

# 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
- Pneumatic hammer for engineered wood and air compressor
- Finishing pneumatic hammer
- Flooring nails or staples 1 1/2 in (38 mm) 18 gauge
- Vapour barrier

**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

### INSTALLATION OF THE 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.

### INSTALLATION OF TAR-FREE VAPOUR BARRIER PAPER

The installation of tar-free vapour barrier paper is strongly recommended. The paper insulates the subfloor, preventing moisture from coming into contact with the boards. The tar-free vapour barrier paper must be stapled to the subfloor, parallel to the boards. Edges must overlap 2 to 3 in (5 to 8 cm).

## 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.

### 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.

### MARK THE START POINT

Measuring from the starting line, trace a mark with the chalk line where you will place your first row, leaving a work area of approximately 3 ft (1 m) of width.

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.

### INSTALL THE GUIDE

Inside the work area, temporarily place a straight board following the guide line.

### INSTALL MOULDINGS

When installing boards, foresee enough space to insert T and L mouldings, nosing, reducers, etc. Measure correct lengths and cut and secure moulding in place using wood glue

## 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 (nailed or stapled in place) 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.**

	FIXATION	GAUGE	LENGHT	SPACING*	DISTANCE FROM BOARD'S ENDS
MODEL COHESION	Stapled	18	1 1/4 in (32 mm)	4 to 6 in (102 mm to 152 mm)	2 in (51 mm)
	Nailed	18	1 1/4 in (32 mm)	4 to 6 in (102 mm to 152 mm)	2 in (51 mm)

**\* IN ORDER TO AVOID RISKS OF TELEGRAPHING (VISUAL EFFECT OF BUMPS CREATED BY COMPRESSING OF WOOD FIBRES CAUSED BY STAPLES); IT IS IMPORTANT TO FOLLOW THE RECOMMENDED NAILING SCHEDULE. DISTANCE BETWEEN STAPLES MUST BE RESPECTED.**

## ASSEMBLING THE FIRST ROWS OF BOARDS

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

The first row must be installed following the starting line made with the chalk line.

There are two methods of installing the first row of boards :

### First method (with face nail)

The first method consists of hammering a nail into the top of the board 1 in (2.5 cm) from the side of the board. Ensure that the nail is well hammered in and hide it with a crayon provided in our repair kit.

### Second method (without face nail)

This method is used when not nailing boards down as in the first method. Lines of glue are applied to the underside of the board at 6 in (15 cm) intervals. The type of glue used should match wood expansion properties.

Do not use woodworking glue. This method ensures board stability without retention over its entire surface, which would hinder future expansion and contraction.

The first boards of the first row are also held in place by a nail driven into the tongue at 45° along its width and length using a finishing air hammer.

## COMPLETING THE FLOOR

The second row of boards is also secured in place using the finishing air hammer to avoid affecting the alignment of the first row. Subsequent rows of boards must then be nailed down by a nail driven into the tongue at 45° along its length using the conventional floor nailer air hammer instead of the finishing air hammer.

Each row of boards, including the first row, must be nailed down with a minimum of two nails, ideally spaced at 6 to 8 in (15 to 20 cm) intervals, depending on board length.

Note also that a nail located less than 2 in (5 cm) from a board end could eventually cause the board to split.

When a board must be cut to complete a row, it is better to start the next row using the remaining piece. However, ensure that the remaining piece is more than 6 1/2 in (16.5 cm) long.

## AIR HAMMER AND RUBBER MALLET

When laying down a board, it is important to distinguish between the final adjustment of the board and nailing it down using an air hammer.

The final adjustment of a board should be made using a rubber mallet only. The mallet serves to move the board slightly without damaging the wood.

The air hammer is used only to secure the board in place after adjustment. The force applied by the air hammer must be measured with this sole aim in mind.

Both the conventional floor nailer and finishing air hammers must be calibrated according to manufacturer specifications. To verify compliance with manufacturer specifications, test the tool on a piece of scrap wood to avoid damage to good boards.

We strongly recommend using a floor nailer with a seating plate specifically designed for prefinished, engineered wood flooring to distribute pressure on the board over a larger surface. This method will prevent damage to boards resulting from too much air pressure, too much physical pressure applied to boards or misuse of the air hammer.

Board ends in each row must be staggered at least 6 1/2 in (16.5 cm). Staggering board ends improves the appearance of the floor and its stability in the event of humidity variations. Pressure from boards expanding and contracting is exercised efficiently, especially on the next row of boards. Pressure limited and evenly distributed tends to extend less over the entire floor.

Periodically checking row parallelism will allow you to make appropriate adjustments as needed.

## FINISHING UP

### THE LAST ROWS

When a wall prevents use of a floor nailer (generally on the last three rows) finish installation may be completed as follows:

After selecting a board, drill holes at 45° the length of its tongue. Once the board is laid down, the holes serve to drive in finishing nails using an ordinary hammer. Then use a nail punch to completely embed nail heads.

Since the rubber mallet cannot be used to adjust these last boards, use a deer foot instead.

As for the installation of the first rows, two methods may be used.

### First method

The first method consists of hammering a nail into the top of the board 1 in (2.54 cm) from the side of the wall. Ensure that the nail is well hammered in and hide it with a crayon provided in our repair kit.

### Second method

This method is used when boards are not nailed down. Lines of glue are applied to the underside of the last row of boards at 6 in (15 cm) intervals. A nail is then driven into the tongue at the end of the board at a 45° angle. Boards in the second row are also nailed in place using the finishing air hammer to avoid changing the alignment of the first row.

Pieces of wood wedged between the last row of boards and the wall may be used to hold the wood in place until the glue has dried.

### 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 contracteur, 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.