

INSTALLATION INSTRUCTIONS for —TORLYS— SUPER SOLID H A R D W O O D 5, 6 & 7 Collections

BEFORE STARTING THE INSTALLATION - Please take the time to read and ensure that you understand the information contained in this document. Please note that IMPROPER INSTALLATION CAN VOID WARRANTIES. Installation of 100 square feet of flooring is enough to verify quality.

Section 1 - INSTALLER & OWNER RESPONSIBILITIES

- Carefully inspect all material prior to installation, please note that it is the responsibility of the installer to identify and remove individual pieces with visible defects or cut off deficiencies and use the remaining part of the board to start or finish rows. Flooring installed with visible defects is not covered under this product's Warranty.
- Wood is a natural product with an appearance that varies from plank to plank, and we do not warranty against these natural variations; 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.
- 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.
- Before beginning the installation the Installer must determine that the environment of the jobsite and the condition of the sub-floor involved is acceptable. Please refer to the guidelines provided in this document.

ATTENTION 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.

- We cannot accept responsibility for any claim resulting from or associated with installation over an inappropriate or improperly prepared subfloor.
- Please allow for a range of 5 – 10% waste factor, the actual amount will vary from site to site and is dependent on the room layout.

- 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.
- Flooring is to only be delivered to an environmentally controlled site.

Section 2 – JOB SITE CONDITIONS & ACCLIMATION

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.

- In new construction, the industry norm is that hardwood flooring is one of the last items to be installed. Please ensure the hardwood flooring is installed after any “wet trades”, which include but are not limited to:
 - Plumbing
 - Dry walling/plastering
 - Painting
 - Ceramic tiling
 - Other work requiring water in its application or execution
- Heating and air conditioning systems must be fully functional and capable of maintaining the following ambient conditions for a minimum of 5 days prior to installation:
 - Room Temperature = 15 – 25 °C (60 – 77 °F)
 - Relative Humidity = 35 – 65% (30-80% for glue down installation)
- Concrete subfloors & plaster walls must be cured for a minimum of 60 days. It is important to check the relative humidity in the basement or crawlspace; high relative humidity under the subfloor (> 65%) may lead to a “wet deck”, a condition where the subfloor moisture content rises above the maximum allowed. This often this causes cupped floors, cracked boards and similar problems; we will not accept responsibility for issues arising from improper moisture content of the subfloor. Subfloor moisture content must be within 2% of the moisture content of properly acclimated hardwood flooring materials.
- Acclimation is achieved when the hardwood flooring reaches equilibrium with the “normal living conditions” of the site. This includes the temperature, humidity conditions and moisture content that will typically be experienced once the structure is occupied. Flooring should be delivered to the properly conditioned job site a minimum of 48 hours prior to installation. Please ensure the flooring is stored lying flat, away from windows and walls. We will not accept responsibility for flooring deformation due to improper storage.
- Do not store directly over below grade or on grade concrete, or next to exterior walls.
- All subfloors and subfloor systems must be structurally sound and must be installed following their manufacturer’s recommendations. Whenever possible install the planks at 90° or perpendicular to the floor joists for maximum stability. We cannot accept responsibility for problems caused by inadequate substructures or improper installation of said substructures.

- 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 12% or less. Take readings of the flooring and verify the delta (the gradient) between the Engineered Wood Floor and the average moisture content of the subfloor is less than 2 %.
- Test concrete subfloors for moisture using the “Calcium Chloride Moisture Test” or an ASTM 2170 in-situ test, do not install flooring if the Moisture Vapor Emission Rate exceeds 3 lbs. per 1000 ft², per 24 hours. Note this test is not suitable for testing the moisture content of light weight concrete, also known as Gypcrete or gypsum floor underlayment. For gypsum floor underlayment it is recommended to measure the MC of subfloor via relative humidity testing using “in situ” probes. Do not install flooring if the relative humidity exceeds 75%. ASTM F2170 is also acceptable for typical concrete.
- Crawl spaces must be dry. Use of a 6-mil black polyethylene film is required to cover 100% of the crawl space earth (or concrete slab). Crawl space clearance from the ground to the underside of the joists must be a minimum of 18” (450 mm); in addition, the venting capacity should be equal to 1.5% of the total square footage of the crawl space area and designed to provide adequate cross ventilation.
- Wood, concrete and gypsum subfloors must be flat, with a maximum deviation of 1/8” over 6’ and 1/4” over 10’.
- In the situation where the subfloor is not flat take the following steps to bring the subfloor into tolerance:
 - Grind or sand high spots
 - Level low spots with high strength, cement based leveling or self-leveling compounds such as Mapei Novaplan 2; ensure that the leveling material has a minimum compressive strength of 3000 psi. Leveling compounds must be allowed to fully cure; please follow the instructions given by the manufacturer of the leveling compound for guidance on cure rates.
- Subfloors must be clean and free of dirt, curing compounds, sealers, drywall mud, paint, wax grease or any other materials that may affect the integrity of the flooring material or the adhesives used to install the floor.

We decline to accept any claims that are deemed to be the result of improper jobsite conditions or failure to properly acclimate the flooring.

Section 3 – APPROVED SUBFLOOR TYPES

Wood Subfloor Guidelines

- Suitable installation methods include nail down, glue down and floating.
- 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" (¾" x 5½"), Group 1 Dense Softwoods, #2 Common kiln dried to a maximum of 12% MC, mechanically fastened or glue

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 ¾" (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 ¾" T&G CD Exposure 1 Plywood glued & mechanically fastened or nominal ¾" 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.

Concrete Subfloor Guidelines

- Suitable installation methods include glue down and floating.
- Concrete slabs should be of high compressive strength, minimum 3000 psi, and engineered to prevent ground water permeation. This flooring can be installed on, above or below grade. Additionally, the product can be installed over suspended concrete floors with a minimum thickness of 50 mm; the construction must be structurally sound.
- Gypsum Floor Underlayment/subfloors (Light Weight Concrete) are not suitable for glue down installations, but are suitable for floating installations only. Do not attempt to glue down this flooring over Light Weight Concrete.

Note: if you can deeply scratch the surface of the concrete subfloor with a nail, it should be deemed a "Light Weight Concrete" sub-floor.

Other Subfloor Guidelines

- Ceramic Tile or Terrazzo:
 - Suitable installation methods include glue down or floating.
 - All wax & sealers must be removed as per adhesive manufacturer's recommendations; ceramic tile & terrazzo should be abraded to allow for proper adhesion. Please ensure you consult with your adhesive supplier to ensure that the proper adhesive is being used to bond the wood flooring to the ceramic or terrazzo surface.

- Check for loose tiles by tapping, remove any loose tiles and fill the hole with high strength cement based underlayment.
- Fill grout lines with high strength cement based underlayment.
- Do not attempt to employ any type of mechanical fastener to install this flooring.
- Existing Hardwood Flooring
 - Suitable installation methods include glue down, nail down and floating.
 - When installing any new hardwood flooring directly over old wood or strip floors, sand any high spots. Re-nail the old floor to reduce any squeaks or loose boards.
 - For glue down installations the orientation of the floor can be the same as the original wood floor; ensure the existing floor is flat, especially at the joints to avoid any unevenness telegraphing through. 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 12%.
 - When nailing new hardwood over old hardwood, we recommend the use of a water vapor retarder such as Aquabar “B”, which has a “vapor permeance” rate of 1 or less.
- Resilient Tile, Resilient Sheet Vinyl
 - Suitable installation methods include glue down and 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. Note that in the case of glue down installations of hardwood over resilient tiles or resilient sheet vinyl **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.
 - Clean the flooring to ensure there is no contaminant on the surface that will interfere with the bonding. Please consult with your adhesive supplier to ensure that the proper adhesive is being used to bond to the resilient surface in question.

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.

- Acoustic Cork Underlayment
 - Suitable for double glue down installation only.
 - Ensure that the cork underlayment has been installed according to the manufacturer's instructions.
 - For double glue down applications the cork underlay must be installed with "full spread" adhesive.
 - The cork underlayment should have density range of 11.4 lbs./ft³ to 13 lbs./ft³

Installing a Subfloor over Concrete

- Glue Down Subfloor - Instructions
 - Note the manufacturers instructions regarding the adhesive spread rate and notch size of the trowel; follow these instructions closely.
 - For "on" or "below" grade installations, it is recommended to use a vapor retarding membrane or concrete sealant before installing the subfloor.
 - We recommend the use of nominal ¾" (19 mm) CD Exposure 1 plywood subfloor panels
 - Rip the 4' x 8' plywood panels in half to make the installation easier, for optimized adhesive performance and to allow the board to follow the contours of the concrete it is advisable to score the back of the panels ½ the thickness in 12" x 12" (300 mm x 300 mm) grid pattern.
 - Apply the adhesive recommended by the plywood manufacturer for this application (usually a Urethane Mastic)
 - Lay the sections in a staggered joint pattern, allow ⅛" gaps between sheets and ¾" gap at vertical surfaces.
- Mechanically Fastened Subfloor – Instructions
 - For "on" or "below" grade installations, it is recommended to use a vapor retarding membrane or concrete sealant before installing the subfloor.
 - We recommend the use of ¾" (19 mm) CD Exposure 1 plywood subfloor panels.
 - Stagger the joints allowing approximately ⅛" expansion space around the perimeter of the panels, this will prevent the problem of "edge peaking" which occurs if the panel swells. Allow a minimum ¾" expansion gap at the vertical surfaces.
 - Fasten 2" (50 mm) from the edge with a spacing of 6"- 8" along the perimeter of the sheet, and 1 fastener every 12" (25 cm) in the interior section of the panel, for 6" (150 mm) centers on the perimeter, you will need approximately 67 fasteners per 4' x 8' sheet, note it best practice to start in the center to reduce any bowing problems.
 - **Screeds and Sleepers**
Hardwood flooring is not recommended to be installed over this application unless planks are less than 4 inches wide and continuous vapor barrier can be achieved over concrete prior to installation of screeds or sleepers

Section 4 – PRE-INSTALLATION PREPARATION

Inspect the flooring

- Inspect the material for colour grade, milling and finishing; cull any pieces that may not be acceptable once installed.

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 guide in Section 3 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 12%.
 - For OSB subfloors, identify the thickness of the sheets used: refer to the guide in Section 3 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 12%.
 - For solid board subfloors, re-nail the subfloor to reduce any squeaks or loose boards, sand any high spots.
 - Select a starter wall; the longest outside wall is best as it is most likely to be straight and square with the room. Plan to install the flooring parallel to the longest wall in the room.

Undercut the Door Casing

- Undercut all door casings $\frac{1}{16}$ " higher than the thickness of the flooring being installed. Using a piece of flooring, determine the height, then cut the jamb with a handsaw or a powered jamb saw

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 and mineral streaks should be expected. Some species of wood are sensitive to light. It is natural for their colour to darken or soften over time.

Match Transition Moldings

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

Racking the Floor

- This process is essential to achieve a “random” appearance. Start by cutting several planks to create “random length starters”, ensure that the plank lengths differ by at least 18” (450 mm). With wide plank flooring it is important that the distance between end joints is at least equivalent to twice the width of the flooring. Install the random length starters using different lengths; avoid a patterned appearance.

Remove Existing Moldings

- Remove any existing wall base, shoe molding, quarter round or doorway thresholds.

Install or Apply a Vapor Retarder

- All hardwood floors are sensitive to subfloor moisture transmission. Our flooring requires the use of a “Semi-Permeable” vapor retarder. The underlayment material must meet or exceed recommended underlayment requirements of the NWFA.
- USE OF THESE PRODUCTS TO CONTROL VAPOR TRANSMISSION IS ESSENTIAL TO ENSURE YOUR FLOORING WILL REMAIN FREE FROM SUBFLOOR MOISTURE RELATED ISSUES.

Expansion Space

- Expansion space around the perimeter is essential and should be equal to the thickness of the flooring. For plank installations, please allow a minimum of $\frac{3}{4}$ ” (19 mm) around the entire perimeter. It may be necessary to undercut the dry wall in order to provide enough space for expansion.

Section 5 – INSTALLATION GUIDELINES - Nail Down or Staple Down

- Note that minor noises within the flooring are inherent to all staple/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

- The nailing schedule and position of the engaged nail is of critical importance; we recommend the following parameters:
 - Nails should be set so as to seat in the bottom of the nail pocket on the tongue side. Adjust the air pressure on the nailer to achieve this goal, increasing the pressure if the nail is not fully seated and reducing the pressure if the nail is driven too deep. Normally an air pressure of 70 – 80 psi is required to properly set the nails, **please verify the position of the nail in the nail pocket before proceeding to install the flooring.**
 - We recommend the use of 2" cleat for our 19 mm thick products.
 - Nails/cleats should be set between 1" (25 mm) and 2" (50 mm) from the ends.
 - Nails/cleats should be set 4" (100 mm) – 6" (150 mm) apart.
 - Staples should be set 3" (76mm) – 5" (127mm) apart.
- Once the installer has ensured the use of proper fasteners and has determined that the nailer is properly set up, it is possible to proceed with installation.
- **Ensure that the semi permeable vapor retarder is installed (See Section 4 for details on the acceptable vapor retarders) 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. Measure out from this wall at each end, using the overall width of the plank including the tongue plus the required expansion gap. Install the flooring parallel to the longest wall.
- Snap a chalk line from these points, parallel to the selected wall.
- Install the first row of starter planks along the chalk line and secure into position with the tongue facing away from the starter wall.
- Secure by drilling "pilot holes" through the face of every plank at 6" (150 mm) intervals at a distance of 1" (25 mm) away from the wall side edge, use 1.5" (40 mm) finishing nails to fasten the boards in place. Countersink the nails and use a colour matched wood filler to hide the nail heads. Remove excess wood filler.
- Blind nail at an angle of 45 – 50 degrees, 1" – 2" from each end and every 4" – 6" in between.
 - Note – pre-drilling the holes for the blind nails will make this process easier.
 - Note – the use of wood flooring adhesive in conjunction with the mechanical fasteners is recommended for the starter rows. See guidelines for glue down applications for details.
 - Note – proper alignment is critical, misaligned starter rows can cause side and end gaps to appear in the proceeding rows of flooring.
 - Note – To protect the face of the boards, always saw with the teeth cutting into the face of the board. This is important for both cross cutting & ripping.
- You will need to install enough starter rows to provide the space required to operate the flooring nailer unimpeded by the starter wall.
- Continue to install the flooring making sure the required nailing schedule is followed, additionally follow the recommendations for "racking" the floor to ensure the end joints have sufficient distances and that there are no discernable repeating patterns.

- 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 ends of the planks.
 - Note –Never use a rubber mallet or a hammer directly on the flooring to engage the planks, this may damage the finish and or the flooring.
- 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.
- The last few rows will need to be fastened the same way as the starter rows using blind nails/face nails (countersunk and hidden with wood putty) and adhesive.
- Ensure any adhesive on the surface of the planks is removed with an appropriate cleaner. See the adhesive manufacturer’s instructions for details.

Section 6 – INSTALLATION GUIDELINES - Glue Down

In order to offer our customers options of adhesives recommended by a reputable manufacturer, we have contacted Mapei, and these are the adhesives and trowels they recommend. ***

- For Glue Down Installation of TORLYS SUPERSOLID Floors, MAPEI recommends using a ¼” x ¼” x ¼” (6 x 6 x 6 mm) square-notch trowel for installing ¾” engineered wood flooring regardless whether it is a properly-prepared concrete or plywood substrate. (Recommended adhesive is the Mapei Ultrabond ECO 980)
- NOTE: Mapei requires an expansion space (around the perimeter of the room and/or any fixed obstacles) equivalent to the thickness of the flooring being glued down.

*** IMPORTANT: while Mapei is an extremely reputable adhesive manufacturer, the recommended adhesives and trowels listed above are their exclusive responsibility.

- Verify that the floor is level, see Section 2 – Job Site Conditions and Acclimation for details.
- Select a starter wall; the longest outside wall is best as it is most likely to be straight and square with the room. Measure out from this wall at each end, using the overall width of the plank including the tongue plus the required expansion gap. Install the flooring parallel to the longest wall
- Snap a chalk line from these points, parallel to the selected wall.
- Install the first row of starter planks along the chalk line and secure into position with the tongue facing away from the starter wall.
 - Note - the proper alignment is critical, misaligned starter rows can cause side & end gaps to appear with flooring milled with a T&G.
 - Note – to protect the face of the boards, always saw with the teeth cutting into the face of the board. This is important for both cross cutting and ripping.
- Using ¾” spacers between the wall and the first row, proceed to spread the adhesive and install the first row.

- Note – Using the proper notched trowel held at a 45° degree angle, apply pressure to allow the trowel to leave ridges of adhesive on the substrate.
- **Please refer to the adhesive manufacturer’s technical data sheet to learn about the working parameters of the adhesive.**
- Continue installing floor from left to right (as you face the wall), spread only enough adhesive to install what can be set within the open time prescribed by the adhesive manufacturer.
- Measure the size you need to complete the first row and cut to length. The balance of the piece you cut may be used to start the next row; the length of the next starter should be a minimum of 18” (450 mm) or 3 times the width of the flooring being installed.
 - Note – please refer to the instructions on “Racking the Floor” in Section 4 for guidance on end joint spacing.
- Remove the adhesive from the surface of the floor as you work, this will greatly reduce the amount of time needed to clean the floor. Cured urethane adhesives are difficult to remove and the solvents required to soften them may also soften and damage the factory finish. **We will not warranty floor finishes damaged by urethane adhesive removal.**
- Most often the entire last row will need to be ripped so that it is narrow enough to fit in the remaining space, when this happens please ensure you rip the boards with the necessary expansion gap included.
- We recommend rolling the floor with a 100 – 150 lb. roller, this process helps ensure full wet out of both surfaces: the bottom of the flooring and the subfloor.
- Consult the adhesive manufactures guidelines regarding cure rates before allowing walking traffic on the installed flooring.

Best Practices

- The use of a surface tape to hold installed planks in place, on long and short sides, will reduce gaps. Only use tape recommended for this application.
 - Note as an option wood floor strap clamps can be used.
- Lazy glue applied to plank 6” or 7” to assist nailing schedule
- Wood glue to be applied on short ends of planks

Section 7 - INSTALLATION OF HARDWOOD FLOORING OVER RADIANT HEATING

Our TORLYS SUPERSOLID Hardwood is recommended for use over radiant heated subfloors. Fastening the flooring with nails or staples on sleepers is not recommended or warranted. Gluing the floor down is not recommended or warranted. Must be installed Floating*.

(*For detailed installation instructions see Section 8)

- Radiant heating systems used must be designed and controlled specifically for hardwood flooring by the system manufacturer and include outside temperature probes and surface temperature controls.
- **The maximum surface temperature allowed is 27° C (80° F).**

- Newly installed water type radiant heated flooring systems should be in operational mode with the temperature set between 16° - 22° C (60° - 72° F), for a minimum of 3 weeks to ensure that all subfloor moisture has properly dried.
- Always check wooden subfloors to ensure that the moisture content is less than 12% using an accurate pin type moisture meter.
- Concrete subfloors must register “dry” using a reliable concrete moisture meter; the PH of the concrete subfloor must be in the range of 6 – 9.
- Regulate the job site to insure that the relative humidity is between 35% – 65% and that the ambient temperature is between 16° - 22° C (60° - 72° F).
- Deliver and acclimate the engineered flooring for a minimum of 48 hours prior to installation.
- After completing the installation, do not change the radiant heat settings for a minimum of 48 hours.
- Throughout the life of the installation, the system should be set up to raise the temperature by increments of no more than 4° C (6° F) in a single day.

Section 8 – INSTALLATION GUIDELINES – Floating (Gluing T&G)

Note: TORLYS SUPERSOLID hardwood flooring milled with a long tongue T&G, which facilitates a floating installation using perimeter PVA adhesive application (commonly called carpenters wood glue). Please observe the following guidelines when installing TORLYS SUPERSOLID floors using the floating method.

Verify that the floor is level, see Section 2 – Job Site Conditions and Acclimation for details.

- Note – TORLYS SUPERSOLID hardwood can only be installed floating when the subfloor is covered with a TORLYS underlay that is a continuous vapour barrier. All underlayment seams must be taped with a vapour barrier tape.
- Select a starter wall; the longest outside wall is best as it is most likely to be straight and square with the room. Plan to install the flooring parallel to the longest wall in the room.
- Measure the width of the room, assuming the first row starts $\frac{3}{4}$ ” out from the wall, determine the width of the last plank, allowing for a $\frac{3}{4}$ ” gap. If it is less than $\frac{1}{3}$ the width of the flooring being installed you should plan on ripping both the starter and finish rows to improve the aesthetics of the Wide Plank flooring.
 - Note – Larger rooms require additional expansion space, add $\frac{1}{8}$ ” to the width for every 6’ (1.8 m) beyond 30’ (9.2 m).
- Use $\frac{3}{4}$ ” spacers to ensure expansion space is maintained between the wall and the flooring around the entire perimeter of the floor. You may need to undercut the dry wall to create the full $\frac{3}{4}$ ” expansion gap. This can be done with a Jamb Saw.
- Install the starter row of planks from right to left as you face the starter wall, the tongue should be facing the spacer in front of the wall.

Apply $\frac{1}{8}$ ” (3.2mm) bead of T&G adhesive to bottom of groove, on both long and short sides.

 - Note - the proper alignment is critical, misaligned starter rows created a “skewed” installation.

- Measure the size you need to complete the first row and cut to length. The balance of the piece you cut may be used to start the next row; the length of the next starter should be a minimum of 18" (450 mm) or 3 times the width of the flooring being installed.
 - Note – please refer to the instructions on “Racking the Floor” in Section 4 for guidance on end joint spacing.
 - Note – when engaging the T & G do not use a hammer or rubber mallet, this may damage the planks, if the plank does not engage with hand pressure, check to see if there is some debris in the groove.
Use a tapping block (if needed) to tap the joints together.
 - Note – to protect the face of the boards, always saw with the teeth cutting into the face of the board. This is important for both cross cutting and ripping.
 - Using a tape, recommended for use on wood flooring, to strap the boards together is a good way to ensure the T & G is tightly engaged between planks.
 - Note as an option wood floor strap clamps can be used.
 - Do not affix the flooring to the subfloor
- At the threshold of interior doors or when joining one room to another; TORLYS recommends the use of a “T mould” transition moulding with a floating installation.
 - Note - Floating “Flow Through Installations” have been known to cause problems of floor buckling as it is difficult to ensure the floating floor does not bind against a door jam or wall.

Flow Through Installations will void the product warranty.
 - **Note – Do not install cabinets or walls on top of the flooring when the floating installation method is used.**

Section 9 - PREVENTATIVE AND REGULAR MAINTENANCE

- **Install floor protectors** on furniture legs to protect against scratches and dents. These furniture pads should have no wrinkles and should be made of soft, non-staining material (e.g. felt pads), be large enough to properly distribute weight and be fully in contact with the floor. Check protective pads occasionally for condition and wear.
- **Do not drag furniture** or any other heavy objects on the floors. Use appropriate protection when moving appliances. Avoid high heels or shoes that need repair. Some styles of high heel shoes can severely damage the surface of any floor covering.
- **Sweep and vacuum floor regularly.**
- **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 a PH-neutral cleaner.
- **Never wet-mop your hardwood floors and do NOT use steam mops.**
- **Important note: do not use tape on the finished floor. to protect the floor with paper use tape on the overlapped paper**