLEFLOOR, Maple, Kempas, Asian Mahogany, Mahogany Tangerine and Ironwood are not recommended for use over radiant floor.

REQUIRED TOOLS FOR PROPER INSTALLATION

Power Tools

- Table Saw, Electric Miter Saw, Band Saw, Chop Saw, Power Jamb Saw, or Jig Saw

Hand Tools

- Broom and dust pan or Vacuum
- Tape Measure
- Square and measuring tape
- Moisture meter (wood, concrete or both)
- Chalk line & chalk
- 3M Blue Tape
- Hand saw
- Hammer
- Rubber mallet
- Tapping block
- Pry bar
- Putty knife (5-inch /12.5 cm) putty
- Safety Glasses
- Filler stick and Touch-up marker
- Hardwood Floor Cleaner

Additional Items for Glue-Down

- Recommended Adhesive & Adhesive Remover
(Bostik Best®, Bostik BST®, Franklin 811 Advantage, Franklin 531 Moisture control, Stauf SMP 960 or any 100% Urethane Adhesive)
- Rags / Terry Cloth Towels
- Trowel (Follow adhesive manufacturer's instruction)
(Note: Proper trowel notching is extremely important to assure adhesive to produce a good bond between the sub floor and the new flooring.)
- Urethane Adhesive Remover
- Leveling compound (if applicable)
- 100-150 lb roller (if applicable)
- 2" concrete nails & holding block

Additional Items for Staple-Down Installation

- Pneumatic Stapler/Nailer
(High Pro AS3297 or Specialized stapler with 1 ½" staples. Adapter required for proper location of the staples along the tongue.)
- Drill
- Air Hoses
- Staples/Finishing nails (1 ½")
- 8 mil Polyethylene Vapor Barrier
- D3 Floating Floor Glue
- In-line Air Regulator
- Compressor

Additional Items for Floating Installation

- 8 mil Polyethylene Vapor Barrier
- Foam Underlayment
- D3 Floating Floor Glue
- Sound Control Underlayment such as Cork or Durason

PRE-INSTALLATION PROCEDURES

BELLEFLOOR Engineered prefinished hardwood floors should be one of the last items installed. For new construction or remodeling, the heating system must be operational, and the house must have been heated for a week (7 days) at +/- 70°F (+/- 22°C) consistently prior to installation. All work involving water and moisture (like plastering, concrete work, plumbing, etc.) must be completed and thoroughly dry. Concrete work must be completely dry (45 to 90 days old).

Check basement and under-floor crawl space to be sure they are dry and well ventilated, in order to avoid damage caused by moisture.

Below grade installation requires that all surfaces exposed to the ground must be effectively waterproofed.

The relative humidity level in your home must be maintained at 45% (i.e. between 35% - 55%) throughout the year. BELLEFLOOR Engineered is much more dimensionally stable in comparison to ¾-inch solid hardwood flooring. However, wood is a living product and will react to changes in the relative humidity. Wood absorbs or releases humidity according to season, and without proper climate control, its dimension can change.

In summer, when humidity is at its highest, the wood, which then expands, absorbs the moisture. These variations can be minimized with proper ventilation, dehumidifying or heating.

In winter, on the other hand, when the heating system is on, the relative humidity level in the house is much lower. The wood releases its humidity and consequently, contracts or shrinks. It is then recommended to use a humidifier, in order to minimize extreme shrinkage effects.

Using a moisture meter, check the moisture content of the wood sub-floor. Moisture content should **not exceed 12%** and should be within 4% of the moisture content of the wood being installed. If moisture content is too high, delay installation, turn up the heating system and increase ventilation.

The installer and/or owner have full responsibility for moisture testing to ensure that the wood sub floor and the concrete slab (when applicable) are within acceptable limits.

STORAGE AND HANDLING

Unload and handle with care. Store in a climate-controlled area, on a ground-level concrete surface with at least 4 inch air space under the cartons. Flooring should not be delivered until the building has been closed in with windows and doors in place and until cement work, plastering and all other “wet” work is completed and dry. Do not open the cartons until ready to install.

PREPARATION

For new construction and remodeling:

- Remove baseboards and door sills
- Remove old floor covering (if applicable)
- Using a handsaw cut the bottom of the doorframes 9/16-inch (14 mm) in order to slide the product beneath.
- For nailed down application, sub floor should be constructed of 5/8-inch (17 mm) or thicker plywood (or 3/4-inch (23/32-inch) approved OSB), when installed over 16-inches (40 cm) center joists.

Sub floor must be:

- **Clean:** Scrape, clean, and smooth. Free of wax, paint, oil, sealers, and adhesives.

- **Structurally Sound:** Screw the sub floor securely to the joists to prevent squeaking noises. Replace any water-damaged sub flooring or underlayments. Concrete sub floor must be sound.
- **Level:** Tolerance must be flat to within 3/16-inch in 10 feet. High spots must be sanded or ground down with 3-½ open grit sand paper (if concrete sub floor). Low spots must be filled in with a proper leveling compound.
- **Dry:** Sub floor (Plywood or concrete) must be tested and within acceptable moisture content.

STEP BY STEP INSTALLATION INSTRUCTION (Glued down application)

STEP 1 – Establish a starting line

- For best visual effects, it is recommended that flooring be installed parallel to the longest wall in the room.
- Using a chalk line, draw a starting line at 38 ½-inch (98.0 cm) parallel to the starting wall. The area between the wall and the chalk line becomes your working area for starting installation, and your last installation area for completing the installation. It is very important to be working with your feet on the subfloor and NOT on the newly installed flooring during installation. Failure to do so can result in the flooring pieces moving and creating gaps at both end and side joints.
- Using straight pieces of 1x2 lumber, and 2-inch concrete nails, nail the lumber along the chalk line inside the working area as a holding block. This will hold your first row from shifting during installation.

STEP #2 – Spread the adhesive

- Apply the recommended adhesive with a trowel according to the manufacturer installation instructions (found on the adhesive pail) for the specific adhesive that is being used.
- Adhesive open times and/or flash off times bond varies for each adhesive manufacturer. It can also be affected greatly depending on the temperature and humidity.
- Hold the trowel at the 45° angle firmly against the subfloor to obtain a 45-50 sq ft per gallon spread rate. The trowel will leave ridges of adhesive and will leave very little adhesive between ridges.
- Do not spread adhesive over an area larger than you can lay in ~ 2 hours, otherwise the adhesive may become too dry for good bonding.

STEP #3 – Install the strips

- Always select your strips with care. The more deeply colored strips should be installed where they are less visible (i.e. in a closet or under the refrigerator). Pieces with flaws should be recut.
- Using the working area to install your flooring, line up the first strip with the tongue facing the wall, then press the strip into the adhesive and against the holding block. Working from left to right, lay the next strip and continue working towards the right, until you need to cut.
- Measure and cut the strip the required length to finish the first row. In order to minimize cutting waste, the selected strip to complete the first row should be long enough so that when cut will yield a remaining section of adequate length to start the next row. Leave 1/2-inch (12 mm) between the wall and the end of each strip in each row.
- Start the second row with a strip of at least 6-inches (15 cm) shorter or longer than the strip used in the first row. This will avoid aligning or clustering the end joints.
- Continue with the subsequent rows in the same manner.
- When installing strips, avoid sliding materials through adhesive when placing them in position. Engage the end joint first, lower the strip into position as close as possible to the side of the adjacent board, and slide them together.
- Care must be taken so that no adhesive gets into the groove of the strips being installed, otherwise, that strip of flooring will not fit tightly with the previous row.
- Use a tapping block to tap the strips together until the tongue and groove is flush and tight and no gaps are present at the sides and ends of adjacent planks.
- To avoid shifting or gapping of the strips during installation, use 3M blue tape to hold them together. Remove the tape within 24 hours. Avoid use of masking tape, which leaves an adhesive residue.

- After you put down a section of flooring, you may need to roll the floor section with a 100 or 150 pounds roller to be sure all strips are in firm contact with the adhesive.
- Always roll in the working time.
- Install a stocking or foam pad to the roller to avoid embossing or denting the hardwood surface.
- When you get to the far wall you will likely find it necessary to rip-saw the strips to fit the final row against the wall. Install using the pry bar and leave 1/2 -inch (12 mm) minimum expansion spaces.
- When your main area is finished, complete the installation in your working area by following the same installation procedures for the rest of the floor.

STEP #4 – Install the transition pieces

- Install any transition piece that may be needed, such as stair nosing, and reducers. These products are available prefinished to blend with your flooring.
- Reinstall your baseboards and/or quarter round moldings. Be certain to nail the moldings into the wall, not the floor.
- Always keep a few spare strips from your initial installation for possible repairs.
- Wait 24 hours before moving furniture and appliances back into the area where flooring was installed.

STEP-BY-STEP INSTALLATION INSTRUCTION (Nailed/stapled down application)

Set-up and Use of Pneumatic Staplers and Nailers

- Read and follow the manufacturer's instructions for complete set-up and operation of equipment.
- Make sure the adapter size for the pneumatic stapler or nailer matches the thickness (9/16 inch) of the flooring being installed and that the tool's adapter seats properly in the tongue of the flooring.
- Prevent any scratches and indentations on the surface of the strip by keeping the nailer plate (base) clean, free from the nicks and scratches at all times. Also by putting down the nailer on the plywood or on a piece of cardboard, not directly on the prefinished floor.
- By adopting a standing position while using the manual nailer, you will deploy more strength when you drive the nails in. Nails that are nearly embedded can be driven in place by using the hammer and nail punch.
- Hold the nailer firmly in place and hit with the rubber end of the mallet.
- Make sure the nailer base is squared and sits well on the edge of the strip, to avoid damaging the edges of the strips.
- Pneumatic nailer: Air pressure should be adjusted adequately for each species of hardwood floor installed and checked regularly (always try it before using).

STEP #1 – Establish a starting line

- Using a chalk line, draw a guideline at 3-7/8 inch (98 mm) for BELLEFLOOR 3-1/2 inch (90 mm) wide product.
- It is very important to start straight and square.
- Installing 8-mil polyethylene moisture retardant barrier between the subfloor and woodflooring can help retard moisture from below.

STEP #2 – Install the floor

- Always select your strips with care. The more deeply colored strips should be installed where they are less visible (i.e. in a closet or under the refrigerator). Pieces with flaws should be recut.
- **Before nailing or stapling, apply a T&G D3 glue in the board's side and end grooves. This is achieved by applying beads of glue on the top side of the groove along the entire length and along the end of each strip. Turn board upside down when applying glue to get the result.**
- Use the longest, straightest strips available for the first row. Align tongue of first row on chalk line. The groove should be facing the wall. Put nails as near the wall as possible, this way, the base shoe molding will cover the nail's heads.
- The first few rows must be nailed down by hand rather than with the nailing machine because of the vertical wall obstruction. Nailing interval should be at 6 inch.

- Measure and cut the strip the required length to finish the first row. In order to minimize cutting waste, the selected strip to complete the first row should be long enough so that when cut will yield a remaining section of adequate length to start the next row. Leave 1/2-inch (12 mm) between the wall and the end of each strip in each row.
- Start the second row with a strip of a least 6-inch (15 cm) shorter or longer than the strip used in the first row. This will avoid aligning or clustering the end joints. Blind nail the next 2 to 4 rows normally by using finishing nails with a claw hammer and a nail punch. Nails should be put every +/- 4-inches distance along tongue.
- When the area is free from wall obstruction, you can repeat the installation using a pneumatic stapler. You must nail every 4 to 5-inch (10 to 13 cm) apart and not within less than 2-inches (5 cm) of the end of each strip.
- When you get to the far wall and faced with the vertical obstruction again, the last 4 to 5 rows will have to be installed in the same manner as the first rows. It is also likely that you may have to rip-saw the strips to fit the final row against the wall. Leave 1/2 -inch (12 mm) minimum expansion spaces.
- Finally, install the transition pieces, baseboards and/or, quarter round moldings.

STEP-BY-STEP INSTALLATION INSTRUCTION (Floating application)

Subfloor

The installer is the final judge as to whether the subfloor meets the following requirements. It is **VERY IMPORTANT** that the condition of the subfloor meets these criteria before performing this type of installation.

- The floor must be clean and free of any defects.
- The concrete floor is fully cured and dry not exceeding 2 percent. A calcium chloride test measuring 3 lbs per 1000 square feet or less is recommended.
- In case of wood subfloor, the moisture content must be 10 percent or less.
- Floors should be flat and sound, with no voids greater than 3 inches. Floor must be level within 3/16 in 10 linear feet.
- If installing over vinyl, make sure that the vinyl is secure to the subfloor.
- If installing over an existing wood floor, secure all creaking and loose floorboards with screw and install the new floor at right angles to the old one.
- Floating floors should not be installed over solid wood flooring that is glued to a concrete sub floor.

STEP #1 – Install underlayments

- Install 8 mil Polyethylene vapor barrier over entire flooring surface. Overlap sheets of Polyethylene 16 inches and tape together creating airtight seal. Run the vapor barrier 1 to 1.5 inch up the walls and secure in place with tape.
- Using foam underlayment, roll out one roll at a time over the vapor barrier. Join the foam padding sections with tape strip. Tape down any loose edges.

STEP #2 – Preparing the starter rows

- It is very important that enough expansion gap is kept between the flooring and all the walls. This is done by placing 1/2 inch (12 mm) spacers every 8 inches apart around all vertical walls. Look for walls that are not straight and use spacers as needed to keep flooring square and straight.
- Measure the width of the room – perpendicular to the direction you intend to install the flooring. The last row of flooring should be no less than 1 1/2 inch wide. If it is less, you should rip-saw the starter row narrower.

- Before starting to glue the boards, dry laid a trial layout of the first two rows of flooring. Working from left to right, install the boards with the groove facing the wall and continue working towards the right, until you need to cut.
- Measure and cut the strip the required length to finish the first row. In order to minimize cutting waste, the selected strip to complete the first row should be long enough so that when cut will yield a remaining section of adequate length to start the next row. Leave 1/2-inch (12 mm) between the wall and the end of each strip in each row.
- Start the second row with a strip of at least 6-inches (15 cm) shorter or longer than the strip used in the first row. This will avoid aligning or clustering the end joints. However, if the remaining section is shorter than 8 inches, do not install it; instead, cut a new piece to measure at least 8 inches long.
- Once you have dry laid the first two rows, remove all the boards in order. You are ready to glue your floorings.

STEP #3 – Gluing the floor

- In a floating floor installation, the flooring is not glued or nailed to the underlayment, but is glued in the board's side and end grooves only. This is achieved by applying beads of glue on the top side of the groove along the entire length and along the end of each strip. Turn board upside down when applying glue to get the result.
- The installation sequence is critical and provides stability to the first two rows. Proper alignment is imperative as misaligned starter rows can ruin the entire installation.
- Install the first row of flooring with groove facing starter wall. Use a tapping block and a mallet to gently push or tap the glued strips together until no gaps are seen and making sure that end joints are square. Never use a mallet or hammer directly on the surface of the flooring. Immediately wipe away any excess adhesive with a clean damp cloth.
- At the end wall use a pry bar, if needed, to pull the ends of the boards tight. Continue laying the floor on top of the underlayment, working left to right, tapping the strips tight together. Make sure to continue using 1/2 inch spacers along the wall throughout the installation.
- To avoid shifting or gaping of the flooring during installation, lay perpendicular strips of 3M blue tape to hold the strips together. Remove the tape within 24 hours. Avoid use of masking tape, which leaves an adhesive residue.
- The last row will most likely require cutting to width but it should be no less than 1 1/2 inch wide. To do this, place a full row of strips on top of the last row installed. Insert a 1/2 inch spacer against the wall, and using a full width strip, trace distance from wall onto final row. Cut strips for final row to designated width. Apply glue and pull into place with a pry bar.
- Allow floor to dry for a minimum of 12 hours before removing all the spacers and allowing foot traffic.
- Finally, install the transition pieces, baseboards and/or, quarter round moldings.

COMPLETING THE JOB – ALL INSTALLATION

- Clean the floor with Hardwood Floor Cleaner.
- Install transition pieces.
- Inspect final floor for nicks ore minor gaps and fill with appropriate color wood putty.
- Leave Warranty and Maintenance brochure with customer/owner.
- Unused material should be left with owner and stored in a dry place in case future repairs are needed.
- Use plywood or hardboard when moving heavy appliances or furniture across floor.

MAINTENANCE AND PREVENTION TIPS

Wood is a product of nature and therefore your wood floor will show signs of wear over time, depending on the lifestyle of your family. Here are a few tips that will help you enjoy a great looking floor longer. However, these are not intended to be an exclusive list.

- Regularly sweep or vacuum the floor to prevent sand or abrasive dust from accumulating and scratching the finish.
- Sand and water are wood's worst enemies. Place rugs inside every outside entrance of the house (to prevent sand), in front of the kitchen sink, kitchen working stations and dishwasher to protect the floor from water or oily detergent.
- Use adequate floor protection (felt pads) under all furniture and chair legs, in order to ease their movements and to prevent scratches.
- High heels, second only to water, are one of the worst enemies to hardwood floors. Keep "high heels" shoes in good condition. Damaged or worn high heels may expose a metal tip, which will certainly damage the surface finish.
- NEVER use oil-based detergent or any other household cleaners. These may dull or damage the finish, leaving a greasy film and making the floor slippery and more difficult to clean.
- NEVER use wet-mop, damp-mop, or flood your floor with water or other products. This can severely damage the flooring and will void the warranties. Do not use micro fiber mop to clean floor. The micro fibers may snag, splinter and loose grain fibers. Do not use hardwood floor cleaning machines (i.e. buffing machine).
- Light scratches are easy to deal with by using *Touch-up Kit*. Clean the damaged surface, color in the scratch with a filler stick, and apply a thin coat of polyurethane.
- Protect your floor against direct sunlight or any intense source of artificial lighting. Over time, intense light will discolor exposed surfaces. This phenomenon with wood surfaces is normal and natural. The lighter the color of the natural wood, the more apparent this phenomenon will be.
- Keep pets' nails trimmed, and paws clean
- Use a dolly and protective sheets of plywood when moving heavy objects, furniture, or appliances.
- Make sure that furniture casters are clean and operate properly (a minimum 1" width is recommended).
- Do not use rubber or foam backed plastic mats as they may discolor the floor. To prevent slippage use an approved vinyl rug underlayment.
- Maintain a normal indoor relative humidity level to between 45% and 65% throughout the year, to minimize the natural expansion and contraction of wood.
 - Heating Season (**Dry**) – humidifier is recommended to prevent excess shrinkage due to low humidity levels. Wood stove, gas heater and electric heater tend to create very dry conditions.
 - Non Heating Season (**Wet**) – An air conditioner or dehumidifier or turning on your heating system can maintain humidity during summer months.
- After a few years, you can easily restore the finish or change the color of your floor. Have a professional evaluate the condition beforehand.

SPECIAL INSTALLATION REQUIREMENTS (Radiant floor installation)

When installing BELLEFLOOR over radiant floor, Installer/Owner should consult with the retailer or inquire into NWFA guidelines for proper installation and maintenance procedures. For BELLEFLOOR, Maple, Kempas, Asian Mahogany, Mahogany Tangerine and Ironwood are not recommended for use over radiant floor.

The Installer/Owner must follow a strict guideline prescribed in NWFA guidelines. – *Special Installation Requirements – Chapter-8 – Radiant Heat Installations*. Contact your BELLEFLOOR Authorized Dealer for additional information. Here are some of the guidelines for installing over radiant floor. They are not intended to be an exclusive list.

- Sub floors must have proper moisture level and must be NWFA approved. (See NWFA guidelines Section V, AA)
- The radiant system must have been installed and tested and in operating for a few weeks prior to installation.
- The heating system must be turned off before installation.
- The surface temperature must never be over 85^o F (28^o C)
- When the radiant system is switched on, the radiant systems work most effectively and with fewer traumas to the wood floor if the heating process is gradual.
- Use adhesive approved by the manufacturer
- Expect heating season shrinkage