



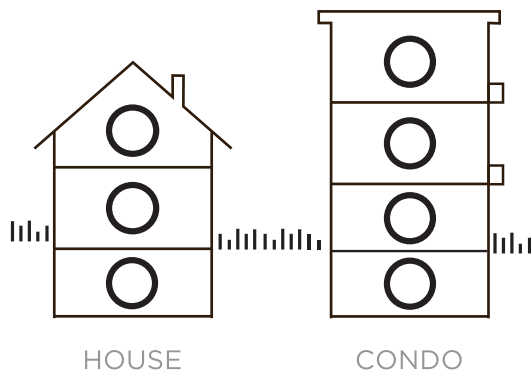
HANDLING AND STORING

Hardwood is a natural ligneous material, which reacts to changes of relative humidity. It absorbs and releases moisture before and after it is installed, depending on the variations in the environment. Hardwood expands in summer and shrinks in winter. To prevent excessive expansion or shrinkage of your hardwood floor, it is recommended to maintain the relative humidity level in your home, office, chalet, cottage, etc. (location of wood installed or stored), at the appropriate humidity level for your area (between 37% and 50% approximately) throughout the year.

Your authorized Dealer / Distributor supplies you with specially designed cartons that have been stored in a heated and well-ventilated warehouse. It is important not to transport your wood under raining and/or damp conditions, nor should you store it in a non-heated or poorly ventilated area beyond values indicated above

Preverco engineered floors can be installed in a basement as well as above grade..

LOCATION



ABOUT INSTALLATION

To ensure that your hardwood floor is installed properly, Preverco recommends that you follow the installation instructions whether you install it yourself or hire an authorized professional installation company.

- Preverco cannot be held responsible for the poor quality of the installation.
- If you decide to hire an installer who will install your hardwood floor without your supervision, it is your responsibility to ensure the practical judgment of the installer. The installer should use reasonable selectivity in assessing the quality of the wood, the appearance, and arranging the boards according to the natural color variations of the species selected. Preverco cannot be held responsible for any error due to the installer's bad judgment.
- It is the owner's responsibility to ensure that the wood delivered is the wood that has been ordered and chosen.

- The installer and/or the owner should select boards appropriately and, either discard, relocate in hidden places or cut out pieces with defects, if any, when required.

- Installer:** please take the time to carefully read over our detailed installation instructions as they could be different from other engineered products.

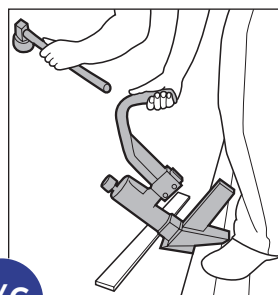
- Material waste allowance should be included within your total square footage to allow for material defects. The use of wood putty, filler, or stain might be required during the installation process and is considered an industry standard.

- If at any time you feel that in any way our Preverco product is not to standard in reference to appearance, width, color, sheen, milling tongue or groove placement, **STOP the installation and immediately contact your floor retailer for assistance.**

TOOLS AND MATERIAL REQUIRED

- Tongue and groove adhesive (floating method)
- Vacuum cleaner or broom
- Leveling bar
- Tape measure
- Scraper
- Chalk line
- Drill
- Jamb saw (to undercut door frames and casing)
- Wood/concrete moisture meters
- Circular saw
- 3 mm tape or painters tape
- Chisel
- Tapping block
- Last board puller
- Nail punch
- Chop saw or hand saw
- Hammer
- 1.5 in finishing nails (for wood subfloors only)
- Preverco touch up and maintenance kits
- 1/8 in close cell foam (floating method)
- Staples
- Moisture cure urethane adhesive (glued down method)
- Proper stapler

NOTE: The selection of mechanical fasteners such as nailers or staplers varies by manufacturers, offering the installer the choice of manual or air-assisted. Therefore, it is the installer's responsibility to ensure that the staple is properly set as dimpling of the wood face is not considered a manufacturing defect. It is recommended to test a couple of pieces by nailing them down and examine the edge where the two (2) pieces meet. Particularly in installations of 90 degrees to outside walls, dimpling could be very apparent in direct sunlight.



Our Flex engineered products are designed to perform on concrete (glued down or floated), plywood and O.S.B. (stapled or glued down) to thickness and distance recommended by NWFA. Please consult your source of supply or Preverco technical department for questions regarding the above or any reference to the installation instruction hereafter.

CONDITIONS & INSPECTIONS

- 1. STRUCTURALLY SOUND:** Nail or screw down the subfloor (plywood or OSB) if there are any loose areas that could cause squeaks. Gluing or nailing a hardwood floor down to the subfloor will not take away any problems of squeaking. It may only hide it somewhat. The subfloor must meet the NWFA and National Building Code requirements (nwfa.org). Your installation will only be as good as the subfloor underneath. We suggest the use of plywood, CDX and concrete
- 2. DRY:** Conduct a moisture test in different areas of the subfloor and record your readings. For plywood and OSB subfloors, the percentage moisture difference between the hardwood floor and the subfloor must not exceed 2% with a maximum of 12% for the subfloor. For concrete subfloors, the moisture content of the concrete should never exceed 4% with electrical conduction device (Tramex or equivalent) or 75% ASTM Test F 2170. The installer and the floor owner are both responsible for measuring the moisture content of the subfloor and making sure it is within the recommended level prior to installation.
- 3. CLEAN:** Broom sweep the area and vacuum. Ensure that there is no contaminant like: wax, paint spills, oil, or any other materials that could cause a problem with the adhesive adhering to the substrate.

4. FLATNESS: Using a straight edge or level, check to see if the subfloor (concrete) is within 3/16" in 10' or 1/8" in 6' for plywood OSB subfloor on joists, check if it is within 1/4" in 10' or 3/16" in 6'. See NWFA recommendations attached. If there is a need to patch/fill in the low areas, make sure to use a filler from a cement/polymer type base that has a strength of 3000 p.s.i. Read over the cement/patches maximum thickness allowed or you might overfill in deep areas or voids, and the strength of cement filler will not be strong enough to support heavy objects. Make sure that the subfloor is free of any imperfections (including nails or screws).

5. FOR THE PURPOSE OF ACOUSTICS AND STABILITY, WITH FLOATING INSTALLATIONS we recommend the installation of a dense underlayment up to 1/8" (3 mm) thick with minimal compression of maximum 20 percent. You must also install a vapor barrier to avoid any deformation of the hardwood from subfloor humidity). In order to obtain optimal installation and full warranty coverage, the subfloors must be rectified prior to installation, leveling out any irregular surfaces (concrete OR subfloor plywood) that may cause improper installation (refer to point 4 in section "Subfloor conditions and inspection"). You may correct these irregularities by using a self-leveling concrete. Please contact our customer service agents for more details and to obtain a product authorized by the manufacturer.

Our engineered products are designed to perform on concrete, plywood or O.S.B. subfloors. Subfloors can be made of different materials as long as they are structurally strong enough to support the overall weight of the Preverco floor.

IMPORTANT: Wall to wall carpeting and flexible surface must be removed before installing your new hardwood floor.

PLYWOOD: The industry now allows the use of CDX plywood (exterior grade) with a minimum of 5/8" (16 mm) tongue and groove (16 o.c.). Check that the subfloor is fastened down with the

proper fastener (deck screws work well). The use of drywall screws is not acceptable. The recommended nailing/ screwing down pattern is 4"- 6" (10 to 15 cm) in the field area and 2"- 4" (5 to 10 cm) on the seams. Contact with the joist is always preferred. Always check for moisture content to not exceed 12% prior to installation using a wood moisture meter. Also, make sure that the percentage moisture content of the engineered flooring is within 2% of that of the subfloor.

O.S.B.: 23/32" (18,5 mm) stamped exterior grade is also approved. Install hardwood 90 degrees to the 16 o.c. joists only, otherwise refer to NWFA recommendations. Always check for moisture content to not exceed 12% prior to installation using a wood moisture meter. Also, make sure that the percentage moisture content of the engineered flooring is within 2% of that of the subfloor.

CONCRETE: For new concrete, allow a minimum of 30 days cure time prior to start of concrete moisture tests. Various methods and testing devices exist to check the moisture level of a concrete subfloor.

• **Polyethylene test** (ASTM D-4263), surface test. Tape a plastic film of 2'x2' (60 x 60 cm) over concrete for 48 hours to see if the concrete changes color or if condensation occurs. This information will indicate that the concrete floor is wet and the wooden floor should not be installed. This method is empirical and is a preliminary test, further analysis will be required.

• **Relative humidity test** (ASTM F-2170), thorough test. Using an ultrasonic sensor and a sensor, check the relative humidity of the concrete slab to 40% of its depth. A reading of 75% RH or less indicates that the concrete slab is ready to receive the wooden floor; a reading between 75% and 85 % indicates that it is preferable to place a waterproof membrane before installing the wood floor. Never install a hardwood floor when the moisture level is greater than 85%.

• **Calcium chloride test** (ASTM F-1869), thorough test. A calcium chloride test must be conducted to determine whether the moisture content of the concrete exceeds 3 lbs. / 1000 ft² per 24 hours. If so, but less than 7 lbs. / 1000 ft², one can use an approved waterproof membrane to cover the concrete. Never install a hardwood floor when the calcium chloride test exceeds 7 lbs. / 1000 ft² per 24 hours. Even if the test indicate that the subfloor is dry, it is preferable to use a vapor barrier because conditions can change.

Concrete leveling is a very important point. Concrete must be flat/level within 3/16" over a 10 ft. "1/8" in 6 ft. (<5 mm in 3 m or 3 mm in 1.8 m).

RADIANT HEATING: To apply Preverco engineered floor over this type of heating, make sure that the system has gone through a heat/leak test and has run on and off for a few weeks prior to the floor installation. The system must be turned off and allowed to cool to room temperature before installing the floor. After the entire installation is finished, you can gradually (3.0°C / 5.4°F per day) bring the heating system back to normal. The system's surface temperature should never exceed 26.6°C / 80°F. Moreover, if radiant heat pipes are exposed or apparent from the subfloor, a 3/8" (10 mm) plywood or a concrete layer of 1/2" (12 mm) must be used to cover the pipes in order to spread out the heat more evenly.

NOTE: The warranty of your Preverco floor could be void if an improper use or installation of a radiant heat system is demonstrated.

RESILIENT TILE: Do not remove as some tiles are adhered with a black cut back adhesive which could cause the engineered adhesive to not stick properly.

SOFTWOOD 1"X 5" OR 6" DIAGONAL BOARDS: The use of 5/8" (16 mm) plywood or 3/4" (19 mm) O.S.B. must be nailed/ screwed to this existing subfloor.



STAPLE DOWN INSTALLATION

SEE FASTENER SCHEDULE FOR STAPLE DOWN INSTALLATION DETAILS AND FOR NEW GLUE ASSIST INSTRUCTIONS ON 5 1/8" AND WIDER BOARDS.

NOTE: The pressure of the air compressor must be set at a level that brings the crown of the staples embedded at a maximum of 25% of its own diameter (approx 90 PSI). Insufficient pressure and amount of fastener used, can generate the appearance of a fastener pull-down. This appearance has not proven to be permanent, however, if the proper fastener schedule is respected, this appearance is typically less from the time of installation. This is not a defect.

IMPORTANT NOTICE: we recommend fastening the Flex on approved subfloors, with staples only. The use of cleats/nails can decrease installation consistency and fastening strength. Insufficient fastening strength could result in floor movement and will void the warranty.

STEP 1: We recommend using Preverco's Prevap paper between subfloor and hardwood planks

STEP 2: Select an air assisted or manual stapler. Make sure to use a machine that is suited for 3/4" (19 mm) thick engineered material. Contact your manufacturer or supplier for details. The use of proper size staples is imperative 1 3/4" or 2" (44 or 55 mm) and 15.5 gauges diameter (See Fastener Schedule above). The air compressor pressure should be approximately 90 psi and be sure to optimize stapler settings to adjust staples depth. Follow the manufacturer's safety instructions in regards to eye wear, power cords, air pressure grounding of equipment, footwear, hard hats, if required, etc.

STEP 3: It is best to run the hardwood flooring perpendicular to the joist 90 degrees.

STEP 4: Allowing an expansion gap of 1/2" (13 mm) along the wall, snap a chalk line for the width of a plank + 1/2" (13 mm). E.g. 4 1/4" + 1/2" = 4 3/4" (108 mm + 13 mm ≈ 12 cm).

STEP 5: Place the planks in front of the chalk line. This is known as racking out the material. Use 3 to 4 cartons at a time. Mix in or use boards that range in color, grain, and length.

STEP 6: Place the edge of the boards along the chalk line with the tongue side facing the field area and the groove side facing the wall.

STEP 7: Face drill into the plank approximately every 8-10" (200 to 250 mm) staying 1/2" (13 mm) to no more than 3/4" (19 mm) from the edge of the plank (groove side). For best visual results, drill into the darker grain of wood rather than the lighter. Use a nail punch to countersink. The use of putty is recommended even if these nail holes will be covered by shoe molding or baseboard to prevent the possibility of cleaning material entering the holes. Do not perimeter glue down the starting or finishing rows.

STEP 8: Blind nail on a 45 degree angle into the plank's tongue approximately every 5-6" (120 to 150 mm). Complete the entire first row along the chalk line and check to see if you can start using your stapler without hitting any walls or objects. A second row of blind nailing may be required. No face nailing on the second row.

STEP 9: Avoid what our industry calls "clusters" by staggering the end joints by at least twice the plank's width if possible. Example: using a 4 1/4" (106 mm) plank would put the next row's end joint no closer than 8 1/2" (212 mm). See diagram for details. If available, the use of a Brad nailer is ideal to speed up the above face and blind nailing procedure. Ensure that there is a nail approximately 1-2" (25 to 50 mm) away from both ends of the board.

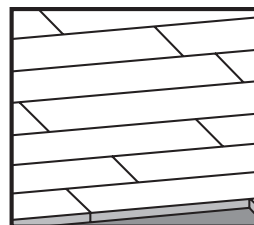


FIGURE 1.1 (CORRECT)

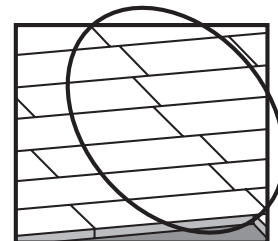


FIGURE 1.2 (INCORRECT)

STEP 10: Start stapling using a Primatex model P250A type stapler, respecting every 5-6" (120 to 150 mm) and 1" (25 mm) at both end (see Fastener Schedule above). Rack out your floor using 3-4 boxes. Again, be careful not to use only long pieces but rather mix together longer and shorter boards, vary light and dark and mix in the different grain pattern to provide the best possible natural wood look.

STEP 11: Continue on each row. When cutting the last board on the row, you can use the balance of the board for the next starting board, provided that it is larger than 6" (15 cm).

STEP 12: As you approach the last few rows, the use of the stapler will not be possible. Therefore you must blind nail as mentioned earlier, every 4-6" (100 to 150 mm) and 1-2" (25 to 50 mm) from ends of the board. Do not perimeter glue down starter or finishing rows.

STEP 13: Face nail and putty the last row. Remember to nail only in the darker grain to help hide these holes. Don't forget to leave a 1/2" (12 mm) expansion gap.

STEP 14: If it is necessary to finish the installation of the last row with a narrow width board, measure the boards and allow a 1/2" to 3/4" (12 to 19 mm) expansion area in your calculations, then rip boards on a table saw.



GLUED DOWN INSTALLATION

Use only the recommended moisture-cured urethane or rubber adhesive, trowel size, and spread rate to ensure adhesive transfer to the substrate and hardwood. Check the adhesive expiration date. Conduct a moisture test on concrete (refer to the concrete paragraph in the subfloor section of this document). Spread out a small amount of adhesive on the concrete and check for adhesion bonding. Use a metal trowel only. The teeth of a plastic trowel will wear down and cause a difference in spreading rate that will directly affect the hardwood's ability to adhere to the substrate.

Notes:

- Bostik's Best, BST, Vaporloc TileBond 811 Advantage, or Acoustitech AD-316, AD-532 or AD-844 adhesives for engineered products work well following their installation guidelines for engineered products. Check with the adhesive manufacturer for applications used with radiant floor systems.
- Adhesives have a setup time which may vary from brand to brand.
- Make sure not to spread out the adhesive beyond your working time.
- Immediately remove any adhesive from the face of the hardwood using the proper adhesive remover. Refer to the manufacturer's adhesive label for details.
- Never slide or drag a board along the applied adhesive as adhesives have an elastic memory and will move back or away from position.
- Hold the trowel on a 45-degree angle, pressing firmly. Respect the spread rate of the manufacturer's guidelines.
- Replace any trowel that has worn teeth. Do not try to create your own notches by cutting teeth out with tin snips.
- Open time will vary by climate, region, or dwelling humidity.
- It is considered a good practice to check occasionally that you have enough adhesive transfer on the back of the hardwood plank.
- On large concrete installations, use more than one trowel as teeth will wear down.

INSTALLATION:

STEP 1: We recommend that planks be installed parallel to the outside wall which is usually the longest and straightest. Therefore, snap a chalk line measuring the products width and thickness out from the wall ($4 \frac{1}{4}$ " board width + $\frac{3}{4}$ " board thickness for expansion = 5" or ≈ 120 mm out from the wall).

STEP 2: Spread out a sufficient amount of adhesive so you can work within the available setup or work time. The freshly applied adhesive must leave trowel marks/trowel ridges. Only apply adhesive up to your chalk line and not over it.

STEP 3: Use 3 to 4 cartons at a time. Mix in or use boards that range in color, grain, and length. Place the planks into the wet adhesive with the groove side on the chalk line and facing the outside wall. This is the same direction to that of a nailed/stapled down installation. Ensure that the 1st row is exactly on the chalk line. Use different board lengths, grain, and color tones within each carton to give you a better visual of natural wood.

STEP 4: Cut off the last piece in your starting row, leaving proper expansion space from the wall $\frac{1}{2}$ " (12 mm) and use it as your 1st piece or starter board for the 2nd row. It is best to not use a piece under 6" (≈ 150 mm) as they tend to move out of position. Continue on each row, engaging the groove into the tongue along the side 1st, then the end to be engaged 2nd. Avoid if possible, end joint cluster by staggering ends by twice the plank width or approximately $8 \frac{1}{2}$ " (212 mm) on $4 \frac{1}{4}$ " wide flooring. If any adhesive comes in contact with the face of planks, use adhesive remover before it dries.

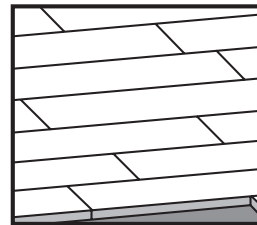


FIGURE 1.1 (CORRECT)

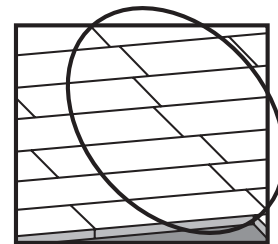


FIGURE 1.2 (INCORRECT)

STEP 5: To keep your planks from moving out of position, we highly recommend the use of 3M Blue masking tape or a painter's tape. Do not use any regular masking, duct, or electrical tapes as they can leave a film on the plank face. Apply tape 90 degrees to row direction with approximately a 15-16" (38 to 41 cm) long piece; or long enough for 3-4 rows wide. Lap over or curl up the tape at one end to allow for fast, easy removal. Place tape at 48" (1,20 m) apart or across the rows.

STEP 6: Complete the field area. For the last board, leave again a proper expansion gap $\frac{1}{2}$ " away from the wall. If it is necessary to finish the last row with boards less than a full board width wide, then cut or rip along the board width using a table saw. Always use safety glasses.

STEP 7: Before installing the last plank, choose the one that matches the moldings.

STEP 8: Avoid any traffic on your new installation for 24 hours. If this is unavoidable, use a kneeler board to help distribute the weight and movement.

STEP 9: Clean up your trowel and hands using the adhesive remover.

FLOATING FLOOR INSTALLATION

STEP 1: For ease of installation, always roll out the underlayment in the same direction as the engineered product. Tape edges of underlayment together (Tuck Tape is the best choice). Some underlayments already have a pressure-sensitive tape on edges. For optimized acoustic and stability performance, we recommend the installation of a dense underlayment up to 1/8" (3 mm) thick with minimal compression of max. 20% the height or thickness. You must also install a vapor barrier to avoid any deformation of the hardwood from subfloor humidity.

STEP 2: Always leave a proper expansion space from all walls. Engineered platforms used in a floating floor method require the use of wedges or spacers against starting wall to help keep the flooring from shifting or moving during installation. Make sure that the starting wall is straight and perpendicular to the room. Refer to the following table.

STEP 3: Apply the same T&G floating floor adhesive to the **BOTTOM** of the **GROOVES** (side and end). Reverse the plank direction by having the tongue side (edge) facing the starter board. Remember to leave a proper expansion gap along the end wall. Engage plank boards together.

STEP 4: Continue on using engineered boards for the 1st row. Cut off the last board in 1st row leaving a proper expansion space. Use the cut off for the 2nd row.

Install 3rd, 4th, etc. rows. If cut off from end piece is too small, discard and use a new piece. The use of a tapping block is required. Never hit the groove side or edge of any board as damage may occur. Simply wipe off any adhesive that comes in contact with the sawed board face. A dampened cloth (water only required) works well. Check with adhesive manufacturer for details.

NOTE: If possible, be careful to stagger all end joints approximately twice their width (min. 6 1/2" total) to achieve best visual. Use boards of different random lengths and grain appearance for best results. A tool referred to as a board puller can be used to engage end joints if needed.

STEP 5: In most installations, the last or final row will need to be ripped to width. Remember to calculate into your measurement a proper space for expansion.

STEP 6: Make a final inspection of the installation, verify that there is no adhesive or residue left on the engineered floor face. Make sure you use the right products recommended by the manufacturer and compatible with the Preverco products.

FLOATING FLOOR INSTALLATION WARNING

THE FLOOR MUST NOT BE FIXED OR PRESSED TO ANY SURFACE AND CANNOT BE SUBMITTED

TO ANY MOVEMENT RESTRICTIONS.

Expansion gaps play a fundamental role in the performance of a floating floor installation. They allow the flooring room to expand and contract freely in relation to changes in ambient humidity and prevent damage that can affect the aesthetics and structural integrity of the floor. When the room humidity varies strongly, cumulative expansion and contraction can become damaging for the aesthetics and durability of the floor.

1/2" (12 mm) minimum expansion gaps are standard for most installations of floating flooring. The expansion gaps must be respected on all walls, columns, doorways, molding, etc. (ANY FIXED ELEMENTS). The use of spacers during installation ensures that appropriate expansion gaps will be respected. IF THE LENGTH OR WIDTH OF THE ROOM EXCEEDS 26' (8 METERS). See reference table below.

REFERENCE TABLE EXPANSION GAP:

Required expansion Gap	Maximum room width	Maximum room length
1/2 in (12 mm)	Up to 26' (8 meters)	Up to 52' (16 meters)
3/4 in (18 mm)	Between 26' to 40' (7 to 12 meters)	Between 52' to 80' (14 to 24 meters)

NOTE: The installation of a "T" molding might be necessary for any room exceeding 40' in length or width. The drywall should be undercut to obtain the necessary expansion room.

INSTALLING MOLDINGS:

Adequate expansion space must be envisioned for the installation of all moldings. We recommend the use of engineered flooring adhesive to attach the molding to the subfloor. Never attach moldings to the floating floor. When installing the moldings, be careful to ensure that it will not inhibit the floor's ability to move. Quarter rounds and baseboards are to be nailed only to the wall and never to the floating floor.

KITCHEN ISLAND:

Never install a kitchen island directly on a floated floor. Always sit the island on top of a shim (as plywood) 1/8" thicker than the floor to allow floor movement. Floor must overlap the island (at least 1").

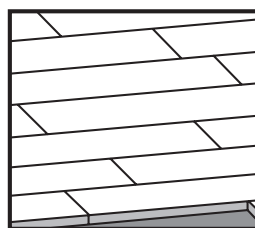


FIGURE 1.1 (CORRECT)

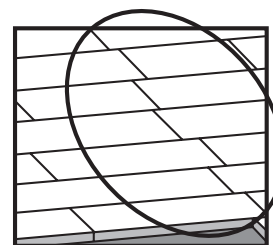


FIGURE 1.2 (INCORRECT)

REGULAR AND PREVENTIVE MAINTENANCE

Preverco offers a complete selection of maintenance products specially designed to preserve the original appearance of your hardwood floor. Quick and easy to use, they will make cleaning as easy as ABC and protect your investment for a lifetime.

- Maintain proper humidity conditions within your home. It is recommended that the humidity level stay in the recommended range between 37% and 50% throughout the year. Problems like gaps, splits and cracks related to humidity level variations can be minimized by proper ventilation, humidifying, dehumidifying or heating. Splits, checks and cracks are not considered manufacturer defects. Floor movement is the only cause for noise. Noise emission from a hardwood floor is not a manufacturing defect.
- Regularly vacuum the floor to prevent sand or abrasive dust from accumulating and scratching the finish.
- Entrance doormats help reduce dirt, stones, gravel, and sand from damaging your new hardwood floor.
- Carpets and doormats must allow air to pass through so that moisture is not trapped under them.
- Remember that wood and water do not mix! Never wash your Preverco floor with water and do not leave water or any other liquid to dry on your hardwood floor. Wipe up spots and spills immediately.

- Be sure to keep pets' nails cleaned and trimmed as they could damage the finish of your hardwood floor.
- Although our finish is very durable and resistant, sharp and pointed objects can cause damage to your floor.
- Never use wax, household detergents, or soap, as they will leave a greasy film on your floor. Avoid all oily products and all products designated for the maintenance of hardwood furniture. These types of products are not designed for the maintenance of your hardwood floor. Use Preverco maintenance products specially designed for the care of your hardwood floor. Always clean your hardwood floor lengthwise following wood grain.
- Avoid wearing high heels on your hardwood floor. Do not wear shoes that are covered with dirt, gravel, or abrasive dust.
- Use adequate floor protection (felt pads) under all furniture and chair legs, in order to ease their movement and to prevent scratching the floor. Use protective mats at doorways.
- Protect the floor while moving heavy pieces of furniture and appliances i.e. stove, fridge, etc. Carry them or place them on a rug, wrong side up, and slide the rug. The use of one or more piece(s) of clean plywood 5/8" (15 mm) could also be used to move objects on.

REPAIRS

If an incident should damage your Preverco prefinished hardwood floor, replacing the affected board(s) is easy. Your Preverco Authorized Dealer can assist you regarding any repairs.

MANUFACTURER COMMITMENT

If the proper maintenance and conditions indicated in this document are respected and the quality of the product or the finish does not comply with the established quality standards, Preverco will repair your floor with the superior quality products available in the market. For more information, please consult the warranty documents.

