

# Installation Guide

**Model**  
MODEL HARDWOOD INC.

## Model™ hardwood floors

The investment that flooring represents in the home is an important one and customers want their flooring to last. In light of this fact, the importance of product quality and the quality of flooring installation is quite obvious.

Following the instructions in this installation guide will lead to your total satisfaction with **Model™** hardwood flooring for years to come.

### Preparation

#### The environment

- In order to obtain the best possible installation, the installer must ensure that environmental conditions on the premises are ideally suited to the installation of hardwood flooring.
- The house must be heated to a constant temperature of 22°C (72°F) for one week beforehand in order to stabilize both temperature and relative humidity levels on the premises.
- A few days before the installation, relative humidity on the premises must be stable at 37% to 45%.
- At the time of installation, the ambient temperature should read ideally 20°C (72°F).

Boards must be stored on the premises at least 48 hours prior to installation in order to allow the wood to acclimatize to ambient conditions.

### Tools

The following tools are essential when installing hardwood flooring.

- Miter saw
- Handsaw
- Hardwood floor nailer (air-hammer)
- Finishing air-hammer
- Flooring nails
- Hand drill and 3/32" bits
- Crowbar
- Hammer
- Nail punch
- Tapered 2" finishing nails
- Chalk line
- Putty knife
- Wood glue
- Table saw
- Electric drill
- Vapour barrier paper
- Square, Sliding-t-bevel square

Regular tool maintenance ensures quality installation.

Check the floor nailer seating plate before beginning your work, and often during the installation, in order to avoid scratching flooring boards.

During the installation, wear protective gear to avoid possible injuries.

### Subfloor Preparation

Once the old floor covering has been removed, the subfloor must be carefully inspected in preparation for flooring installation.

At the time of installation, the subfloor humidity level must not exceed 12%. Inspect the subfloor completely. Cracks and flaws are weak points in the subfloor and must be corrected.

Subfloor preparation consists essentially of:

- removing any remaining glue or staples and completely driving remaining nails from the old floor covering into the subfloor;
- evening out the subfloor area by sanding uneven spots.

When necessary, ensure that the boards are solidly fastened to joists. Install screws every 8 inches. Screw shanks should not be threaded up to their head.

Once inspected, and after corrections have been made,

the subfloor should show no differences in level. Remember that a hardwood floor will not correct major or apparent defects in a subfloor. Therefore, it is vital that the subfloor be inspected prior to installing the hardwood.

### Installation of Vapour Barrier Paper

The installation of vapour barrier paper is highly recommended.

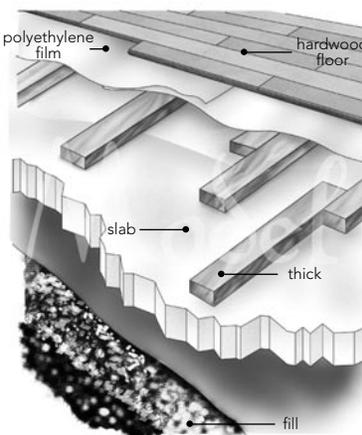
The paper insulates the subfloor, preventing humidity from coming into contact with the hardwood flooring. The vapour barrier (asphalt-free) paper must be laid parallel to flooring boards with edges overlapped 2 to 3 inches.

### Installation of Flooring on a Concrete Subfloor

Due to major fluctuations in humidity levels, hardwood flooring installed in basements or at ground level should be laid as follows:

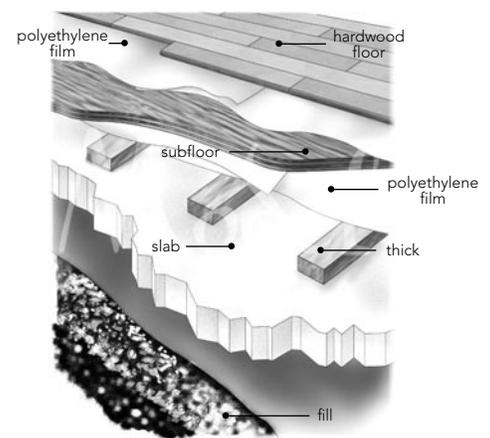
#### ① First method:

- Use a hygrometer to check the humidity level in the concrete. The humidity reading should be less than 12%.
- Glue or nail sleeper every 12 inches C to C over the entire subfloor.
- Lay a polyethylene film with edges overlapped 2 to 3 inches.
- Install 5/8" thick plywood over the entire surface and screw it in place.
- Lay vapour barrier paper (asphalt-free), followed by the flooring itself.



#### ② Second method:

- Use a hygrometer to check the humidity level in the concrete. The humidity reading should be less than 12%.
- Glue or nail sleepers every 12 inches C to C over the entire subfloor.
- Lay a polyethylene film with edges overlapped 2 to 3 inches.
- Install 5/8" thick plywood over the entire surface and screw it in place.
- Lay vapour barrier paper (asphalt-free), followed by the flooring itself.



### Beginning Work

Before beginning work, ensure that the premises benefit from sufficient natural lighting.

#### Parallelism and Squareness

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

By 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.

#### Installation Benchmarks

Squareness can be instrumental in selecting one wall over another as the departure point.

Normally, the most prominent wall in the room should be selected unless, of course, a ceramic floor joint proves to be a more interesting departure point.

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

#### 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 to offer an opportunity to visualize the future flooring.

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

The installer must examine each board before laying it down. Any board installed (nailed in place) shall be 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 the First Row

Remove baseboards and finishing trim with a putty knife. Once the flooring is laid, replace baseboards and finishing trim, nailing them to walls and not to the flooring.

Trim the moulding around doors in order to be able to insert boards. Pay attention to finishing details.

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

When laying down the first rows of boards, choose the straightest boards in the entire lot.

## Expansion Space

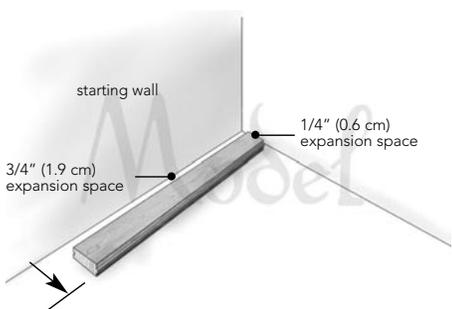
The expansion space all around the room plays a fundamental role in ensuring the durability of flooring, allowing the wood to expand and contract with variations in relative humidity in the room.

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 standards are 3/4" (1.9 cm) for the width of the board, 1/4" (0.6 cm) for the length.

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

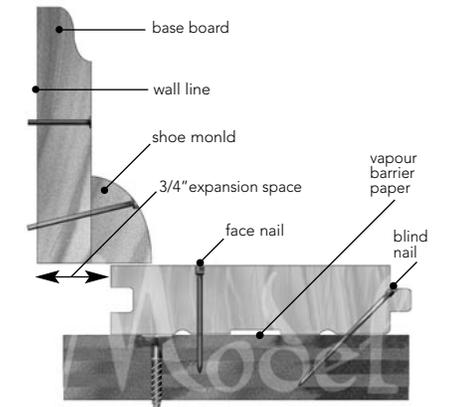
When using the chalk line to draw the line for the first row of boards, it is important to include the 3/4" expansion 3/4" space when calculating the board width.



## Assembling the First Rows of Boards

A line must be drawn for the first row to indicate positioning.

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



### First method (with face nail):

This method consists of hammering a nail into the top of the board 1 inch 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 (without face nail):

This method is used when one does not want boards nailed down as in the first method. Glue is applied to the underside of the board at six-inch intervals. The type of glue used should respect wood expansion properties. Do not use woodworking glue.

This method ensures board stability without retention over its entire surface, which would hinder any future expansion or contraction.

The first boards of the first row are also held in place by nails driven into the tongue at 45° using the finishing air-hammer.

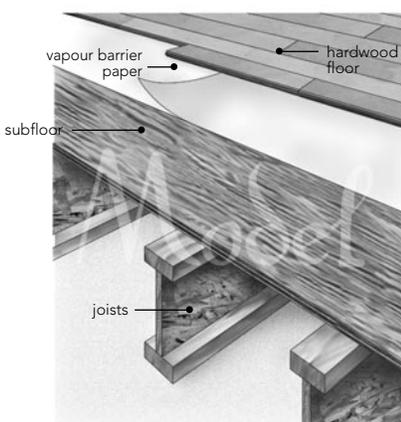
## Completing the Floor

Subsequent rows of boards must be nailed down in the same fashion, with nails driven in the tongue at 45°, this time using the conventional floor nailer 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-inch intervals, depending on board length.

Note also that a nail located less than two inches 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.



## Air-hammer and Rubber Mallet

When laying down a board, it is important to distinguish between adjustment and nailing down.

Adjustments are made solely using the rubber mallet. The mallet serves to move the board slightly, without damaging the wood.

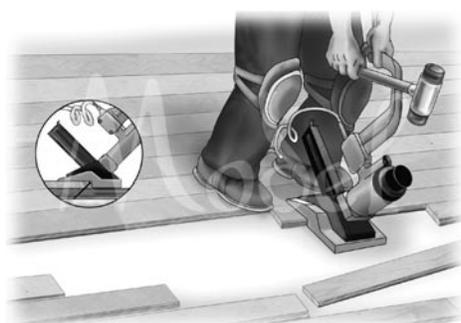
The air-hammer is used only to secure the board in place after adjustment. The force applied with the air-hammer must be measured with this sole aim in mind.

Both the conventional floor nailer and finishing air-hammers must be calibrated according to manufacturer's specifications. To verify compliance with manufacturer's specifications, test the tools on a piece of scrap wood in order to avoid damaging good boards.

This method will avoid damage to boards resulting from too much air pressure, too much physical pressure applied to boards or misuse of the air-hammer.

Use of a seven-inch floor nailer seating plate will distribute pressure on the wood surface and decrease the risk of damage to boards.

Board ends in each row must be staggered at least 6 inches from the previous row. Staggering board ends improves floor aesthetics and stability in the presence of humidity variations. Pressure from boards expanding and contracting acts on the next row of boards, tending to limit and evenly distribute pressure on the entire floor surface.



Periodically verify row parallelism in order to make appropriate adjustments.

## Finishing Up

### The Last Rows

When use of the floor nailer is impossible because the last rows (generally the last three) are too close to the wall, finish the job in the following manner.

Select a board and drill 45° holes in the tongue. Once the board is laid, the holes are used to drive in finishing nails using an ordinary hammer. Then use a nail punch to completely embed nail heads.

Since the rubber mallet may not be used in the adjustment of the last rows of boards, use a crowbar instead.

As in the installation of the first rows of boards, there are two methods of installing the final rows.

### ① First method:

This method consists of hammering a nail into the top of the board 1 inch 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.

### ② Second method:

This method is used when we do not want boards nailed down as in the first method. Glue is applied to the underside of the board at six-inch intervals and a nail is driven into the tongue at the end of the board at a 45° angle.

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 bonded.

## 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.

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 row of boards 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. In order to avoid possible misalignment, use a finishing air-hammer or ordinary hammer to nail in finishing nails for added support. Do not forget to avoid hammering in nails within two inches of board ends.

### Abutting Ceramic Surfaces

At junctions with ceramic flooring, we recommend that a board of the same species of wood as the flooring be used to limit ceramic flooring contours.

### 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 at 45°, they provide the junction between two heights and compensate for a change in level between rooms.

2430 Principale St.  
Saint-Édouard-de-Lotbinière  
Quebec, Canada G0S 1Y0  
Telephone: (418) 796-2288  
1 888 636-6335  
Fax: (418) 796-3021  
[www.pgfflooring.com](http://www.pgfflooring.com)

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