

FIRED EARTH

Geometric and Quarry Floor Tiling Installation Guide

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Important Notes

The purpose of this booklet is to outline the basic principles of installing your Fired Earth floor tiles.

For more detailed technical information, refer to British Standard BS 5385 Wall and Floor Tiling.

On receipt of tiles we recommend they are removed from their packaging and thoroughly inspected prior to installation to ensure the tiles purchased are suitable for the application. Suitability charts are available on line or in our brochure. Ensure your tiler is aware of the expected finish of the tiles and there are sufficient tiles for the area. The tiles must be well shuffled by drawing tiles from all the boxes. Dry lay an area in suitable light as a final check before installation.

For further information or if any doubt exists, please telephone your local showroom for advice prior to commencing any tiling.

Fired Earth have tested our range of adhesives, grout and sealants to ensure compatibility with all of our tiles.

We recommend that you treat a spare tile with the appropriate sealer and/or finisher prior to installation to ensure you have achieved your desired appearance.

Read the instructions on the packaging of Adhesives, Grouts and Sealants very carefully. Keep everything meticulously clean and orderly as work progresses.

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

Website:

www.firedearth.com

All our installation guides are available to download from our website: Wall Tiling, Under Floor Heating, Wood Flooring, Bathroom and Waterproofing Showers and Bathrooms.

Useful Numbers:

UK & Export Sales	0845 366 0400
Delivery Planning	01295 814313
Customer Care	01295 814396
Lithofin Technical	01962 732126
Norcros Adhesives & Grouts	01782 524140

Disclaimer:

The specifications and technical information given in this publication are intended for guidance and although they are to the best of our knowledge correct, they are given without warranty.

We cannot accept any responsibility for reliance placed upon the advice contained herein since practical expertise and site conditions are outside of our control. Neither do we accept liability for the performance of the product arising from such use. This does not affect your statutory rights.

Internal Floor Substrates

Surface preparation:

The surface must be properly prepared, suitably level, sound, clean, dry, and free of dust, grease or any loose material. All surfaces must be completely secure without any obvious deflection and capable of carrying the additional load. For specific guidance, please refer to our substrate preparation table on page 10 of this guide. Every effort is made to ensure the guidance included in this booklet is up to date and relevant, however it remains the responsibility of the fixer to ensure the sub floor is suitable for tiling before any installation commences.

Concrete / Sand and cement screeds:

New concrete floors must be allowed to dry for a minimum of 6 weeks. If applying a screed on top allow a minimum of a further 3 weeks. Residual traces of laitance and curing agents should be mechanically removed before tiling commences. Further drying time may be necessary, depending on weather and site conditions.

The reason for this is a new screed may shrink as it dries, and this may result in cracks across the screed. If tiles are fixed before it is dry and cracking does occur it is likely that the cracks will appear across the tiles as well. Any movement or day joints in the screed must be carried through into the tiled surface with the use of an expansion joint.

Anhydrite or fast setting screeds:

The screed must be fully dry in accordance with the manufacturer's recommendations and lightly sanded to remove all traces of laitance/dust. Prime using progressively stronger coats of Prime Bond. Initially apply a 1:4 parts water dilution and when dry follow with a 1:3 dilution at 90° to the first coat. If after these 2 coats the surface is still absorbent, apply a further coat at a 1:2 dilution and leave to dry.

Bumps and hollows in screeded floors:

Where bumps or hollows exist in the sub floor that exceed the chosen adhesives recommended fixing bed (see adhesive packaging); please level the floor using Pro 50 Levelling Compound which is suitable for use up to a depth of 50mm without risk of shrinking or cracking.

Norcros standard set and fast-set S1 adhesives can be used up to a depth of 10mm.

Suspended timber floors:

The floor should be rigid, non-flexing and stable enough to bear the additional load. In order to minimise the damaging effect of lateral movement in the floor surface, it is recommended that the floor is prepared using Fired Earth Fleximat. Our Sales Team will be happy to provide our separate information sheet. If the suspended timber floor is subject to vertical movement, the floor must be overlaid with 18mm WBP plywood over the existing timber which should be screwed down at 150mm centres.

Floating insulated floors:

Floating insulated floors (polystyrene with water resistant chip board over) are subject to vertical movement. Please consult your professional installer for further advice.

Vinyl sheet and floor tiles:

Thoroughly clean the existing floor to remove all contaminants such as oil, wax and grease, using an appropriate cleaner. Prime the existing floor with Prime Bond and allow to dry before tiling.

Cork and Woodblock Floors:

Cork and woodblock floors must be removed, any bitumen or adhesive residues left on the sub-floor should be scraped away and all loose material removed. Prime the floor with neat Prime Bond and when dry we recommend levelling the area with Pro 50 Levelling Compound.

Damp

Prior to fixing tiles, damp of any nature should be rectified. Consult a specialist if any doubt exists.

Finished Floor Levels

Please be aware the finished level of an existing floor will be raised by the maximum thickness of the tile plus the height of the adhesive bed and any sub floor preparation. Any resultant discrepancy with the levels of adjoining rooms can be minimised with the use of threshold/reducer strips.

Under Floor Heating

The majority of Fired Earth floor tiles can be used over most under floor heating systems. The heating should be correctly commissioned prior to tiling and switched off or lowered to a maximum of 15°C during tiling and for a minimum of 14 days after installation. After 14 days increase the temperature at a rate of 5°C per day to the maximum temperature then reduce by 5°C per day to the required working temperature.

Fired Earth Fleximat should be used as an anti-fracture membrane over Under Floor Heating, however, the tiles must be larger than 5x5cm in size which includes mosaic tesserae pieces. Our Sales Team will be happy to provide our separate information sheet.

All Norcros adhesives and grouts are flexible and suitable for use with under floor heating. An expansion gap should be left around all perimeters, abutments and changes in plane. As a general guide, do not tile continuously over areas with a length of over 5 metres and fit an expansion gap to prevent stress building up in the floor. Always fit expansion joints in doorways of adjoining tiled rooms. Should you require any clarification, please contact your local showroom.

Hearths and Fireplaces

Care should be taken when tiling into hearths or fire surrounds. Ensure that the tiles are kept a minimum of 300mm away from direct contact with the flames or the main heat source.

Planning

Take the time to study the room and plan your work. Tiling usually commences on the side furthest from the door or at the highest point depending on how flat the floor is. If the floor undulates a lot then starting at the highest point will enable you to control the tiled surface flatness. Choose accordingly.

If the floor is considered too uneven, an appropriate levelling compound will need to be laid to achieve a workable surface.

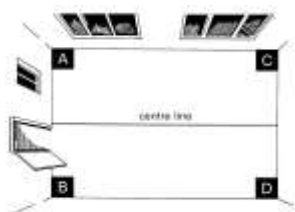
Consider how cuts will look against fixed furniture, through doorways, against fireplaces and staircases etc making adjustments where necessary to achieve the best result.

Please note: Where tiles have variable depths (see our brochure and price list for guidance) the thickest tile should be used for the lowest point in the floor.

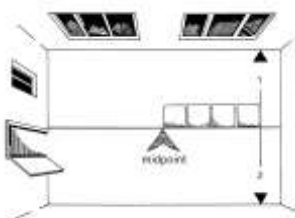
Step 1: Measure from A to B, divide by two and mark the floor at this point. Measure from C to D and again divide by two and mark the floor. Join these two lines together with a straight edge or chalk line to form an approximate central line. From this point lay down tiles, without fixing them, alongside your central line, allowing for grout joints, to see where the last whole tile will end. If the cut is less than $\frac{1}{3}$ rd of a tile then measure the width of the tile, divide by two to work out what half a tile will be and cast another line parallel to your first one with this measurement. This in practice will mean that your tiles will now straddle your original line in the centre once laid against the new line. Both options should give you even cuts on both sides but you want the largest cut possible of the two.

Mark your chosen option at the end of the last full tile along the line to give you a starting point.

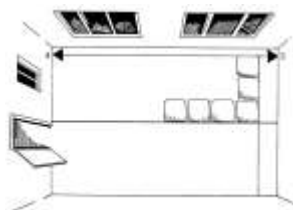
Note: If tiling in a brick bond pattern then your other option other than centre, is to work from a quarter tile outwards.



Step 2: Measure and divide your central line by two to split it in the middle, mark and repeat the process above to work out your cuts in the opposite direction.



Step 3: Once happy with how the cuts look on all sides of the floor you can decide to lay your first tile on the highest point along the line or off the mark created in Step 1.



Grout joints

It is important to have a joint between tiles to allow for movement in the structure.

Please refer to the chart on page 11 for recommended grout joints.

When fitting random sized tiles an area should be 'dry laid' first to establish the optimum joint width. Joint sizes may vary from 3mm-10mm across the floor depending on the mixture of tile sizes used and the chosen pattern.

Installing Geometric and Quarry Tiles

IMPORTANT NOTE: after the tiles are installed in to the adhesive all moisture must be released from the body and the surface of the tile prior to sealing and grouting. The level of moisture can depend on many factors; depth of substrates and their drying times and the depth and moisture content of the tiles and adhesives. Be led by your professional installer on correct drying times. We strongly recommend allowing a minimum of 7 days.

Preparation:

Please check your substrates suitability for tiling before proceeding, see pages 4 - 5.

Damp tiles should be stored on end in a well ventilated area to dry thoroughly before fixing.

It is important to establish which way the tiles are to be laid before any tiling is started. Make sure the person fitting the tiles knows what the tiles should look like. 'Shuffle' the batch to ensure that any colour and tonal variations are well mixed. Minor chips and blemishes should be expected and are best used for cuts or well mixed into the floor.

It is essential to wear suitable protective eyewear and clothing when cutting or drilling tiles.

Pre-cleaning:

We do not recommend pre-cleaning Geometric or Quarry before installation however brush off any loose grit or dust.

Fixing the Tiles:

Before commencing tiling please ensure you are familiar with the important notes on page 3.

All Norcros S1 Tile adhesives are cement based, flexible and designed for fixing our full range of tiles. They are water resistant and suitable for both internal and external applications. We recommend using standard set or fast-set with both tiles (**if Geometric white are the only tile used then use white adhesive**). Some of the tiles vary in depth; where this is applicable, it is important to grade the tiles before installation. Be certain that the tiles are suitable for the application and that you have purchased the most appropriate adhesive. Bowed tiles may also require back buttering in order to achieve a solid bed of adhesive.

Carefully follow the mixing recommendations supplied on the reverse of the adhesive product.

Application of the adhesive:

Spread the adhesive using a suitable notched trowel. The adhesive should be applied to the floor in straight parallel lines. Spread only enough adhesive that remains workable.

Where necessary butter the back of the tile with adhesive and place the tile in the starting position as described in the Planning Steps 1 to 3.

Push the tile home firmly with a slight twisting movement. Place the next tile adjacent to the first, allowing for the grout joint, and so on over the prepared area. All tiles must be installed in to a full bed of adhesive, do not 'spot bed' any tiles.

All the tiles should be soundly bedded in the adhesive without any space for air underneath. Be careful not to allow any adhesive onto the surface of the tiles. Any surplus should be wiped away with a clean damp sponge. Keep the joints between the tiles free of adhesive and wipe away any excess from the un-tiled area. Once an area has been tiled the adjacent area can be prepared and so on until you have completed the floor. Once the adhesive is dry the remaining perimeter area can be prepared and cut tiles laid. If you prefer, cuts can be fitted as the work progresses.

Check the floor level as work progresses with a spirit level and a straight edge.

Cutting the Tiles:

It is recommended that a good quality, diamond tipped wet cutter is used to cut Geometric and Quarry tiles.

Whilst cutting or drilling tiles, the surface of the tile may become wet and/or dirty. Wipe the tile clean immediately after cutting. Rough edges and chips should be smoothed and finished with a sanding block or tile file.

Sealing the Tiles:

As with all products, Geometric and Quarry tiles require a certain degree of care. They are porous, therefore it is important to seal them correctly to reduce the natural absorption and maintain the desired appearance. If the recommended care system is used the surface will be easier to maintain.

It is important for the correct products to be used when sealing, finishing and maintaining your tiles. The products we have selected have been specifically chosen to enhance, protect and maintain your tiles. You should expect the sealing process to darken both the tiles and grout.

Please be aware that any deviation from our recommendations could affect the appearance, capabilities and longevity of your tiling

Preparation:

Prior to sealing the adhesive bed should be dry and cured and the grout joints clean, dry and free from adhesive residues, dirt, dust and other loose debris. The tiles must be dry and clean otherwise you may seal in dirt or moisture which will impair the final appearance. The process of sealing should be kept meticulously clean and all materials including brushes and cloths etc should be new and unused.

The drying times recommended below may be altered by the actual site conditions (heat, humidity, ventilation etc). Please refer to the manufacturers' guidelines on drying times for each product – **be led by your professional installer.**

Fired Earth recommends that traffic across a newly sealed floor is kept to a minimum for the first week as sealants can take a few days to fully oxidise and may not be fully effective during this time.

Fired Earth recommends sealing Geometric and Quarry with Lithofin KF Stain Stop. **We recommend that a number of sample tiles are tested for porosity, which will give an indication of the amount of sealer the tiles will require.**

- Check the tiles are completely dry, clean and stain free (any dirt or marks left on the surface of the tiles will not be removable after sealing).
- Shake the bottle of KF Stain Stop well before and during use.
- Test the KF Stain Stop on a single tile in an inconspicuous area or on a separate tile to ensure you are confident with the application. If not contact Fired Earth or Lithofin Technical for advice.
- Work to the grout lines in small controllable sections i.e. 1-2m² at a time.
- Apply one application with a suitable applicator to the face and edges of the tile (to ensure no bleeding from the grout). Add more product if the tile requires it within the saturation time. Allow the product to soak in to the body of the tiles. It is important to remove any excess that has not been readily absorbed within 10-15 minutes of application, ensuring the surface is completely dry before moving on to the next area. After 1-2 hours the floor can be walked on but should be left to dry and protected from dirt and water for 48 hours.

PLEASE NOTE: If the tiles remain glossy there is surplus sealer which must be removed. If in doubt contact your local showroom before continuing with the rest of the floor.

Ensure that the sealer is left a minimum of 48 hours before grouting commences.

Grouting the Tiles:

All Norcros grout is flexible therefore suitable for all tiling projects provided the tiled area has been correctly prepared. Lighter coloured tiles can be affected by dark coloured grouts bleeding into the tiles resulting in dark patches around tile edge or possibly over tile face if slurry grouted which may permanently stain the tile. If you are using a mixture of dark and light tiles we would recommend using limestone or cream.

Preparation:

It is advisable to grout and clean a small test area prior to grouting the whole floor. This will give you the opportunity to check that all surplus grout can be removed without staining the tiles. If any doubt exists please call your local showroom for advice.

Carefully follow the mixing recommendations supplied on the reverse of the grout product.

Application of the grout:

Grouting is the careful application of grout between the tiles.

Ensure that the correct tools used for grouting are completely clean and free of any hardened grout etc.

To avoid contaminating the surface of the tile, use a damp sponge to wipe off any excess. Take care to fully compress the grout into the full depth of the grout joints so that no air pockets exist and the joints are fully filled.

Work in manageable areas and clean off any residues when the grout has begun to firm up in the joints, but before it sets on the tile face. Cleaning with a damp but not overly wet fine textured foam sponge will provide the best results. Do not over wash the grout as this may cause a white bloom (efflorescence) and discolour the grout. Ensure your grouting is completed in one application. Change the cleaning water regularly. Ensure ALL grout residue is removed from the surface of the tiles.

Leave the perimeter joints, these must be finished with a good quality silicone sealer after the final seal and not with grout. This will allow for expansion and contraction in the tiles during normal heating and cooling cycles.

If a slight grout residue has been left to dry on the surface of the tiles, use Lithofin KF Cement Residue Remover diluted 1:10 to remove. Test the diluted product on one tile, apply the product on the tile for between 1-2 minutes and use a white emulsifying pad to remove grout residue. Rinse completely and dry the tile.

NOTE: if the area has had excessive cleaning ensure that the tiles and grout joints are entirely dry before proceeding with the finishing process – **be led by your professional installer.**

Should efflorescence form, these salts can be removed by frequent washing with clean water or KF Cement Residue Remover diluted 1:10 once the grout has been allowed to fully cure for a minimum of 28 days.

If this is unsuccessful, please contact either Fired Earth or Lithofin Technical for further advice.

IMPORTANT NOTE; Be led by your professional installer on correct drying times.

Further Sealing of the Tiles:

Apply the second application of the KF Stain Stop sealant in the same way as the first, over both tiles and grout. Please note the sealant may darken the grout colour. Take particular care during the application of the second application of the KF Stain Stop as your tiles are now partially sealed and will not absorb as readily as during the first.

Finishing the Tiles:

No finishing product is required for these tiles.

Cleaning and Maintenance:

Sweep or vacuum the floor regularly to remove all dirt. Our recommended cleaning products have been formulated to both clean and be gentle on the sealants. General household cleaners may be too aggressive and are likely to damage the sealants and finishes applied.

Lithofin Easy Care should be used for day to day cleaning.

Substrate Preparation Guide

Substrate	Sand and Cement Screed / Concrete	Timber Floorboards		Timber Floating Floors		Quarry, Clay, Natural Stone	Glazed Tiles	Vinyl Tiles, Flooring Grade Asphalt	Underfloor Heating	Anhydrite Screed
		Tongue and Groove	Butt Jointed	Plywood Installation	Flooring Grade Chipboard installation					
Watch Points	New concrete should be allowed to dry for at least 6 weeks and Cement: sand screeds at least 3 weeks	Must be screwed down to joists and noggings and be free from deflection	Overlay with WBP plywood, minimum 18mm. Countersink screws at 150mm centres	Overlay with minimum 18mm thick WBP plywood	Overlay with flooring grade chipboard (in dry areas only) prior to installing Fleximat.	Existing tiles must be well fixed; any hollow spots should be made good and filled.	Existing tiles must be well fixed; any hollow spots should be made good and filled.	Any loose vinyl tiles should be removed together with their adhesive residues.	Fit in accordance with manufacturers instructions. Specifications may vary according to substrates	The screed must be fully dry in accordance with the manufacturer's recommendations and lightly sanded to remove all traces of laitance/dust
Preparation	If dusty or porous, seal with Prime Bond diluted 1: 4 with water	Seal with Prime Bond. Install Fleximat over boards (see instructions)	Seal back, face and edges of plywood with Prime Bond.	Seal plywood with Prime Bond. Install Fleximat (see instructions)	No primer is necessary for flooring grade chipboard which is pre-sealed. Install Fleximat (see instructions)	All surfaces must be degreased and thoroughly cleaned to remove old polish residues etc. Prime with Prime Bond.	All surfaces must be degreased and thoroughly cleaned to remove old polish residues etc. Brush apply a slurry bonding coat consisting of 2 parts Norcros adhesive to 1 part Prime Bond and allow to dry. 1 litre covers 3m ²	All surfaces must be degreased and thoroughly cleaned to remove old polish residues etc. Prime with Prime Bond before tiling	Fit in accordance with manufacturers instructions. Specifications may vary according to substrates	Prime using progressively stronger coats of Prime Bond. Initially apply a 1:4 parts water dilution and when dry follow with a 1:3 dilution applied at 90° to the first coat. If the screed is still absorbent apply a 1:2 dilution and leave to dry
Priming (NORCROS PRIMER1L)	Diluted 1:4, 1 litre covers approximately 60m ²	Use neat, 1 litre covers 12m ²				Use neat, 1 litre covers approximately 12m ²	n/a	Use neat, 1 litre covers approximately 12m ²	n/a	Diluted 1:4 1 litre covers 60m ² Diluted 1:3 1 litre covers 48m ² Diluted 1:2 1 litre covers 36m ²

Please note all coverage recommendations are approximate

Pro 50 Levelling Compound Coverage

Description	Coverage	Depth							
		3mm	5mm	10mm	15mm	25mm	40mm	50mm	Underfloor heating
Pro 50 Levelling Compound	kg per m ²	6kg	10kg	19kg	29kg	48kg	76kg	95kg	6kg
	m ² per 20kg bag	3.3m ²	2m ²	1m ²	0.68m ²	0.41m ²	0.26m ²	0.2m ²	3.3m ²

The above recommendations are approximate and should be considered as a guideline only.

Adhesive Coverage

Description	Adhesive Colour	5mm Adhesive Depth
Norcros Flexible Standard Set and Fast-set S1 Adhesive	White or Grey	5.5kg per m ²

Please note adhesive coverage will depend on the size of tile, depth of adhesive required and to some extent the substrate. The above recommendations are based on an average tile size, adhesive bed of 4-5mm and should be considered as a guideline only. The S1 adhesive range can be used up to a maximum depth of 10mm.

Sealants and Finishes

Product	Impregnator / Sealant	Grout Residue Remover	Finishing Product	Day to Day Cleaner	Occasional / Intensive Cleaner
Geometric and Quarry	KF Stain Stop	KF Cement Residue Remover	Not Required	Easy Care	Wexa

Grout Joint Width and Coverage

Product Range	Tile Size	Grout Joint Width	Grout Coverage
Geometric	9.9 x 9.9	Min 3mm	1kg per m ²
Geometric Hexagon	27.5 x 30.2	Min 3mm	1.6kg per m ²
Quarry	14.9 x 14.9	Min 6mm	0.8kg per m ²

The above recommendations are approximate and should be considered as a guideline only. 4 IN TO 1 GROUT is suitable for grout widths up to 8mm. Floor & Wall grout is suitable for grout widths up to 20mm.