

Installation guidance (FOR THE DIY DOER)

Before we begin - checklist

Tools

- Trowel
- Rake
- Wheelbarrow
- Shovel
- Rubber mallet
- Spirit level
- Compactor or Whacker plate (can hire)
- Stone cutter (diamond blade for granite)
- Tape measure
- Cement mixer (optional)
- String line and pegs (optional)
- Squeegee
- Outdoor broom or brush

Materials, you'll need;

- Cement
- Sub-base (Mot Type 1)
- Sharp Sand
- Jointing adhesive
- Paving stones

1. Excavation

To allow the new paving to be installed correctly, a certain amount of excavation may be required prior to installation beginning. The depth of this excavation will depend upon the thickness of the required sub-base plus the sand and/or mortar, and the paving flag thickness.

An extremely important factor to consider when working out the depth of excavation is that the finished surface level of the paving, when being laid up to an existing structure, must be a minimum of **150mm** below the damp proof course (DPC) to prevent problems with rising damp in the structure.

This means you will need to dig out the area to a minimum depth of **300mm** below the DPC requirement.

If you do need to install a drainage flow system, we would advise to get some technical help with this. If the area your excavating is flat, then we recommend digging a gradual slope to allow the water to run off. This is imperative as the water needs to flow somewhere or you just going to create problems down the line.

Tools required - shovel, wheelbarrow, rake, string line and pegs (optional for use as markers)

2. Sub-base

Add ***Mot type 1*** hardcore is a mixture of granite, limestone and basalt materials which measure no more than 40mm in thickness. Inferior quality material may be liable to failure under loading and be susceptible to frost or moisture movement.

The material which then needs to be compacted from 100mm to 150mm. For best results we recommend splitting this into two separate layers of 75mm each. We recommend using a compactor or whacker plate, and repeat applying another 75mm layer. Ensuring this will reduce or prevent soil movement.

Poorly compacted will result in soil movement which will result in sunken or raised paving overtime.

Tools required – compactor or whacker plate, spirit level

3. Flagstone Safety

Firstly, to note patio paving flagstones can be quite heavy in weight, ranging from 5kg to 30kg and more depending on the size of the individual flagstone.

We strongly recommend if you have access to a wheelbarrow that you use this when you require to move flagstones but require two to load and unload these flags. We do not support or recommend lifting by yourself.

Tools required – 2 man lifting or wheelbarrow (if you're on your own)

Pavevolution will not be held responsible for any injury you sustain or failing to adhere to these rules.

4. Mortar Preparation

We highly advise that you ensure that you use a **FULL** mortar bed to support the whole flagstone. Flags should be supported on a full 'wet' workable mix mortar bed of 1 part cement to 4 parts building sand.

The mortar bedding should be laid to give a thickness between 15mm and 30mm; however, some adjustment may be necessary to ensure that the units are fully supported and do not rock or move.

The general rule is 4:1 ratio of sand and cement is used to create your mortar, this will be increased depending on the size of the area.

Tools required – cement mixer, trowel

PLEASE NOTE that ALL granite paving MUST have a cement & SBR liquid slurry mix painted on the entire back on the slab before fixing. Failure to do this may result in the slabs drying out at different rates & cause patchiness & or effect the surface of the slabs. We will not be responsible for any issues arising with paving that has been installed incorrectly. Please refer to <http://www.pavingexpert.com/stonpv04.htm> for full details.

5. Flagstone Laying

The backs of the units should be primed using a proprietary priming product or fine mortar slurry prior to placement upon the bedding mortar.

We **DO NOT** recommend the following methods **spotting bedding, dab bedding or dot and dab method**, please ensure you cover all the whole back of the flagstone and corners before you lay the flagstone.

A PVA, SBR or equivalent bonding agent can be added to the mortar to assist bonding. An appropriate plasticiser can also be added to the mix.

After each flagstone is laid please use a hammer (use gently) to ensure the flagstone is level and in place.

The units should be pointed using a damp mortar mix of 4 parts building sand 1-part cement to. If mortar gets onto the surface of the units, clean off immediately using a damp sponge frequently rinsed in clean water.

Tools required – trowel, rubber mallet, spirit level, tape measure

Under no circumstances should dry or semi dry sand/cement mixes be brushed into the joints. This practice leads to staining of the paving and does not constitute a true rigid joint.

6. Jointing

The finishing touches to your new laid paving area. Clean the stone paving surface, using an outdoor broom or brush. Depending on the size of the area there are two methods generally used for jointing or pointing. Gun pointing or flowable mortar, the latter being the more commonly used method to date. I would recommend you use a flowable mortar please use the following video clip for guidance only. <https://www.youtube.com/watch?v=oY38jhZPs70> this clip shows the use of the flowable mortar, this can be purchased at any building merchants or a similar product to that affect.

Industry recommended is 5mm jointing gap but again different products have different jointing gaps.

When using any of the products please carefully read the instructions as they sometimes differ. You could allow for 1 day once the granite paving has hardened before applying the jointing.

To wipe any excess jointing use an outdoor broom or brush.

Tools required – jointing adhesive, water, squeegee, broom

Please read the manufactures instruction when applying the jointing as we cannot be held responsible for any problems arising from their product.

7. Cutting

Always wear gloves and safety footwear when handling the product.

Please ensure you use the appropriate cutting tool for sandstone or granite paving as they do differ, it will also prevent you from ruining the paving stone, which we will not be held responsible for example diamond cutters are recommended for all granite paving flagstones.

When in use and apply water to make the cutting process easier, please wear protective goggles at all times and a dusk mask would be advisable when carrying out any cutting, your safety is paramount at all times.

Tools required – stone cutter (recommended for the type of stone)

8. Patio Maintenance and Protection

Regular maintenance is required to keep the overall appearance of the product in pristine condition. We recommend thoroughly washing paved areas with warm soapy water and brushing off with a stiff broom three or four times a year.

We cannot be held responsible for the possible effects or damage caused by the contamination or application of some chemically based products which come into contact with a concrete or natural stone paver e.g. some weed killers and acid or alkaline based cleaners. We recommend that acid is NOT used on any natural stone paving.

9. Staining

While all our products are natural paving, after laying, some natural stone products may exhibit a brown colouration where oxidation of any iron content occurs. This is a natural occurrence in all stone & may bleed from the stone after installation, which is beyond our control.

There are leading brand cleaners available on the market especially formulated for rust removal. This cleaning can take place after the installation is complete. We recommend that once any oxidation has been removed that the area is left to settle & dry & then sealed using the appropriate sealer. We would recommend that any patio should be left for a season or two before sealing, (see below for **sealing section**)

We will not be responsible for any discolouration or oxide that may appear once the patio has been laid or for any cleaning that may be required.

10. Efflorescence

Efflorescence what is it? This is a natural phenomenon and can occur with all cement based products and occasionally in natural stone paving.

Efflorescence is the accumulation of crystallised salt on the surface of the paving. In the case of Concrete Paving, salts from within the cement rise to the surface of the paving where they accumulate causing a white mark. Efflorescence may also occur on Natural Stone products depending on the chemical composition of the stone and the local weather conditions.

Efflorescence is an unpredictable, but temporary, process. Once all the salt from the paving has risen to the surface it is commonly worn away through use or by weathering. This process seldom takes more than 12 months. Efflorescence may temporarily disappear when wet.

In most cases scrubbing the paving with warm, soapy water or a mild bleach solution will reduce the build up of salt from the surface of the paving. This breaks down the crystallised salt causing it to be more readily worn off through use and weathering. In extreme cases of efflorescence, an acid wash may need to be applied to remove the salt. It is important to note that the salt may again form on the surface of the paving if the efflorescence process has not

Pavevolution cannot accept responsibility for the effect of efflorescence which can be characteristic of all good quality products with a high cement content.

11. Sealant

Should you wish to apply a sealant please make sure you use the correct product for the different stone available. All sealants should be water based sealants. Any acid based sealant would be corrosive to the aesthetic of the paving stone and reduce the life span of the paving stone. We recommend any sealant be used after several months to allow the laid paving slab once installed to thoroughly dry out.

We will not be responsible for any sealer applied incorrectly & recommend that a small inconspicuous area is tested before the whole patio is sealed. Follow the manufacturer's instructions before application.

Please note we are unable to accept any claims or returns once material has been fixed. You MUST ensure you are happy with the material BEFORE it has been laid.