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FIRED EARTH

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Wood Flooring

Installation Guide

FIRED EARTH

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Important Notes

All wood is hygroscopic (it will react to the moisture around and in contact with it) and as a result will expand or contract accordingly. All sources of damp must be rectified prior to the installation of the floor and moisture levels in rooms fitted with wood should be maintained at a stable level, commensurate with normal living conditions. The suitability of the environment of a particular room/s for a real wood floor can only be assessed by the use of good quality testing equipment.

The delivered packs will contain differing square meterage. The sum of the packs will equate to the quantity ordered. Wood orders containing random widths will have equal square metres of each width which means there will be more narrow than wide planks which should be carefully distributed throughout the floor for best effect.

No complaints regarding the appearance of the product will be accepted by the company once the wood has been installed.

Wood Flooring

Installation Guide

The purpose of this booklet is to outline the basic principles of installing Fired Earth wood floors. Space does not allow for an exhaustive coverage of the subject, however an attempt has been made to present the basic information on installation techniques. It is hoped that this booklet will prove a useful guide for both the complete novice and the seasoned professional.

As we have no control of the storage and handling of the timber on site, site conditions or the quality of the workmanship (unless you are using our Installation Service), we strongly recommend that you employ the services of an experienced and competent wood fitter.

Remember to read very carefully the instructions on the packaging of adhesives, sealants, maintenance products etc, and above all else remember the golden rule of fitting – keep everything meticulously clean and orderly as work progresses.

General Characteristics

Wood flooring can be used internally in most rooms except those which are likely to get excessively wet. It is possible to use them in kitchens and bathrooms with care, but any spillages must be wiped up immediately. Bath mats etc. should not be left on the floor if they are damp.

Wood should only be used in conservatories which share the same conditions as those found in the house. Conservatories which are closed off from the house and do not maintain a consistent temperature or humidity are not suitable for wood flooring. Engineered boards are recommended for use in suitable conservatories.

Fixing Instructions

This booklet provides useful information on planning, installation and maintenance, and explains how we recommend our wood floors are fitted. Please ensure your nominated contractor has read this carefully.

In particular, site conditions relating to humidity MUST be checked thoroughly before taking delivery of a wood floor. Failure to check moisture levels may result in a wood floor gaping excessively, distorting in shape and in some circumstances cupping, bowing or lifting.

Appearance

Wood is a natural material hewn from individual trees and as such varies from batch to batch and pack to pack. A single sample should not therefore be taken as an accurate indication of the colour of a subsequent batch. Our sales team can advise you on the choices of grades available and how this effects the character of the boards.

Our woods are supplied both presealed with oil and unsealed, in a solid hardwood or engineered board. Coloured oils are available for individual treatment of unsealed floors. Samples are available to give an indication of the final colour and finish of all our range including coloured oils. As with any natural product, direct sunlight may alter the colour of the flooring. Hardwood cherry is particularly susceptible to colour change. Areas of the surface that are covered (for example by furniture and rugs), being out of the sunlight, may not change colour to the same extent. If possible, these items should be moved regularly.

Acclimatisation

Most wood floors should be placed in the room in which they are to be fitted at least 48 hours prior to installation. Site conditions may dictate a longer period of acclimatisation. Please use the chart on page 5 to confirm conditions on site are correct for the delivery of your wood. Individual packs do not need to be opened. Please do not arrange delivery until all wet works e.g. plaster, screeds etc. have completely dried.

Moisture and Humidity

Wood floors are subject to movement due to seasonal and atmospheric changes. A damp atmosphere will cause the wood to expand and dry conditions will cause the wood to shrink.

Shrinkage will create gaps between boards, which is characteristic of wood floors. Excessive variation in humidity can lead to boards distorting in shape and possibly lifting. It is imperative that site conditions are of a consistent moisture content for wood flooring on an ongoing basis.

The table below demonstrates the correct conditions for laying wood flooring. The area highlighted shows the relative humidity should be between 50 and 65% and the room temperature should be between 15 and 25°C. These measurements CAN ONLY be confirmed with the correct testing equipment. Do not use existing or previously laid floors as a guide to the suitability for laying a new wood floor. Failing to carry out the correct checks and preventative actions at this stage leads to the vast majority of wood flooring problems.

Relative Humidity	Moisture Content Equilibrium					
85%	18,1	18,0	18,0	17,9	17,5	17,1
80%	16,2	16,0	16,0	15,8	15,5	15,1
75%	14,7	14,5	14,3	14,0	13,9	13,5
70%	13,2	13,1	13,0	12,8	12,4	12,1
65%	12,0	12,0	11,8	11,5	11,2	11,0
60%	11,0	10,9	10,8	10,5	10,3	10,0
55%	10,1	10,0	9,9	9,7	9,4	9,1
50%	9,4	9,2	9,0	8,9	8,6	8,4
45%	8,6	8,4	8,3	8,1	7,9	7,5
40%	7,8	7,7	7,5	7,3	7,0	6,6
35%	7,0	6,9	6,7	6,4	6,2	5,8
30%	6,2	6,1	5,9	5,6	5,3	5,0
Temp. (°c)	10	15	20	25	30	35

Sapwood

Sapwood can appear as either lighter or darker patches in a wood floor. A small quantity of sapwood will be apparent in select grade timber whereas it will be more obvious in rustic grades. This wood is not of an inferior quality but can, if preferred, be removed by the wood fitter.

Grade

The wood floor industry offers a variety of grades to allow accurate assessment of product quality. Fired Earth floors are available in various grades; Select, Nature, Rustic and Character. Select as the name suggests means the wood is carefully chosen to maintain the natural beauty of the wood but to remove the majority of the knots and other natural characteristics. At the opposite end of the scale, Character grade uses as much of the tree as possible, so knots, shakes, checking, grain, colour, sapwood etc. provide a varied and interesting floor and a true representation of the timber.

Knots/Checking

The amount of knots and checking will vary greatly between Select and Rustic grades.

Select will have very few and no filling, whereas Rustic will have reasonable numbers and some may be filled. All our wood floors are carefully selected to offer a range of the naturally occurring characteristics of the tree. Knots will vary in size and filling will be with an appropriate colour of filler.

Shakes

Kiln checking and 'heart shakes' will be present on some boards. These are uneven cracks running in the direction of the grain and are characteristic of the wood.

Sealing

Oiled presealed floors all require finishing with one light coat of *Maintenance Oil*.

Unsealed boards will require sealing and finishing with *Master Oil* or one of the 6 *Coloured Oils*.

Sanding

None of our boards require further sanding if correctly installed.

Specification

Due to the nature of wood, some variation in size and thickness may occur. The dimensions listed may be subject to minor inaccuracies and are given as a guide only. All wood flooring is supplied to the nearest whole square metre (always rounding up).

External Use

Fired Earth wood flooring is not suitable for external use.

Solid Wood Board

Traditionalists will be unanimous in their appreciation of our solid wood boards. In the pursuit of the purest design dream, laying these, the most traditional of boards, will profoundly resonate all that is sought after by using such a splendid natural product. As anyone who owns a solid, hardwood floor will testify, the boards mature and improve with age.

Unsealed and brushed boards are produced to give a more 'rustic' finish to the surface of the board which adds further character.

Only 128mm solid wood floors are suitable for the CLIP SYSTEM.

Engineered Board

The engineered board is a product of the modern age. With the traditional look and aesthetic characteristics of a solid board, it provides more versatile fitting options for a number of projects where solid boards are unsuitable.

The eleven layers of ply and 5.5mm surface layer of solid oak provide a stable construction for floating floors and can be used with some underfloor heating. The strong construction of the board prohibits extensive movement to reduce the risk of warping.

Planning

Wood floors should be installed at a final stage, prior to decoration. Generally speaking, the boards should be laid lengthways towards the main incoming light source and, where possible, down the length of the room. Consider at this stage how the edges of the floor will be finished. Whenever possible the skirting boards are best fitted after installation of the wood floor as they can disguise the 15mm gap required for expansion around the perimeters. A 15mm gap on each opposite wall is sufficient for a maximum width of flooring of 6.0 linear metres between those walls. If the width of the floor to be installed is over 6.0 linear metres, or if the environment of the installation is going to have a higher than normal moisture content or relative humidity, consideration should be given to using shims between each row of boards. This ensures a specified narrow gap is left between each board, allowing independent expansion (seek fitter advice if required).

Fired Earth can supply a range of skirting boards, quadrants, pipe ferrules etc. to suit your chosen timber. These will provide you with the most appropriate product for the finishing touch to your floor. Alternatively cork fillets or can be used. At doorways and thresholds finishing trims should be used to provide grading for height changes, protection for the edges of the floor and an aesthetic finish. Prevent grit and dirt damaging your floor by using good quality entrance mats. Always have large good quality mats both inside and outside external doors. These must be cleaned regularly to minimise the ingress of grit and moisture onto the floor. Our non reducer sections can be used to form a 'well' within the floor which holds the mat in place and can help where door clearance is limited.

The wood boards should be placed in the room in which they are to be fitted to acclimatise (minimum 48 hours but varying on site conditions) and should be stacked carefully to allow air to circulate, see chart on page 5. The room should be at its normal living temperature (minimum 15°C and maximum 25°C and humidity 50% – 65%) during the acclimatisation process. The heating should be switched on (if required to provide normal living conditions) at least 10 days prior to installing the wood.

It is not always necessary to acclimatise engineered boards but if in any doubt a period of acclimatisation is advisable (see Underfloor Heating, page 15).

Calculating Quantities

Calculate the total square meterage of the room/s and add 10% for cutting and wastage. Small, complicated or difficult areas may require more material for wastage.

Substrates

All substrates must be structurally sound, flat, clean and dry. The normal tolerances are +/- 3mm over a 2.0m straight edge. Uneven floors should be levelled with *Fired Earth Universal Levelling Compound* or battens and packers depending on the fixing system to be used. The surface should be free of all contaminants and loose material. All possibilities of damp e.g. walls, drains, damp proof courses, plumbing, fridges, washing machines etc. MUST be thoroughly checked and repaired if found to be leaking.

In particular all construction dampness must have completely dried and the house should be at the temperature and humidity expected during occupation.

Sand and Cement Screed/Concrete

Existing screeds/concrete must be checked for moisture. This can easily be carried out using a moisture meter. If moisture is present, i.e. over 5% (equivalent to 60% RH with a hygrometer), wood floors must not be fitted until the problem has been rectified. Please seek specialist advice.

Existing Timber Base

e.g. Joists, tongue and grooved floorboards and floating floors.

a. Solid Boards

Can be fixed directly over sound and secure joists, or directly onto prepared floorboards. If the existing floorboards are sufficiently flat, the new boards can be laid directly on to them at 90 degrees. If the existing floor is not suitably flat then it must be made flat and level by overlaying with WBP (water and boil proof) plywood. Loose boards must be secured or the new floor may squeak. Please note: If nails/screws are being used, care must be taken not to damage pipes or electrical cables beneath.

b. Engineered Boards or CLIP SYSTEM

This cannot be fitted directly onto joists. Existing wooden floors must be made flat and level prior to installation of the overlay boards. Plywood of a minimum depth of 12mm, should be firmly screwed down to level uneven timber bases.

Floating Floor

All Fired Earth timber floors can be fitted onto floating floors, which must be sound, flat, firm and free of any deflection. When the boards are to be installed by secret nailing, a minimum 12mm depth wbp plywood must be screw fixed to the chipboard at 300mm centres.

Other Floor Finishes

Most other floor finishes e.g. lino, carpet etc. should be removed prior to installation of a new wood floor. Please ask for further advice.

Fixing

There are a number of methods for fixing wood floors. Fired Earth recommends that solid boards are 'secret nailed', using the Porta Nail system, fully bonded using *Sika T54* or floated on our CLIP SYSTEM. Engineered boards are floated onto a suitable underlay. Where floor height is critical, engineered boards can be fitted over an underlay which minimises height gain, solid wood can be glued down, 128mm boards can be fitted with the CLIP SYSTEM or, floorboards can be removed to allow for nailing solid boards directly to the joists.

Prior to installing the wood, it should be thoroughly checked to ensure that the colour is correct and the boards are straight and undamaged. Any damaged boards should be put to one side and used for cuts or in less obvious areas. Ensure the various shades, grades and widths where applicable of wood are randomly distributed throughout the floor. The wood fitter must assess each board as it is being laid for suitability. If you are in any doubt, please consult your Fired Earth Showroom prior to installing.

A final moisture check should be conducted immediately prior to installation. The wood to be installed should be within +/- 2% moisture of the surface onto which it is to be fitted.

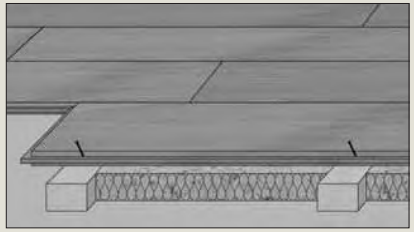
The exception to this is a subfloor with a surface DPM applied, which should not require checking and must not be damaged during installation of the floor. Fired Earth recommend Protimeter's MMS test equipment for measuring moisture content, relative humidity and temperature.

Stage 1 - Preparation

Sand and cement screeds/concrete

a. Solid Boards

Secret Nailing - Lay a suitable polythene 250mu sheet (Visqueen) vapour barrier onto the substrate, overlap any seams by at least 20cm and securely tape to provide a suitable seal. The polythene should be returned up the walls by 50mm, excess can be cut off once the floor is laid. Lay 18-24mm WBP plywood across the floor in the opposite direction to the length of the new boards, to provide a material into which the nails can fix. The plywood sheets should be butted together allowing a perimeter gap for expansion. Alternatively, kiln dried and treated timber battens 50 x 25mm, may be laid on to the floor at a maximum of 400mm centres, see diagram on next page.



Fully Bonded System – Solid wood and engineered boards can be fully bonded on to flat and level screeds (see Substrates, page 8). It is imperative however that the screed is sufficiently dry. If the screed has a relative humidity reading of over 60%, a wood floor must not be laid over it without the application of a surface damp proof membrane such as *Sika Primer MB*. Follow the manufacturer's instructions rigidly to ensure the membrane is fully effective. Fired Earth recommends that at least one coat of *Sika Primer MB* is applied to a screed even if the screed is believed to be 60% RH or below.

CLIP SYSTEM – Boards being laid using the CLIP SYSTEM should be fitted directly onto the polythene membrane which has been overlaid with *Fired Earth Wood Underlay*.

b. Engineered Boards

The subfloor should be level prior to installation of a wood floor. *Fired Earth Universal Levelling Compound* can be used on screeded floors up to a maximum depth of 5mm to level the substrate when necessary.

Fired Earth Wood Underlay should be fitted to cushion the floor after laying a suitable polythene 250mu sheet (Visqueen) to provide a DPM. Lay the *Fired Earth Wood Underlay* so joins run in the opposite direction to the timber floor.

Existing Timber Base

A new wood floor should be laid at a 90 degree angle to the existing boards. If the new boards are to be laid in the same direction as the old, plywood sheets (minimum depth 6mm) should be nailed or screwed to cover the existing floor, allowing a 15mm perimeter gap for expansion. Loose boards etc. should be firmly fixed to reduce the risk of squeaking in the new floor.

a. Solid Boards

When laying suitable new wood boards directly onto existing joists, noggins may be required to support the end joins. Suspended ground floors must have sufficient cross ventilation to prevent condensation occurring on the underside of the flooring. It is advisable to lay a suitable membrane over the joists to help protect the undersides of the new boards from moisture. Fix the boards by secret nailing.

b. Engineered Boards and Solid Wood using the CLIP SYSTEM (128MM WIDE SOLID WOOD BOARDS ONLY).

The subfloor must be flat to ensure the boards are fully supported. Use WBP plywood of a suitable depth to level the floor prior to fitting the underlay and wood if required.

Sound and Impact Reductions

In order to reduce sound impact noise in solid wood floors when fitting onto concrete floors, Sika AcouBond system can be used. The synthetic foam mat is laid onto the subfloor. *Sika T52* adhesive is then applied into the preset channels within the underlay. This system also ensures that a high bond strength is achieved and is slightly 'forgiving' in uneven subfloors.

Stage 2 - Installation

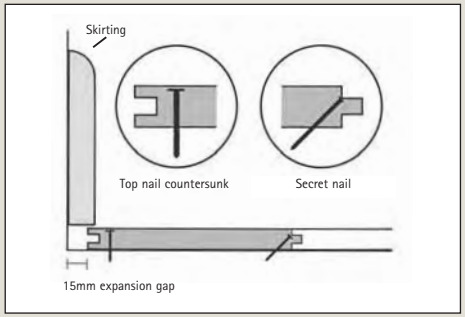
Setting out

Allow ample time to study the room and to plan your work. After consultation between client and fitter and selection of a starting point, mark out a straight line parallel to the chosen wall, allowing a 15mm gap for expansion. Check for straightness with other walls and in adjoining rooms if the boards are to continue into them. It may be necessary to scribe the first row of boards to achieve correct alignment throughout the area(s) to be fitted. All end joints should have a minimum overlap of 300mm from the board ends on either side, and be staggered throughout the floor to achieve a random effect and strength particularly when fitted onto battens or joists.

a. Solid Boards

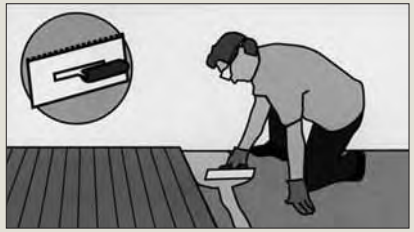
Secret Nailing - Square the first run of boards to the marked line and top nail and countersink through the boards as near to the wall as possible (see diagram below). Top nail at 25-30cm intervals or onto every joist, and where possible within 7.5cm of the end of each board. Care must be taken with presealed boards, not to damage the surface. Remember to thoroughly mix boards for colour, texture, grain, width etc. as the floor is fitted.

Using the same spacing of 25-30cm, secret nail at 45 degrees and countersink through the tongue, it will not be possible to use the Porta Nailer on the first and possibly second row of boards, nearest to the starting and finishing walls. Therefore a pilot hole should be drilled and nails hammered home and countersunk).



Fit the next run of boards groove to tongue and secret nail. Continue to fit the boards from left to right remembering to stagger the joints by a minimum of 300mm. Trim the last boards to fit, allowing 15mm for expansion, use offcuts to start the next row of boards where possible. Check the straightness of your work as you progress. Top nail and countersink the last run of

boards to finish. All pipes, pillars, frames etc. must be cut around to provide suitable expansion gaps. Due to natural distortion, in some instances it may be necessary to clamp or strap the boards in a suitable position, prior to secret nailing.



Fully Bonded System -Scribe the first row of boards to the wall allowing for the correct expansion gap. Remove the boards and following the manufacturers recommendations, apply the correct amount of adhesive to the subfloor for a maximum of 3 rows of boards. Place the previously scribed boards into the correct position in the adhesive followed by a further 2 rows. Insert suitable wedges and adjust to allow for the correct expansion joint. Use floor straps if necessary to remove any gaps in the boards and keep them tight until the glue has gone off. It is important to make sure that the boards are installed in a straight line. Do not apply any adhesive to the tongues or grooves. Continue laying the rest of the boards by applying sufficient adhesive for a few rows at a time. Scribe the last row of boards to the wall allowing for the correct expansion gap. Use a jemmy bar to ensure a tight joint is achieved and insert wedges. Remove the wedges as soon as the glue has dried.

b. Engineered Boards

Floating Floor - Square the first run of boards to the marked line. Insert spacers to provide the correct expansion gap on all walls. Use Fired Earth's waterproof PVA wood glue for the joints. Apply the glue in a bead along the lower side of the grooves to prevent glue being squeezed up onto the top surface.

Wipe off any surplus glue with a damp cloth. Cut the last board in the row to length and use the offcut to start the next row provided it is of a suitable length. Apply glue to side and end grooves and fit the next board.

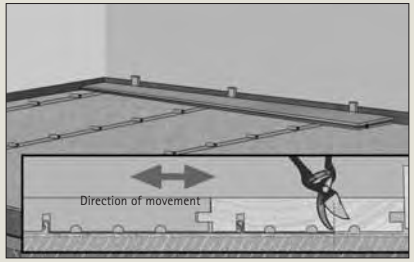
Tap the boards snugly into place using a 'tapping block'. Stagger all joints by at least 300mm. Trim the last boards to fit and glue in place ensuring a correct expansion gap is allowed for. After the glue has completely set remove the spacers before proceeding with the final stages.

Please note - It is advisable to minimise gaps between boards by using floor straps where necessary. Floor straps can effectively pull boards together reducing the woods natural instinct to bend.

CLIP SYSTEM – Suitable for 128mm wide solid wood boards only

Overlay your flat, level subfloor with Visqueen 250mu DPM followed by *Fired Earth Wood Underlay.*

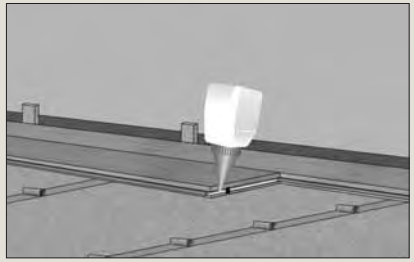
Push the clips together to form a chain before placing the first row 100mm from the end walls and 700mm centres across the floor for domestic installations (500mm for commercial applications). The raised profile of the clip must locate into the special groove machined in the back of the board just behind the tongue.



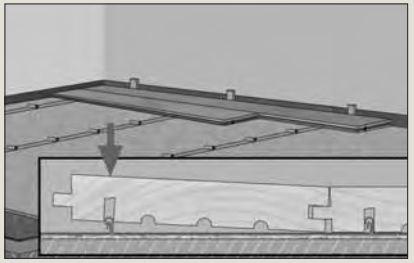
As the boards are laid with the groove against the wall, the clips must be laid on the floor so that the profile is away from the wall and will locate into the groove in the board correctly.

Cut the first clip of each chain to approximately half its length. Scribe the first row of boards if necessary and insert wedges to ensure the correct expansion gap is maintained.

The end tongue and groove joints of each board must be glued with *Fired Earth Wood Glue*. Do not glue the tongues and grooves along the lengths of the boards.

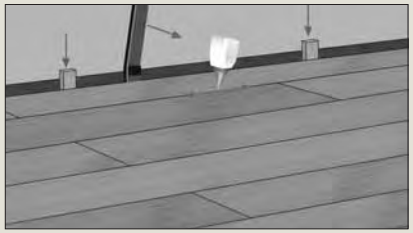


Continue laying the rest of the boards by placing the groove of the next board over the tongue of those already laid. Each row of boards should be end glued and positioned groove over tongue of those already laid, allowing the boards to rest on the raised profile of the clips. Using a knocking block to protect the tongue, lightly tap the joint up tight with a hammer. Ensure the groove on the underside of the board is in line with the raised profile of the clips, then push firmly into place with the flat of your hand.



It is important to ensure that the clip is fully located into the groove on the underside of the board. A metal trowel or similar, temporarily placed under the metal clip, may help to ensure the clip is firmly in place. The last row of boards should be scribed to the shape of the wall allowing the correct amount for an expansion allowance.

Prior to installation, the boards should be glued along their length to the tongues of the previous boards. Use a jemmy bar to ensure a tight joint is achieved and insert wedges.



All wedges should be removed once installation of the wood is complete and glue has dried.

Important finishing touches!

Once the floor is finished, skirting boards or Scotia's/quadrants can be fitted to cover the expansion gap. This can be painted or oiled depending on your preference. Pipe ferrules can be fitted around radiator pipes, thresholds in door ways to overcome steps created by the new flooring or to protect the edges of other flooring.

For more detailed technical information refer to **British Standard BS 8201 Code of practice** for flooring of timber, timber products and wood based panel products.

Sealing

Unsealed Boards

Preparing the floor - Sweep the floor to remove all loose dust etc. and carefully inspect for loose boards and protruding nails. Correct where necessary. Once correctly installed, clean and dry, the boards are ready to seal.

Fired Earth supply *Coloured Oils*, which will colour and seal in one operation.

WARNING – OIL IMPREGNATED CLOTHS AND OTHER COMBUSTIBLE MATERIALS MAY SPONTANEOUSLY COMBUST – DISPOSE OF BY BURNING OR BURYING.

Thoroughly shake all containers prior to use.

Apply the oil evenly onto the floor with soft fluff free cloth. Work the oil along and into the grain of the wood as you progress making sure that all the wood is covered. At least 2 applications should be applied to ensure good coverage and proper protection. 1 litre of oil is sufficient for sealing, colouring and finishing approximately 12m^2 of oak and 15m^2 of our other species. Do not cover more than this area at a time. The oil should be left to absorb into the floor for about 20 minutes before working any excess oil into the wood with a floor polisher fitted with polishing pads. Alternatively the oil can be polished in manually. Polish the floor until all the oil is worked into the wood and no residues of the oil remain on the surface of the floor (approximately 15 minutes). Shake bottles of coloured oil regularly to ensure the colour pigments remain well mixed. Any excess oil must be removed immediately with cloths or paper or moved to the next section of flooring which requires sealing if applicable.

The oiled floor should be slightly hardened within 6 hours but it will take a full 72 hours before it should receive normal traffic. Cover walking areas with corrugated cardboard if access is required within this time.

Finishing – Presealed Boards

Although presealed, all Fired Earth oil finished boards need finishing with *Maintenance Oil* in Natural.

WARNING – OIL IMPREGNATED CLOTHS AND OTHER COMBUSTIBLE MATERIALS MAY SPONTANEOUSLY COMBUST – DISPOSE OF BY BURNING OR BURYING.

Preparing the floor - Sweep the floor to remove all loose dust etc. and carefully inspect for loose boards and protruding nails. Correct where necessary. Once correctly installed, clean and dry, the boards are ready to apply a finishing coat.

Maintenance Oil is poured onto the floor and spread evenly and uniformly along the grain of the wood working it into the timber. As the wood is already sealed is does not need to absorb large quantities so keep the application light and work it well into the grain so it quickly appears silky matt. Shiny or wet looking areas indicate excess oil which should be removed immediately with a fluff free cloth.

Polishing the floor with a floor polisher hardens the oil more quickly so immediate foot traffic is possible. Otherwise do not get any water onto the floor for 24 hours and keep traffic as light as possible.

Presealed floors must not have extra oils applied to them, only *Maintenance Oil*.

Underfloor Heating (in screed systems only)

The success of timber over underfloor heating is largely down to site conditions once the wood is fitted. Although the correct fitting system is imperative, problems associated with natural timber and underfloor heating are normally the result of inappropriate use of the heating. As a result Fired Earth will not recommend any of it's natural timber products with underfloor heating, but for those who are determined to use it, we have included our best advice below.

a. Solid Boards

While it is possible to fit solid wood boards

over underfloor heating, solid wood boards will be subject to higher levels on movement than engineered boards. The wider the board, the higher the potential movement will be.

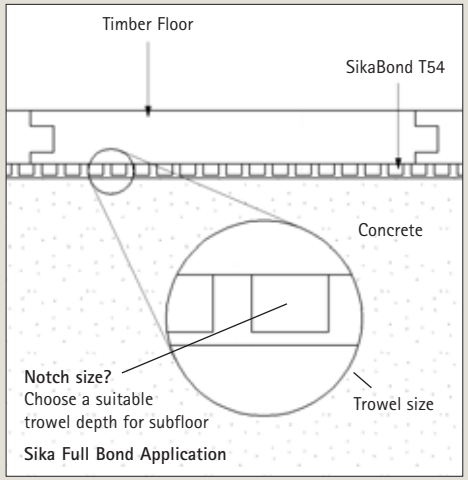
Underfloor heating dries the boards and this can cause shrinkage. Conversely the dry boards can absorb moisture when the heating is turned off which can cause the boards to swell. As the risk of movement is so high in these boards, we do not recommend the use of Fired Earth solid wood boards with underfloor heating systems.

b. Engineered Boards

Being a laminated, multilayered and cross grained product, engineered boards are the least sensitive to the affects of moisture change, and therefore the drying effect of the underfloor heating.

If, once the risks have been considered and engineered boards are to be fitted at your own risk over underfloor heating, the following fully bonded installation system is advised.

1. Screeds must be fully cured and suitably dry.
2. The heating should be fully commissioned and have run continually at its normal working temperature for a minimum of 4 weeks. The temperature should then be reduced to approximately 15°C prior to fitting the boards.
3. Boards should be acclimatised.
4. Apply *Sika Primer MB* as instructed by the manufacturers.
5. Using *Sika T54* fully bond the engineered boards to the prepared floor. DO NOT glue the tongues and grooves. Allow the adhesive to dry/cure thoroughly.
6. Once fully cured the heating should be turned up slowly increasing the temperature of the heating by no more than 5°C in 24 hours until the normal operating temperature is reached. The floor temperature should not exceed 26°C.



Sika Full Bond Application

Cleaning and Maintenance

Normal Cleaning

Brush or vacuum all dust or dirt off the surface. Individual marks and spillages should be wiped off immediately using a damp cloth. Do not allow moisture to remain on the floor.

The floor should be cleaned with a *Fired Earth Mop* dampened with a dilution of *Fired Earth Soap* and water. Dilute 250ml of *Fired Earth Soap* with 10 litres of warm water. Use a second bucket for rinsing out the dirty mop and change the water regularly. This will prevent mopping dirty water across the floor and avoid unnecessarily wasting the *Fired Earth Soap*.

Thorough Cleaning

If the floor is particularly dirty or stained, use *Fired Earth Wood Cleaner*. The product should be applied with a mop dampened with a dilution of *Fired Earth Wood Cleaner* and water. Dilute 1:20 of *Fired Earth Wood Cleaner* with warm water. Use a second bucket for rinsing out the dirty mop and change the water regularly. This will prevent mopping dirty water across the floor and avoid unnecessarily wasting the *Fired Earth Wood Cleaner*. Allow the solution to stand on the floor (do not soak the floor) for about 5 minutes so it can soften the dirt. If necessary scrub the floor to remove the dirt. Mop up the emulsified dirt drying the floor with the *Fired Earth Mop* as you progress.

Maintenance Cleaning

As a guide oiled floors need maintenance once a year in domestic situations. Kitchens, bathrooms commercial applications etc will probably be more often. All oils will degrade with washing, spillages, grit, dirt, UV light and general wear and tear. Therefore it is necessary to replenish the seal/finish to maintain the protective and aesthetic qualities of the floor.

First, the floor must be cleaned with *Fired Earth Wood Cleaner*. Once the floor is clean, leave to dry for 4–8 hours. *Maintenance Oil* is then poured onto the floor and spread evenly and uniformly along the grain of the wood working it into the timber. As the wood is already sealed it does not need to absorb large quantities so keep the application light and work it well into the grain so it quickly appears silky matt. Shiny or wet looking areas indicate excess oil which should be removed immediately with a fluff free cloth.

Polishing the floor with a *Fired Earth Floor Polisher* hardens the oil more quickly so immediate foot traffic is possible. Otherwise do not get any water onto the floor for 24 hours and keep traffic as light as possible.

WARNING – OIL IMPREGNATED CLOTHS AND OTHER COMBUSTIBLE MATERIALS MAY SPONTANEOUSLY COMBUST – DISPOSE OF BY BURNING OR BURYING.

Classic Oak Flooring - Solid board

Board type	Character Oak		Rustic Oak		Nature Oak		Select Oak	
Technical								
Width	110mm		128, 168, 208mm or random widths		128, 168, 208mm or random widths		128, 168, 208mm or random widths	
Thickness	18mm		21mm		21mm		21mm	
Length range	Random 300-1500mm		Random 1160-2360mm		Random 1160-2360mm		Random 1160-2360mm	
Finish	Presealed		Presealed or Unsealed/Brushed		Presealed or Unsealed/Brushed		Presealed or Unsealed/Brushed	
Tongue and groove	✓		✓		✓		✓	
Micro bevelled edge - sides and ends	✓		✓		✓		✓	
End matched	✓		✓		✓		✓	
Filled knots	✓		✓		✓		×	
Length and width of filled knots	Up to 40mm		Up to 40mm		Up to 30mm		×	
Unfilled knots	✓		✓		✓		✓	
Size of unfilled knots	Pin head		Pin head		Pin head		Pin head	
Visable sapwood	✓		✓		✓		✓	
Sapwood max. size	Up to 25% of the board		Up to 25% of the board		Up to 15% of the board		Minimal	
Shakes	✓		✓		✓		✓	
Shakes detail	Occasional		Occasional		Occasional		Occasional	
On site acclimatisation	Min. 48 hours		Min. 48 hours		Min. 48 hours		Min. 48 hours	
Subfloor								
	With DPM and 24mm batons or plywood	Fully bonded	With DPM and 24mm batons or plywood	Fully bonded	With DPM and 24mm batons or plywood	Fully bonded	With DPM and 24mm batons or plywood	Fully bonded
Smooth level concrete	✓	✓	✓	✓	✓	✓	✓	✓
Total increase in floor height	42mm	20mm	45mm	23mm	45mm	23mm	45mm	23mm
Smooth level floorboards/laid at 90 degrees to existing	✓	×	✓	×	✓	×	✓	×
Total increase in floor height	18mm	n/a	21mm	n/a	21mm	n/a	21mm	n/a
Joists	✓	×	✓	×	✓	×	✓	×
Total increase in floor height	0mm	n/a	0mm	n/a	0mm	n/a	0mm	n/a
Fixing Method								
Secret Nail	✓		✓		✓		✓	
Glue end tongue to groove: Floating floor	×		128mm Clip system only		128mm Clip system only		128mm Clip system only	
Fully bonded	✓		✓		✓		✓	
Clip system	×		With 128mm wide board only		With 128mm wide board only		With 128mm wide board only	

Classic Oak Flooring - Engineered board

Board type	Rustic Oak	Nature Oak	Select Oak
Technical			
Width	189mm	189mm	189mm
Thickness	21mm	21mm	21mm
Length range	From 500-1860mm	From 500-1860mm	From 500-1860mm
Finish	Presealed or Unsealed/Brushed	Presealed or Unsealed/Brushed	Presealed or Unsealed/Brushed
Tongue and groove	✓	✓	✓
Micro bevelled edge - sides and ends	✓	✓	✓
End matched	✓	✓	✓
Filled knots	✓	✓	×
Length and width of filled knots	Up to 40mm	Up to 30mm	×
Unfilled knots	✓	✓	✓
Size of unfilled knots	Pin head	Pin head	Pin head
Visable sapwood	✓	✓	✓
Sapwood max. size	Up to 25% of the board	Up to 15% of the board	Minimal
Shakes	✓	✓	✓
Shakes detail	Occasional	Occasional	Occasional
On site acclimatisation	Min. 24 hours	Min. 24 hours	Min. 24 hours
Subfloor			
Smooth level concrete	✓	✓	✓
Total increase in floor height	23mm inc. 3mm underlay	23mm inc. 3mm underlay	23mm inc. 3mm underlay
Smooth level floorboards/laid at 90 degrees to existing	✓	✓	✓
Total increase in floor height	23mm inc. 3mm underlay	23mm inc. 3mm underlay	23mm inc. 3mm underlay
Joists	×	×	×
Total increase in floor height	n/a	n/a	n/a
Fixing Method			
Secret Nail	×	×	×
Glue end tongues to grooves: Floating floor	✓	✓	✓
Fully bonded	With underfloor heating only, refer to guide	With underfloor heating only, refer to guide	With underfloor heating only, refer to guide
Clip system	×	×	×

Hardwood Flooring Selection - Solid board

Board type	Nature Walnut		Select Walnut		Nature Cherry	
Technical						
Width	128mm		128mm		128mm	
Thickness	21mm		21mm		21mm	
Length range	Random 1160-2360mm		Random 1160-2360mm		Random 1160-2360mm	
Presealed	✓		✓		✓	
Tongue and groove	✓		✓		✓	
Micro bevelled edge - sides and ends	✓		✓		✓	
End matched	✓		✓		✓	
Filled knots	✓		×		✓	
Length and width of filled knots	Up to 30mm		×		Up to 30mm	
Unfilled knots	✓		✓		✓	
Size of unfilled knots	Up to 3mm		Up to 2mm		Pin head	
Visable sapwood	✓		✓		✓	
Sapwood max. size	Up to 25% of the board		Minimal		Up to 25% of the board	
Shakes	✓		✓		✓	
Shakes detail	Occasional		Occasional		Occasional	
On site acclimatisation	Min. 48 hours		Min. 48 hours		Min. 48 hours	
Subfloor						
	With DPM and 24mm batons or plywood	Fully bonded	With DPM and 24mm batons or plywood	Fully bonded	With DPM and 24mm batons or plywood	Fully bonded
Smooth level concrete	✓	✓	✓	✓	✓	✓
Total increase in floor height	45mm	23mm	45mm	23mm	45mm	23mm
Smooth level floorboards/laid at 90 degrees to existing	✓	×	✓	×	✓	×
Total increase in floor height	21mm	n/a	21mm	n/a	21mm	n/a
Joists	✓	×	✓	×	✓	×
Total increase in floor height	0mm	n/a	0mm	n/a	0mm	n/a
Fixing Method						
Secret Nail	✓		✓		✓	
Glue end tongue to groove: Floating floor	Clip system only		Clip system only		Clip system only	
Fully bonded	✓		✓		✓	
Clip system	✓		✓		✓	

Board type	Select Cherry		Nature Maple		Select Maple	
Technical						
Width	128mm		128mm		128mm	
Thickness	21mm		21mm		21mm	
Length range	Random 1160-2360mm		Random 1160-2360mm		Random 1160-2360mm	
Presealed	✓		✓		✓	
Tongue and groove	✓		✓		✓	
Micro bevelled edge - sides and ends	✓		✓		✓	
End matched	✓		✓		✓	
Filled knots	×		✓		×	
Length and width of filled knots	×		Up to 30mm		×	
Unfilled knots	✓		✓		✓	
Size of unfilled knots	Pin head		Pin head		Pin head	
Visable sapwood	✓		✓		✓	
Sapwood max. size	Minimal		×		×	
Shakes	✓		✓		✓	
Shakes detail	Occasional		Occasional		Occasional	
On site acclimatisation	Min. 48 hours		Min. 48 hours		Min. 48 hours	
Subfloor						
	With DPM and 24mm batons or plywood	Fully bonded	With DPM and 24mm batons or plywood	Fully bonded	With DPM and 24mm batons or plywood	Fully bonded
Smooth level concrete	✓	✓	✓	✓	✓	✓
Total increase in floor height	45mm	23mm	45mm	23mm	45mm	23mm
Smooth level floorboards/laid at 90 degrees to existing	✓	×	✓	×	✓	×
Total increase in floor height	21mm	n/a	21mm	n/a	21mm	n/a
Joists	✓	×	✓	×	✓	×
Total increase in floor height	0mm	n/a	0mm	n/a	0mm	n/a
Fixing Method						
Secret Nail	✓		✓		✓	
Glue end tongue to groove: Floating floor	Clip system only		Clip system only		Clip system only	
Fully bonded	✓		✓		✓	
Clip system	✓		✓		✓	

Product Selector

	Soild Wood Boards					Engineered Boards	
	Presealed Character Oak	Presealed Classic Oak	Unsealed/Brushed Classic Oak	Presealed Walnut, Cherry and Maple	All 128mm Wide Boards	Presealed Classic Oak	Unsealed/Brushed Classic Oak
Concrete Substrate	Products - Fixing Products						
Smooth Level Concrete with DPM and 24mm batons or WBP plywood	DPM sheet	DPM sheet	DPM sheet	DPM sheet	DPM sheet	n/a	n/a
Fully bonded	Sika Primer MB* and Sika T54	Sika Primer MB* and Sika T54	Sika Primer MB* and Sika T54	Sika Primer MB* and Sika T54	Sika Primer MB* and Sika T54	Sika T54**	Sika T54**
AcouBond System (reduces noise)	Sika Primer MB*, Sika T52, Sika Silent Layer Underlay	Sika Primer MB*, Sika T52, Sika Silent Layer Underlay*	Sika Primer MB*, Sika T52, Sika Silent Layer Underlay*	Sika Primer MB*, Sika T52, Sika Silent Layer Underlay*	Sika Primer MB*, Sika T52, Sika Silent Layer Underlay	n/a	n/a
Floating floor over flat screed	n/a	n/a	n/a	n/a	Wood underlay, clips, wood glue	DPM sheet, wood underlay and wood glue	DPM sheet, wood underlay and wood glue
Timber Substrate							
Smooth level floor boards laid at 90 degrees to existing	n/a	n/a	n/a	n/a	Wood underlay, clips, wood glue	DPM sheet, wood underlay and wood glue	DPM sheet, wood underlay and wood glue
Joists	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sealing and Maintenance Products					Presealed	Unsealed/ Brushed	
Master or Coloured oils	n/a	n/a	✓	n/a	n/a	✓	n/a	✓
Maintenance Oil	✓***	✓***	n/a	✓***	✓***	n/a	✓***	n/a
Maintenance kit	✓	✓	✓	✓	✓	✓	✓	✓
Mop	✓	✓	✓	✓	✓	✓	✓	✓
19mm unsealed Quadrant and Scotia	✓	✓	✓	✓	✓	✓	✓	✓
19mm or 21mm unsealed T-section, Non Reducer and Threshold	✓	✓	✓	✓	✓	✓	✓	✓
Unsealed Radiator Ferrule	✓	✓	✓	✓	✓	✓	✓	✓
Unsealed Skirting	✓	✓	✓	✓	✓	✓	✓	✓

* Sika Primer MB is only required on concrete subfloors where damp may be present - seek advice.

** Used when Engineered boards are fitted onto Underfloor Heating System.

*** Maintenance Oil is only required on floors over 25m^2 when the Maintenance Kit is purchased.

Important Notes

1. Fired Earth floors contain varying quantities of natural characteristics. Knots and sapwood will be common in some boards as will kiln checking and shakes.
2. The mixture of board lengths within orders is unspecified but will be within stated range. No guarantee will be offered for proportion of lengths with in each order.
3. Sapwood may be present in differing amounts. Wood must be checked prior to laying to ensure customer is satisfied with appearance of floor.
4. Open knots will be evident in some presealed products or may be filled with a reasonably like-coloured filler. Quantity and dimension of knots is unspecified.
5. All plaster and concrete must be thoroughly dry prior to taking delivery of boards. If in any doubt please contact your local store or the Fired Earth Technical Department.
6. Wood must not be laid into a house where the moisture content in any permanent fixture exceeds 11%. This may indicate a leak of some nature and must be investigated prior to delivery of wood flooring.

General after care advice

Felt pads and caster cups should be used to prevent damage by furniture etc. Sharp heels, particularly stilettos will dent and/or scratch wooden floors.

Bathrooms - Never leave damp towels or bath mats on the floor following use. Always wipe up splashes or puddles and never leave them to dry on the floor. Ensure the bathroom is well ventilated. Regularly clean mat wells of excess dust, dirt, grit and moisture.

For more detailed technical information refer to **British Standard BS 8201 Code of practice** for flooring of timber, timber products and wood based panel products.

Glossary

Acclimatisation – Storing the timber in the area/s where it is to be used in order to allow it to absorb or lose moisture depending on room conditions. This will allow the wood to 'settle' prior to being installed. Individual packs do not need to be opened.

Acoubond system – *Sika Silent Layer Mat* and *Sika T52* adhesive filling system.

Architraves – Decorative mouldings used to cover unsightly expansion joints. Decorative mouldings used around doorways which normally requires undercutting to allow the wood floor to fit under it.

Atmospheric Relative Humidity – Moisture content in the air of the room.

Bevel – The edge of the board is planed off which helps avoid edges and lips in the finished floor when laying presealed boards.

Checking – Cracks or splits seen across the rings of annual growth caused by seasoning of the wood.

Clip System – A chain of metal straps are clipped together so 128mm solid wood boards can be attached to them via a groove in the back of each board. Solid wood boards can then be laid as a floating system.

Construction Dampness – Moisture contained within finished structures in excess of acceptable levels, caused by normal building procedures. Time must be allowed for moisture levels to fall within acceptable parameters.

Cork Fillets – Cork strips fitted in to expansion joints which allow movement of the timber whilst providing an aesthetic finish.

Damp Proof Membrane (DMP) – A layer of impervious material installed to prevent rising damp. Can be polythene or liquid applied.

End Joins – Where two planks join at the end lengths of the boards.

End Matched – Factory finished boards with tongues or grooves on the ends of each board, therefore allowing the boards to start and finish without the need to be placed over a joist for support.

Engineered Boards – A floorboard made of 11 layers, the top surface being hardwood to provide a floor that appears exactly like a solid wood floor but it's cross grained construction with plywood increases it's stability.

Expansion Gap – A suitable gap must be left around all perimeters and abutments etc. so a wood floor can expand and contract if temperature and humidity changes in the room.

Filling – The process of using a suitable resin/sawdust or filler to fill in gaps, holes etc. in the wood.

Finishing Trims – A timber strip or quadrant which is fixed to the skirting board and used to mask the expansion joints, or a variety of boards shaped specifically to cover gaps or make up height variances.

Floating Floor – Flooring which is not fixed to the structural floor surface.

Fully Bonded System – The wood boards are fixed down onto a combed out bed of adhesive.

Grades – Wood from a tree is hand sorted to produce floors which show natural characteristics of the growing tree. *Fired Earth Select* uses the cleanest of the wood followed by *Nature* then *Rustic* which has many more knots etc. and *Character* which uses all structurally sound timber with minimum waste from the tree. There are no accepted standards within the industry so understand fully the system used by the company from which you are buying the wood.

Hardwood – Hardwearing wood from broadleaved trees.

Hygrometer - An instrument for measuring humidity.

Hygroscopic – The ability / tendency to absorb or lose moisture into the air.

Knots – A natural figure in the grain of the wood as a result of a growing branch.

Mineral Streaks – Olive or greyish markings caused by environmental factors such as trace elements in the water or soil.

Moisture Content - A means of identifying the amount of moisture within a material – a vital check prior to the installation of a wood floor.

Moisture Meter – An instrument used to measure the amount of moisture (water) in a material. Fired Earth recommends Protimeter's MMS meter.

Normal Living Temperature and Humidity – The normal temperature and humidity expected in the room/s during normal occupation.

Porta Nailer – A specific tool used for secret nailing. Added advantage of pushing boards together to provide a closer fit.

Relative Humidity – The amount of moisture contained in the air.

Sand and Cement Screed – A structural surface made from a mix of sand and cement. Most screeds contain an amount of moisture so a DPM is normally advisable when fitting timber over these substrates.

Sapwood and Heartwood - The centre of the tree is known as heartwood and the outside is known as sapwood.

Sealing – Applying an appropriate oil based material to the wood to provide protection and colour.

Secret Nail – Driving a nail at 45 degrees through the board into the substrate just above the tongue of the board. The nail head is hidden when the next board is fitted.

Shakes - During the growth cycle and sometimes during kiln drying, stress is applied to the tree or boards, this can result in splits known as Shakes developing.

Sika Primer MB – A liquid applied damp proof membrane suitable for use with *Sika T54*.

Sika Silent Layer Mat – 3mm deep underlay mat with pre-determined slots for ease of application of *Sika T52* adhesive. Also used for sound reducing properties.

Sika T52 – Supplied in a 'sausage' for application by 'caulking gun' - bonding glue for use with *Sika Silent Layer Mat*.

Sika T54 – A trowel applied elastic adhesive specifically suitable for gluing down timber floors.

Shrinkage – In timber boards, shrinkage may be experienced when the moisture content of a board drops. Shrinkage occurs in the width of the board, not it's length.

Spontaneous Combustion – When exposed to air, oil soaked rags etc. may smoulder and ignite!

Substrates – The surface on to which the wood is being fitted.

Tongue and Groove – Floorboards are carefully machined to provide a tongue and a groove in each, so that the tongue of one board can fit snugly in to the groove of the previously laid board. In solid timber joins of this type are considered structurally sound.

Underfloor Heating – Wet or electric forms of heating which are buried in a floor screed and which must not be operated above 26°C.

Unsealed Wood – Sanded and brushed but with no sealers applied. No sanding required when fitted.

Visqueen – A polythene sheet used as a control for moisture.

WBP Plywood – Minimum 12mm used for subfloor preparation. Dimensionally stable and water and boil proof.

Useful Numbers

UK Sales	0845 366 0400
Export Sales	+44 (0)1295 814316
Installations	01295 814310
Technical	01295 814271
Home Deliveries	01295 814313
Customer Care	01295 814396

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