

Indoor Engineered wood flooring Guide

PARADOR

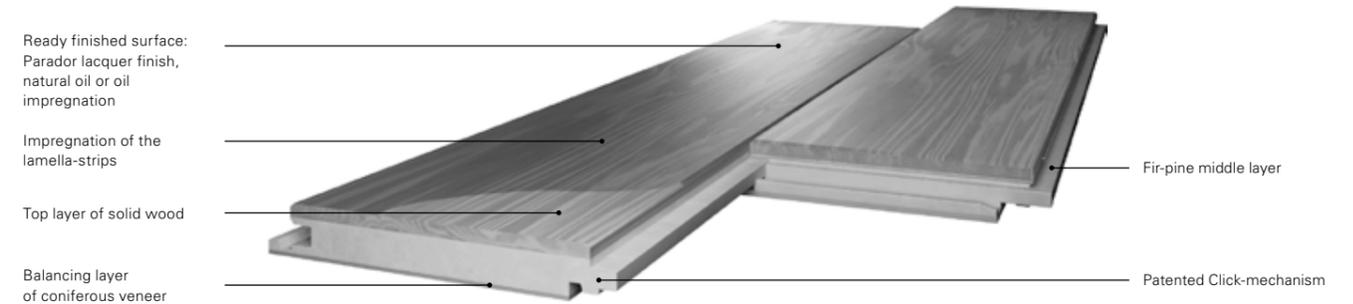
living performance

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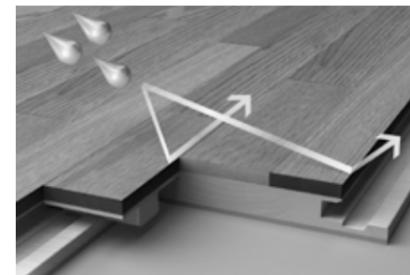
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Parador Engineered Wood Flooring Technical Aspects

Engineered Wood Flooring Composition

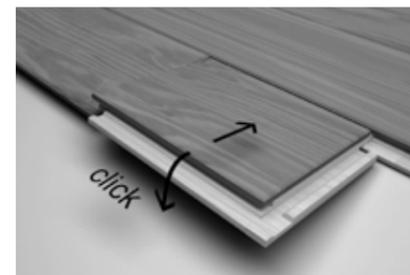


Finest technology

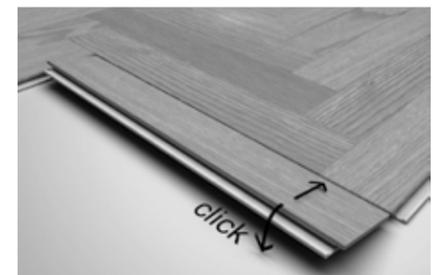


Excellent swell-protection
 The lamella-strips and all-round top layer impregnation ensure the best swelling protection. In addition, each and every strip is impregnated on the edges, giving reliable protection against damp, swelling and contamination.

The system for beautiful floors



Patented click-mechanism
 The patented *AUTOMATIC-CLICK* mechanism with its long and end edge locking system makes quick, trouble-free installation possible without glue.



Innovative installation system on TT 3 herringbone
 The innovative *ALLROUND-CLICK* system without left or right strips makes installation child's play.

Ranges of application

Applications

Bringing your ideas to life is both fast and easy with Parador Engineered Wood Flooring, because installing these high-quality flooring planks is very easy to do and you can achieve perfect installation results doing it yourself. Parador Engineered Wood Flooring combines naturalness with sophistication while being extremely durable at the same time. The wide range of exquisite wood types in various formats and installation patterns and different styles is offering a suitable solution for any room and any style of living. Parador Engineered Wood Flooring is suitable for installation in domestic areas, depending on the intensity of use it may also be installed in offices and commercial applications. The flooring however, is not suitable for use in wet rooms.

The right choice

One kind of engineered wood flooring is not like the other. Before the actual purchase, you should check and consider which type of engineered wood flooring is the best fit for your individual taste and requirements. Some important aspects here besides the wood type, the optical demands on the style and the thickness of the upper wear layer are the quality of the Click-connection and the right choice of surface finish. With Parador you have the choice between an oil impregnation, pure natural oil and a multi-layer lacquer finish. Whether you opt for lacquered or oiled engineered wood flooring is (almost) purely a matter of taste. Here are the advantages and disadvantages at a glance.

Oil impregnated and naturally oiled engineered wood floors

Parador oil impregnation is a very effective surface treatment, which unlike other oil or oil and wax systems does not need any time-consuming care or treatment. Parador natural oil is a "high solid product" based on natural raw materials made from plants. The factory treatment means that the oil penetrates the wood and the open-pored wood surface retains its natural, resistant texture. Both oil systems are surface-ready, i.e. you do not have to "work in" the floor after installation, but instead can use it immediately after being cleaned. Depending on the use / loading and to retain the floor's value over the long term, an initial care treatment is recommended and regular maintenance is necessary.

The benefit of the oil surface is basically that the matt, natural look emphasises the character of the wood. Unlike the oil impregnated finish, in the case of naturally oiled engineered wood flooring it is possible to do a partial renovation without leaving any marks, which means you can repair small damaged areas just where it is necessary. Compared with lacquered surfaces, however, it is easier for scratches or pressure points to damage the wood, although they can also be removed more easily or instead contribute to the wood's natural patina. Types of dirt or spilt liquids like coffee and red wine can be cleaned just as easily as with lacquered engineered wood flooring. Please take note of the cleaning and care instructions (see chapter Value retention, cleaning and care).

The right choice

Engineered wood flooring with lacquer-finish:

The Parador lacquer-finish provides the wood flooring with a wellbalanced surface protection and a wonderfully elegant, semi-gloss finish at the same time. Optimum protection with high serviceability is present when the lacquer is hard enough to provide good abrasion resistance yet also offers enough elasticity so it won't crack with high loads. The Parador lacquer finish is perfectly balanced and provides excellent serviceability.

Style

The different styles refer to optical features of the wood only. With the choice of the three different styles Select, Natur, Living and Rustikal Parador offers a suitable product for every taste. The Select-style refers to a calm, harmonious appearance, the Natur-style to a natural, wellbalanced appearance, the Living-style with a vivid, log-grown look and finally the Rustikal-style with a pronounced natural look.

Hardness of wood types

We refer to hardness as the resistance that the wood shows against the load of penetration by an all-solid. The hardness depends mostly upon the wood type. The most common method to determine the hardness is the one named after Brinell. The Brinell-hardness HB in N/mm² is determined on a fixed moisture content of 12%. The higher the achieved value, the harder the wood.

Wood type	Density g/cm ³	Brinell hard- ness N/mm ²	Hardness class
Maple	0,72	48	4
Bambus	0,70	40	4
Beech	0,68	34	3
Oak	0,71	34	3
Ash	0,72	39	4
Fir	0,47	12	1
Nordic Pine	0,52	19	2
Cherry	0,58	30	2
Siberian Larch	0,59	25	2
nut tree	0,64	26	2
Pitch Pine	0,63	33	3
Thermo Ash	0,60	31	3
Walnut	0,60	31	3

Depending on the individual growing conditions, wood exhibits variations in the degree of hardness. Consequently these are only approximate values.

Category 1: very soft wood – Category 2: soft wood – Category 3: hard wood – Category 4: very hard wood

Colour changes due to light exposure

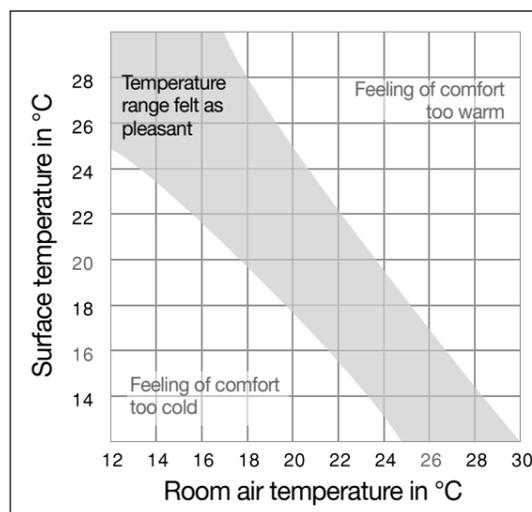
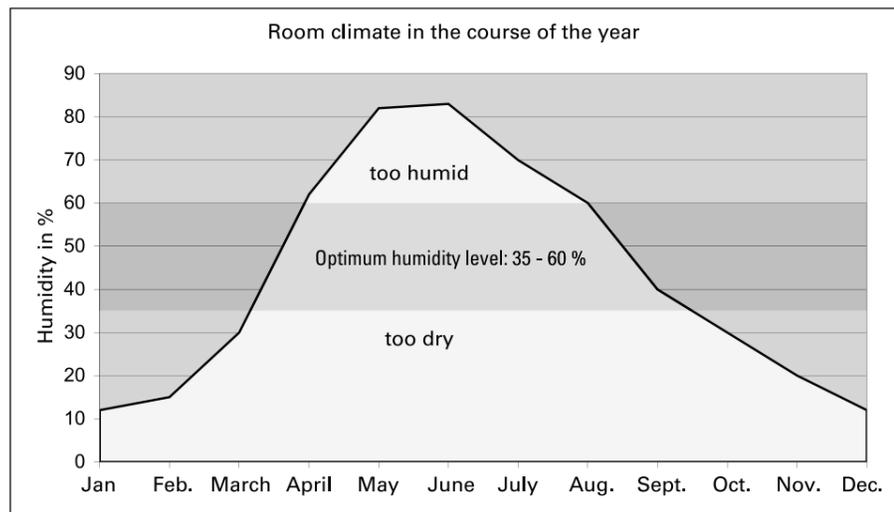
Daylight triggers certain chemical reactions in wood, which lead to colour changes. These colour changes do occur only at the wood's surface. Most wood types will change their colour and become darker over time, others tend to develop a yellowish look. Overall, the flooring will get a more balanced and uniform appearance through this colour changing process. Minor variations in colour will thus be evened out automatically over time.

Engineered wood flooring and room climate

Wood is a hygroscopic material, which means that it can take up and retain moisture. On the one hand this brings along its climate regulating capacities but on the other hand it also has the disadvantage that while retaining moisture it will swell (increase in volume) and when releasing the moisture shrink (decrease in volume). So therefore whether the wood will swell or shrink depends on the room climate. If the climate is too warm or too dry the wood will shrink (get smaller), if it is too humid it will swell (get bigger).

Engineered wood flooring (also called multi-layer parquet) too, can swell and shrink but will do so to a much lower degree than solid wood flooring. Especially during the winter months when air humidity indoors is often way too low (see chart) the natural shrinking process of the material can easily lead to open joints. On the other hand, when it is too humid and the wall spacing is insufficient or expansion gaps are missing altogether this can lead to a bulging surface.

Note: Beech wood has a significantly stronger shrinking tendency than most other common wood types. That is the reason why during the winter months when the room climate is too dry, Beech floors may develop particularly prominent joints.



Temperature related feeling of comfort

For a room temperature that feels pleasant, not only the air temperature is responsible but also the surface temperature of the floor, walls and ceiling. This diagram shows how the feeling of comfort depends on the respective influence on temperature.

Installation at a glance

Engineered wood flooring can be installed in two different ways: by all-over adhesion or in a „floating-floor-type“ installation. An advantage of all-over adhered engineered wood floors is that they are comparatively low-noise, because vibrations and hollow sounds are largely eliminated. Thanks to the convenient *AUTOMATIC-CLICK* system, the installation of engineered wood boards as a „floating floor“ is particularly fast and easy to do even without any previous knowledge and has become the most popular method of installation. Here is how it works:

1. Unroll the underlay and put it on the prepared subfloor.
2. Center and align the planking area and cut the first row to size.
3. Use the spacer wedges to guarantee the wall spacing of at least 10 to 15mm towards all walls and structural parts within the room.
4. The last board of the first row is cut to the right size - don't forget to include the wall spacing. The cut-off piece is used as the starting piece for the second row.
5. Start your next row from the left hand side like before. Simply click together the planks' longitudinal sides. The use of glue is not required here.
6. Join the short end sides together using a hammer and the hammering protection device. During this process the longitudinal and short end joints will interlock automatically. Continue to install the rest of the room in this manner.
7. Use a cut-off piece to transfer the profile of the wall to the last row of planks.
8. Cover the gaps all around the flooring area with matching skirtings from Parador's wide selection.
9. You are done!
10. Alternatively, when installing Parador engineered wood flooring it is possible to glue the whole area.

More detailed information on all installation topics starts at page 14.

Special detailed installation instructions for Engineered Wood Flooring Trendtime 3 Herringbone starting at page 17. Prior to installation please refer to and obey the rules of installation that are stated on the following pages. Paying attention to these rules and advice is a prerequisite to the success of your installation and also guarantees that your engineered wood flooring will be a long-term asset.

Installation rules

These installation rules and the step-by-step installation process that is shown here are universal. The package inserts however, may contain further, more specific or even deviating instructions or rules for a particular product that are mandatory and ought to be followed.

1. Inspection for material defects

Inspect your engineered wood planks thoroughly for their quality prior to and during installation. Flooring planks with visible defects or damages must not be installed. The installation must take place under daylight conditions or with excellent artificial light to make sure that any possible damages or faulty planks can definitely be detected.

2. Acclimatising prior to installation

The engineered wood planks must acclimatise for a period of at least 48 hours at temperatures above 17°C and humidity between 35 - 60 % in that room in which they are to be laid. That means the closed packages have to adjust to the climatic conditions in the room. If the climatic conditions in the storage location and the installation room are considerably different, the acclimatisation period should be longer. If the climate differences are very small the acclimatisation time can be shorter.

Please store the packages flat on a base without opening them. Paying attention to these guidelines is especially important for new buildings, because humidity levels tend to be particularly high here.

3. No installation in areas subject to splashing water

No installation in permanently moist rooms / wet zones

Engineered wood planks must not be installed in areas where splashing shower water may get onto the floor. Standing water will permeate into the wood and can lead to permanent damages. Engineered wood planks should not be installed in permanently moist rooms or wet surroundings (saunas, small bathrooms etc.) because the danger of penetration with moisture can never be ruled out completely.

If engineered wood flooring is supposed to be installed in a bathroom, it is important to make sure that it is not installed in areas subject to splashing water (i.e. shower, bathtub, lavatory or sink) and that the relative humidity in the room stays within the normal range between 35 and 60% continually.

Any formation of puddles and moisture penetration must be avoided all around the corners of the room, for the joints as well as for the whole flooring area.

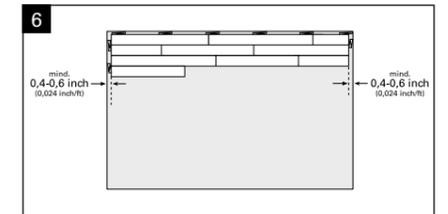
4. Condition of the subfloor

Any existing subfloor must be even (max. tolerance 3 mm per 1 m in length), dry and sufficiently stable. Larger depressions should be evened out using standard commercial fillers. The surface of the subfloor should be free of cracks and without any breaks or tears. Loose subfloors or insufficiently stable subfloors (PVC-/ textile flooring) need to be removed. Mineral subfloors/ screed need to be sufficiently dry. Please also refer to the information in the special chapter on Subfloors.

Installation rules

5. Moisture barrier with mineral subfloors

Generally, when installing on any dry, mineral subfloor a 0.2mm thick Polyethylene foil or alternatively Duo-Protect should always be used as a moisture barrier to prevent any residual moisture getting through to the backside of your engineered wood flooring. The purpose of the Polyethylene-foil is that of a moisture barrier only and the joints of the foil need to overlap approx. 30cm and need to be glued together. In no way does the PE-foil act as waterproofing for the building! See also the chapter on Underlays.



6. Keeping expansion joints / wall spacings

As stated before, depending on the climatic conditions the natural material wood will shrink or swell. The installed engineered wood floor therefore needs to be kept a suitable distance away from all fixed components, in other words the walls, supports, radiator pipes etc, which is known as the wall clearance or expansion joint. Furthermore, expansion gaps are required if the installation area exceeds certain defined values in length and width (see installation rule 7). One of the most common installation mistakes is actually insufficient wall spacing. Often, this will only become evident during the summer months when higher temperatures and humidity levels lead to a swelling of the wood flooring.

The expansion gap/wall spacing should be at least 10-15mm on each side; with large areas it should be proportionately more. For engineered wood planks the rule-of-thumb is: Every meter of installed flooring requires at least 2mm of expansion space on both sides of the room. (Example: Room width 5m = min. 10mm expansion gap on each side).

Even if the installed material abuts only on a single point in the room the "floating material" may start to warp and press on. Popular areas where this is repeatedly happening are architraves, transition areas to stairs, heating pipes as well as end profiles.

Heavy pieces like for example kitchen islands and closets (where movements of the flooring are possible in one direction only) require the expansion space on one side to be doubled. For heavy pieces and fitted furniture (e.g. fitted kitchen, built-in closets or aquariums) we recommend having them assembled prior to installation of the flooring. The flooring boards however should be laid to reach just under the base allowing easy dismantling of the flooring at any time. All along the walls the expansion gaps are covered with skirtings, in other places special flooring profiles are used. Structural expansion joints must be included in the engineered wood floor area as a matter of principle. Joints in the screed, so-called saw cuts, do not have to be included if the joint is glued (e.g. with epoxy resin).

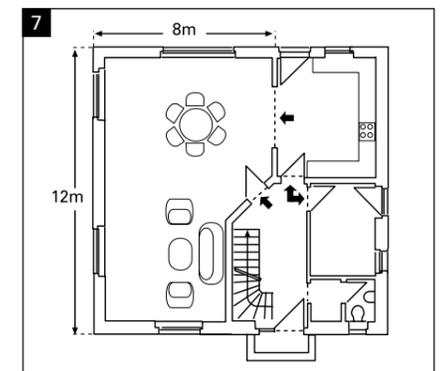
7. Layout of expansion gaps

Due to the fact that the engineered wood flooring will shrink and expand depending upon the climate conditions – as described earlier – the following situations do require additional expansion joints /spaces:

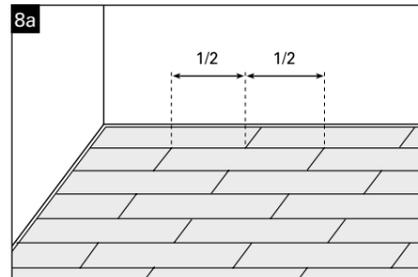
- With larger areas (exceeding 8 x 12m)
- With angular areas
- With installations that cover more than one room

Conceal expansion gaps with the suitable adapting or other transition profiles.

Note: Liability for missing expansion gaps or joints is always with the installer.

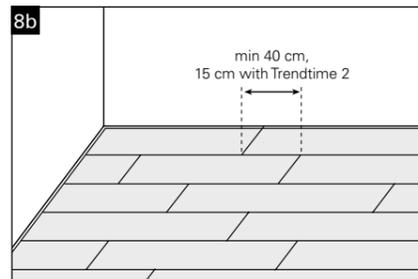


Installation rules



8. Installation patterns and staggering of the joints

Engineered wood flooring can be installed either in a symmetric or in a random, asymmetric pattern. In any case it should be ensured that the excess cover or the minimum offset on the head joint is > 40 cm.

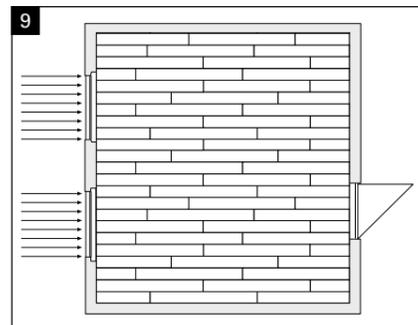


9. Installation direction / incidence of light

For optical reasons the longitudinal sides of the planks should be installed so that they run parallel to the incidence of light. That means, the longitudinal side runs in the same direction as the light. When several windows are present, please make your decision based upon the largest one of them. With extreme floor plans the decision for a certain installation direction can also be based upon the specific room layout. (See installation rule 10)

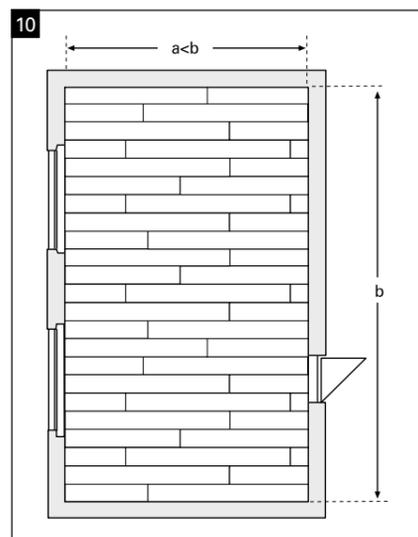
10. Installation direction / floor plan

Again, for optical reasons the longitudinal sides of the flooring should run across to the longitudinal side of the room. That will make the room look larger and also give it a slightly more "square" appearance so it won't look quite as narrow and tube-like.



11. Installation from several packages

Please note that engineered wood is a natural product whose unique character comes out through varying colours and structures. These signs of nature can be more or less prominent. Therefore, during installation it is important to make sure that flooring boards from various different packages are being mixed in order to achieve a well-balanced and harmonious overall appearance.



Requirements on the subfloor

- Basic requirements for installing engineered wood flooring are that the substrate is stable, clean, dry and even.
- Irregularities exceeding 2 mm per 1m have to be evened out with a suitable filler/ spackle.
- When installing on an old hardwood floor or on particleboard flooring any loose planks need to be screwed with the sub-structure to help silencing potential squeaks in the old floor. The new floorboards should be installed in transverse direction to the old boards.
- For both stability and health reasons, textile floors are not suitable as a substrate and have got to be removed.
- Installation on PVC-, CV- and linoleum-flooring is possible only if the floor coverings are glued-down over their entire surface and no loose areas are present. Also, the floor coverings must not have subfloor heating underneath.
- Screed floors must not exceed the following residual moisture levels:

	Anhydrite flow screed	Cement screed
without subfloor heating	max. 0.5 CM %	max. 2.0 CM %
with subfloor heating	max. 0.3 CM %	max. 1.5 CM %

Generally, moisture level measurements of screed floors should always be conducted with a suitable measuring device. For reasons of precaution a 0.2mm thick PE-foil should always be used as a moisture barrier on top of the screed floor (the individual foil strips need to overlap at least 30cm, overlaps are fixed with adhesive tape; all around the room the foil needs to run up the walls for several centimeters and can be trimmed down with a cutting knife after the skirtings have been installed). Alternatively, you could use Duo-Protect, a product that combines both transmission noise insulation and moisture barrier in one.

System-compatible underlays

Generally, between the subfloor and any floating engineered wood flooring a suitable underlay has to be inserted. Underlays are useful for reducing transmission noise and ambience noise, evening out minor irregularities and provide the necessary moisture barrier for mineral subfloors. For existing subfloors like for example dry flooring planks or particleboard flooring the only thing required is an underlay that provides transmission noise reduction. A moisture barrier must not be used in these cases, because this can promote the growth of mould fungus in the subfloor. With all mineral substrates (screed, concrete, tiles) the use of a moisture barrier is vital, otherwise the (residual) moisture coming from your subfloor can get to your flooring and that in turn may lead to cupping or crowning of your floorboards. Additionally, the use of a product for transmission and ambience noise reduction or a combination-product is required.

Parador is offering the right underlay for every purpose:

Uno-Protect

The highly resilient underlay for all dry substrates.

- Can be used on wood planks, particle boards, PVC floors, linoleum floors etc.
- Good impact noise insulation with a minimal material thickness of 2.5 mm (+22 dB improvement)
- High compressive strength and dimensional stability up to 20,000 kg/m².
- Impregnated against mould infestation.

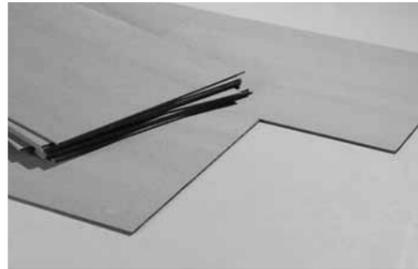
Duo-Protect

The 2-in-1 underlay with moisture protection and impact noise insulation combined.

- Especially for new construction: dual damp and moisture protection against residual moisture in concrete, screed and tiles.
- Good impact noise insulation with a minimal material thickness of 2.9 mm (+22 dB improvement).
- High compressive strength and dimensional stability up to 20,000 kg/m².
- Impregnated against mould infestation.
- Saves time: impact noise insulation and moisture protection can be installed in a single process.



System-compatible underlays



Plan-Protect

The practical impact noise underlay made of natural wood fibres.

- Can be used on wood planks, particle boards, PVC floors, linoleum floors etc.
- Good impact noise insulation with a material thickness of 5.5 mm (+19 dB improvement).
- Optimal levelling of slight uneven patches of floor combined with high compressive strength.
- A purely natural product made of wood fibres.

Akustik-Protect 100

The high-tech acoustic mat offering ambient noise and impact noise insulation.

- Especially developed for use under floating laminate, engineered wood and solid wood flooring.
- Very good ambient noise insulation properties thanks to high inherent weight of 1.8 kg/m² with a thickness of only 1.8 mm.
- Optimal impact noise insulation - no additional impact noise protection is necessary.
- Aluminium-covered top side.

Akustik-Protect 200

The high-tech acoustic mat offering ambient noise and impact noise insulation.

- Especially developed for use under floating laminate, engineered wood and solid wood flooring.
- Very good ambient noise insulation properties thanks to high inherent weight of 2 kg/m² with a thickness of only 2 mm.
- Optimal impact noise insulation - no additional impact noise protection is necessary.

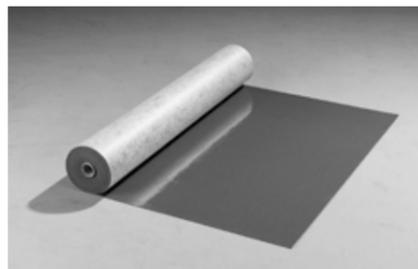
Akustik-Protect 300

The high-tech acoustic mat offering ambient noise and impact noise insulation.

- Especially developed for use under floating laminate, engineered wood and solid wood flooring.
- Very good ambient noise insulation properties thanks to high inherent weight of 2.8 kg/m² with a thickness of only 2 mm.
- Optimal impact noise insulation - no additional impact noise protection is necessary.
- Improved moisture protection is achieved by sealing the joint between the strips, by sticking the aluminium-covered top side with the aid of the aluminium adhesive tape supplied.

PE film

- When installing on mineral subfloors without the use of Duo-Protect, an additional form of moisture protection (PE film) is essential.



Methods of installation

1. Floating floor installation

Installations where the engineered wood planks are installed without a permanent connection to the subfloor, i.e. the individual flooring boards are connected only with each other, are called „floating floor installations“

The flooring can move freely („float“) on the underlay/ subfloor. Thanks to the convenient Click-technique installing Parador Engineered Wood Flooring is particularly fast and easy to do even without any previous knowledge and therefore this has become the most popular method of installation.

2. All-over adhesion

An alternative method of installation is „all-over adhesion“. With this method a special adhesive is used to glue the entire flooring area onto the subfloor. The installation with glue is permanent, which means that disassembly/ removal is fairly complicated and time-consuming. The advantage that is offered by this installation method however is that of substantially reduced sound levels, which means that adhered floors are markedly quieter. Thanks to the *AUTOMATIC-CLICK* connection installing the flooring planks on a layer of adhesive is fairly straightforward. Unlike other Click-systems the flooring planks here do not require to be moved within the adhesive layer. This fact guarantees that installation is indeed mess-free, faster and easier than with conventional engineered wood floorings. Please also take note of the „Checklist for gluing Parador ready-made engineered wood flooring over the whole area“ in the appendix.

3. Installation on hot water underfloor heating

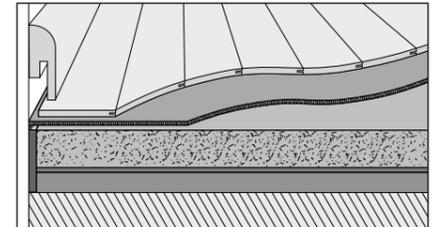
Parador Engineered Wood Flooring is suitable for both „floating floor“ and „all-over adhesion“ installations on hot-water-type radiant heated substrates. The floorings' good heat transfer resistance is the basis for efficiently operating radiant heat systems. Always use Duo-Protect as an underlay for „floating floor“ installations on subfloor heating. Note: When it comes to temperature fluctuations Beech and Maple are sensitive wood types, therefore the appearance of shrinkage signs like open joints etc. cannot be completely ruled out with these.

4. Electric underfloor heating and floor cooling

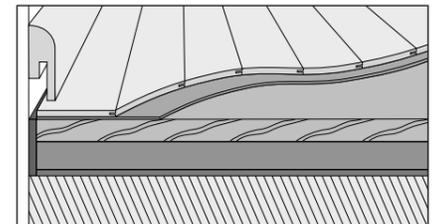
For installation on electric underfloor heating and floor cooling, please contact the Parador application technology department.

Please also take note of the underfloor heating checklist in the appendix for this purpose. According to prevalent expert opinions, cooling a room by maximum 5 °C is easily possible at a maximum relative humidity of 65 % (According to the workplace directive, the lower floor temperature limit of 19 °C should also be maintained in „normal“ housing. People are more prone to ill health in areas with cold floors).

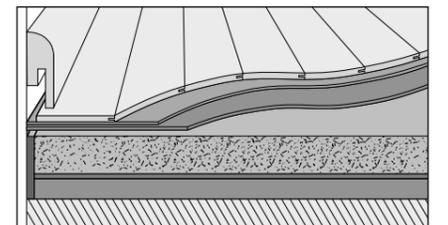
The Parador floor coverings can be used without restrictions if these specified conditions are complied with (whilst bearing in mind the main Parador installation and fitting instructions).



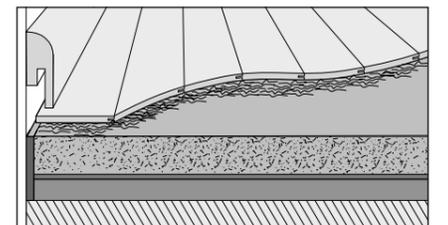
Engineered Wood Flooring on Duo-Protect / Mineral screed



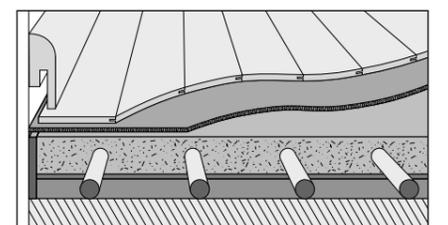
Engineered Wood Flooring on Uno-Protect / Hardwood planks



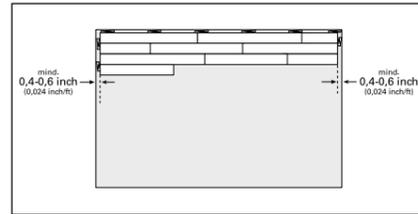
Engineered Wood Flooring on Uno-Protect / PVC / Mineral screed



Engineered Wood Flooring, all-over adhesion

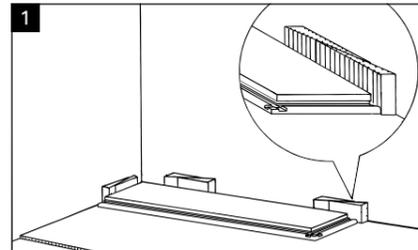


Engineered Wood Flooring on Duo-Protect / Hot water-type subfloor heating



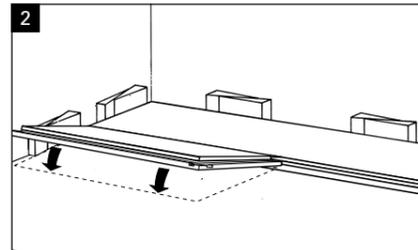
Installation of Engineered Wood Flooring

AUTOMATIC-CLICK system



Preparation

Once you have taken note of the installation rules and the subfloor is installed, it is possible to start with the actual installation of the engineered wood floor. In order to achieve a similar appearance of the first and last rows, measure the width of the room transversely to the installation direction and center the width of the flooring planks. Mix the contents of several packages together throughout the installation process to achieve a natural, even look of the flooring area overall. The last flooring plank of each row is cut to size and the sawn-off piece – as long as it is not shorter than 20cm – is used to start the next row. The cross joints should be offset from row to row by at least 40 cm ("random bond"). Please check each plank for defects before installation and only lay planks that are in perfect condition.



Installation Sequence

Fig. 1: If you don't have to narrow the width of your first row of planks anyway, begin by sawing off the longitudinal tongues of the entire first row of planks. Start laying the first row in the left hand corner of the room with the sawn longitudinal side facing the wall. Use the Parador spacer wedges to ensure the required 10-15 mm expansion gap to the wall. If the wall is not straight see Fig.13. Lay out the first row in a straight line and let the short ends interlock, see fig. 7.

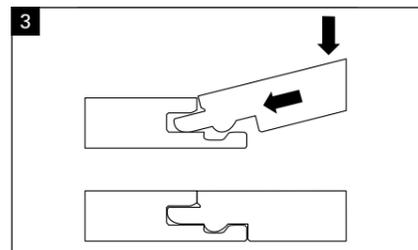


Fig. 2 + 3: Begin the second row on the left side by clicking the longitudinal tongue of the first board into the groove of the first row. To do so, insert the tongue into the groove at an angle of approx. 25° and lower the board. As it is lowered the board snaps into place tightly giving you a press fit.

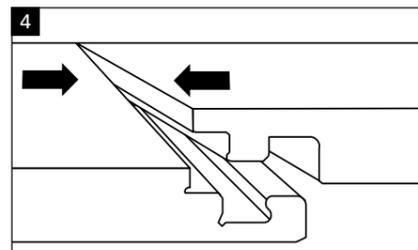
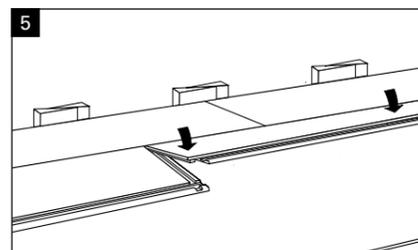


Fig. 4: The next board – and all the others that follow – is inserted lengthwise as described above and before lowering the short end side is positioned flush with the previous board. The solid upper wear layers need to be touching each other!



Installation of Engineered Wood Flooring

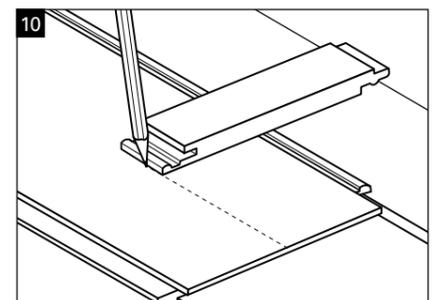
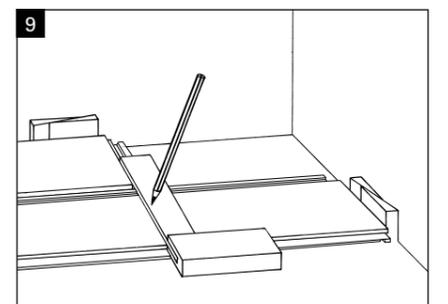
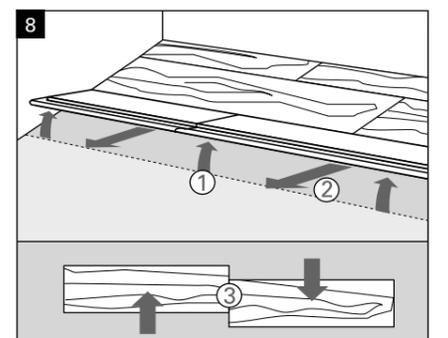
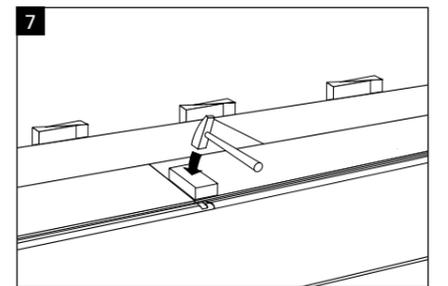
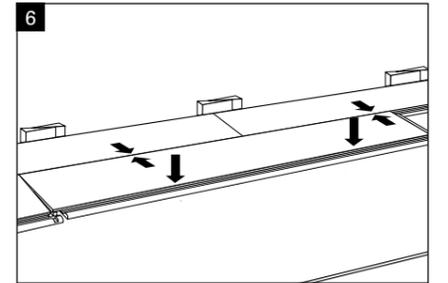
AUTOMATIC-CLICK system

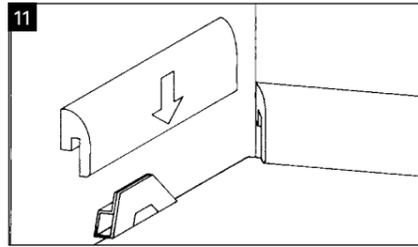
Fig. 5 + 6 + 7: The longitudinal joint of the plank is then locked by simply pressing the two boards together and pushing downwards (fig. 3). Before locking the short-end joint, always make sure that the longitudinal joint is locked completely along the entire length of the board. The short-end joint is then locked using a hammer and the hammering protection. (Always make sure that the short-end sides are positioned very closely together as locking is not possible otherwise, see fig. 4). Install all further flooring planks likewise.

Fig. 8: To disassemble, lift off the entire row of boards and pull them out of the previous row diagonally, then pull the end joints apart. To do so it is recommended to use a piece of residual board between the rows of boards and knock the boards apart with a hammer and hammering block. After just a few hits with the hammering block, the connection can be pulled further apart by hand. In this way, the locking mechanism remains intact and the boards can be reused. Important: avoid twisting the boards as this can damage the locking mechanism.

Fig. 9: Measure the end piece with a try square (lay the board down with the groove side facing the previous row) and cut to length. Don't forget the expansion space to the wall! If you are using a jig saw, have the top surface of the board face downwards, if you are using a table saw, let it face upwards.

Fig. 10: Use a piece of residual board to help fit the last row. Remember to keep an expansion space of 10-15mm to the wall.





Installation of Engineered Wood Flooring

AUTOMATIC-CLICK system

Fig. 11: With the exception of the whole area gluing method, the floor is ready to walk on immediately after installation. Remove spacer wedges and attach Parador skirting with patented clip technology.

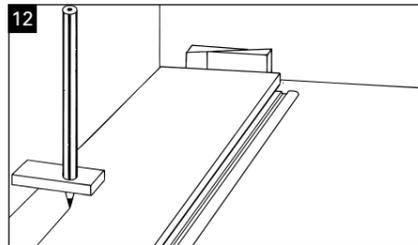


Fig. 12: If the wall is not straight: align the first row straight ahead and follow the contours of the wall. To do so, mark the relevant width on the plank (as shown in the diagram), and cut the plank along the mark.

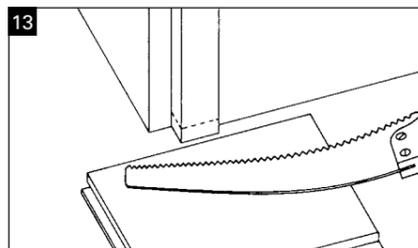


Fig. 13: How to shorten a door frame: place a piece of residual board (on the suitable subfloor/ underlay) against the frame and saw the frame off along the board.

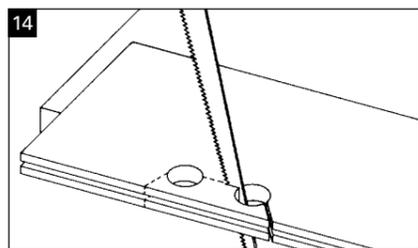


Fig. 14: How to fit your floor around heating pipes: the diameter of the hole in the board should be 20 mm larger than the pipe itself. Mark the spot, drill the holes and saw off at an angle of 45° as shown in the illustration. Glue in the sawn off piece. Don't forget the expansion gap here either.

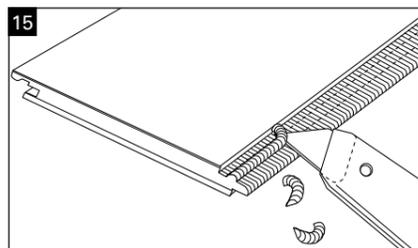


Fig. 15: Installation in inaccessible areas: whenever the boards cannot be swiveled in and clicked together, it is recommended to remove the catch-mechanism on the backside of the tongue and glue the boards together. Apply the glue onto the lower part of the groove and join the boards together horizontally (conventional tongue-groove principle).

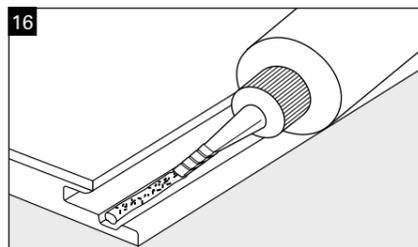


Fig. 16: Applying glue: If the subfloor requirements according to the country-specific standard as regards evenness (3mm/1m) or the relative humidity (35-60%) are outside the tolerances specific to the engineered wood floor, it is recommended to apply glue (see drawing).

Installation of Engineered Wood Flooring

Trendtime 3 Herringbone

Preparations / Installation Principle

When installing Herringbone flooring you must be aware that the room ambience is strongly influenced by the installation type. You can see this for example in our figures 1 and 2. Fig. 1 shows a plait direction running parallel to the walls. Fig. 2 shows the so-called 45° plait direction. All you need for installing a herringbone pattern is our „universal“ plank that has been specially developed by Parador, i.e. you do not need any right or left planks. With this special plank you can realize the patterns shown above, the installation/ plait direction is not predetermined. Fig. 3 shows the recommended installation direction. Please make sure that the flooring boards are installed in such a way that the grooved side of the boards is facing in installation direction to let the tongues click into the groove.

Please inspect all planks prior to installation and use only impeccable planks for your flooring.

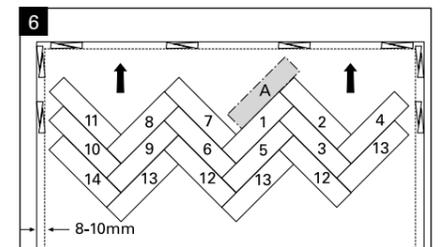
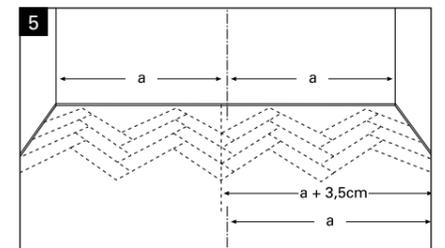
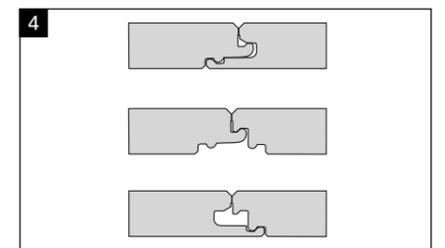
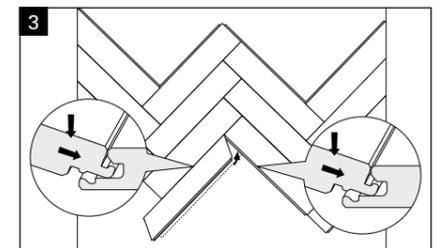
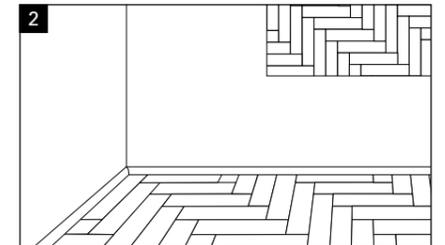
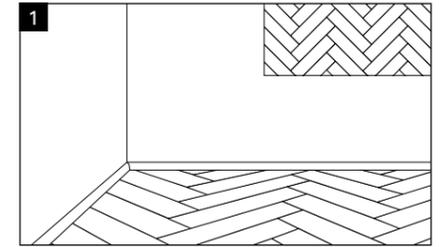
Installation instructions

Fig. 5: Start by determining the centre between the two walls facing each other and put down the main installation line. After a parallel translation by 3.5cm that line will run exactly over the tips of the installation plait as seen in the picture. Use a string for fixation of the installation axis.

Fig. 6: At first, please install a complete row of three (follow the sequence given in the picture) and slide it onto the positioned spacers as shown in the picture.

Tip: For the flooring boards to be installed easily and at the correct angle please proceed as follows: Join the flooring boards A and 1 together with a staggering of approx. 120mm. Flooring board A is used for positioning purposes only and will be removed later. Now you can go on and install flooring boards 3 and 4. You can then remove flooring board A and continue to install the remaining boards according to their numeric sequence. Attention: Please make sure that the flooring boards are installed in such a way that the grooved side of the boards is facing in installation direction to let the tongues click into the groove.

Align the row exactly with the alignment string. If the course of the wall is not straight, you might have to readjust the spacers. Please remember to provide an expansion space of 8-10mm. This expansion space is required all along the walls of the room and also towards all fixed, structural parts.



Installation of Engineered Wood Flooring

Trendtime 3 Herringbone

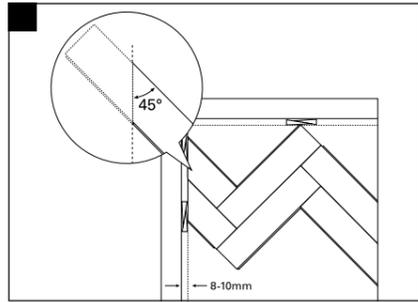


Fig. 7: Fit the corner planks. Saw off at a 45° angle or according to the course of the wall.

Fig. 8: Cut-to-size flooring pieces are used to fill the triangular-shaped spaces along the walls.

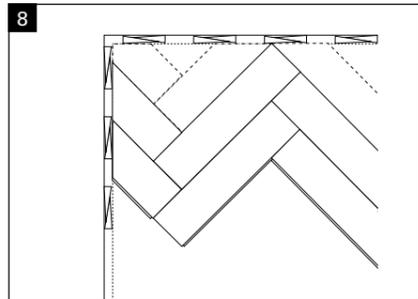
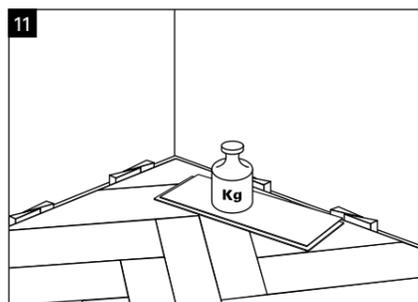
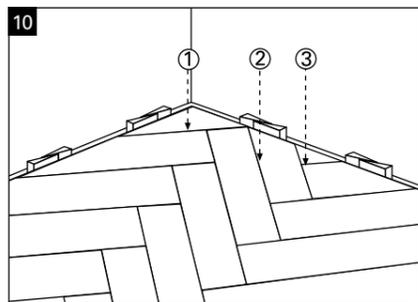
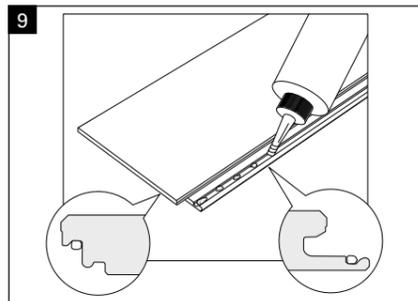


Fig. 9, 10 and 11: The longitudinal and short end areas that will not stay in place due to their shape have to be glued in. Apply the Parador D3 Glue sparingly (no glue must ooze out into the V-groove) into the reservoirs of the longitudinal and short end joints 1,2 and 3. Place weights on the glued-in areas for fixation. After that, the rest of the room can be installed. The corner planks and any other residual areas have to be fitted as described above.



Installation of Engineered Wood Flooring

Trendtime 3 Herringbone

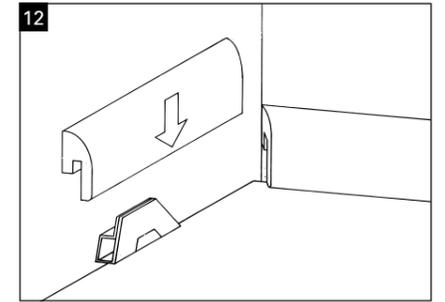
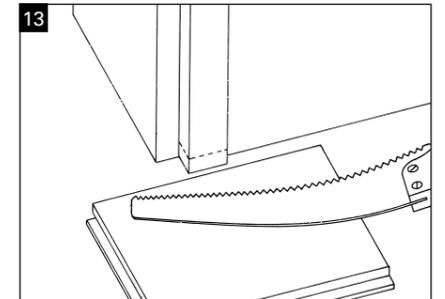


Figure 12: Once the glue has dried (approx. 1 hour), the floor is ready to walk on. Remove spacer wedges and attach Parador skirtings with patented clip technology.

Figure 13: How to shorten a door frame: Lay a leftover piece of plank (on the corresponding subfloor) against the frame and saw the frame off along the plank.



Figures 14 and 15: In the areas where the planks can no longer be pivoted into place (door frames, radiator pipes, etc.), they need to be inserted horizontally and glued. To do so, the snap-in tongues have to be removed with a knife. Gluing is done as described in figures 9, 10 and 11.

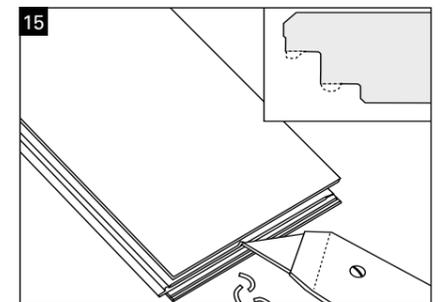
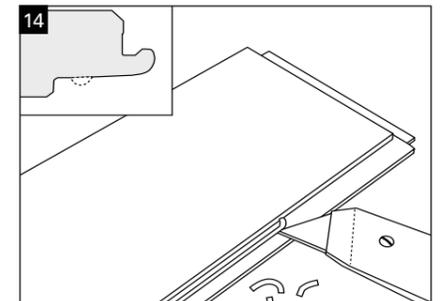
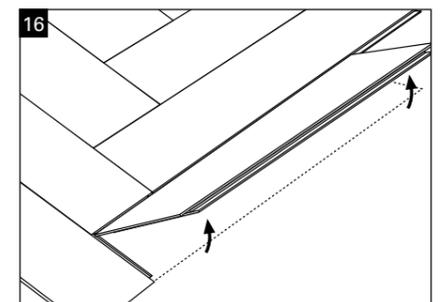


Figure 16: Dismantling: Should it be necessary to dismantle the floors, the glued areas must be removed first. After that the planks can be easily removed.



Value retention, cleaning and care

Parador engineered wood floors are easy to clean and look after thanks to their ready finished surfaces. So that you can enjoy your floor for years to come, here are some tips about value retention, cleaning and care:

Value retention

General information for retaining the value of your engineered wood floor:

- 35-60% relative humidity is ideal for Parador engineered wood flooring and also recommended for people's well-being.
- Avoid sand and dirt as both act like sandpaper.
- Immediately wipe up liquids resting on the floor.
- Only wipe with a slightly damp cloth.
- Do not use any abrasives, floor wax or polishes. Among other things, they tarnish the floor's appearance.
- Fit chairs and tables with soft felt pads. Office chairs should have soft rollers, otherwise use suitable floor mats in these heavily used areas.
- Do not use steam cleaners.

Preventing damage

As with all other floor coverings, you should protect your new engineered wood floor from dirt particles by using suitable dirt-trapping zones (mats).

To protect the wood from scratches, suitable soft felt pads must be always fitted under chair and table legs and under pieces of furniture.

Rollers on office chairs, file trolleys and roller containers should be fitted with soft treads/rollers. Furthermore, there is the option of protecting the floor in these heavily used areas with suitable mats (available in office equipment stores). It is not necessary to wax the lacquered engineered wood floor or give it an additional seal, as such measures can in no way improve the floor's looks or benefits of use.

We recommend that you clean your engineered wood floor regularly with a vacuum cleaner (attached brushes) or a broom. Cleaning with a slightly damp cloth should only be done in case of stubborn dirt. It is important in this case that the cloth is well wrung out and that no puddles form with standing water.

Cleaning at end of installation

- Remove drilling dust and loose particles with a broom or vacuum cleaner.
- Wipe the floor with a damp cloth, adding standard cleaning and care products if necessary.
- Care should be taken that the floor is only wiped damp, never wet.

Regular cleaning

- Remove dust, fluff and loose particles with a broom or vacuum cleaner.
- Wipe off dirty marks with a damp cloth.
- In case of stubborn dirt, wipe the floor with a damp cloth using standard cleaning products. Only use a cleaning and care product that is suitable for the respective engineered wood surface.

Repairing scratches and other types of damage

- The damaged areas can be repaired by filling with a soft wax that matches the colour of the floor.

Value retention, cleaning and care

Looking after lacquer finishes and naturally oiled / oil impregnated finishes (UV oil)

Besides the recommended care products supplied by Saicos, which you can find in the price list, there are various oil, oil/wax and wax systems on the market for maintaining all types of engineered wood surfaces. You should opt for one system. If a system combined with water and or soap is used, care should be taken that the floor is only wiped damp, never wet, and that the cloth is always well wrung out. Avoid puddles and standing water at all costs.

The Parador naturally oiled and oil impregnated (UV oil) surfaces can be treated with all standard cleaning and care products for air-drying and oxidative-drying naturally oiled and oil impregnated (UV oil) surfaces.

An initial care treatment is not necessary on the ready to use naturally oiled finish.

Depending on the use / loading and to retain the floor's value over the long term, an initial care treatment is recommended and regular maintenance is necessary. In the case of heavily used surfaces, Saicos Ecoline professional care oil should be applied by an engineered wood flooring contractor after installation (see Parador price list).

Below are a few suppliers of cleaning and care products:

- Emsal www.emsal.de
- WOCA www.wocashop.de
- Eukula www.eukula.de
- OSMO www.osmo.de
- SAICOS www.saicos.de
- LOBA www.loba.de
- Naturhaus www.naturhaus.net
- PNZ www.pnz.de

Please take note of your chosen supplier's respective instructions and labelling.

Value retention, cleaning and care

Complete renovation by means of sanding

If the engineered wood floor is renovated due to damage and oil impregnated engineered wood (UV oil) or impairments, then the whole area has to be sanded in case of lacquered engineered wood. This can also be done just in parts on naturally oiled floors. On each sanding process, around 0.5 mm is sanded off depending on the thickness of the damaged area. A ready-made engineered wood floor can therefore be sanded down several times without any problem. For the subsequent surface treatment, you can use appropriate lacquer or oil products from specialist retailers. A wide variety of finishing materials are available as lacquer, oil or wax seals. You can use any system recommended by the manufacturer in question for engineered wood floors.

Looking after brushed / textured finishes

Brushed or textured finishes need more looking after and are more sensitive to dirt. Pay attention to bigger walk-off zones here in particular. On textured surfaces, cleaning should be done in the texture direction.

Tools, transport, storage and accessories

Tools

If you want to install engineered wood flooring, you should have the following tools and devices handy: tape measure or folding rule, cutter, adhesive tape, pencil, jig or circular saw and hammer. Additionally you will need spacer wedges and the hammering protection. All of the above are special Parador designs that your local dealer has available for you.

Transportation and storage

Avoid damage on your engineered wood flooring during transportation. Before you start the installation the closed original flooring packages should be stored in the room where they are being installed for at least 48 hours to let them acclimatise. Make sure that the storage conditions are not causing any deformations on your flooring. Engineered wood flooring is to be stored only in closed rooms with product-compatible climate.

Accessories

In order to not only make the newly installed flooring look good but to give the whole room the perfect finishing touch you will need skirtings to form an attractive transition to the walls, also for the transition between two rooms flooring profiles are needed as well as probably some pipe covers. There are plenty of products available from specialist retailers for each application for this purpose.

Acceptance protocol for installers

Mr. / Mrs: _____ Order number: _____

Street address: _____ Protocol number: _____

Place: _____ Date: _____

Installation date: _____

Item No.	Quantity (target)	Quantity (actual)	Product/Service
1	_____ m ²	_____ m ²	Removal of old floor coverings (in m ²)
2	_____ m ²	_____ m ²	Installation of flooring
3	_____ m	_____ m	Installation of profiles
4	_____ m	_____ m	Installation of skirtings
5	_____ pcs.	_____ pcs.	Adjustment of doors
6	_____ pcs.	_____ pcs.	Adjustment of door jambs
7	_____ pcs.	_____ pcs.	Removal / exchange of floor planks

Comments/ particularities: _____

Surface inspections of the installed flooring area are best carried out in a standing upright posture. Conditions of angular light or back light or deviations from the normal usage situation are not to be used for inspecting. The flooring does not show any defects or damages. The Cleaning and Maintenance Instructions for the specific type of flooring that has been installed were delivered to the customer/ buyer.

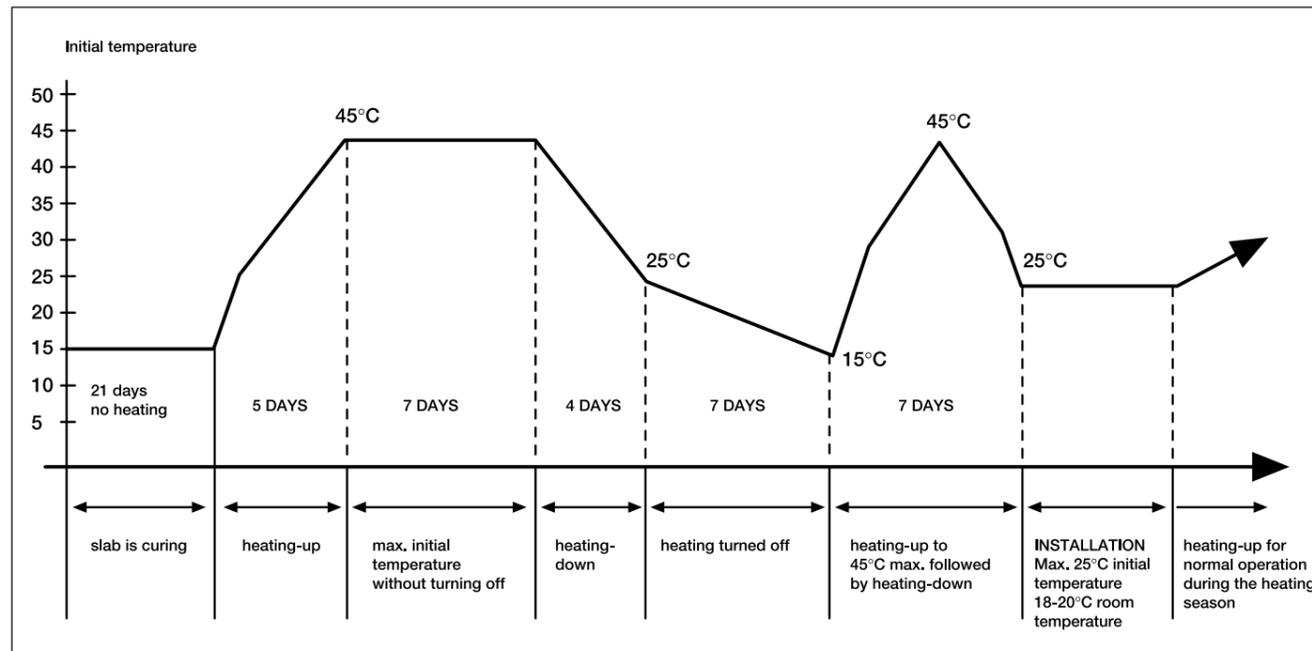
Customer signature and/or buyer _____ Date, Place _____

Checklist for installation on hot-water-type subfloor heating

Generally, before installing the engineered wood flooring all mineral substrates have to be heated up to the point where no more damaging moisture is escaping from the subfloor. This applies throughout the whole year regardless of the season. The cement floor/ slab has to be installed correctly according to the generally accepted rules of the trade (DIN = German Industry Standard).

A curing period of at least 21 days has to be completed before the heating-up process can begin. For the heating-up process we recommend that you follow the chart on the bottom of this page or use the „Heating protocol“ on the next page as your guide. Please pay attention to any additional instructions/ tips that your composition floor layer or heating contractor may have.

Heating chart for hot-water-type subfloor heating system



Keep in mind that the optimum surface temperature of your engineered wood floor should not exceed 25°C (maximum 28°C).

Heating protocol for hot-water-type subfloor heating systems (Sample)

With newly installed subfloor heating systems the completion of a heating protocol is imperative.

1. a) Work on the floor slab/ concrete floor was completed on _____.
- b) The floor material is cement screed , anhydrite flow screed .
- c) The average thickness of the screed layer is _____ cm.
2. a) The radiant heated floor construction was put into operation on _____ and was heated up with a daily temperature increase of 5°C (initial temperature) until 45°C were reached.
- b) This maximum temperature was kept for _____ days (should be: 7 days) without being lowered at night.
- c) From _____ until _____ (should be: 4 days) the initial temperature has been lowered daily by 5°C.
- d) From _____ until _____ (should be: 7 days) the heating system was turned off completely.
- e) On _____ the heating system was put into operation again and the initial temperature of 45°C was reached on _____.
- f) After the initial temperature of 45°C was reached, that initial temperature was reduced (max. 25°C) in steps of no more than 10°C per day until the room temperature had reached the correct levels required for the installation of solid wood flooring (i.e. approx. 18-20°C).
3. Throughout the heating-up and heating-down process have the rooms been aired without exposing them to draught? yes
4. The last residual moisture measurements on the marked test points showed _____ % residual moisture. (Permissible values: Anhydrite flow screed max. 0.3 CM %, Cement screed max. 1.5 CM %)
5. With this, we approve the installation of wear layers/coverings on the radiant heated floor construction.

For the building owner/contracting entity:

Place / Date / Signature / Company stamp

These instructions are for the information/ consultation of the floor installer / heating contractor and/or the building owner. They do not constitute a base from which warranty claims may be derived. In cases of doubt, the respective regulations of the heating contractor/ composition floor layer are to be followed.

Checklist for all-over adhesion of Parador Engineered Wood Flooring

An installation alternative for Parador Engineered Wood Flooring is all-over adhesion. Compared to the installation as a floating floor this method provides a number of advantages. Please note the following information/ recommendations:

- For all-over adhesion on the sub-floor you must only use adhesives that are explicitly recommended for this purpose by the manufacturer. Use one- or two component (1-K or 2-K) Polyurethane-adhesives that do not contain any water or solvents. If using solvent-containing adhesives they should comply with DIN 281. Always stick to the manufacturer's instructions especially those on adhesive application.
- When it comes to adhesives, Parador recommends the products T-54 FC by SikaBond. T-54 FC is suitable for all other popular wood types like for example Maple or Beech. Please consult the manufacturer for more specific questions and follow the instructions and information of the technical data sheet for the product in question.
- Make sure the substrate is clean, dry, perfectly even, free of cracks and suitable for all-over adhesion, also the respective moisture levels must not be exceeded. Preparatory measures vary among adhesive manufacturers.

- Screed floors must not exceed the following residual moisture levels:

	Anhydrite flow screed	Cement screed
without subfloor heating	max. 0.5 CM %	max. 2.0 CM %
with subfloor heating	max. 0.3 CM %	max. 1.5 CM %

- An expansion gap of at least 10mm is required towards all fixed constructional parts (see Installation rules 6&7).
- Existing expansion gaps in the substrate should be adopted. Additional expansion joints are needed with all door openings, between rooms, at entrances and every 15m (length- or width-wise).
- As with all other installation methods, please follow the general installation instructions with all-over adhesion, too.
- Further information can be obtained on the adhesive manufacturer's website (e.g. www.sika.de) or you may also contact Parador's Application Technology department.

Many other topics all about modern home living, such as individual flooring concepts, creative wall and ceiling decoration, as well as useful accessories can be found in separate catalogues, available to order at www.parador.eu

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