

## Ice installation instructions

### installer/owner responsibility:

**Relative Humidity (RH) requirements:** Engineered hardwood floors require a Relative Humidity of 35% - 50% continuously throughout the entire year. Installation over in-floor radiant heat requires a Relative Humidity of 40% - 55% continuously throughout the entire year.

- It is the installer/owner's responsibility to maintain the required RH within the recommended range throughout the year. Failure to maintain the required RH may damage the floor and void product warranty.
- Before starting installation, it is important you read all instructions and warranty information. By starting installation of this product you are agreeing that you have read and understand all installer/owner's requirements and responsibilities and are aware that deviating from the instructions and recommendations in this installation guide may result in voiding the product warranty.
- Hardwood is a natural product and may vary in color and character from display models and literature. In addition, boards may differ from one another in color and character. Verify color and character before installation. Once the floor is installed, it is deemed to have been inspected, approved, and accepted.
- It is the sole responsibility of the installer/owner, prior to installation, to assure that the planned installation area is suitable for engineered flooring and meets local building codes. Confirm that all subflooring is dry, sound, flat, and meets or exceeds all industry standards/local building codes, as well as the recommendations listed herein.
- The manufacturer accepts no responsibility for product failure extending from or related to failure to meet job area/environment and subflooring requirements. If the installation is for a newly built home or construction, the installer/owner must ensure all windows and doors are installed and that wall and floor boards are completely dry and that the homes HRV/heating/air-conditioning system is functional and running at living conditions to which the floor will be maintained. It is recommended that flooring be the last stage in a construction project.
- The installer/owner assumes full responsibility for the final inspection of this product. Inspection should be done prior to installation and should include: color, factory finish, milling, and grade. If the product is not acceptable, DO NOT INSTALL IT. Contact your supplier immediately for assistance. Flooring that has been installed will be deemed to have been inspected and quality accepted.
- Engineered hardwood flooring is manufactured in accordance with recognized industry standards, allowing for a natural or manufacturing defect tolerance of 5%; therefore, the installer/owner must use reasonable selectivity and allow for defects accordingly. Pieces of flooring with noticeable flaws are generally used for cuts or for installation in closets, along walls, or areas covered by furniture. The use of putty, stain, and filler to conceal flaws is considered normal and accepted manufacturing practice.
- If you wish to install over a radiant heating system consult with the manufacturer of your radiant heating system to ensure that it is compatible with engineered hardwood flooring. Temperature must never exceed 29° C (85° F) and changes in temperature settings must be gradual. Rapid temperature changes and/or excessive heat will damage the flooring and/or the finish. Humidity must be maintained between 40% and 55% continuously throughout the entire year. It is the responsibility of installer/owner to confirm the suitability of the radiant heating system for use with this product. Any damage to the floor caused by the radiant heating system will not be covered by the product warranty.

## Suggested Tools for Installation:

- Safety Glasses
- Saw
- Chalk Line
- Tape Measure
- 6' Straight Edge (or level)
- Shims
- Pry-bar
- Hammer
- Finishing Nails
- Flooring Nailer or Stapler (nail-down) or trowel and adhesive (glue down) or adhesive (edge glue)

## Pre-installation:

- When calculating flooring square footage requirements, allow a minimum of an additional 5 - 10% for cuts, waste, grading, and defects. If installing a diagonal or other special pattern, allow for 10% additional materials.
- Acclimatize engineered flooring for a minimum of 48 hours. We recommend you leave the products in their original packaging (straps left on each carton) until time of installation at a temperature of 68°F to 80°F (20°C to 27°C) at 35 to 50% relative humidity in the area in which the flooring will be installed. Protect flooring from excessive heat/cold or sources of high humidity during storage.

## Subfloor Requirements:

- All sub-floors must be clean, flat, and dry prior to installation, regardless of installation method. Floors installed over non-flat subfloors may squeak and/or deflect when walked on. Sweep or vacuum your subfloor immediately prior to installation ensuring there is no debris or grit, as it may interfere with installation.
- **Wooden subfloors:** Recommended ¾" CDX plywood, OSB, or boards (follow NWFA guidelines)
  - must be flat,
  - High or low areas exceeding 3/16" per 10' (5mm per 3m) or 1/8" per 6' (3mm per 2m) must be corrected.
  - Sand down high areas, fill low areas.
  - Nail or screw down any loose areas and replace any damaged sheathing (damaged, swollen or delaminating).
  - Moisture content of wood subfloors should not exceed 12% or read more than 4% difference that the engineered flooring being installed.
  - Nail/staple or glue down installations over particle board, wafer board, or chip board is not recommended.
- **Concrete:** most concrete subfloors (slabs) are not flat and must be leveled before installation.
  - In all cases, verify the subfloor using a 10' long straightedge to locate high and low areas; low areas should be filled with a self-leveling compound.
  - The moisture content of the concrete subfloor should not exceed 5%.

## Underlayment:

- We recommend the use of an underlayment for all floor installations. Floating installations **require** an underlayment. Use an approved underlayment as recommended by your local dealer suitable for your chosen installation method.
- Concrete on-grade slab/basement applications: If installing over on-grade or sub-grade concrete slabs, you must use a high performance vapor barrier to protect your floor from slab-borne moisture. Failure to use an appropriate vapor barrier over concrete slabs in these cases may void the warranty. In addition to moisture protection, your choice of vapor barrier should also offer you acoustic performance.

Condos, two-story homes, or buildings: in the case of suspended structural concrete slabs, the use of a vapor barrier is always recommended and is required only if there is a risk of slab-borne moisture. In all cases, the use of an approved acoustic membrane is recommended to minimize the transfer of sound from level-to-level and improve the comfort level of the floor. Many municipalities have building codes for acoustic membranes; consult your local building codes or condo association for FIIC and STC acoustic rating requirements.

### Installation:

- In all cases, T&G flooring should be installed perpendicular to the floor joists, unless you have added an extra sub-floor layer to stiffen the sub-floor to reduce sagging (see NWFA guidelines).
- Calculate the width of the install area and adjust the start/finish row boards to be at least ½ a board wide.
- Stagger your end-joints by a minimum of 8" to 10" and avoid "H" patterns and "stair-steps".
- Rip-cut the final row to fit, leaving a 1/2" to 3/4" (12 -19mm) gap along the finishing wall for future expansion. It should be drilled and face-nailed 1/2" (12mm) from the edge as previously outlined.

### NAIL DOWN GENERAL INSTALLATION INFORMATION:

#### Option 1 - Starting from a wall:

- Set up your starting line for your first row as follows:
  - Measure the width of the T&G flooring you have purchased, adding 1/2" (12 mm) to this width.
  - Using this measurement, make a clear mark on the floor at each end of the wall, staying a few inches away from the corner (where the wall is straight and true).
- Using a chalk-line, carefully snap a line between these two points.
- It is important to use the longest and straightest boards for the first row and medium to long lengths for the second row; this will start installation straight and true. Install these first 2 rows as shown.
- When installing the first row, note the GROOVED side of the board must be facing the wall.
- Starting 2" (5cm) from the end of the board and 1/2" (12mm) from the GROOVED edge of the board, pre-drill 1/16" holes every 6" (15cm).
- Align the tongue of the first row along the chalk-line. Using 7D or 8D nails, face-nail down the first row through the pre-drilled holes. Counter-sink nails using a nail punch. Next, blind-nail through the nailing pocket of the tongue on the first row, using 7D or 8D nails. Nails should be spaced every 8" (20cm). Use a nail punch to drive nails the last 1/4" to avoid damaging or bruising the edges of the boards. Nails must be countersunk to allow a close fit of the next board.
- Blind nail the next few rows until you are far enough away from the wall to utilize stapling or pneumatic nailing system.

#### Option 2 – Starting from the center of the room:

- Locate the center line of the room. Using a chalk-line, snap and mark the center line.
- Temporarily install a secure "guide row" of hardwood (or other straight material) along the entire length of the center line. Screw down this guide row to assure it does not move.
- Install a minimum of 4 rows of flooring along this temporary row.
- Remove the temporary guide-row and install a "slip tongue" (a solid strip of wood milled to allow reversing the direction of flooring) into the groove. Drill and nail the slip tongue into place to secure the center edge of the first row.
- Continue installation from both sides of the center of the room.
  - To affix the flooring to the recommended sub-floor, use a pneumatic nailer/stapler designed specifically for use with engineered T&G flooring. Follow nailer/stapler manufacturer instructions regarding the use of proper adapters and fasteners.
  - Correct air pressure settings are key to successful installation. Too low a pressure will insufficiently set nails/staples which will result in poorly fastened boards, damage to adjacent boards, and difficulty in

making tight joints. Too high a pressure will over set nails/staples, resulting in damaged or split tongues and/or loose and squeaky boards (see figure #2).

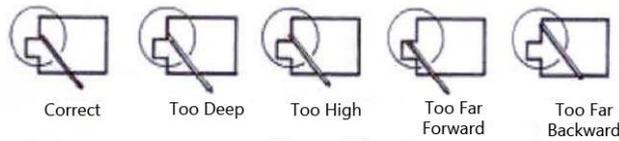


Figure #2

- To ensure even distribution of character and color, draw flooring planks from a minimum of 3 boxes at a time. Pieces of flooring with visible flaws, extreme colors, or texture should be put aside for end-cuts, use in less visible areas, or in closets.
- To ensure proper spacing of the floor, end joints should be a minimum of 4" - 6" (10cm - 15cm) apart.
- For fastener spacing, staple or cleat nail every 6-8" and 2" (5 cm) from ends of boards to minimize the risk of splitting. All planks should have a minimum of 2 fasteners.
- It will not be possible to use a mechanical or pneumatic nailing system on the last 3 or 4 full rows. Install these last rows using the same method as outlined in "Option #1 – Starting from a wall" on the tongue side of the last full boards.
- Rip-cut the final row to fit, leaving a 1/2" to 3/4" (12 -19mm) gap along the finishing wall for future expansion. It should be drilled and face-nailed 1/2" (12mm) from the edge as previously outlined.

### GLUE DOWN GENERAL INSTALLATION INFORMATION:

- For a glue-down installation, use a quality branded urethane flooring adhesive, following the adhesive manufacturer's directives for trowel type, spread rate and any special subfloor preparation requirements. In general, the subfloor must also be free of oil, grease, paint, sealants or other materials that may affect the performance of your adhesive. Check to ensure your subfloor is completely smooth. Nail and screw heads must be countersunk.
- Set up your starting line for the first row by measuring the width of the engineered floor plank. Add 3/8" (10mm) to this number and mark the floor at each end of your starting wall, (approximately 6" (150mm) away from the corners). Using a chalk-line, carefully snap a line between these two points. This will ensure your first row is straight, even if your wall isn't.
- Select the longest boards for the first two rows to ensure a straight and true installation. Apply adhesive to floor wide enough for the first two rows, using the trowel recommended by the adhesive manufacturer. Align the grooved edge of the first row of boards along the chalk line, tongue facing the starter wall. Ensure the first row is well seated in the adhesive by applying sufficient down pressure along all portions of the board. Full adhesive transfer is essential for the floor to be properly bonded to the subfloor. To correctly install each subsequent board, insert tongue of board into the next row leaving a minimal gap to board on left. Tap board into place and continue.
- We recommend you use temporary 3/8" (10mm) shims to keep the floor away from the walls, as the floor will shift during installation due to it being a "floating floor" until the adhesive sets. Place the shims every 2-3' (60-90 cm) along the starting wall, plus at the end of each of the starting rows so boards do not shift when set into place.
- Check to make sure the boards are making adequate floor contact; you can flatten the boards with weights to ensure full adhesive transfer, as required. Place the weights on a protective layer of cardboard to avoid damage to the floor. Leave weights for 24 hours.
- To keep joints tight, we recommend taping every 4 to 5 rows together with painters easy release masking tape (make certain that no adhesive residue remains on the surface).
- Remove all tape when adhesive is fully cured.
- Remove all temporary shims, sweep, & vacuum immediately.

### EDGE GLUED FLOATING GENERAL INSTALLATION INFORMATION:

- For an edge-glued floating installation, follow the directives noted above regarding sub-floor preparation.
- Floating installations may be made over most subfloors including: Plywood or OSB, ceramic/porcelain tile, smooth stone, marble, granite, and linoleum. Do **NOT** install directly over carpet.

- For installation over concrete, you must first install a moisture barrier underlay.
- For installation over an existing hardwood or engineered floor, you must ensure the old floor is properly secured down. Install the new floor perpendicular to the old floor. If you choose to install the new floor in the same direction, you must install a minimum 3/8" (10mm) approved underlayment over the top of the old floor for stabilization. Also, if the old floors are wider than 6" (150mm), it must be covered with a minimum 3/8" (10mm) approved underlayment for stabilization.
- Set up starting line for the first row by measuring the width of the plank. Add 3/8" (10mm) to this number and mark the floor at each end of your starting wall, approximately 6" (150mm) away from the corners.
- Installation in rooms over 20' (6m) wide and /or over 40' (12m') long: if you are doing a installing floating and the width of the room exceeds 20' (6m) (across width of boards) and or 40' (12m) long (across length of boards), you need to install a T-molding mid-room to allow the floor to naturally expand or contract with seasonal changes in humidity. Glue-down installations do not require mid-room T-molding installation.
- Using a chalk-line, carefully snap a line between these two points. Check to make sure there will be approximately 3/8" (10mm) between the edge of your first row of planks and the wall. This space allows for slight expansion of the engineered hardwood and will be covered by the baseboard/quarter-round.
- Layout first row of boards, selecting longer lengths, the groove should be facing the wall. Apply a continuous bead of quality flooring adhesive to the groove of the second row and set onto tongue of previous row. Gently tap the tongue to fit tight and continue. First board should start 3/8" (10mm) from the wall. Cut the last board to finish 3/8" (10mm) from opposite wall. We recommend you use temporary 3/8" (10mm) shims to keep the floor away from the walls, as the floor will shift during installation due to it being a floating floor. Place the shims every 2-3' (60-90 cm) along the starting wall, plus at the end of each of the starting rows so boards do not shift when set into place.
- Continue to install the floor in sections of 5 complete rows. After each 5 rows, again inspect the floor as outlined above. Before installing last row, again verify the entire floor for any gaps, errors or shifting.
- Ensure there is a minimum 3/8" (10mm) gap around the entire floor perimeter. Measure and cut the last boards to fit so that there is a minimum 3/8" (10mm) gap along the last wall. Remove all temporary shims, sweep & vacuum immediately.
- To keep joints tight we recommend taping every 4 to 5 rows together with painters easy release masking tape (make certain that no adhesive residue remains on the surface).
- Remove all tape when adhesive is fully cured.
- Remove all temporary shims, sweep & vacuum immediately.

**Note:** you **must** use a "T" molding transition strip between rooms. Failure to do so may cause damage to the floor and will void the warranty.

### Finishing Details:

- It is recommended that you sweep & vacuum the area immediately after installation to remove potential damaging grit and debris. A further cleaning with an approved pre-finished hardwood floor cleaner is also recommended, as required. Do not wax or use cleaning products that contain surfactants. Never wet mop or steam clean the floor.
- Baseboards and quarter rounds: replace or install new matching baseboards and quarter rounds in all areas. If baseboards and quarter rounds require finishing, it is best to pre-finish them in a separate area to avoid spilling on the hardwood or bamboo floor. Baseboards are to be nailed into the wall and quarter rounds into the baseboards. DO NOT nail either of these into the hardwood flooring.
- Transition pieces: if you have removed any transition pieces and not covered their place with engineered hardwood, reinstall them immediately.