

NAIL-DOWN INSTALLATION INSTRUCTIONS

TORLYS Hardwood Flooring

Please take a moment to review the installation instructions and plan your installation carefully. Please note that IMPROPER INSTALLATION CAN VOID WARRANTIES. Installation of 100 square feet of flooring is enough to verify quality.

IMPORTANT: this document DOES NOT apply to Marquee by TORLYS Hardwood Flooring; for specific Marquee by TORLYS Hardwood Flooring installation instructions, please check the TORLYS web site (www.torlys.com) or call TORLYS Customer Service at 1-800-461-2573.

GENERAL GUIDELINES

SET UP

To ensure you have sufficient material on hand, calculate the total area of the room and add 5% of material to allow for custom cutting. Twenty-four hours prior to installation, place the closed packages in the middle of the room, NEVER against a wall or in a corner. Do not open the packages until you are ready to begin installation. Inspect each plank before installation. If you find any defects, do not use the plank. Contact your supplier immediately.

Please Note: The TORLYS Warranty does not cover labour for installation of planks with visible defects.

IMPORTANT

Hardwood is a natural material and therefore no two planks are alike... this adds to its beauty. **Some variation in grain, colour and shade, as well as knots and mineral streaks, should be expected.** Always work from several boxes at the same time and shuffle planks for the best appearance. If you are not satisfied with the appearance of your flooring, please contact your dealer prior to installation. Do not install flooring deemed to be unacceptable. Acceptance or rejection of flooring must be made on the full shipment of flooring received and not on a carton-by-carton or plank-by-plank basis.

ATTN: INSTALLERS – CAUTION: WOOD DUST

Sawing, sanding and machining wood products can produce wood dust. Airborne wood dust can cause respiratory, skin and eye irritation. The International Agency for Research on Cancer (IARC) has classified wood dust as a nasal carcinogen in humans.

Precautionary Measures: Power tools should be equipped with a dust collector. If high dust levels are encountered use an approved dust mask. Avoid dust contact with skin and eyes.

PREPARATION

Remove existing carpet, baseboards, quarter-rounds and thresholds and undercut door jambs, using a piece of flooring material as a guide. Repair all defects in the sub-floor. Additional expansion and contraction can be achieved by undercutting drywall.

CHECK THAT:

- The job-site has been cleaned and cleared of debris that could potentially damage the finish of your TORLYS floor.
- The doors can still open and close after installing the floor.
- Doors may have to be cut to supply sufficient clearance.
- The door jambs may need to be adapted to install the floor under them.
- For aesthetic appearance we suggest that you do an accurate measurement across the width of the room to ensure that the pieces of the last row are no less than 2" (5cm) wide.

SUBFLOORS

Repair any defects in the subfloor. Installation over an uneven subfloor will cause premature damage to floor and make the floor feel unstable. All subfloors must be clean, firm, flat (within 3/16" – 4.8mm in 10ft – 3m), dry (less than 3% moisture on concrete, 10% or less on plywood) and smooth.

- **Acceptable Subfloors for Nail-down Installation:** You can lay the planks over solid and stable plywood, OSB and plank subfloors.

It is essential that the crawl space under wood subfloors is sufficiently ventilated. Remove any obstacles and provide sufficient ventilation. A 6-mil/0.15mm poly vapour barrier must be installed on crawl space floor. A freshly poured concrete slab must dry for at least 1 week per centimetre thickness, up to 4cm (1-5/8"), and 2 weeks per centimetre thickness above 4cm, with sufficient ventilation. A 6-centimetre (2-7/16") concrete slab must therefore dry out for a minimum of 8 weeks. A 6-mil/0.15mm poly vapour barrier must be installed on concrete sub-floors.

LAYOUT

The floor should be installed from several cartons at the same time, shuffling planks to insure colour and shade mix. If possible, lay the planks parallel to the source of light. The ideal environment is a temperature of 60°F - 70°F (16°C - 21°C) and relative humidity of 30 - 60%.

Maintain the humidity level at 30-60%.

Certain regions within North America have extreme changes in humidity levels, which may affect all natural floors. To maintain humidity within a healthy range, a humidifier or dehumidifier may be required.

Gapping can occur in natural floors with seasonal fluctuations and when in extremely dry conditions (Low R.H.). Wood that is too dry may "crack" or "check", and gaps between planks may occur. Wood that is too damp will "cup" or "crown".

IMPORTANT

Some species of wood are sensitive to light. It is natural for their colour to darken or soften over time.

The floor will be stronger and more stable if the joints are staggered at least 12" (30cm) in each row. Staggered or irregular joints result in less waste and enhance the overall appearance of the floor. Do not stair step the flooring across the room. Expansion wedges must be used on all walls to allow for proper expansion/contraction space. The wedges should be removed after the flooring installation has been completed, and the expansion/contraction space should be covered by baseboard, quarter round and/or drywall.

NOTE

Never hit the planks directly with your hammer or rubber mallet. Always use a **TORLYS Tapping Block** to protect the edges of the planks. Make sure the Tapping Block is in good condition. Hold Tapping Block down when using it.

PREVENTATIVE MAINTENANCE.

To ensure the full benefit of your **TORLYS Hardwood Flooring** floor and to extend its beauty for years to come, we recommend the following preventative maintenance suggestions:

- **Install floor protectors** on furniture legs to protect against scratches and dents. These furniture pads should have no wrinkles and be made of soft, non-staining material (e.g. felt pads).
- **DO NOT DRAG FURNITURE** or other heavy objects on the floor. Avoid high heels or shoes that need repair. Some types of high heel shoes can severely damage the surface of any floor covering. For minor scratch repairs, a touch-up kit is available at your TORLYS Dealer.
- Close your curtains or blinds where continuous or extreme sunlight will shine on your floor. Also UV protection in windows will help with the performance of your furnishings. A combination of heat and sunlight can cause most home furnishings and flooring to fade or change colour.

- **Sweep and vacuum floor regularly.** Use TORLYS Maintenance Kit with dust mop.
- **Avoid sand and grit build up.**

Use protective mats or rugs at doorways and areas of heavy wear. For dry maintenance, use a dust mop, vacuum cleaner or dry cloth. For damp maintenance, **use the TORLYS Cleaning Kit**, available from your Authorized Dealer, and follow the maintenance instructions on the container.

IMPORTANT

To keep your warranty valid, use TORLYS recommended maintenance products and follow TORLYS maintenance instructions.

Never wet mop your TORLYS Hardwood Flooring. Never wax or use oil-based products on your TORLYS Hardwood Flooring.

***TORLYS Hardwood Flooring is not suitable for use in damp areas such as BATHROOMS AND SAUNAS.**

NAIL-DOWN METHOD

NOTE: It is the owners/installers responsibility to ensure that the jobsite conditions and jobsite subfloor are environmentally and structurally acceptable prior to the installation of any hardwood flooring.

1) SET UP

Test wood substructures and wood flooring for moisture content using a pin type moisture meter. Take a minimum of 5 subfloor readings per room (4 corners + the middle), please ensure a minimum of 20 readings per 1000 ft² (100 m²). Calculate the average and ensure the average sub floor moisture content is 10% or less. Take readings of the flooring and verify the delta (the gradient) between the TORLYS hardwood flooring and the average moisture content of the subfloor is less than 2%.

APPROVED SUBFLOOR TYPES

Information Source: NWFA (www.nwfa.org)

Wood Subfloors Guidelines

Subfloor panels should conform to:

- U.S. Voluntary Product Standard PS 1-95 Construction and Industrial Plywood and/or
- US Voluntary Product Standard PS 2-04 and/or
- Canadian Performance Standard CAN/CSA 0325.0-92 – Construction Sheathing
- Other CSA standards also apply

Solid board subflooring should be nominal 1" x 6" (3/4" x 5-1/2"), Group 1 Dense Softwoods, #2 Common kiln dried to a maximum of 12% MC, mechanically fastened or glued.

Note: Both CD Exposure 1 plywood & OSB Exposure 1 subfloor panels are appropriate subfloor materials, the proper thickness of the materials are determined by the factors listed below:

- 1. On Truss/Joist spacing of 16" (406 mm) on center or less**, the industry standard for single panel subflooring is nominal 5/8" (15.1 mm) CD Exposure 1 Plywood or 3/4" (19 mm) OSB Exposure 1 subfloor panels.
- 2. On Truss/Joist spacing of more than 16" up to 19.2" (488mm) on center**, the industry standard for single panel subflooring is nominal 3/4" T&G CD Exposure 1 Plywood glued & mechanically fastened or nominal 3/4" OSB Exposure 1 subfloor panels glued & mechanically fastened.
- 3. Truss/Joist systems of more than 19.2" on center up to a maximum of 24" (610 mm)** the industry standard for single panel subflooring is nominal 7/8" T&G CD Exposure 1 Plywood subfloor panels glued & mechanically fastened or nominal 1" OSB Exposure 1 subfloor panels glued & mechanically fastened.

Note: all panels are 4' x 8' sheets.

- For existing wood floors, install new flooring at right angles to the existing flooring
- Do not glue, staple or nail down hardwood flooring over particle board.
- Do not install over existing glue down hardwood floors.

OTHER SUBFLOOR GUIDELINES

Existing Hardwood Flooring

- When installing any new hardwood flooring over directly over old wood or strip floors, sand any high spots. Re-nail the old floor to reduce any squeaks or loose boards.
- When nailing down the new floor the orientation of the planks should be at 90° to the old floor. The moisture content of the old floor should not exceed 10%.

Resilient Tile, Resilient Sheet Vinyl

- The only approved installation method is nail down (over wood subfloors).
- Ensure that the resilient tile or sheet vinyl is well bonded to the subfloor, remove any loose tiles or cut out any sections where the adhesion of the sheet vinyl to the subfloor is compromised. **We cannot accept responsibility for delamination of the resilient tile or resilient sheet vinyl from the subfloor. When in doubt concerning the integrity or nature of the existing resilient floor, do not install.**
- Do not install over more than 1 layer or over any resilient substrate that exceeds 1/8" thickness.

WARNING! DO NOT MECHANICALLY CHIP OR PULVERIZE EXISTING RESILIENT FLOORING, BACKING, LINING FELT, ASPHALTIC "CUTBACK" ADHESIVES OR OTHER ADHESIVES.

Previously installed resilient floor covering products and the asphaltic or cutback adhesives used to install them may contain either asbestos fibers and/or crystalline silica. If the existing resilient floor covering must be removed, see the current edition of the Resilient Floor Covering Institute (RFCI) publication "Recommended Work Practices for Removal of Resilient Floor Coverings" for detailed information and instructions on removing all resilient covering structures.

2) PRE-INSTALLATION PREPARATION

Inspect the flooring

- It is the installer's responsibility to inspect the material for colour, grade, milling and finishing; the installers **MUST** cull any pieces that may not be acceptable once installed. Examples: mineral streaks knots and wood filler these are all characteristics of TORLYS natural hardwood floors
- These pieces can, normally, still be used as starting boards or finishing boards.
- This product is manufactured in accordance with generally accepted Industry Standards, which permit a defect tolerance not to exceed 5%; Note that the defects may be of a manufacturing or natural type.

Please note: We cannot accept responsibility for any costs incurred when planks with visible defects are permanently installed.

Pre-Existing Wood Subfloor Preparation

When installing new hardwood over a pre-existing wooden subfloor it is important to identify the type of subfloor:

- Do not install over particle board
- For plywood subfloors, identify the thickness of the sheets used; refer to the **Approved Sub Floor Types** Section to determine if the sheet thickness and truss/joist center to center spreads are within acceptable guidelines. Inspect the existing plywood sheets, verify their integrity and replace any that appear to have suffered water damage. Sand down any high spots and tighten the plywood connection to the joists using 2" (50 mm) #8 screws. The moisture content of the plywood should not exceed 10%.

- For OSB subfloors, identify the thickness of the sheets used: refer to the **Approved Sub Floor Types** Section to determine if the sheet thickness and truss/joist center to center spreads are within acceptable guidelines. Inspect the existing OSB sheets, verify their integrity and replace any that appear to have suffered water damage. Sand down any high spots and tighten the OSB connection to the joists using 2" (50 mm) #8 screws. The moisture content of the OSB should not exceed 10%.
- For solid board subfloors, re-nail or screw the subfloor to reduce any squeaks or loose boards, sand any high spots.

Blending the Cartons

To achieve uniform appearance across the entire surface of the floor we recommend that you open several cartons at a time and lay out the flooring. Ensure you mix the planks from the various opened cartons. This process will optimize the aesthetic appearance of the flooring. It is important to have proper lighting conditions to verify that the colour is consistent and any visual defect can be seen.

IMPORTANT: Hardwood is a natural material and therefore no two planks are alike... this adds to its beauty! **Some variation in grade, colour and shade as well as knots with wood filler and mineral streaks should be expected.**

Match Transition Mouldings (e.g. Reducers)

For the best appearance compare the transitions mouldings and flooring before installation, identify the flooring that best matches the moulding for colour and grain, set them aside then install them as needed.

Install or Apply a Felt Paper

Install or apply a 15 lb. Kraft-type flooring paper over the entire subfloor. This will work as vapour retarder (not as a vapour barrier!) and it will also help the planks slide over the surface of the subfloor making for an easier installation.

Expansion Space

Expansion space around the perimeter is essential and should be equal to the thickness of the flooring. It may be necessary to undercut the dry wall in order to provide enough space for expansion.

3) INSTALLATION GUIDELINES

Note that minor noises within the flooring are inherent to all nail down installations and can change as environmental changes occur. This is not a manufacturing defect and therefore it is not covered under our warranties. It is possible to reduce the potential for squeaking, popping and crackling by ensuring that the subfloor is structurally sound, this includes ensuring the deck is tightly fastened to the joists and ensuring the joists are placed securely.

It is also important to ensure that the flooring installer has set up the stapler/ nailer to properly fasten the flooring. Signs of improper set up include:

- Damaged boards
- Finish chipping
- Dimpling (small depression where the nail was set)
- Squeaking, popping & crackling

RECOMMENDED TOOLS

(Nailers or Staplers)

• Powernail model 2000 Nailer

- Use 1-1/4", 20 gauge, L-125205 cleats, or similar.
- The Powernail model 2000 comes with a "shoe" attachment (**photo 1**) which should be used when setting the cleats on TORLYS flooring of up to 5/8" (15mm) thickness; for thicker floors, the "shoe" needs to be removed and special care taken to the angle in which the tool is placed on the groove and the cleats are set (**photo 2**).
- Adjust the air pressure to 90 to 100 psi.

• Primatech Q180 Stapler

- Use 1-1/2" or 1-1/4" staples; 18 gauge, 1/4" crown.
- The Primatech Q180 Stapler comes with a "shoe" attachment (**photo 3**) which should be used when setting the staples on TORLYS flooring of up to 5/8" (15mm) thickness; for thicker floors, the "shoe" needs to be removed and special care taken to the angle in which the tool is placed on the groove and the cleats are set (**Photo 4**).
- Adjust the air pressure to 90 to 100 psi.

OTHER TOOLS (Nailers)

Note: While not recommended by TORLYS, mechanical and pneumatic nailers may also be used to fasten down TORLYS floors. Special care will have to be taken to ensure no damage is caused to the planks or locking systems, and nails are correctly set. While there are many options in the market, the tool we tested was:

- Primatech 550 series Pneumatic Nailer
 - L Cleats, 18 gauge, 1-3/4"

ADDITIONAL TOOLS REQUIRED

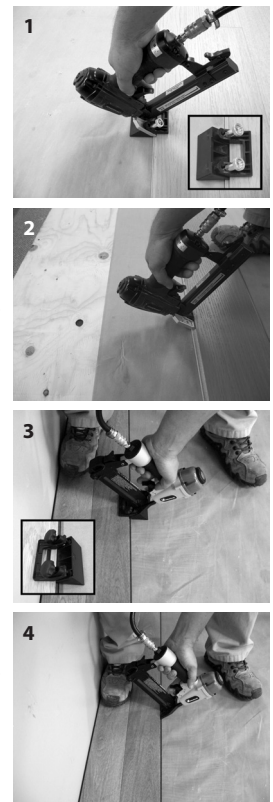
- Hammer
- Tape Measure
- Pencil
- 3/8" (10mm) Wedges*
- Tapping Block*
- Last-Board Puller *
- Saw

*Note: available in a TORLYS Installation Kit

4) INSTALLATION INSTRUCTIONS

Once the installer has ensured the use of proper fasteners and has determined that the nailer or stapler is properly set up, it is possible to proceed with installation. Ensure that the semi permeable vapour retarder is installed (15 lb. Kraft-type flooring paper) and that the floor is clean and free of any debris. Select a starter wall, the longest outside wall is best as it is most likely to be straight and square with the room. Install the flooring parallel to the longest wall.

Measure the width of the room, deduct the equivalent to twice the thickness of the flooring you are installing, and divide by the width of the planks. The number of inches left, divided by two, is the width of your starting row. If starting with a full width plank, saw off the tongue of the long edge of all the first-row planks.



Orient the first plank in the right corner of the room. Using shims, or pieces of the flooring you are installing, maintain a minimum spacing from the wall equivalent to the thickness of the flooring. Dry-lay all the planks of the first row to ensure that the last piece is not less than 6" (150mm) long. If necessary cut a piece off the short end of the first plank to be installed.

Note: to protect the face of the planks, always cut with the saw teeth cutting into the face of the plank. This is important for both cross cutting & ripping.

Install the second row, making sure there is a correct stagger between the short end joints of both rows.

Note: proper alignment is critical. A misaligned starter row can cause side and end gaps to appear in the rows of flooring that follow.

Nail the second row into place (**Photo 5**).

Nail Patterns:

- Cleats or staples should be set 2" (50mm) from the ends of the planks, and 4" (100mm) to 6" (150mm) apart.
- Cleats or staples should be properly set on bottom of the groove of the long side of the board. (**Diagram A**)

Note: Please verify that the first cleat or staple is set in the correct position before proceeding to install the floor.

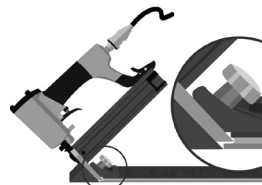


Diagram A

Note: do NOT nail the short ends of the planks.

Continue to install the flooring making sure the required nailing pattern is followed. For a better visual result, stagger the end joints by at least 6" (150mm) to 8" (200mm) and avoid a "step pattern". If needed use a tapping block to ensure the planks are properly engaged; there should be no gaps between the long sides of the planks, nor, should there be any gaps at the joints between the ends of the planks.

Note: Never use a rubber mallet or a hammer directly on the flooring to engage the planks; this may cause damage to them.

As you approach the end wall it may be necessary to rip the width of the last row; ensure that you measure to allow for the prescribed expansion gap. If the nailer or stapler does not fit between the long side of the planks of the last row and the wall, those planks can be tapped together without the need to be nailed.

Note: Use a Last Board Puller or a TORLYS Bulldog tool to tap the planks together.

5) REVERSING THE DIRECTION OF THE INSTALLATION

If at some point of the installation it requires its direction to be reversed, reversible planks can be made. The reversible planks will have to be either glued down (with PL premium-type construction adhesive*), or taped down (with TORLYS Smart Tape).

** Make sure you do not work on the floor until the PL adhesive sets properly. We recommend the use of weights on the floor until the adhesive sets completely.*

Notes:

- Subfloor must be clean, dry and free of any contaminants including dust, to ensure proper adhesion of the glue or tape.
- Floor direction can only be reversed from the tongue side of the installed planks.

A) Remove the long side tongues from all planks of the last row you will be installing before you change direction of the installation.

B) Do the same to all the planks of the next row/ the one that changes the direction of the installation.

Note: Steps A) and B) must be done before the actual installation of the planks.

IMPORTANT: When removing the tongues from the long side of the planks, care should be taken to not damage the edge milling or the finish of the flooring.

The tape or adhesive will be applied to the back of the tongue side of all the planks in the last row to be installed before the direction is reversed. Tape or adhesive will also be applied to the back of the tongue side of the reversed planks, and the groove side of all planks will still be nailed or stapled.

Install the reversed planks by butting the tongue side to the tongue side of the planks already installed. Proceed installing the rest of the rows following the Installation Instructions above.

6) COMPLETING THE INSTALLATION

After installing your floor, you can immediately walk on it and begin the final touches. Remove all spacer blocks and install baseboards and/or quarter-rounds. Never attach the baseboard to the floor itself. You need to allow the floor to expand and contract underneath the baseboard. Finish around the pipes with rosettes or silicone seal. Where no mouldings or baseboards can be installed, or where undercutting is not an option, fill the expansion/contraction gap with silicone seal.

Note: The use of stains, filler or putty sticks for the correction of minor defects or to fill nail holes during installation is accepted as normal procedure. Face nailing where necessary is also accepted as normal procedure.

7) RADIANT HEAT APPLICATION

Confirm with the manufacturer of the radiant heat system for suitability in nail-down applications.

www.torlys.com

Head Office: 1900 Derry Road E., Mississauga, Ontario, Canada L5S 1Y6



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