



## INSTALLATION GUIDE FOR PRE-OILED ENGINEERED FLOORING

### **Sub floor:**

Important: Wall to wall carpeting must be entirely removed before installing hard wood floor.

**Plywood:** The industry now allows the use of plywood CDX (exterior grade) with tongue and groove minimum 5/8" making sure the sub-floor is attached with suitable fasteners (floor and decking screws work perfectly). **Sheet rock screws are not acceptable.**

We recommend nailing or screwing the plywood panels every 4 to 6 in. on the inside and every 2 to 4 in. to the outer side. It is always preferred to screw the panel directly to the beams. Prior to the installation, the humidity level of the plywood should be tested, as it should not be higher than 12%.

**Concrete:** Must always be tested for humidity levels, it should not exceed 4% before installation. You can also glue a 2 x 2 ft sheet of plastic for 48 hours to verify if there is any change in the colour or if condensation occurs. A test as such should be done at every 200 ft<sup>2</sup> area. If the concrete is too damp (for example if the tester shows a reading of more than 4% humidity or there is a change in colour or if condensation occurs following the test done with the plastic sheet an additional test must be done using calcium chloride to determine whether the humidity exceeds 3lbs/1000ft<sup>2</sup> per 24 hours. If this is the case, but the result is inferior to 7lb/1000 ft<sup>2</sup> per 24 hours, a waterproof membrane for concrete can be used. Never install a hardwood floor if the calcium chloride test indicates a reading greater than 7lb/1000ft<sup>2</sup> per 24 hours.

If sealed, the concrete sealer must be removed entirely this can be done using a sander. A water test will determine whether the concrete is sealed or not. If a few drops of water are being absorbed it means it is not sealed.

A 60 day waiting period must be allocated for a new concrete floor. The concrete must be uniform and level within 3/16 of a 10ft length.

**Radiant heat flooring:** Be sure that a heating and leakage test has been completed and that the system has been turned on and off repeatedly for a few weeks prior to installation of the wood floor. The heating system must be turned off after reaching the proper temperature before installing the wood floor. Once installed, you can gradually acquire the desired temperature at a rate of 3°C (5,4°F) per day. The surface temperature should never exceed 30°C (86°F). In addition, if the duct system is exposed on the sub floor, they must be covered using a 3/8" plywood to distribute heat evenly.

**Tile floor:** Do not remove tiles as that type of flooring was installed with adhesive that may prevent the wood flooring glue used in installation to adhere effectively to the sub floor.

### **Inspection of the sub-floor:**

1) Solidify the structure: Nail or screw the sub floor plywood properly. If certain sections are not sufficiently solid, squeaking may occur. Simply gluing and screwing the wood floor to the sub floor will not eliminate squeaks. The strength of the sub floor will guarantee the quality of the wood floor installation. The sub floor must be strong enough to support the weight of the manufactured wood flooring. The successful installation of your floor is directly related to the condition of the sub floor. We suggest you use CDX plywood or concrete.

2) Uniformed and levelled: Using a ruler and a level, check if the concrete floor is level within 3/16 of an inch over a length of 10 feet or 1/8 of an inch over a length of 6 feet. If needed, fill lower cavities with a cement compound capacity of 3000 lbs/po<sup>2</sup>. Be sure not to exceed the maximum thickness recommended by the manufacturer as you could weaken the areas which may not support heavy objects. Make sure the sub floor has no imperfections (including nails or screws).

3) Cleanliness: Properly sweeping and vacuuming the surface is essential prior to installation. There should be no trace of wax, paint, oil or other substance that could interfere with adhesion of the glue to the sub floor.

4) Dryness: Measure the humidity level of different parts of the sub floor and record the results. For a plywood sub floor, the difference in humidity levels between the hard wood floor and the sub floor should not be more than 2% with a maximum of 12% for the sub floor. For a concrete sub floor, the humidity level should never exceed 4%. The installer and the floor owner are both responsible for the measurement of humidity level of the sub floor and they must ensure that it is within the recommended limits before installing the floor.

#### **Laying a floor using nails:**

**Step 1:** Chose a manual or pneumatic (air) nailer. Make sure it is suitable for engineered flooring with a thickness of 7/16 of an inch. Contact the manufacturer or supplier for more details. You must use nails or staples of proper length. Follow all safety instructions regarding protection such as goggles, shoes, helmet if necessary, power cords, grounding of pneumatic equipment, etc.

**Step 2:** It is recommended to install the hard wood boards perpendicular to the joists.

**Step 3:** By providing an expansion joint  $\frac{1}{2}$  inch along the wall, draw a chalk line to the width of a plank, plus  $\frac{1}{2}$  inch. For example:  $5 \frac{3}{16} + \frac{1}{2} = 5 \frac{11}{16}$  inches.

**Step 4:** Place de boards to the marked line then remove boards from 3 to 4 boxes at a time and lay them in an appropriate pattern mixing the different lengths, colours and wood grain.

**Step 5:** Place the extremities of boards (tongue side) along the chalked line and the grooved side facing the starting wall.

**Step 6:** Nailing the surface (first row only) drill the top of the board every 8 to 10 inches at a distance of  $\frac{1}{2}$  to  $\frac{3}{4}$  of an inches from the end of the board (groove side). For best appearance, drill into a dark grain rather than a light grain. Drive nail with a punch. We recommend covering these holes with wood putty even when covered with quarter rounds or baseboards to prevent cleaning products from seeping into the wood.

**Step 7:** Invisible nails: Nail the other side of the board at a 45 degree angle in the tongue every 8 to 10 inches. Complete the first row along the chalk line and see if you can start using the nailer without hitting the wall or other objects. You may need to set the second row with an invisible nailing method. No surface nailing for the second and other rows.

**Step 8:** It is recommended to stagger joints at least twice the width of a board. For example: for  $5 \frac{3}{16}$  inch in width boards, space joints  $10 \frac{1}{2}$  inches. A brad nailer is the ideal tool to speed up the nailing in invisible nailing surface. Be sure there is a nail every 1 to 2 inches at each end of the board.

**Step 9:** Start using a nailer every 8 to 10 inches and a stapler 1 or 2 inches from each end. Spread boards from 3 to 4 boxes depending on the pattern chosen. Be sure to mix the boards properly according to their length, colour (light and dark) and wood grain to give your floor a natural look.

**Step 10:** Continue the installation. When cutting the last board of a row, you may use the remaining piece to start the next row, as long as it is at least 6 inches in length.

**Step 11:** When reaching the last row, it becomes impossible to use the nailer. You must repeat the invisible nailing process as explained above: nailing every 8 to 10 inches and 1 or 2 inches each end.

**Step 12:** The last row must be nailed on the surface, and the holes filled with wood putty. Remember to nail only in the darkest part of the wood grain making the holes less noticeable. You must leave an expansion gap of  $\frac{1}{2}$  inch.

**Step 13:** If the last row needs to be narrower than the width of the board, be sure to measure taking in account the expansion joint  $\frac{1}{2}$  inch along the wall before sawing.



### **Glue installation:**

Use only a urethane base adhesive which dries well in moisture, apply with a trowel the recommended amount to ensure the best possible adhesion between the sub floor and the hardwood. Check the expiry date. Test the moisture of the concrete. Spread a small amount of adhesive on the concrete and check its adhesion.

It is important to note that over the next steps of bonding installation, the boards are arranged reverse from the nailing installation. Example: The tongue side is facing the starting wall and the groove side is facing the surface to be covered. Use only a metal trowel. The teeth of a plastic trowel wear and cause a difference in the rate of application of the adhesive, which directly affects the adhesive ability between the hardwood and the sub floor.

The engineered flooring can be installed in a basement as well as an upper floor.

### **A few notes:**

- The setting time of the adhesive can vary from one brand to another
- Be sure to apply adhesive only to the area needed.
- Remove any adhesive from the finished surface with the appropriate solvent. Refer to the instructions from the manufacturer.
- Never slide or drag a board on a surface impregnated with adhesive as this may cause a shifting of the board.
- Firmly press the trowel maintaining a 45 degree angle. Following the application specification as per the manufacturer's instructions.
- Use a new trowel if teeth are worn. Do not try to make new cuts with tin snips.
- The bonding time may vary depending on temperature and humidity level.
- It is advisable to check from time to time if the back of the boards are sufficiently coated with adhesive.
- For a large-scale installation on concrete, use more than one trowel as the teeth will wear quickly.

**Step 1:** The manufacturer wood engineering products measure 7/16 in. x 5 3/16 inches, and their length can reach 78 inches. We recommend installing the boards parallel to the exterior wall, which is usually longer and straighter. So draw a chalk line 5 11/16 inches from the wall.

**Step 2:** Apply the adhesive only on a surface sufficient for the setting time or working time you have (about 18 to 24 inches). The adhesive applied must show ridge marks left by the trowel. Apply the adhesive only to the drawn line without going over it.

**Step 3:** By using boards from only 3 to 4 boxes at a time, place boards on wet adhesive aligning the groove side with the drawn line and the tongue side facing the exterior wall. This arrangement is opposite from the nailing installation. Vary the length, grains and colours in order to obtain the best visual effect.

**Step 4:** Cut the last strip of the starting row about ½ inch from the wall and use the remaining piece to start the second row as long as it is at least 6 inches in length, otherwise it may move. Continue installing the boards by first inserting the tongue into the groove on the side of the board and the tongue into the groove on the end. Avoid clustering joints and to do so, space them at least 10 ½ inches. Remove any adhesive from the finished surface with the appropriate solvent before it dries.



**Step 5:** To prevent the boards from moving, we strongly recommend that you use painters tape or blue 3M masking tape. Do not use regular masking tape, duct tape or electrical tape, as they can leave an unwanted film on the surface. Apply perpendicular to the direction of the boards, tape lengths from 15 to 16 inches and long enough to cover three rows. Overlap or wrap the end of the tape to make it easier to remove. Place the tape strips at 48 inches apart.

**Step 6:** Do so over the entire surface to be covered. Leaving again, on the last board, an expansion joint of  $\frac{1}{2}$  inch along the wall. If the last row needs to be narrower than  $5 \frac{3}{16}$ , cut the boards using a bench saw and always wearing safety glasses.

**Step 7:** Install reducers, nosing and quarter-rounds required to complete the installation.

**Step 8:** Avoid any traffic to the freshly installed surface for at least 24 hours. If this is not possible, be sure to move around on your knees on one board in order to properly distribute the weight and movement.

**Step 9:** Clean your hands and trowel using recommended solvent.

**Tools:**

- Broom and Vacuum
- Level
- Measuring tape
- Scraper
- Chalk line
- Drill
- Jamb saw ( to clear the jambs and frames)
- Moisture meter for wood and concrete
- Circular saw
- 1/8 inch tape or painter's tape
- Tapping block
- Putty knife
- Lever pull
- Nail punch
- Radial arm saw or handsaw
- Hammer
- Finishing nails  $1 \frac{1}{2}$  (for plywood sub floor only)
- Ditton touch up and repaire kit
- Appropriate nailer with nails and staples (for nailed installation)
- Urethane base adhesive which dries in moisture (for glued installation)