London Stone

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Installation of Internal Tiles

Tools you'll need for the job:

- Manual Tile Cutter*
- Electric Tile Cutter*
- Notched Trowel*
- Tape Measure*
- Bucket Trowel*
- Spirit Level*
- Set Square*
- Tile Scribe*
- Caulking Gun*
- Sponge*
- Grout Float*
- Timber Batten*
- Tile Spacers
- Mixing Bucket*
- Tile File*
- Hammer*
- Safety Googles, Gloves, Voltage Tester*

*Not currently supplied by London Stone

Weight Tolerances

Before installing any tiling, it is important to ensure that the construction of the sub-base is sufficient. Below are the recommended weight limits corresponding to the most common materials used in construction.

Cement Boards – Up to 200KG per m2 depending on the manufacturer (always refer to the manufacturers guidelines on weight tolerances).

Gypsum Plasterboard – 32kg per m2 when applied directly onto the plasterboard with no plaster skim.

Gypsum Plaster – Up to 20KG per m2.

Always make sure to get your installers' expert advice before proceeding with any installation.

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Most Common flooring Substrates

The preparation of the surface you are tiling onto is by far the most crucial stage of any installation project. Each different substrate will need to be checked and prepared differently depending on its unique properties.

Floating Floors – This is typically a floor grade chipboard installed using a tongue and grooved method. Normally this material will be around 50mm thick, but it can be thicker. The floating floor installation will usually require additional boarding to be laid over the top to reinforce this rigidity of the flooring. This can be done using a cement-based board or WBP with a minimum thickness of 15mm.

Plywood Floors – Mostly found in upstairs areas, plywood floors are incredibly common and must be constructed from at least 15-18mm thick material and installed in an offset staggered layout and screwed down flush with the surface every 300mm. Please note, it is not recommended to use plywood for installations in wet areas as excessive moisture can cause the plywood to swell and warp. If it is used, it is recommended to ensure its waterproofed using a tanking system.

Decoupling or crack suppression membranes – Decoupling membranes are a good tool in the stabilisation of a substrate as well to assist in minimising the risk of excessive movement. These can be used over any substrate and are available from many different manufacturers – always follow the manufacturers guidelines when installing.

Always ensure that the subbase is checked by your appointed installation expert.

Underfloor Heating

Underfloor heating is an efficient and luxurious method of heating any room and is becoming more and more common. It is essential that you follow the correct installation methods in correspondence to the type of heating being installed. A few points to bear in mind when considering installing underfloor heating.

Installation Methods – Underfloor heating is an incredibly diverse industry with many different manufacturers and methods of installation. It is key that you **DO NOT** assume that all products are equal and installed using the same methods.

Warranties & Guarantees – Most underfloor heating suppliers will require you to register your product with them to activate the guarantee.

Insulation Boards – Insulation boards will be recommended in almost all underfloor heating installations; these vary in thickness from around 6mm – 50mm and go a long way towards cutting down the running costs of installation. Just be sure to account for them when considering floor heights.

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Electrician Sign-Off – In order to activate almost any of the guarantees surrounding underfloor heating systems, the system will have to be signed off by a part P registered electrician.

2 Week Rule – The two-week rule is widely known and is good way of ensuring that no damage is caused to the installation through excessive expansion. During the first two weeks after the installation of the underfloor heating the system should NOT be activated. It is recommended that in the two weeks that follow this you gradually increase the temperature to slow expand and contract the flexible adhesive.

Screeding Over the Cable – Installing a screed over the top of the underfloor heating wire is a very common practice and is a good way of ensuring that the wire is not at risk of being damaged during installation of the tiles above.

Prepare The Surface

Clean
Use a damp cloth to remove surface contamination or using a suitable degreasing agent (always clean down after with clean water and leave to dry).
Dry
Ensure the background and surface is fully dry.
Sound/Solid
Cut out any loose areas and make good and leave to dry.
Flat
Ensure the surface is flat and to SR1 (no more than 3mm over a 2m straight edge). On floors, the use of a levelling compound may be recommended.
Priming
Priming the surface maybe required with an acrylic primer. Mix with water or apply neat – always check the technical data sheets for correct mixing ratios.
Waterproofing
In wet areas the use of a waterproofing product is recommended – follow manufacturers' recommendation on application.

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Make a tile staff to help gauge how your tiles are going to fall around windows and doors etc.

- Lay the length of timer on a flat surface
- Place a tile on the length of timber flush with the timber edge
- Mark the timber at the edge of the tile
- Ensure that the 'marks' are square
- Position the spacer at the edge of the tile and place a second tile against the spacer, again marking the timber at the edge of the tile
- Repeat the procedure until the end of timber is reached, finally cutting off any surplus
- Remember to allow for the 6mm expansion joint

Setting Out - Floors

With chalk or a pencil, measure a centre mark between the opposite walls and draw a straight line down. Don't assume that the opposite walls are equal in size, as a lot of rooms aren't perfectly square.

Repeat this again by measuring the centre of the line that you draw. Lay the square onto the centre line and centre mark to draw a line 90° to the first line. Starting at the middle point, dry lay a row of tiles in both directions up to the wall and make sure you include 3mm tile spacers so the tile joints are even. You can also use the tile staff to work out where the tiles will fall.

If there is only a thin piece of tile left at the wall, you can re-arrange the centre tile so there is a larger section of tile. Leave about half a tile or more as it can be difficult to fit smaller sections of tile (you may need to remark your lines on to the floor to fit the setting out).

Setting Out – Walls

Find the centre of your window or ceiling/floor and mark a pencil line. Using the tile staff, measure from the halfway point or centre of the window, down and up so you can see where each tile will fall.

Where the bottom tile is less than about half a tile, re-arrange slightly by raising the tile staff to half a tile and mark the wall once you are happy.

On the mark near the floor, using a spirit level, draw a straight line across the wall. Get a piece of timber baton and hammer into the wall, but don't hammer in fully as you will have to take the timber out later. Use this piece of timber as the starting point to tile up from.

Mark out with the tile staff again but this time vertically and hammer in another piece of timber up the wall making a right angle with the timber pieces/ or you can work from a vertical pencil line.

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Cutting Tiles

A Manual cutter can be used for straight cuts, and a electric cutter for right angles, curved edges and thicker tiles such as porcelain and natural stone.

- To measure where the tile needs to be cut, place a tile on top of the last full tile and mark with a pencil where the overlap is, this is where you need to cut
- Make sure you leave enough room for the grout joint and movement joint (example corners and perimeters).
- Movement joints must not be grouted, the use of a sealant would be recommended
- Place the tile in the tile cutter, square it up to the plate and get the cutter and pencil mark in line
- Press down firmly on the handle of the cutter, and push forward across the tile to score a line
- Press and apply pressure on each side of the tile and it will snap into two pieces. Some cutters will have an all in one breaker built in, just put the clamp part on the tile and push down on the handle to snap the tile
- If the cut isn't clean and the edges are slightly rough, use a file or rubbing stone to smooth the edges
- For smaller or curved pieces, use tile nippers to cut small pieces off to achieve the correct size or shape required

Different Methods of Cutting Tiles

As mentioned above different types of cuts will require different methods of cutting. This usually means different cutter will be required. Below is brief summary of the different cutting machines.

Manual Cutter – Sometimes known as a score and snap cutter is the usually the first-choice tool used when cutting porcelain due to its ease of handling and relatively clean execution.
As you can see the set up of the manual cutter is straight for with a flat bed to support the tile being cut and dual rails above to guide the scoring wheel over the face of the tile.

Pros – Quick to step up, Easy to Transport, Simple to use, very little mess.
Cons – Only usable really for straight cuts, for the cutter to have enough breaking force to cut a porcelain tile they can be expensive.

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Electrical Wet Cutter – Electrical wet cutters are commonly used and offer a viable alternative to the Manual cutter and are often used when a great deal of cutting is required. These are also a more popular choice when it comes to cutting porcelain. As you can see from the image the construction is straight forward with a tray at the bottom for water. The rotating blade cuts tiles using friction whilst being water cooled.

Pros – Cheap and very easy to use, Certain models come with the ability to perform mitre cuts, Lightweight.
Cons – Tend to be noisy and make more mess than a manual cutter, Different blades will be required for cutting different materials. Blades can be expensive.

Electric Bridge Saw – Electric Bridge Saws are the most heavy-duty of the tile cutter available on the market and tend to be recommended for very large projects with lots of intricate cuts. The cut faster easier and with great precision. Very straight forward to use, usually they will have a Water Tray under the bed with pump feeding water directly onto the blade. As for the cutting method these would usually have either a blade capable of moving down the rail or the bed itself will slide. Some of these even come with laser levels and a perfectly straight cut.

Pro – Larger bed sizes allow for diagonal cuts, Once set up can cut continuously with much effort, highly adjustable allowing for precision cuts. Capable of creating mitre cuts.
Cons – Tend to be the more expensive cutters on the market, Bulky to transport and move around site, Skill reliant almost all issues encountered with bridge saw come down to user error, blades are expensive.

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Laying Tiles – Floors

Make sure you plan ahead so you are able to exit the room without stepping on any tiles as they wouldn't have yet set. If the room is essential, you can tile half of the room at a time, so you are still able to access the room.
Mix the recommended tile adhesive in a mixing bucket as to the instructions on the bag. Depending on the location and substrate, a flexible water-resistant cement-based adhesive may be used such as Larsen Flexible Standard Set Adhesive.
Working off your set out lines and/or from a straight edge, spread the adhesive on the floor, holding the notched trowel (minimum 8-10mm notched size) at a 45° angle and drag across the floor spreading evenly, ensuring the notches are in the same direction. Only cover a small area at a time- approx. $1m^2$ as the adhesive will dry on the surface.
Place the tile on the bed of adhesive, press down and twist and slide into place to ensure the adhesive sticks properly (for larger tiles, it may require a thin layer of adhesive on the back of the tile as well as the floor).
Put the spirit level/straightedge on the tile in both directions to ensure it is even and flat then insert a tile spacer in between each tile. Wash down the surface and clean the joint as you go along.

Laying Tiles – Walls

Depending on the tile type, size and substrate, the use of a cement-based powder adhesive can be used - Larsen Flexible Standard Set Adhesive. Mix the tile adhesive as per the instructions on the bag.

Use a water-resistant adhesive for wet areas such as showers, baths, sinks etc. (Note a waterproof product must be used in shower areas).

As a bit of advice many adhesive manufacturers will not guarantee their product unless the wall has been properly treated using an acrylic based primer. Always read the instructions on the packaging with regards to priming as many will specify that acrylic primer must be used over PVA. Using PVA usually results in the warranty or guarantee of the product being void.

Starting from above the timber baton and centre line, start to spread the adhesive on the wall holding the notched trowel (minimum 6mm notched size) at a 45° angle and drag across the wall. Spread evenly right up to the timber baton and set out line, ensuring that the notches are in the same direction. Only cover a small area at a time- about $1m^2$, as the adhesive will dry on the surface.

Place the tile on the bed of adhesive, resting on the top of the timber baton, when in place, twist and slide into place to ensure the adhesive sticks properly. Insert a tile spacer in between each tile and wash down the surface and clean the joint as you go along.

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Grouting

Ensure the correct grout is used for the space, tile type and substrate material. Larsen Colourfast 360 Grout is recommended for wall and floor grouting.

Leave the tiles to set (follow setting times on the adhesive bag or bucket) before grouting can be started.

Mix water and grout powder in a mixing bucket as instructed on the packaging bearing in mind not to mix too much as it will harden quickly. When grouting tiles on walls, make the grout slightly thicker as it will run down the walls.

Place some grout on the tiles, hold the grout float at a 45° angle and apply the grout ensuring all the joints are filled. Once all the joints between the tiles are grouted (working in small areas), leave to dry for approx. 10-15 minutes then wipe the tile surface with a damp sponge, but don't put too much pressure on the grout joints and don't over wash. The face of the tiles may require a second wash down to get rid of the grout residue.

After approx. another 60 minutes, when the grout has hardened a little use a grout profiler at a 45° angle and press down on the grout joints and drag across to take off any excess grout and smooth it off. Using a clean cloth polish down the tiles until completely clean.

Finishing

A Silicon Sealant is recommended for sealing (not currently supplied by London Stone). Cut the end of the silicone cartridge slightly wider than the sealant gap and place in the caulking gun. Hold the tip at a 45° angle and apply into the corners etc, by squeezing the caulking gun and working from one end to the other, maintaining an even and consistent amount of silicone.

After applying, use a sealant shaper or a wet soapy finger (wear a rubber glove) to take off any excess silicon and smooth the edge.

Silicon is the perfect solution for internal corners as it still allows for movement joint, and external corners can be finished using a Tile Trim (not currently supplied by London Stone). These come in a variety of colours and finishes to suit any project just ensure that when using Metal trims, ensure they are suitable for use in wet areas.