

# INSTALLATION GUIDE

## ENGINEERED WOOD

# FLOATING INSTALLATION

# Model Cohesion



The investment that hardwood flooring represents in the home is an important one and this is why product quality and the quality of the installation are of the utmost importance.

Following the instructions in this installation guide will result in your total satisfaction with MODELCOHESION flooring for years to come. These installation guidelines provide minimal requirements. However, the installer must ensure compliance with legislation in effect in the country where the products are installed. Our products are designed for use on concrete, plywood, oriented strandboard subfloors and any other material qualifying under standards in effect for structural materials strong enough to support the stress generated by securing systems.

MODELCOHESION flooring may be installed in the basement or on any other storey in the home.

The installation of flooring should be the last step in the construction or renovation of a house.

**PLEASE READ ALL INSTRUCTIONS AND INFORMATION ON THE MODEL WARRANTY BEFORE PREPARING AND INSTALLING YOUR FLOORING.**

## MATERIAL AND TOOLS

- Hygrometer for ambient air, wood and concrete
- Chalk line
- Putty knife
- Measuring tape
- Square and T-bevel
- Level
- Table saw
- Handsaw
- Mitre saw
- Drill with a 3/32 in (2 mm) bit
- Carpenter hammer
- Nail punch
- Tow bar and tapping block
- Crowbar
- Broom or vacuum cleaner
- Levelling compound (waterless)
- Wood glue (must not lose adhesive properties when expanding and shrinking occurs)
- Model touch up kit
- Recommended underlayment: [AcustiTECH™ VP](#)
- Approved vapour barrier by the Canadian Construction Material Centre (CCMC)

**Note: PG Hardwood flooring is not responsible for any damages caused by a non-recommended tool, adhesive or underlayment.**

Well-maintained tools will ensure the quality of the installation. The pneumatic hammer table must be checked before and often during the installation. This will prevent the floor from scratching. PG Hardwood flooring is not responsible for any damages caused by a non-recommended tool.

Be sure to always wear protective equipment to avoid injuries.

## PREPARATION OF THE ENVIRONMENT

Installers will optimize the quality of their installation subject to the following conditions.

- Stable temperature. Premises must be heated to 22 °C for seven days prior to the installation. At the time of installation, the temperature should be 22 °C (72 °F).
- Stable relative humidity. A few days before the installation, relative humidity on the premises must be maintained at a stable 37% to 45%.
- Proper storage of the boxes in the home. Engineered wood boards should remain sealed in their boxes until installation. They should be stored at ground level in the home or on a storey above, away from exterior walls with a minimum air space of 4 in (10 cm) between the floor and boxes, 48 hours before installation.

## BASE BOARDS AND QUARTER ROUNDS

It is recommended that a putty knife be used to remove base boards and quarter rounds. Once the flooring is installed, replace base boards and quarter rounds, nailing them to the walls but not the flooring.

Trim moulding around door frames in order to be able to insert boards and ensure a quality finish.

## SUBFLOOR PREPARATION

### FLOATING FLOOR INSTALLATION OVER CONCRETE

#### CHECK MOISTURE CONTENT

Before measuring moisture content, the concrete surface must have dried for at least 30 days until the recommended moisture content is achieved at an ambient temperature of 22 °C (72 °F) and relative humidity ranges between 37% and 45%.

Use a hygrometer (e.g., Wagner c575 model) to check the moisture content in the concrete. It should not exceed 12% (or 4% if the hygrometer measures water volume). Conduct more in-depth tests using 60 cm<sup>2</sup> (24 in<sup>2</sup>) plastic sheets at 18.6 m<sup>2</sup> (200 ft<sup>2</sup>) intervals of concrete surface or do a calcium

chloride test to allow moisture in the concrete, which should not exceed 1.4 kg (3 lbs) per 28.3 m<sup>3</sup> (1 000 ft<sup>3</sup>) per 24 hours, to evaporate.

If the moisture content in the concrete is between 1.4 kg (3 lbs) per 28.3 m<sup>3</sup> (1 000 ft<sup>3</sup>) and 3.26 kg (7 lbs) per 28.3 m<sup>3</sup> (1 000 ft<sup>3</sup>), the concrete may be covered with a waterproof underlayment approved for use on concrete. Never install flooring if the calcium chloride test indicates a result above 3.26 kg (7 lbs) per 28.3 m<sup>3</sup> (1 000 ft<sup>3</sup>).

It is recommended that a liquid concrete sealant be applied directly to the slab to avoid possible moisture infiltration in the future.

### CHECK SLAB LEVEL

The level of the concrete slab must be verified. Differences in level must not exceed 1/8 in (0.32 cm) over 6 ft (2 m) or 3/16 in (0.48 cm) over 10 ft (3 m). If depressions must be filled, use a cement-based water-free filler compound with a capacity of 3 000 lbs/in<sup>2</sup>. Be careful never to exceed the manufacturer's recommended maximum thickness. Exceeding the recommended thickness of filler in depressions may result in filled areas not being strong enough to support the weight of heavy objects.

### SUBFLOOR CLEANLINESS

Sweep or vacuum the entire surface. Make sure that the surface is free of wax, paint stains, oil or other substances that might prevent the glue from bonding to the subfloor.

### SOUNDPROOFING (CONDOMINIUMS)

If you wish to add soundproofing in a condo (for example) an acoustic liner must be laid down. The liner should be glued to the subfloor. Boards are then glued to the liner using the same glue.

## FLOATING FLOOR INSTALLATION OVER A WOOD SUBFLOOR

It is now allowed to use CDX veneer of 5/8 in (1.3 cm) with strip and groove. The subfloor must be installed on a spacing centre of maximum 16 in (40 cm) between the joists.

Plywood panels or oriented strand boards (OSB) of 3/4 in (1.9 cm) or 23/32 in (1.8 cm) are also accepted. The subfloor must be installed on a spacing centre of maximum 19.2 in (48.8 cm) between the joists.

We recommend screwing panels every 1/2 in (1.3 cm) along their inside edges and every 4 to 6 in (10 to 15 cm) along their outside edges. It is always best to fasten panels directly to joists. Ensure that the subfloor is solidly anchored with appropriate fasteners; screw shanks should not be threaded up to their heads. Use of gypsum screws is not acceptable; use of flooring and terrace screws is perfectly suitable. All sub-finish panels should be spaced 1/8 in (3 mm) apart to allow for expansion.

Softwood boards 1 x 5 in (2.5 x 13 cm) or 1 x 6 in (2.5 x 15 cm) laid down diagonally: This subfloor must be covered with 5/8 in (1.6 cm) sheets of plywood or 3/4 in (1.9 cm) sheets of oriented strandboard (OSB) screwed in place.

### MOISTURE CONTENT

At the time of installation, the moisture content in the subfloor must be less than or equal to 12%. Ensure also that the moisture content in the engineered flooring boards does not differ by more than 2% from that of the subfloor.

### PREPARATION OF THE SUBFLOOR

Remove any remaining glue or staples and drive remaining nails from the old floor covering into the subfloor.

Even out the subfloor by sanding uneven spots and using flooring leveller.

Once inspected, and after corrections have been made, the subfloor should show no differences in level. Remember that engineered wood flooring will not correct major or apparent defects in a subfloor. All areas of the subfloor to be covered must be inspected. Imperfections and cracks detected will define weak points in the subfloor and corrections to be made. Therefore, it is vital that the subfloor be inspected before installing the engineered wood flooring.

## INSTALLING THE ACOUSTITECH™ VP MEMBRANE

### RECOMMENDED ACOUSTIC UNDERLAYMENT

To ensure acoustic performance and stability, we recommend installing the AcoustiTECH™ VP membrane before installing your MODELCOHESION floor. The membrane meets all performance tests required for ideal installation. Failure to use this membrane may void your warranty.

- Cut the membrane with a retractable blade or scissors.
- Install the aluminized side up.
- Lay the membrane strips down perpendicular to strips of engineered hardwood.
- Join and seal the strips together with a vapour barrier adhesive tape recommended by the Canadian Construction Materials Centre (CCMC), do not overlap.
- If a tear should happen during installation, seal the tear with a vapour barrier adhesive tape recommended by the CCMC.

## PREPARATION OF THE INSTALLATION

### PARALLELISM AND SQUARENESS

When flooring is to be laid in a house, the entire house must be checked for wall parallelism and squareness to determine if any walls are not parallel and to plan installation consequently.

By always using exterior walls as benchmarks, measuring squareness will precisely verify the parallelism of each interior wall and any obstacles (such as ceramic floors, stairwells, fireplaces, etc.). Thus, the installer will avoid relying on work carried out improperly beforehand.

Verify the squareness of each room by tracing two plane lines perpendicular to the exterior walls, as close as possible to the centre of the room. Then verify the angles formed using an angle plate. Once squareness is confirmed, you are ready to begin installation.

When installing for a full house, it is important to always begin the installation in a room where there is an exterior wall parallel to the starting point.

### INSTALLATION BENCHMARKS

Squareness can be instrumental in selecting one wall over another as the start point. If there is no appropriate starting point like a ceramic covered surface, we will choose the most apparent wall of the room.

When flooring is laid throughout a house, work should normally begin in the longest room, generally the hallway.

Before beginning work, ensure that joists are perpendicular to the first boards laid.

### EXPANSION JOINTS

The expansion joint around the room plays a fundamental role in ensuring the durability of the flooring, allowing the wood to expand and contract with changes in relative humidity in the room and internal variations in the wood itself.

When humidity levels in a room vary dramatically, the accumulated expansion and contraction of the flooring may result in damage to the appearance or durability of the flooring.

The established standard for an expansion joint is 1/2 in (1.3 cm) for the width of the board and 1/4 in (0.6 cm) for the length.

- If there are baseboards and finishing trim, comply with installation standards for expansion joints.
- If there are baseboards only and their width is insufficient to cover the expansion joint, cut a strip of gypsum at the bottom of the wall when an expansion space is required.

The established standard for an expansion joint is 1/2 inch (1.3 cm) all around a room of maximum width of 26 ft (8 m) or maximum length of 52 ft (16 m). Any increase in these dimensions must involve a proportional increase in the expansion joint required up to a maximum of 3/4 in (1.9 cm).

To determine the expansion joint, use the larger measurement between the length and width.

It is important to note that rooms measuring more than 40 ft (12.2 m) may need a T-moulding. It is important to cut the bottom part of the drywalls to allow space for the floor's expansion.

### MARK THE START POINT

From the starting point, trace the starting line for the first row. To trace the first row line, add the widths of two boards to the 1/2 in (1.3 cm) of the expansion joint in the calculation of the distance in relation to the wall leaving a work area of approximately 3 ft (1 m) of width.



### INSTALL THE GUIDE

In the work area, screw temporarily a straight plank alongside the installation line to align the boards.

## INSTALLATION OF THE FLOOR

### BOARD SELECTION

Board selection allows the installer to lay out a sample representative of the final result. This is the time when wood shades and board lengths can be mixed and matched for a preview of how the future flooring will look.

Note that a 5% industry standard set for acceptable imperfections in boards does not include waste from the installation itself.

Boards must be examined by the installer before they are laid down. Any board installed is considered accepted by the installer and/or owner. Such boards may not be claimed under warranty on the basis of manufacturing defects or classification errors.

### INSTALLING MODELCOHESION BOARDS

#### FIRST BOARD, FIRST ROW

Before beginning the installation of the boards, plan ahead to leave necessary spaces for mouldings like T and L mouldings, stair nosings, reducers, etc.

Following the manufacturer's recommendations, put a stripe of glue on the strip at the extremities of the board. Put the groove side of the board back to the straight plank. Place the groove side of the next board to the first glued strip part of the first board. Place the boards with a hammer and a tapping block. Do not hit the board directly with the hammer. Apply a stripe of glue on the strips of the next board to complete the row.



Cut the last board of the row, measuring the necessary space for the expansion joint. Place the last board using a tow bar. Protect the wall to avoid damages.

### SECOND ROW

It is possible to reduce losses by carefully choosing the last board in a row: choose a board sufficiently long (more than 16 in (41 cm)) to be able to use the remaining part to start the next row.

Joints in each row of boards must be at least 10 in (25.4 cm) away from the joints in the preceding row. Staggering boards this way adds to the beauty of the flooring and to its stability during changes in relative humidity. The pressure of boards expanding and contracting is more efficient, especially on the next row. By limiting and standardizing the pressure, it is less likely to extend to the entire flooring surface.

Apply a stripe of glue of 1/8 in (3 mm) on the strip of the last row's board. Place a new or a cut board on the glued strip. Place the boards using a hammer and a tapping block.



### INSTALL NEXT ROWS

Install successive rows in the same manner as the second row. Periodically verify the parallelism of boards installed for early detection of any adjustments to be made.

### LAST ROW

Measure and cut boards from the last row leaving the necessary space for the expansion joint. Note that boards in the last row must be a minimum of 2 in (5 cm) wide, in addition to the expansion joint required. It is recommended that narrow boards in the last row be secured in place by applying a strip of wood glue to the groove. Never anchor the last row of board directly to the floor.

### REMOVE THE GUIDE

Remove the guide board and install the remaining two rows by gluing and positioning them as demonstrated in the last steps.

### INSTALL MOULDINGS

Cut the mouldings to the appropriate length and glue them to the floor using wood glue.

### CLEANING

Once the installation is complete, vacuum and inspect flooring surface. Remove excess glue using a manufacturer recommended product. Then apply cleaning products offered or recommended by PG and follow instructions.

### APPROVAL OF WORK

If you are a contractor, we recommend that you have your work approved by the owner or person in charge of the premises.

### PRECAUTIONS TO TAKE DURING INSTALLATION:

- Never apply glue to board grooves. This will prevent the wood from expanding and contracting and make tongue-and-groove fitting very difficult.
- Keep hands clean when using the manufacturer-recommended product for removing excess glue.
- Never hit board tongues directly with a hammer. Always use a block.
- Wait at least 24 hours before installing furniture or walking freely on flooring.
- If you must walk on a newly installed floor, avoid possible spacing between boards by taping them together with adhesive tape (blue 3M tape).

## SPECIAL CASES

### REVERSE INSTALLATION

Sometimes flooring laid down from one room to another requires that boards be installed in reverse order using a slip tongue. The slip tongue transforms a board groove into a tongue, making it possible to lay a board down in the opposite direction in the next room. Holes are drilled in the board groove and the board is secured in place with finishing nails. The slip tongue is then coated with glue and inserted into the board groove, resulting in a tongue. When a new board is laid, installation then proceeds in reverse order.

### WALLS AT 45°

Walls at 45° decrease the amount of support provided to subsequent rows of boards by the first rows. To avoid possible misalignment, use a finishing air hammer or an ordinary hammer to nail in finishing nails for added support. Take care not to hammer in nails within 2 in (5 cm) of board ends.

### ABUTTING CERAMIC SURFACES

At junctions with ceramic flooring, use a board of the same species as the flooring boards to demarcate ceramic flooring.

### NOSING

Special boards called nosing can demarcate flooring at a landing. Glued and nailed in vertically, they provide a solid end to flooring.

### REDUCER STRIPS

Room level may vary from one room to the next. Reducer strips solve the problem. Glued and then nailed in at 45°, they provide the junction between two heights and compensate for a change in level between two rooms.

### INSTALLATION ON RADIANT HEATING

Successfully installing engineered wood flooring over a radiant heating system involves special precautions. The higher the temperature, the more the air and materials in the immediate vicinity tend to dry out. In light of this, consumers hesitate to install wood flooring on radiant heating because they fear that the flooring will contract, resulting in unsightly cracks between the boards. Problems may be avoided by taking certain precautions. Since radiant heating affects ambient temperature more quickly than standard heating systems, the humidity rating in the air must be carefully controlled and maintained between 37% and 45% all year long. To achieve this, a humidifier or a dehumidifier must be used, depending on the season.

If engineered wood flooring is to be installed on radiant heating, first ensure that a heat and leak test has been carried out and the system has been turned on and off a number of times over a period of several weeks prior to installation of the flooring. The heating system must be turned off and room temperature must be reached before installing the flooring. Once the installation is completed, gradually increase the heat temperature by 3 °C (5.4 °F) per day until the desired temperature is reached. The surface temperature of radiant heating system must never exceed 27 °C (82.4 °F).

#### **There are four standard methods of installing engineered wood flooring on a radiant heating system.**

The **first method** consists of installing the engineered flooring boards on a 5/8 in (1.6 cm) plywood subfloor covered with vapour barrier paper recommended and temperature resistant to above-normal temperatures, 30 °C (85 °F). The plywood is screwed into place on the floor joists between which the radiant heating is installed.

The **second method** is used when flooring is to be installed on an existing floor, or when it is impossible to install the radiant heating system between the joists. This method consists of installing the engineered flooring on a new 5/8 in (1.6 cm) plywood subfloor covered with vapour barrier paper and supported by the ledger strips screwed to the old flooring. The radiant heating system is installed between the ledger strips.

The **third method** is used to create more constant heating. First, a coat of cement is laid between the ledger strips over the radiant heating coils. Then a 5/8 in (1.6 cm) plywood subfloor covered with vapour barrier paper is installed before installing the flooring boards.

The **fourth method** involves installing the flooring boards on a radiant heating system installed directly in a concrete slab in a basement or in a building with concrete floors. A subfloor consisting of 1/2 in (1.3 cm) sheets of interlocking plywood covered with vapour barrier paper is then installed directly on the concrete. This type of installation is often referred to as a floating floor.