

# FIRED EARTH

## Floor Tiling Installation Guide

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<b>Floor Tiling Installation Guide</b>	<b>1</b>
<b>Important Notes</b>	<b>4</b>
<b>Internal Substrates</b>	<b>5</b>
Surface Preparation	5
Sand and Cement screeds	5
Anhydrite or fast setting screeds	5
Bumps and hollows in screeded floors	6
Suspended timber floors/floating insulated floors	6
Vinyl sheet and floor tiles	6
Cork and Woodblock floors	6
<b>Damp</b>	<b>7</b>
<b>Finished Floor Levels</b>	<b>7</b>
<b>Underfloor Heating</b>	<b>7</b>
<b>Wet Floors</b>	<b>7</b>
<b>Using Floor Tiles on Walls</b>	<b>8</b>
<b>Hearths &amp; Fireplaces</b>	<b>8</b>
<b>Showers</b>	<b>8</b>
<b>Planning</b>	<b>9</b>
Grout joints	10
<b>Fixing</b>	<b>11</b>
Preparation	11
Mixing	11
Application	11
<b>Cutting</b>	<b>12</b>
<b>Sealing</b>	<b>13</b>
Pre-cleaning	13
Sealing	13
<b>Grouting</b>	<b>14</b>
Preparation	14
Mixing	15
Application	15
<b>Terracotta &amp; Lubelska Brick Tiles</b>	<b>16</b>
Sealing	16
Grouting	17
Further Sealing	17
Finishing	17
Cleaning & Maintenance	18
<b>Geometric Tiles</b>	<b>18</b>
Sealing	18
Grouting	19
Cleaning & Maintenance	19
<b>Encaustics</b>	<b>19</b>
Installation	19
Sealing	19
Grouting	19
Finishing	20

<b>Slate Tiles</b>	<b>20</b>
Preparation	20
Sealing	20
Finishing	22
Cleaning & Maintenance	22
<b>Natural Stone &amp; Mosaics</b>	<b>22</b>
Preparation	23
Sealing	23
Finishing	24
Cleaning & Maintenance	24
<b>Un-Glazed Porcelain Tiles</b>	<b>25</b>
Preparation	25
Sealing	25
Cleaning & Maintenance	25
<b>Glazed Porcelain</b>	<b>25</b>
Cleaning & Maintenance	26
<b>Glass Tiles</b>	<b>26</b>
Cleaning & Maintenance	26
<b>External Floor Tiling</b>	<b>26</b>
<b>Glossery</b>	<b>28</b>
<b>Tile Essentials – Adhesives, Grouts and Sealing products</b>	<b>30</b>
Website	30
Useful Numbers	30
<b>Substrate Preparation Guide</b>	<b>31</b>
<b>Adhesive Coverage</b>	<b>32</b>
<b>Universal Levelling Compound</b>	<b>34</b>
<b>Sealants &amp; Finishes</b>	<b>35</b>
<b>Tiles Suitability checker</b>	<b>36</b>

## 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 our Technical Department 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](http://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

Technical 01295 814271

Home Deliveries 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 Substrates

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### Surface preparation:

Tiles can be fixed to most floors. 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 33 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.

Special care must be taken when tiling areas which may become damp or wet. See our Waterproofing Showers and Bathrooms Installation guide.

When tiling onto walls with floor tiles consideration must be given to weight, as floor tiles are often heavier than wall tiles. Our sales teams will be happy to confirm the weight of the tiles so you can confirm suitability. Please include 3kg per m<sup>2</sup> in your calculation to allow for the weight of the adhesive and grout.

### Sand and cement screeds:

New concrete floors must be allowed to dry for a minimum of 6 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.

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. Ensure that the screed is suitably dry and stable before any tiling is started. 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 Fired Earth Primer. 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 Fired Earth Universal Levelling Compound which is suitable for use up to a depth of 50mm without risk of shrinking or cracking.

Fired Earth standard set and fast-set adhesives can be used up to a depth of 10mm in isolated areas. Fired Earth thick bed adhesive may be used up to a depth of 25mm

## **Suspended timber floors/Floating insulated floors**

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### **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 15mm plywood over the existing timber which should be screwed down at 150mm centres.

### **Floating insulated floors:**

If the floating insulated floor (polystyrene with water resistant chip board over) is subject to vertical movement the floor must be braced by screwing and gluing WPB plywood to its surface, or removing some of the boards so 'bearers' can be fitted below to provide further support. Seal all the surfaces of the plywood boards with Fired Earth Primer.

### **Vinyl sheet and floor tiles:**

Thoroughly clean the floor to remove all contaminants such as oil, wax and grease, using an appropriate cleaner. Prime the floor with Fired Earth Primer before tiling.

### **Cork and Woodblock Floors:**

Cork and woodblock floors must be removed, any bitumen left on the sub-floor should be scraped away and all loose material removed. Prime the floor with neat Fired Earth Primer and when dry level the area with Fired Earth Universal Levelling Compound.

## Damp

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

## Finished Floor Levels

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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

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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, the under floor heating can then be turned on or increased in temperature at a rate of 5°C per day to the maximum temperature then reduced by 5°C per day to the required working temperature. Fired Earth Fleximat can be used as an anti-fracture membrane over Fired Earth Under Floor Heating. Our Sales Team will be happy to provide our separate information sheet.

All Fired Earth 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 the Fired Earth technical.

Please refer to the Under Floor Heating guide for further information.

## Wet Floors

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Please refer to our Waterproofing Showers and Bathrooms Installation Guide for further advice.

## Using Floor Tiles on Walls

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When tiling onto walls with floor tiles, consideration must be given to the weight of the tile and suitability of the substrate. Our Sales Team will be happy to confirm the weight of any of our tiles. In general, the following weights apply to the list of substrates, provided they are fixed correctly and sound and stable:

- Plaster – 20 kg/m<sup>2</sup>
- Plasterboard – 32 kg/m<sup>2</sup>
- Timber – 30 kg/m<sup>2</sup>
- Brick/block/render/Tile backer Board – 40 kg/m<sup>2</sup>

Please include in your calculations a 3kg per m<sup>2</sup> allowance for adhesive and grout.

For information on substrate preparation for wall tiling, please refer to the Fired Earth Wall Tiling Guide.

## Hearths and Fireplaces

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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. Not all tiles are suitable for use in this area. Please check tile suitability with our sales team before installation commences.

## Showers

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Extra care must be taken when tiling showers. Read and follow our recommendations in our Waterproofing Showers and Bathrooms Installation guide. Fired Earth sells suitable preparation products which ensure a successful installation avoiding any problems with water ingress. If you require any additional information on projects of this type please contact our Technical Department.

Showers should not be used for at least 14 days after the tiling has been completed.

## Planning

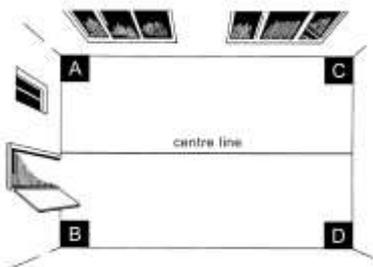
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Take the time to study the room and plan your work. Tiling usually commences in the corner furthest from the door. If there is more than one door, it will be necessary to decide which the primary entrance is.

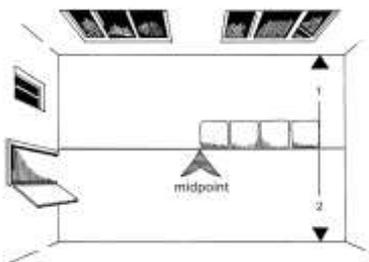
Consider how cuts will look against fixed furniture etc. and through doorways. Adjustments may be required to achieve the best results.

Please note: Where tiles have variable depths (see our brochure and price list for guidance) the thickest tile including the adhesive should be taken as the approximate floor height increase.

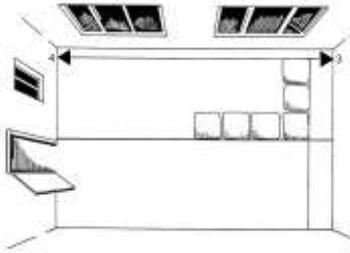
Step 1. Mark the centre line of the room from the wall of the primary entrance to the far end. You will need to measure and mark the midpoints of walls A to B and C to D. Join these two points with a taught chalk line and mark.



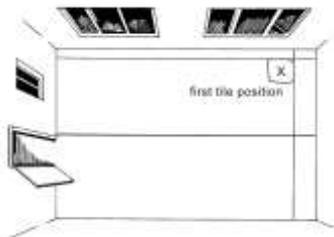
Step 2. Mark the midpoint of the room by measuring the centre of the line. From this point, lay down tiles (without fixing them) alongside the centre line, allowing for joints, to see where the last whole tile will end. Mark (with string or chalk) a line 1 to 2 at a right angle alongside this last whole tile.



Step 3. Locate starting point 'X' by laying down tiles along the new line 1 to 2 in the same way as before, to see where the last whole tile will end. Now mark your side line 3 to 4 at a right angle alongside this last whole tile.



Step 4. When tiling commences you should start at point 'X', so check that the lines you have marked make a perfect right angle and the side line runs parallel to the centre line.



## Grout joints:

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

The width of grout joints will vary between 3–20mm. large joints will be necessary on rustic tiles such as terracotta and slate. Please refer to the Fired Earth price list 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.

Mosaic tiles - Ensure that the sheets of mosaic tiles are spaced so that once grouted, no individual sheets can be distinguished.

Before commencing tiling please ensure you are familiar with the important notes on page 4.

**Fired Earth does not recommend the sealing of tiles before fixing.**

All Fired Earth Floor Tile adhesives are cement based, flexible and designed for fixing our full range of tile. They are water resistant and suitable for both internal and external applications. All our adhesives come in a choice of white or grey; white adhesive is more suitable for tiling translucent glass and light coloured tiles. Some of our tiles vary considerably 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 before commencing with the installation. Irregular or bowed tiles may require a greater depth of adhesive in order to 'iron out' potential irregularities in the finished surface. Fired Earth Flexible Thick-bed Adhesive is perfect for this purpose and can be used up to 25mm in depth.

**Preparation:**

Please check your substrates suitability for tiling before proceeding, see pages 5 - 6.

Damp tiles should be stored on end in a well ventilated area to dry thoroughly before fixing. This may in particular apply to Natural Stone, Lubelska and Reclaimed Terracotta tiles and Encaustics.

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.

**Mixing:**

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

**Application:**

Spread the adhesive using a suitable notched trowel, a 4mm trowel is normally appropriate for fast-set and standard set adhesive, a larger notched trowel, 10mm, is necessary for fixing with thick-bed. The adhesive should be applied to the surface to form parallel ribs into which the tile can be applied. Spread only enough adhesive that remains workable, we would recommend an area of approximately 1 square metre.

All Fired Earth Floor 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 white standard set, fast-set or thick-bed with lighter coloured tiles and grey with darker. 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

Stone or glass tiles are normally fixed with white adhesive to prevent the colour of the adhesive 'bleeding' through. 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 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. Once a square metre area has been tiled, another similar area can be prepared and so on until you have completed the floor with whole tiles. 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. Fixing tiles into sand and cement should be avoided because of the time required for the tiles to dry out and the associated problem of efflorescence.

## Cutting

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Due to the thickness and make-up of the majority of our floor tiles, it is recommended that either a diamond cutter or an angle grinder is used to cut the tiles. Water cooled diamond cutters are available from tool hire shops.

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

Porcelain tiles require high quality diamond blades for cutting; if hiring cutting equipment please ensure you advise the hire company that you intend to cut porcelain tiles so they can supply you with the most appropriate blades.

Drilling holes can be a difficult task without the correct equipment. Fired Earth recommends the use of the ARMEG® range of porcelain drill bits and core drills.

Whilst cutting or drilling tiles, the surface of the tile may become wet and/or dirty. Wipe the tile clean immediately after cutting. Using a water cooled diamond cutter will achieve the most accurate cut.

When using an angle grinder, mark the tile where you wish to cut it, run the cutting disc along the marked surface cutting the tile to at least two thirds of its depth; then the tile can be snapped. Rough edges and chips should be smoothed and finished with a sanding block or in severe cases, by rubbing the tile edge with a broken piece of another tile.

## Sealing

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### Sealing:

It is important for the correct products to be used when pre-cleaning, sealing, finishing and maintaining your tiles. The products we have selected have been specifically chosen to enhance, protect and maintain your tiles.

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

Before sealing commences, ensure you have read the specific instructions for your chosen tile detailed in the pages that follow which outline the processes for each product group within our range. Should you have any queries please contact our Technical Department on 01295 814271 who will be happy to answer any questions you may have.

Some sealants will enhance the colour of our tiles and others will maintain the natural appearance; it is important you are sure the sealant you have purchased will achieve the desired results. If in doubt, seal a single tile to confirm.

All tiles must be clean and dry before sealing 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 in the following pages may be altered by the actual site conditions (heat, humidity, ventilation etc). Please refer to the manufacturers' guidelines on drying times for each product.

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 oxidize and may not be fully effective during this time.

## Grouting

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All Fired Earth Grout is suitable for internal and external applications and in fully immersed situations such as pools. It is water resistant but not impervious to the passage of water. In situations where the background needs to be protected against water ingress the use of a suitable tanking membrane should be considered.

All Fired Earth Grouts are flexible therefore suitable for all tiling projects provided the tiled area has been correctly prepared. Some of our grouts may be more suitable than others dependent on its intended use. Fired Earth wall tiling grout is suitable for grout joints from 3-5mm and our Fired Earth wall and floor grout is suitable for grout joints from 3-20mm. We also have a small range of mould resistant grouts for wet areas. Before proceeding with your grouting, please ensure you have checked the colour of your grout against your chosen tile.

### Preparation:

Prior to grouting the adhesive bed should be cured and the grout joints clean, dry and free from adhesive residues, dirt, dust and other loose debris. Curing of adhesive usually takes between 16-24 hours for Fired Earth Flexible Standard Set Adhesive and 3-5 hours for Fired Earth Fast-set Adhesive. The depth of adhesive, ambient room temperature, sub-floor and porosity of the tile will all affect the drying time.

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 grout can be removed without staining the tiles and that you are happy with your chosen grout colour.

Porous tiles should be sealed before grouting (see specific instructions for you selected tile).

Grouts may lodge in the crackled surface of some tiles, which will highlight the crackle effect - ideal if an 'antique look' is required. If not, the tiles should be sealed with 1- 2 coats of KF Stain-Stop, prior to grouting.

Grouts can contain strong colour pigments and this should be taken into consideration when selecting the colour. 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.

Always test a small area of tiles prior to grouting the entire area.

**Mixing:**

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

**Application:**

Grouting is the careful application of grout between the tiles. 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. A timber dowel of an appropriate diameter can be used to compact the grout within the joints.

When grouting unfilled tiles, the grout needs to be pressed into the grout joints and surface pits of the tile with a grout float or squeegee. 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. As above a timber dowel of an appropriate diameter can be used to compact the grout within the joints.

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 continuous sequence, particularly with mosaics, to avoid colour variation. Changing the cleaning water as it becomes contaminated will also aid cleaning. When the grout has set, any remaining grout can be polished off the surface with a clean, damp cloth.

Should efflorescence form, these salts can be removed once the grout has fully dried and cured by frequent washing with clean water or suitable efflorescence cleaner.

The surface of some tiles can be easily scratched so the application and cleaning of the grout must be carried out carefully. Ensure that any tools used for grouting are completely clean and free of any hardened grout etc.

All perimeter joints must be finished with a good quality silicone sealer and not with grout. This will allow for expansion and contraction in the tiles during normal heating and cooling cycles. Please note a neutral cure silicone is recommended for all natural stone.

Slurry grouting is not recommended for Terracotta.

## Terracotta and Lubelska Brick Tiles

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Terracotta tiles are manufactured from natural clays which vary in colour and texture. Differences in colour can also occur in the firing process. Any colour variation will be accentuated by the sealants which are chosen to enhance the natural colour and beauty of the tiles.

Terracotta tiles are generally more porous than most floor tiles so it is important to take care to seal the tiles fully. Lubelska tiles in particular can vary enormously in porosity.

Please note: after the tiles are installed all moisture must be released from the body and the surface of the tile prior to sealing, this can depend on many factors; depth of substrate and their drying times and the depth and moisture content of adhesives. Be led by your professional installer on correct drying times prior to sealing. We strongly recommend allowing a minimum of 24 hours.

### Sealing:

***NB Pre-sealed Terracotta tiles are pre-sealed and require no sealing.***

Fired Earth recommends sealing Terracotta tiles with Lithofin TC Classic Primer. Lithofin TC Classic Primer is a linseed oil based product containing a special selection of dissolved resin components. 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. The tiles will readily absorb the first coat of sealant and as a rough guide you should expect to use up to 75% of the sealant on the first coat.

- Shake the bottle well before and during use.
- 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).
- Test the TC Classic Primer on a single tile in an inconspicuous area or on a separate tile to ensure your desired colour is achieved.
- Working to the grout lines in small controllable sections ie 1-2m<sup>2</sup> at a time.
- Using a suitable applicator, generously saturate the tiles with Lithofin TC Classic Primer, working it into the surface. The tiles will appear matt again within 10 minutes. If the tile regains a matt appearance too quickly use the Lithofin TC Classic Primer a little more liberally. After 10 minutes check there is no surplus sealant remaining on the surface of the tiles.

Ensure that the primer is left a minimum of 24 hours before grouting commences.

## **Grouting:**

Before the finishing process can begin, please grout the tiles referring to the information on page 13 of this guide. Slurry grouting is not recommended for Terracotta and Lubelska tile.

If grout residue has been left to dry on the surface of the tiles, use Lithofin KF Cement Residue Remover diluted 1-10 to remove. If this is unsuccessful, please contact our Technical Department for further advice. Check that the tiles are completely dry before proceeding with the finishing process.

## **Further Sealing:**

Apply the second coat of sealant as above. Take particular care during the application of the second coat of Lithofin TC Classic Primer as your tiles are now partially sealed and will not absorb as readily as during the first coat.

## **Finishing:**

The next step is to apply Lithofin TC Classic Wax (ideally this would be applied within 4 hours of the last coat of Primer) this process will provide a hard-wearing surface to the tiles.

- Working in sections, apply thinly and evenly Lithofin TC Classic Wax with a rag or lint-free cloth. Ensure as you work through there are no excessive streaks.
- Allow to dry (Lithofin TC Classic Wax should dry after approximately 30 minutes depending on the ambient room temperature) and give a pre polish.
- After 60 minutes, buff the wax (a buffing machine may be used to assist with large areas)

(Care should be taken at this time when walking back over the wax and we recommend socked feet only)

Once you have completed the above process for a second time, you can either re-wax; or for a low maintenance option you can apply Lithofin TC Ever-Sheen.

For re-waxing, apply up to three further coats following the instructions as above. Lithofin TC Classic Wax should be applied and buffed once a week for the first 4-6 weeks in order to build up a hard wearing surface. After this time the floor can be re-waxed as and when the floor begins to look dull.

As an alternative maintenance schedule, Lithofin TC Ever-Sheen can be used. This specialist solvent-free wax emulsion product contains care and sheen producing additives which preserve the wax over a long period, promotes patina formation and develops a silky sheen. The product is applied 12 hours or more after applying one wax coat. Wash the product over the floor and do not walk over the floor until it is completely dry. A higher level of sheen can be obtained by polishing if desired.

## **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.

### **Terracotta finished with Lithofin Classic Wax:**

Lithofin Easy care should be used for day to day cleaning. For most domestic floors it will be necessary to apply additional coats of wax from time to time. The frequency will be dictated by the wear the floor receives. If a build-up of wax becomes visible, reduce the frequency of waxing. Likewise, if the tiles are marking or look dull and dry, increase the frequency.

### **Terracotta finished with TC Classic Wax and TC Ever-Sheen:**

Lithofin Easy care should be used for day to day cleaning. If the floor has dulled or begins to mark, re-apply diluted Lithofin TC Ever-Sheen over the floor with a mop. On really worn surfaces, apply Lithofin TC Ever-Sheen undiluted. After drying, the floor can be polished to increase the level of sheen if desired.

## **Geometric and Quarry Tiles**

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### **Sealing:**

Geometric and Quarry tiles should be sealed with Lithofin KF Stain Stop before grouting. No further sealant or finishes are required for this tile. (If after grouting you have grout residue on the surface of the tiles, use Lithofin KF Cement Residue Remover before proceeding any further. Once you are happy with the appearance of the tiles, apply a second coat of Lithofin KF Stain Stop.)

### **Grouting:**

Please grout the tiles referring to the information on page 17 of this guide.

## **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 as an everyday cleaner.

## **ENCAUSTIC TILES**

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The top layer of our encaustic tiles is very delicate and each tile should be handled with care. If you decide to install this product yourself or use a contractor; please bear in mind that the tiles must be kept meticulously clean through the whole process. Any staining to the surface of the tile before sealing will be difficult to remove.

### **After installation, prior to grouting:**

Remove any dust on the surface of the tile with a soft brush. Any scuff marks or fine scratches that have occurred can be removed easily using a waterproof emery/sandpaper grade 200 with water. Work lightly in circular motions and remove any residues with a dry sponge.

### **Sealing:**

When the adhesive has fully cured apply one plentiful coat of MN Stain Stop onto the clean surface using a brush or fleece roller. Leave the surface to dry completely for 24 hours. This treatment ensures the best protection for the floor against oil and water stains and makes routine maintenance easier. When the surface is completely dry, ensure the tile is clean before applying, with a brush or fleece roller, a lighter, continuous and even coat of MN Stain Stop.

### **Grouting:**

Before the finishing process can begin, please grout the tiles referring to the information on page 13 of this guide. Slurry grouting is not recommended for Encaustic Tiles. We only recommend the use of limestone or cream grout with these tiles as other colours may contain strong colour pigments and stain the tiles.

### **Further Sealing:**

Apply the second coat of sealant as above over both tiles and grout. Please note the sealant may darken the grout colour. Take particular care during the application of the second coat of the MN Stain Stop as your tiles are now partially sealed and will not absorb as readily as during the first coat. If this is unsuccessful please contact either Fired Earth or Lithofin Technical for further advice.

### **Finishing:**

If you require a lustre finish the following process should be followed. Please note this process is not suitable for external or wet areas and surface colour may slightly deepen when using this product.

- Shake the Lithofin Multi-Seal well and apply 2-3 thin and even coats with a suitable applicator ensuring no puddles of Multi Seal are left on surface • Leave to dry for a minimum of 4 hours, the finish will not be fully dry and hard for 48 hours

## Slate Tiles

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As with all natural products, slate tiles require a certain degree of care. All slate tiles are porous, therefore it is important to seal the slate 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.

A certain amount of delamination should be expected from slate tiles during and following installation. During installation any loose flakes should be broken off. Where delamination occurs after installation, the affected area should be re-sealed. Slate tiles should not be installed in areas subject to direct and intense heat, as this may cause extensive delamination.

### Preparation:

Before sealing commences, we recommend that the slate is cleaned with Lithofin MN Builders Clean to remove general dirt and quarry dust from the riven areas and pores. After use, rinse the surface completely and allow to dry for a minimum of 24 hours or until the body is dry rather than surface dry.

### Sealing:

There are two options for sealing slate dependent on the final colour you require:

### Maintaining the natural colour:

After fixing the tiles, ensure the adhesive has fully cured before proceeding with the sealant process.

- Shake the Lithofin MN Stain Stop well, or MN Stain Stop ECO (a water based and nearly odourless alternative to MN Stain Stop). Apply one coat with a suitable applicator to the face and edges of the tile (to ensure no bleeding from the grout). Remove any excess that has not been readily absorbed within 10 minutes of application. After 45 minutes the floor can be walked on but should be left to dry and protected for 24 hours.
- Grout the floor referring to the information on page 13 of this guide.

- Once the grout has dried, ensure any grout residue has been removed from the surface of the tiles using Lithofin MN Builders Clean. If used, allow to dry for 24 hours before applying a further coat of Lithofin MN Stain Stop or MN Stain Stop ECO to protect the grout. Remove any excess that has not been readily absorbed within 10 minutes of application. After 45 minutes the floor can be walked on but should be left to dry and protected for 24 hours.

## **Enhancing the natural colour:**

After fixing the tiles, ensure the adhesive has fully cured before proceeding with the sealant process.

- Shake the Lithofin MN Colour Intensifier well and apply one - two coats with a suitable applicator to the surface of the tiles. Remove any excess that has not been readily absorbed within 10 minutes of application. Leave to dry for 12 hours before applying the sealant.
- Shake the Lithofin MN Stain Stop well, (MN Stain Stop ECO is not suitable for this application due to its water based characteristic) and apply one coat with a suitable applicator to the face and edges of the tile (to ensure no bleeding from the grout). Remove any excess that has not been readily absorbed within 10 minutes of application. After 45 minutes the floor can be walked on but should be left to dry and protected for 24 hours.
- Grout the floor referring to the information on page 18 of this guide.
- Once the grout has dried, ensure any grout residue has been removed from the surface of the tiles using Lithofin MN Builders Clean. If used allow to dry for 24 hours before applying a further thin coat of Lithofin MN Stain Stop to protect the grout. Remove any excess that has not been readily absorbed within 10 minutes of application. After 45 minutes the floor can be walked on but should be left to dry and protected for 24 hours.

## **Finishing:**

If you require a lustre finish the following process should be followed. Please note this process is not suitable for external or wet areas and surface colour may slightly deepen when using this product.

- Shake the Lithofin Multi-Seal well and apply 2-3 thin and even coats, ensuring no puddles of Multi Seal with a suitable applicator.
- Leave to dry for a minimum of 4 hours, the finish will not be fully dry and hard for 48 hours.

## **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 as an everyday cleaner.

## **Natural Stone and Stone Mosaics**

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As with all natural products, stone tiles require a certain degree of care. All stone tiles are porous, therefore it is important to seal the stone 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.

The filler used in our honed and filled stone may require attention from time to time. Simply fill any holes that appear with either limestone grout or a 2-part resin based filler which is available for purchase from Fired Earth. Please ask a member of our Sales team for more information.

## **Preparation:**

Before sealing commences, we recommend that the stone is cleaned with Lithofin MN Power Clean to remove general dirt and quarry dust from the surface and pores. After use, lightly rinse the surface completely and allow to dry for 24 hours.

## Sealing:

There are two options for sealing stone dependent on the final colour you require:

### Maintaining the natural colour:

After fixing the tiles, ensure the adhesive has fully cured before proceeding with the sealant process.

- Shake the Lithofin MN Stain Stop well, or MN Stain Stop ECO (a water based and nearly odourless alternative to MN Stain Stop). Apply one coat with a suitable applicator to the face and edges of the tile (to ensure no bleeding from the grout). Remove any excess that has not been readily absorbed within 10 minutes of application. After 45 minutes the floor can be walked on but should be left to dry and protected for 24 hours.
- Grout the floor referring to the information on page 18 of this guide
- Once the grout has dried, ensure any grout residue has been removed from the surface of the tiles using Lithofin MN Power Clean. If used allow to dry for 24 hours before applying a further thin coat of Lithofin MN Stain Stop/ECO to protect the grout. Remove any excess that has not been readily absorbed within 10 minutes of application. After 45 minutes the floor can be walked on but should be left to dry and protected for 24 hours.

### Enhancing the natural colour:

After fixing the tiles, ensure the adhesive has fully cured before proceeding with the sealant process.

- Shake the Lithofin MN Colour Intensifier well and apply one coat with a suitable applicator to the surface of the tiles. Remove any excess that has not been readily absorbed within 10 minutes of application. Leave to dry for 12 hours, before applying the sealant.
- Shake the Lithofin MN Stain Stop well, (MN Stain Stop ECO is not suitable for this application due to its water based characteristics). Apply one coat with a suitable applicator to the face and edges of the tile (to ensure no bleeding from the grout). Remove any excess that has not been readily absorbed within 10 minutes of application. After 45 minutes the floor can be walked on but should be left to dry and protected for 24 hours.
- Grout the floor referring to the information on page 13 of this guide.
- Once the grout has dried, ensure any grout residue has been removed from the surface of the tiles using Lithofin MN Power Clean. If used allow to dry for 24 hours before applying a further thin coat of Lithofin MN Stain Stop to protect the grout. Remove any excess that has not been readily absorbed within 10 minutes of application. After 45 minutes the floor can be walked on but should be left to dry and protected for 24 hours.

## Finishing:

If you require a lustre finish MN Cobble Wax is a ready to use wax system which forms a hard wearing film, giving an enhanced, silky, lustre appearance. The wax makes the surface less sensitive and maintenance becomes easier.

Please note this finishing process is only suitable for honed, tumbled or antiqued stones and is not suitable for external or wet areas. The surface colour may slightly deepen when using this product.

If this finishing process is required MN Cobble Wax must be applied no more than 2 hours after the application of Lithofin MN Stain Stop.

- The surface area must be completely dried out, clean and free of stains. Application of a sample area is recommended. Working in small controllable areas, apply MN Cobble Wax thinly and evenly with a suitable applicator, spread and rub in. Very porous surfaces may require a second treatment.
- Once dry (after 5-10 mins), buff with a brush, soft cloth or polishing pad. (A buffing machine may be used to assist with large areas)
- When complete do not walk on for 12 hours.

## 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 as an everyday cleaner.

## Un-Glazed Porcelain Tiles

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Despite these tiles being very dense, robust and hard wearing it is a sensible pre-caution to seal these tiles particularly in kitchens, bathrooms and high traffic areas.

**IMPORTANT NOTE:** after the tiles are installed 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.

Some of the tiles may have strips or spots of wax on the surface to cushion them during transit. This can usually be removed with soap and water however in the case of heavy deposits please use Lithofin Intensive Cleaner or white spirit.

**Preparation:**

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

**Sealing:**

- Shake the Lithofin **KF** Protective Impregnator well before applying to the tiles using a suitable applicator. Sealant will need to be applied once before grouting and again after grouting. The tiles will be fully protected after 12 hours.

**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 **KF** Conditioning Cleaner should be used as an everyday cleaner.

**Glazed Porcelain Tiles**

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No sealing products are required for these tiles. However we recommend that once installed the grout joints are protected using Lithofin **KF** Grout Protector.

- Shake the Lithofin **KF** Grout Protector well before applying one coat to the grout joints only. The application may need to be repeated several times to fully protect the grout.
- After approximately 10 minutes, carefully remove all surface residues with a cloth.

**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 tiles. General household cleaners may be too aggressive and are likely to damage the tile surface.

Lithofin KF Conditioning Cleaner should be used as a day to day cleaner.

## **Glass Tiles**

No sealing products are required for these tiles. Grout the floor referring to the information on page 18 of this guide. Any rough/sharp edges should be removed/filled during installation. We recommend that once installed the grout joints are protected using Lithofin KF Grout Protector.

- Shake the Lithofin KF Grout Protector well before applying one coat. The application may need to be repeated several times to fully protect the grout.
- After approximately 20 minutes, carefully remove all surface residues with a cloth.

## **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 as an everyday cleaner.

## **External Floor Tiling**

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Many of our tiles are suitable for external use. As we sell our tiles all over the world, atmospheric/climate conditions must be taken into consideration.

### **External Installation Disclaimer:**

The technical information given is 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.

### **Important Notes**

The purpose of this section of the guide is to outline the basic principles of installing your Fired Earth tiles externally.

Ensure that only tiles deemed suitable for external installation are used. On receipt of the 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.

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. Tiles laid externally will age and weather in a different manner to an internal installation of stone. UV, acid rain and the natural weathering from the climate will change the

appearance of all stones. For further information or if any doubt exists, please telephone our Technical Department for advice prior to commencing any tiling. We recommend that you treat a spare tile with the appropriate impregnating 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.

### **Installation:**

Currently all Fired Earth tiles suitable for exterior application are less than 30mm thick, for that reason we recommend the stone tiles should be installed on to a fully prepared, fully dry and cured concrete slab. It is important both prior and during the installation to minimise water retention in the stone tiles and protect the stone tiles from water. Any ingress of water from anywhere other than the surface will inevitably cause damage to the stone. The surface of the concrete slab should be laid to correct falls so as to prevent water pooling, be clean, dry and free of dust, grease or any loose material. The surface of the concrete slab should be primed with Fired Earth primer prior to the installation of tile.

Once the concrete slab is fully prepared, fix the tiles in place using a cementitious, powder based, flexible adhesive and ensuring that all tiles are fully bedded in to adhesive, do not 'spot bed'. Select both adhesives and grouts that are appropriate to the performance required. All Fired Earth adhesives and grouts are suitable for use externally. Please note if a dark grout is chosen for use with a light coloured tile then the grout colour may 'bleed' into the edge of the tile. We would strongly recommend using a grout colour which is very similar in colour to the stone. Always test the chosen grout in a small area before grouting the whole area using the 'pointing' method. 'Slurry' grouting may lead to staining of the stone surface. Be led by your professional installer on installation details, drying times and any relevant building regulations.

For more information on specific tiles please speak to our Sales Team or our Technical Department.

## Glossary

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Adhesion	-	The ability to stick
Angle Grinder	-	Electrical tile cutting tool
Anhydrite Screeds	-	Calcium based screed, seek advice
Asphalt	-	Black, bituminous base
Bedding	-	Depth of material to seat tiles
Bitumen	-	Black in colour, often used as a glue to stick vinyl tiles
Bowed	-	Convex or concave shaped tiles
Buffed	-	Abrasion of a waxed surface
Butter	-	Applying a thin bed of adhesive to the back of the tile.
Butt Jointed	-	Fixing tiles together tightly with no allowance for a grout joint
Chalk Line	-	Tool used to provide straight line for setting out tiles
Chipboard	-	A composition of fibrous timber
Compacting	-	Pressing material firmly into position
Curing	-	Improvement in strength, hardness, durability and other properties of a material.
Damp Proof		
Membrane (DPM)	-	A layer of impervious material installed to prevent rising damp
Day Joints	-	A 'joint' in the screed as a result of a break in pouring the screed
Delamination	-	Loss of some or all of a naturally occurring layer of slate
Diamond Cutter	-	Electrical cutting tool
Expansion Joints	-	A space allowed in a floor to allow for movement
Efflorescence	-	The process of salts appearing on the surface of the tile or grout
Fleximat	-	An orange plastic sheet used to prepare timber floors for tiling
Floating or		
Insulated Floor	-	A thermally efficient floor which is not physically attached to its base
Filled Stone	-	Where any naturally occurring holes have been filled with resin based filler
Finishing	-	Process of applying final coat of sealer
Fired Earth Primer	-	Primer for surfaces prior to applying tile adhesive.

Levelling Compound	-Material used to remove unacceptable variations of level in a sub floor, or to bed under floor heating
Grout Float	- Tool used to apply grout
Grout Joints	- Channel formed between tiles to be filled with grout material
Honed Stone	- Mechanical process used to smooth the surface of natural stone
Movement Joint	- An area which allows for movement caused by change in temperature/humidity etc.
Notched Trowel	- Tool designed to apply a specified depth of adhesive
Oxidise	- Hardening reaction following exposure to the air
Pre-sealed	- Pre-treated with sealer at the factory
Sand and	
Cement Screed	- A mixture laid to form an accurate flat base
Sealing	- Process of applying liquids to reduce porosity
Slurry	- A thick, creamy liquid.
Spoil	- Excessive or surplus sealer
Squeegee	- Rubber edged tool to aid removal of excess grout
Straight Edge	- Tool used to ensure tiles are 'straight' and 'flat'.
Sub floor/substrate	- The surface on to which the tiles are to be laid
Thermal Movement	- Movement induced by temperature change
Uncalibrated	- Tiles will vary in depth
Wax Polish	- Protective finish
WBP Plywood	- Minimum 18mm deep, suitable grade for floor tiling

## Tile Essentials Adhesive and Grouts, and Sealant Products

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A full range of high quality fixing and sealing products, researched and developed to meet Fired Earth standards, are available for both professional and DIY use.

Read the instructions on the packaging of Adhesives, Grouts and Sealants very carefully.

### Website:

[www.firedearth.com](http://www.firedearth.com)

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

### 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
Lithofin Technical	01962 732126

### 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

## 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					
<b>Watch Points</b>	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
<b>Preparation</b>	If dusty or porous, seal with Fired Earth Primer diluted 1: 4 with water	Seal with Fired Earth Primer. Install Fleximat over boards (see instructions)	Seal back, face and edges of plywood with Fired Earth Primer	Seal plywood with Fired Earth Primer. 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 Fired Earth Primer	All surfaces must be degreased and thoroughly cleaned to remove old polish residues etc. Brush apply a slurry bonding coat consisting of 2 Fired Earth adhesive to 1 part Fired Earth Primer and allow to dry. 1 litre covers 3m <sup>2</sup>	All surfaces must be degreased and thoroughly cleaned to remove old polish residues etc. Prime with Fired Earth Primer before tiling	Fit in accordance with manufacturer's instructions. Specifications may vary according to substrates	Prime using progressively stronger coats of primer. 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
<b>Priming (PRIMER1L)</b>	Diluted 1:4, 1 litre covers approximately 60m <sup>2</sup>	Use neat, 1 litre covers 12m <sup>2</sup>				Use neat, 1 litre covers approximately 12m <sup>2</sup>	n/a	Use neat, 1 litre covers approximately 12m <sup>2</sup>	n/a	Diluted 1:4 1 litre covers 60m <sup>2</sup> Diluted 1:3 1 litre covers 48m <sup>2</sup> Diluted 1:2 1 litre covers 36m <sup>2</sup>

Please note all coverage recommendations are approximate.

## Adhesive Coverage

Description	Adhesive Colour	Tile Range										
		Terracotta			Stone		Slate		Porcelain and Geometric		Wall Tiles	
		Lubelska and Reclaimed Terracotta	Other		Up to 30 x 30cm	Over 30 x 30cm	Urban	Uncalibrated slate	Up to 30 x 30cm	Over 30 x 30cm	Up to 30 x 30cm	Over 30 x 30cm
<b>Thickbed adhesive</b>	All	6.7kg per m <sup>2</sup>			n/a	6.7kg per m <sup>2</sup>	5kg per m <sup>2</sup>	6.7kg per m <sup>2</sup>	n/a	6.7kg per m <sup>2</sup>	n/a	
		Thickbed adhesive can be used with all the above tile types up to a depth of 25mm should the floor substrate be uneven. For coverage guidance please refer to the levelling compound coverage chart included within this booklet										
<b>Flexible Standard set and Fast-set adhesive</b>	All	n/a	3.5kg per m <sup>2</sup>	3.5kg per m <sup>2</sup>	3.5kg per m <sup>2</sup>	n/a	n/a	3.5kg per m <sup>2</sup>	3.5kg per m <sup>2</sup>	n/a	2.7kg per m <sup>2</sup>	3.4kg per m <sup>2</sup>

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.

## Universal Levelling Compound Coverage

Description	Adhesive Colour	Coverage	Depth							
			3mm	5mm	10mm	15mm	25mm	40mm	50mm	Underfloor heating
<b>Universal Levelling Compound</b>	n/a	kg per m <sup>2</sup>	5kg	8.4kg	16.7kg	25kg	40kg	67kg	100kg	0.075kg
		m <sup>2</sup> per 20kg bag	4m <sup>2</sup>	2.4m <sup>2</sup>	1.2m <sup>2</sup>	0.8m <sup>2</sup>	0.5m <sup>2</sup>	0.3m <sup>2</sup>	0.2m <sup>2</sup>	1.5m <sup>2</sup>
<b>Thickbed Adhesive</b>	All	kg per m <sup>2</sup>	5kg	8.4kg	16.7kg	25kg	n/a	n/a	n/a	5kg
		m <sup>2</sup> per 20kg bag	4m <sup>2</sup>	2.4m <sup>2</sup>	1.2m <sup>2</sup>	0.8m <sup>2</sup>				4m <sup>2</sup>

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