LÓPEZ PIGUEIRAS
SOLID WOOD FLOORING

INDOOR SOLID WOOD FLOORING INSTALLATION PROTOCOL

RESPECT FOR THE ENVIRONMENT

CHAIN OF CUSTODY
We are a company that takes our future and that of the planet very seriously. That is why we work towards guaranteeing reforestation and environmental care, safeguarding the future of the forests and their wood. **WE ADHERE TO THE CHAIN OF CUSTODY STANDARD** in line with EUTR regulations.

EUROPEAN REGULATIONS
Our wood is purchased under the permits required by the official competent agencies in each country of origin and adhering to Due Diligence System of AEIM (Spanish Timber Trade Federation's), thus complying with the European Union Timber Regulation (EUTR).

FSC CERTIFICATE
Our activity is subjected to regular evaluations, certifying our adherence to the Forest Stewardship Council's chain of custody system. Licence Code: *FSC-C015217.*

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Any type of installation must be performed with the corresponding **personal protective equipment**, using machinery bearing the **EC mark**, and following the manufacturers' instructions for use.

The machinery must only be used by qualified, trained and authorised staff, following the relevant Occupational Risk Prevention protocols.

1.1 HYGROSCOPIC PROPERTIES OF THE WOOD

As a consequence of the hygroscopic nature of wood, variations in its dimensions caused by the surrounding ambient conditions are considered normal.
Low humidity conditions may generate small gaps between the boards due to width reduction. In any case, these gaps must not exceed 3mm or 2% of the board width (whichever is smallest).

Relative ambient humidity must be maintained between 45% and 65%.

1.2 VARIATIONS IN COLOUR AND GRAIN

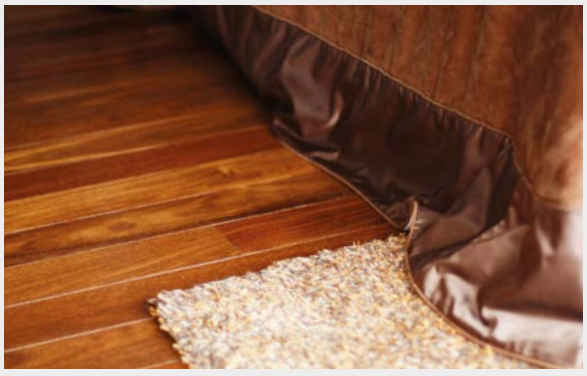
Each species of wood offers a unique range of colours, grains and textures depending on its inherent properties. The differences in grain that may exist from board to board are random variations resulting from a live and 100% natural product.

Example of Oak wood flooring

Example of Ipe wood flooring

1.3 PHOTO-DEGRADATION OR OXIDATION

Natural wood acquires character over the passage of time. Furthermore, prolonged exposure to solar radiation triggers a photo-degradation or oxidation process that translates to hue changes with respect to its original colour.



Example of the effect of sunlight on Sucupira wood flooring

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2.1 PRIOR CONDITIONS **OF MATERIALS**

· Check the humidity of the wood flooring before installation. (Average humidity 9%).

· Before and during installation, check each board for any deterioration. You must not use boards with visible faults or damage without previously repairing or cutting them.

· Only lay the boards under sufficient lighting conditions; otherwise, you not be able to recognise damage or defective boards.

· Check levelling and height in comparison with other floorings.

2.2 PRIOR CONDITIONS **OF PREMISES**

TRADITIONAL SCREED

Conditions of premises

· All enclosing elements and structures must be installed, so as to prevent the entry of humidity from outside. Wall and ceiling materials must have less than 2.5% humidity, except for plaster and paint, which may reach 5%.

· Relative humidity in the premises must be maintained between 45% and 65%.

· Systems such as supply, electricity, heating, plumbing, etc. must be previously installed and other cladding and paint must also be in place before installing the flooring.

Conditions of the screed

· Screed humidity: less than 2.5%, measured at a depth equal to half the thickness and at the least-favourable point.

· Minimum thickness of cement mortar screeds: 5cm.

· Flatness of the support: the maximum drop measured with a 20cm ruler must be less than 1mm. Measured with a 2m ruler, it must be less than 5mm.

CERAMIC FLOORS

· The floor must have been thoroughly vacuumed and must be very clean and dry.

· Lay the flooring according to the most suitable positioning system: nailed to battens or glued; in the case of the latter, with a serrated spreader, punched blanket or adhesive blanket.

ADHESIVE BLANKET

· The floor must be clean and dry in order to place the plastic gauge and begin installation.

RADIANT UNDERFLOOR HEATING

· The thickness of the screed above the pipes must be at least 30mm.

· Works must be fully completed and the work site completely clean and vacuumed, with no traces of grease or dust.

· The humidity content of the screed must be less than 2%.

· With natural airing, the screed would take too long to reach 2% humidity; therefore, using the RADIANT UNDERFLOOR HEATING system itself to force drying is recommended. This also evaporates and eliminates residual humidity deposited inside the screed, which rises by means of evaporation the first time that the heating is turned on.

· For radiant underfloor heating systems that include cooling, check with the manufacturer for the relevant temperature regulation manual for preventing condensation.

FORCED DRYING OF THE SCREED MUST BE CARRIED OUT USING THE RADIANT UNDERFLOOR HEATING SYSTEM ITSELF

1. *Turn on the system and gradually raise the temperature by around 2ºC per day for one week until the normal temperature of the system is reached (max. 27ºC).*

2. *Maintain the screed at this temperature for one week.*

3. *Progressively reduce the temperature by around 2ºC per day until the screed is completely dry.*

4. *When the screed has reached ambient temperature, measure humidity again. If humidity is less than or equal to 2%, begin installation of the flooring.*

2.3 CONDITIONS **FOR STORAGE**

The flooring must be preserved in its original packaging until the moment of positioning.

It must be stored indoors, in a ventilated, clean and dry space. It must be stacked up, leaving free spaces between the wood, floor and walls.

A FREQUENTLY-ASKED QUESTION ?

Should the material be acclimatised to the room where it will be installed?

*No. The flooring should not be acclimatised. On the contrary, the room must be acclimatised prior to installation. * (See prior conditions of premises before installation). The manufacturer dries the wood at an average humidity percentage, adapted to the average ambient humidity of the property once inhabited, and delivers the wood flooring in cardboard boxes that are shrink-wrapped to prevent the entry of humidity from outside.*

3.1 POSITIONING SYSTEM WITH **RADIANT UNDERFLOOR HEATING**

A FREQUENTLY-ASKED QUESTION

Is the use of solid wood flooring recommended with radiant underfloor heating?

It is absolutely recommended and, although wood is a thermal insulator, once saturation temperature is reached, wood flooring regulates the output of heat very well and homogeneously, even better than ceramic floors.

MODE OF USE

The positioning system on floors with RADIANT UNDERFLOOR HEATING corresponds to the direct gluing to screed system

(see the direct gluing to screed positioning system on the next page).

RECOMMENDATIONS

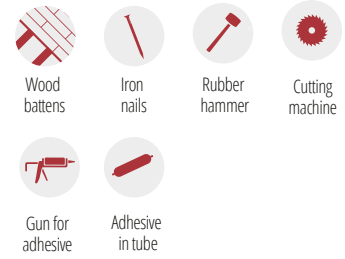
· For correct installation of wood flooring on this type of floors, the 'prior conditions for premises with radiant under floor heating', specified on the previous page, must be taken into account.

· The wood flooring thickness to be used for suitable optimisation of heat transmission is between 14mm and 21mm.

· It is important to use stable, lightly grainy woods.

· Using woods with a density greater than or equal to 650kg/m3 is recommended.

3.2 POSITIONING SYSTEM: **NAILED TO BATTENS**



A FREQUENTLY-ASKED QUESTION

Is it advisable to use treated Scots Pine battens?

We do not recommend using low density wood battens, since the solid wood flooring nailed to them with iron nails is normally much more dense. This means that any movement of the flooring will cause nails to slide and allow the flooring to become slightly separated from the batten, making a noise every time anyone steps on that area.

This effect only occurs with battens fastened to the screed. It does not occur with a floating system because the batten moves alongside the flooring.

MODE OF USE

Lay a 50-mm-wide batten of mid-high hardness screwed onto the screed.

If the screed is perfectly flat, thus allowing installation without levelling battens, points of adhesive must be used in addition to the screws to ensure stronger adherence between the battens and the support.

If the battens need to be levelled due to a lack of support flatness, this must be corrected with double wedges facing each other and in opposing directions; i.e. using two triangles to form a rectangle. They must be fastened to the batten with adhesive. The maximum separation between these wedges must be equal to the separation between batten axes. The empty space left between wedges must be filled with polyurethane foam to ensure greater adherence.

Check the longitudinal and transversal levelling. The distribution of battens should be parallel to the shortest side of the room. Check that they are parallel and levelled. Place a row of battens no further than 10cm from the walls. Maximum separation between battens:

· 35cm for 17/19mm-thick wood flooring.
· 45cm for 21mm-thick wood flooring.

It is advisable to fill the space between battens with insulation (expanded polystyrene sheets, fibreglass or rock wool).

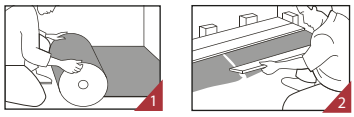
Nail the wood flooring onto the male ends, at a 45° inclination angle. Use 1.4 x 40mm iron nails. Nail them to the batten at least 20mm. It is advisable to reinforce nailing with flexible adhesive points between the batten and the wood flooring.

A perimeter joint of 0.15% of the board width, measuring at least 10mm, must be left between the wood flooring and the wall.

Gluing the male ends is not recommended. This would cause a cumulative shrinking effect.

POSITIONING SYSTEM **WITH ADHESIVE BLANKET**

MODE OF USE



A FREQUENTLY-ASKED QUESTION ?

There are self-adhesive blankets with adhesive on one side or both. Which is better?

We recommend the one with adhesive on only one side (where the flooring is installed). It is easier to flatten the blanket against the screed if it does not have glue on the bottom.

GENERAL CONDITIONS

Before beginning the installation with the adhesive blanket, make sure that:

- *The surface is free from dust and dirt.*
- *The relative humidity of the room is between 45% and 65% and the humidity of the floor underneath is less than 3%.*
- *Ambient temperature is higher than 16ºC.*
- *The distance to fixed construction elements such as walls, etc. is determined by the total width of the floor in question, the type of wood selected, the parquet system and its degree of humidity and the maximum air humidity expected for the room.*

MODE OF USE

1. Place the plastic gauge on the floor to be covered, overlapping strips of between 20 and 25cms.

2. Place the adhesive blanket on the plastic gauge in strips, placing these side by side with no overlapping.

3. Completely cover the surface with the adhesive blanket , placing it with the protective sheet facing upwards.

4. Remove the protective sheet from the adhesive side, until reaching a width equal to that of two boards of the flooring to be placed.

5. Fold the auxiliary film in two.

6. Place the auxiliary film on the exposed adhesive side, with the fold in the direction of the wall. Position the auxiliary film. Place the first board.

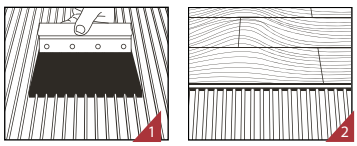
7. Leave a space between the wall and the flooring using spacer wedges.

8. Set the second board against the first one. Remove the auxiliary film.

9. Repeat the process until the whole surface is complete.

3.4 POSITIONING SYSTEM: **DIRECTLY GLUED TO THE SCREED**

MODE OF USE



A FREQUENTLY-ASKED QUESTION ?

Can solid wood flooring be installed using a floating system, i.e. gluing the boards to each other instead of gluing them to the screed?

Floating solid wood flooring must not be installed, since this type of installation requires the flooring to be glued at the male ends.

PREPARATION OF THE SUPPORT

· Check the flatness and hardness of the screed.

· The maximum vertical drop must be 3mm measured with a 2m ruler; otherwise, applying mortar levelling is recommended.

· The support must be clean, vacuumed, dry and free from grease and impurities.

· It is advisable to use a primer to consolidate the support, regulate humidity and enhance adherence.

MATERIALS TO BE USED

1. Adhesive for wood floorings (see manufacturer's instructions of use). It is availablede in 10-20kg cans, depending on the type of manufacturer.

2. Serrated spreader.

MODE OF USE

1º-Spread the adhesive using the serrated spreader (fig. 1) forming uniform lines on the surface, which must be completely clean and vacuumed.

2º-Lay the flooring (fig. 2) on these lines, lightly pressing on the board to facilitate perfect contact with the adhesive, leaving a perimeter distance of 10mm. Never glue the boards at the male ends.

The pieces may be joined with a hammer and a wooden wedge.

If this operation is carried out and the wood shrinks for any reason (especially as a result of heating), the boards will start to pull away from each other until a block is pulling away from another block. This may lead to a crack appearing in the weakest flooring of the two blocks. This is a cumulative shrinking effect.

It is very important to start from the wall in a straight line. If the wall does not make an exact right angle, it will be necessary to add supplement wedges to align the first row of boards. Alignment must be re-checked every two rows with a 2m aluminium ruler.

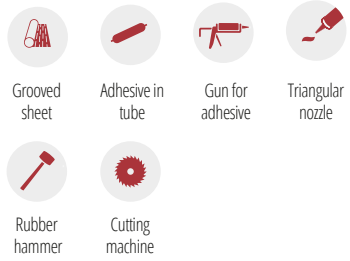
To lay the board, you must lay the female onto the male of the board already in place, then let the board fall gently and fit it in place.

Adhesive must not be dragged along in order to prevent it from running up the sides and becoming present between the male and female. In any case, be sure to clean off the remains of adhesive while the product is still fresh.

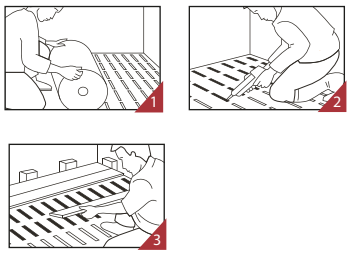
Place weight on the flooring as the installation progresses.

**** Do not step on the flooring until 24 hours after application.***

3.5 POSITIONING SYSTEM **WITH PUNCHED BLANKET**



MODE OF USE



A FREQUENTLY-ASKED QUESTION ?

Do punched blankets act as humidity insulators?

No. They are basically used as a template for applying discontinuous lines of adhesive.

Some of these blankets act as acoustic insulation to prevent sound reverberation, although it appears that they degrade by the third year after installation and their effectiveness as acoustic insulators, but not as humidity insulators, is lost; at least this has been the case so far.

MATERIALS TO BE USED

1. Adhesive for wood floorings (see manufacturer's instructions of use). It is available in tubes to be applied with a gun.

2. Grooved 3mm-thick foamed polyethylene sheet.

3. Manual gun for application of tube of adhesive.

4. Nozzle with triangular outlet for applying adhesive.

PREPARATION OF THE SUPPORT

· The support may be cementitious, ceramic, wooden, etc. Supports such as carpet, plastic or those with bituminous or asphaltic treatments are not valid.

· The support must be clean, vacuumed, dry and free from grease and impurities.

· The maximum vertical drop must be 5mm measured with a 2m ruler; otherwise, applying mortar levelling is recommended.

· It is advisable to use a primer to consolidate the support, regulate humidity and enhance adherence.

MODE OF USE

1. Spread the sheet on the support (fig. 1) without any fastening.

2. Apply the adhesive in the slots (fig. 2).

Apply with the nozzle at the 90° position, leaving a triangular line just equal in height to the nozzle outlet.

3. Laying the flooring (fig. 3).

The 10mm perimeter joint must be observed and the ends of the tongue and groove joint must never be glued.

It is important to start from the wall in a straight line. If the wall does not make an exact right angle, it will be necessary to add supplement wedges to align the first row of boards.

Alignment must be re-checked every two rows with a 2m aluminium ruler.

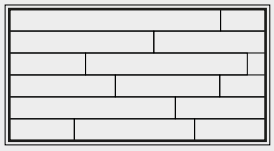
To lay the board, you must lay the female onto the male of the board already in place, then let the board fall gently and fit it in place. .

Adhesive must not be dragged along in order to prevent it from becoming present between the male and female.

Clean off the remains of adhesive while the product is still fresh.

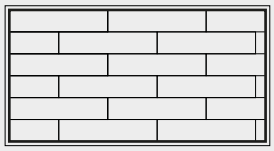
**** Do not step on the flooring until 24 hours after application.***

Installation:
STRAIGHT AT IRREGULAR INTERVALS



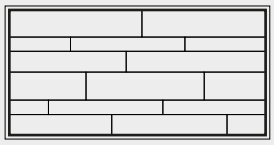
This design is made with boards of uniform width and unequal lengths. **This is our manufacturing standard.**

Installation:
STRAIGHT AT REGULAR INTERVALS



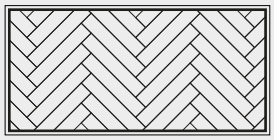
This design is made with boards of equal length and width, where the joints between boards in a row occur at the mid-point of the length of the boards in the adjacent row.

Installation:
RANDOM



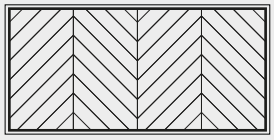
This design is made with boards of unequal lengths and varied widths, laid in parallel.

Installation:
HERRINGBONE



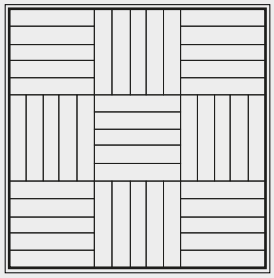
This design is made with equal boards with end grains cut at a straight 90° angle, laid perpendicular to each other and making a 45° angle in relation to the direction of walls and battens.

Installation:
CHEVRON



This design is made with boards of equal dimensions with end grains cut at 45° or 60° angles. These end grains are placed against each other, forming a straight, or 120° angle.

Installation:
CHEQUERBOARD



Boards are assembled forming square blocks that run perpendicular to each other.

AMBIENT HUMIDITY

Once the flooring has been installed, the relative humidity of the air in the premises must be kept between 45% and 65%.

The controlled opening of windows is necessary for airing the premises and maintaining the hygroscopic conditions of the wood.

MAINTENANCE PROTOCOLS

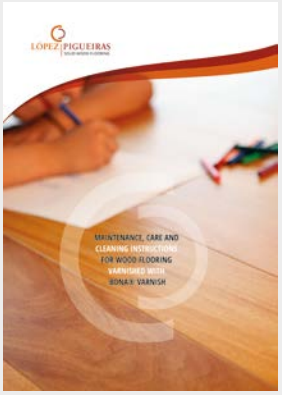
After installation, following some basic maintenance procedures is recommended in order for the wood flooring to maintain its initial properties of natural beauty.

You will find on our website the protocols for carrying out optimal maintenance of your varnished and/or oiled wood flooring.

Download them now at:

lopezpigueiras.com/en/content/maintenance

MAINTENANCE, CARE AND CLEANING INSTRUCTIONS FOR **WOOD FLOORING VARNISHED** WITH BONA® VARNISH



MAINTENANCE, CARE AND CLEANING INSTRUCTIONS FOR **WOOD FLOORING OILED** WITH OSMO® OIL WASH

These installation instructions are the result of 50 years of combined experience: ours and that of dealers and installers who have purchased our products.

Furthermore, all our systems comply with Spanish UNE standards of installation of solid wood flooring.

Installation instructions endorsed by

AiTiM

WOOD INDUSTRIES TECHNICAL RESEARCH ASSOCIATION OF SPAIN

LÓPEZ | PIGUEIRAS
SOLID WOOD FLOORING

QUALITY

COMMITMENT

ENVIRONMENT

www.lopezpigueiras.com