

**Lantoom**  
**Natural stone paving guide**

## Hello and thank you...

If you're reading this guide then you're either interested in, or have already purchased our Lantoom natural stone paving. We want to thank you for helping us to create beautiful spaces using natural stone.

With this in mind, the document you're reading has been created to make this as easy and stress-free as possible; from choosing and purchasing the correct material, to installing and enjoying your living space for many years into the future.

**Need additional help and advice, or wish to make changes to your order?**

Call us: 01579 308234

Or email us: [sales@lantoom.co.uk](mailto:sales@lantoom.co.uk)

## **A world of options**

The use of natural stone in man-made projects predates history itself. For thousands of years mankind has worked the most malleable of stones available to him to create shelter, tools and art.

Although concrete and other artificial products have long made for an affordable alternative, in the last couple of decades, natural stone has made a comeback; becoming an desirable choice for domestic projects through advances in technology and the economies of scale.

There is something remarkable to the thought that the stone in your back garden will have suffered the terrible heat and crushing force of the earth for hundreds of millions of years, and the work of hundreds of people across different continents has gone into turning that raw material into a desirable feature for your home. Not only that, but, if properly installed and cared for, will last for many future generations to enjoy.

There are now so many different types of paving available, from all over the world, and choosing the right material for *you* is therefore the most important part of any paving project. Our full product range is available through [our website](#).

We're also able to offer bespoke finishess and sizes, so don't be afraid to ask if you don't see what you want amongst our standing options.

The relevant British Standard for natural external paving slabs is British Standard EN 1341:2012. All of Lantoom's stone is in compliance with this standard. Our paving is stringently tested to these standards, for criteria such as its frost resistance, flexuarl strength and water absorption.

All of our stone is CE marked in line with EU regulations.

## How to order your stone

If you're still in the early stages of your project, you may not yet have ordered any stone. This can be a complicated endeavour if you're unfamiliar with this type of product.

All of our standard project packs contain approximately 15m<sup>2</sup> of paving. We are able to offer amounts that don't fit neatly into full packs, but in general it will be cheaper for customers to order in full packs where possible, as this will minimise the extra costs involved in splitting packs.

You'll need to decide whether you'd prefer a mix of sizes (often called a project pack) or to stick with a single size slab.

We try to make the process of ordering with us as simple and pain free as possible. We're able to take payments via debit/credit card, Paypal or Amazon Payments. All of our paving can be purchased in just a few clicks through our website.

Once you've found the product that inspires you, there are a couple of things to consider before making those last couple of clicks:

- We have free samples of all of our paving available to new and existing customers. Samples can be brilliant at confirming the quality of material you'd otherwise only get to see in pictures before ordering, but please be aware that, as with any natural stone, a small sample may not fully represent the different colours and hues that can be present in the same type of stone.
- Part of the beauty of using natural stone is that no two pavers will be exactly the same. You can expect to see some variation in colour, as well as natural inclusions running through the stone. Slate slabs especially will have some variation between slabs due to their unique natural riven finish. When ordering multiple project packs, it's important to mix the packs up so that any small variation between packs is negated. (insert picture of correct vs incorrect paving)
- Due to this variation, it is always a good idea to order enough paving material in advance to cover the whole area that you need. Although there is generally little variation between batches, there may be enough for it to be noticeable if the paving isn't mixed in. If you do need to order more paving, please make sure to let us know when you last had material so that we can offer advice and try to help.
- Very few paving areas are perfect squares or rectangles. Because slabs will often require cutting on site to create a good fit, Lantoom advises that you order an extra 5-10% above whatever area you need to cover to ensure you have the right amount, first time. You can also minimise both wastage and cutting through careful planning to determine which slab of what size should go where for best effect.
- Please note that all product sizes, weights and thicknesses stated are nominal. If you have specific tolerances you need to work to then please let us know, as many of our products range have been calibrated, and may be more suitable than others.
- When you measure the area you require paved, whether you intend to use paving slabs or sett blocks, bear in mind that coverage figures quoted on our website will include not only the stone, but the area of the joint between the stone, typically to be filled with grout. Likewise, if you are trying to work out the number of slabs you'll need to fill an area, remember to allow for the joints between slabs as well (for how thick these joints should be, see the laying section).

- Natural paving with a thickness of around 20mm is suitable for pedestrian use only. If you need an area paved which will see any sort of vehicle use, there are other, stronger options to consider, such as granite setts.

### **Returns and cancellations**

If you're at all unhappy with the slabs you've received, please let us know within 10 working days after the day of delivery. If you wish to cancel and return your order, then we do require details of your wish to cancel in writing either by email using our contact page or by post to Lantoom Ltd, Lantoom Quarry, Dobwalls, Liskeard, Cornwall, PL14 4LR

### **IMPORTANT**

It is very important that you **do not lay any stones** you are unhappy with, as this may prevent us from being able to help or to refund and return your order. Once you receive your paving, inspect all of the stone. If you have any issues with the delivery, report these straight away to us.

## Delivering your order

The stone may have been in the ground for hundreds of millions of years, but now its packed and ready to reach you within just a few days. Planning for delivery is just as important as ordering the correct stone. The last thing you need is to suffer delays or added expense because the haulier can't deliver.

### **What type of lorry should I expect?**

Your delivery will be made by a third party haulage company. There are two categories of delivery you can expect when ordering your paving.:

#### **Tail lift lorry**

A tail lift lorry is used for delivers nationally. The vehicles can come in various sizes. You must have a flat and hard standing area in order for the driver to offload. The process involves wheeling a hand pump cart under the pallet and hand pushing the pallet on to the tail lift, this is then lowered and wheeled onto the ground. If access is an issue at your property please make sure we are aware so we can request a smaller vehicle or make other arrangements.

A tail lift delivery is the standard option and is included for free within the price of your paving. We've created this helpful video to explain the key points you must be aware of when this option is selected:

#### **[Tail lift delivery - Is my area suitable?](#)**

#### **Hiab crane lorry**

A Hiab is a vehicle with a crane. With its crane, it can offload paving crates over small walls, or onto surfaces that a tail lift lorry would otherwise be unable to offload on to. Make sure to specify that you'd like a hiab crane delivery during the order stage, as this option tends to be more expensive, and may require some forward planning to find a suitable crane near to you.

### **Do I need to be on site for delivery?**

Although the person who has ordered the stone does not have to be on-site on the day of delivery, it is essential that a nominated person is available on site to sign for the goods. This is vital, because its in everyone's interest for the goods to be inspected and confirmed as being in good condition straight away. Please check the delivery for any signs of damage at this stage to make it as easy as possible for us to resolve any problems for you later.

The following general advice should ensure you experience a trouble free, on time delivery:

- We always suggest checking the access to your property before placing an order. If you're unsure whether your street or lane is suitable then it is important to ask us at Lantoom. We can check directly with the haulier to ensure their lorry can access your delivery destination.
- All deliveries are made at the driver's discretion. If the driver doesn't think that the delivery area is suitable, he may refuse delivery, and the cost of any re-delivery may have to be passed on. For this reason its always best to check.

- Deliveries are made kerbside unless otherwise stated. Although the driver may be able to get closer to your project area, you should not rely on this. You can help the driver to make the delivery you want by ensuring he or she has easy access to your drop off site, is aware of any access restrictions, and will be able to manoeuvre himself out safely as well.
- Take care when opening the packaging and when removing the product out of the crate as the crates may have weakened during transit and could be unstable.
- The largest slabs we offer as standard are 600x900mm in size, and are over 25kg in weight. Consider this when arranging the delivery, as you may need appropriate lifting equipment, or an extra pair of hands to shift the stone if it is delivered to the kerb side.
- Please bear in mind delivery times or dates may vary subject to change due to circumstances outside of our control, such as unforeseen delays, weather conditions or traffic. For this reason we are generally unable to quote a precise time of delivery.

## Before you begin...

Laying slabs can be a daunting job. Without technical knowledge there are plenty of ways for things to go awry, and even experienced landscapers occasionally get it wrong (usually through the practice out of date techniques that aren't appropriate for use with modern, natural paving).

### **Professional or DIY?**

The best solution is to have a professional do the job. But even then there are a number of checks you should make to give yourself confidence that your chosen installer is using the correct techniques. You may also consider DIY-ing part of the work and leaving the complicated stuff to the experts.

The relevant code of practice for the installation of natural paving is British Standard 7533. It may be worth checking that your builder is familiar with the standard.

Questions to ask yourself:

Are they a member of a trade body or association?

Can they provide references from previous jobs?

Can you find positive reviews online?

### **Have you considered drainage?**

An essential consideration when planning is drainage. Although no natural stone is completely impermeable, most popular paving materials will not allow water to pass straight through (nor would this be preferable). For this reason, it is important to consider how your patio or paving area will drain water.

#### **The perils of poor drainage**

- Leads to slippery or icy pavers; a hazardous condition.
- Dampness will lead to greater weathering from biological sources, such as Algae.
- Submerging for any length of time can affect structural integrity, through the saturation of the bedding layer causing settlement or subsidence.
- Wet feet!

#### **Drainage solution options**

- Create a 'fall', which is a purposely designed slope in the paving to encourage water to run off. However, make sure you also have a plan for where this run off water will go!
- If using a fall, it must be created at the sub-base level and not in the laying course, as this needs to have a consistent thickness.
- Whether through a Gully or Manhole, you may need to incorporate one or more types of drainage fittings to remove surface water. Whatever your preferred solution, you will need to consider how to tie the fitting in with your natural stone, so that it doesn't stand out. A concrete drain cover may be practical but will stand out like a sore thumb against red sandstone paving.



### **Extra Tips**

- Paving styles that use recessed joints and small blocks, such as setts and some pavers, will not drain as well as long stretches of concrete or tarmac. You may need a greater gradient to your fall than the British Standard calls for.
- If you're planning on using steps or terraces, consider whether you need to incorporate a fall here too.

## **What makes a pavement?**

There is much more to paving than the pavers themselves. A standard patio or pathway requires four layers: the formation level, or subgrade, which is the foundation to be built onto; a subbase to give it strength; a laying course, such as sharp sand, to support the pavers; and the substrate layer (the pavers themselves).

### **Sub-grade**

It is vital that your project starts with a firm sub-grade, free from topsoil and vegetation, and as level as possible. This is because organic material will break down over time, which could result in settlement of the paving layer in the future.

### **Sub-base**

The sub-base layer forms the intermediary layer between the sub-grade and the bedding layer. Its key function is to spread or dissipate the force of narrow or small area loads over a wider area.

For example, the weight of a truck may be applied to a driveway through only 4 small points (its wheels) but, thanks to the subbase, this force dissipates outwards through the subbase over a much wider area. Without the sub-base providing this load bearing role, the small area of force is much more likely to result in movement.

Lantoom sells its own sub-base material made from our slate aggregate, which is 40mm down to dust in size. This material is ideal for patios and pathways, and works well in conjunction with our range of paving.

Top tip – sub-bases work by spreading force out, from particle to particle. It's therefore important to make sure the sub-base is dry when installed, and compacted in with a compaction plate where possible. This will ensure there are fewer gaps between the particles of sub-base, and that they are properly able to transmit forces.

### **Separation Membrane**

This is a layer of fabric which is used to separate out the different layers of material. The majority of domestic paving projects may not need a membrane layer, but you may consider using one in order to prevent the sub-base layer sinking into the sub-grade. A firm, dry sub-grade with little clay content should not require a fabric layer.

Have you considered how the pavement or patio will drain? For more detail see the ordering and planning section.

### **Do I need a base course?**

When using block paving, such as granite setts, a base course acts as an intermediary layer between the flexible subbase and the rigid bedding and surface layer. A base course is rarely required beneath a standard garden patio

## **Bedding / Laying Course**

The bedding layer's purpose is to support the paving slabs laid on top of it, allowing a level finish to be achieved even where there is variation in thickness and size of slabs. The best material to use as a bedding or laying course will depend on whether a rigid or flexible system has been chosen:

### **Rigid bed**

In short, a rigid pavement is so named because the chemical reaction of water and cement produce a product that acts as a rigid plate, transmitting the force of loads to a wider area below.

There are a number of proprietary options when using a rigid pavement, but the two most tried and tested options are mortars and concretes. Both comprise a mix of cement and water with either fine aggregates (mortar) or fine and coarse aggregates (concrete).

For pavers, a 40mm thick bed of mortar or concrete mix is usually sufficient. A typical mortar mix used in the trade for the bedding of natural stone pavers comprises 6 parts grit sand to 1 part cement. You can vary this ratio of sand and gravel to cement, with a higher cement content creating a stronger bed. This may be necessary for the edges of your paving where additional support is needed.

The other factor to be determined when using mortar and concrete mixes is how wet to make the mix. In general, to make the strongest mortar mix, one part water is required for every two parts cement. However, in practice there are often reasons to vary from this starting point. For instance, the mix to use when jointing should generally be drier so it does not stain the slabs. Too much water content can be unwieldy and difficult to work with, so for a bedding layer you may wish to try a stiffer mix with just enough moisture to hydrate the cement sufficiently.

### **Flexible bed**

A flexible system transmits the force of loads to lower layers by point of contact between grains; for example, the individual grains within sand push against each other and pass the force of the load down into the sub-base layer below.

Your bedding material needs to be fine enough so that it can be accurately leveled through compaction, but not too fine that it soaks up and retains water and doesn't drain freely. Sand is the most popular choice, being readily available from builder's merchants and also relatively cheap. There are different types of sand used in the building trade, so it's important to know which one you should be using. For bedding of pavements, it's important to avoid sands which are too finely grained, as these can retain too much water. The type of sand used in bedding also needs to be grittier, so that the particles are able to properly interlock.

### **Which should I use?**

Lantoom pavers and setts can be used in either a rigid or flexible system. In most cases when using setts or other blocks, a flexible system will be most suitable, whilst also being cheaper (requiring fewer component layers and cheaper materials) and easier (no need to mix concrete or worry about movement joints).

In general though, a rigid pavement is the more suitable with larger stones, such as natural paving, and

is favoured by most contractors. This is because mixing cement with a sand adds a further binding to the sand grain's own interlocking. In doing so, any part of the bedding that has not been properly compacted should still provide a good hold. Additionally, it prevents invertebrates from tunnelling into the bedding course and causing subsistence.

Again, Lantoom paving can be used in both a rigid or flexible format, and your contractor may be able to offer further advice about which is best suited for your application.

# How to lay your stone

## Safety

Remember to protect yourself!

Always wear appropriate personal protective equipment (PPE) when either handling or working natural stone. It is especially important to protect your eyes and lungs from silica dust and other particles when cutting stone, and your hands when using any active mix of cement and water.

## Setting out

Setting out your plans for your paving area ahead of time is important for ensuring a clean finish.

The three key goals are to establish: the height of the finished surface (and therefore to what depth to dig to establish a sufficient subbase and bedding layer); that the finish surface will be level; and to allow for a drainage fall.

With proper planning, its also possible to avoid costly mistakes later on. Its much eaiser to adjust levels before than after having laid the stones! It also affords a visualisation of the look of the pavement in the context of the rest of your home; much more so that through drawings and sketches.

The standard tools required for setting out are:

Spirit level  
Straight edged timber  
String or chalk line  
Tape measure.  
Pegs and hammer

The basic principle is the carry a flat or level line across your site using the tools mentioned, ensuring that the finished area forms a true rectangle, rather than a romboid, and that the paving layer only slopes where you require it to for drainage purposes.

Don't look to transfer level points over a distance beyond around 5-10 metres, as the accuracy of DIY tools such as basic spirit levels, taut lines and straight edged timber will break down over further distances. Transferring levels over longer distances will require intermediate stages.

Make sure to check and double check your measurements when taking site readings, as even small errors may become compounded to the point of creating discrepancies large enough to be visually offputting. Minor discrepancies are to be expected though, as no plan can ever be transfered perfectly into the real world.

## Drainage

This is imperative to the end product. You will need to make sure there is a gradual slope to stop pooling. Make sure the patio is sloping away from the house.

### Build up the layers

The thickness of each layer will depend on the intended duty of the patio paving. Prepare the subgrade first before installing the geotextile to separate layers, next install the sub-base.

Bind off the subbase with some sharp sand and install the bedding layer, a mix of 6 part sand to 1 part cement is a good ratio. For medium or heavy duty patios concrete will be needed.

Apply a SBR resin to the back (smooth side) of the slabs and to the mortar to protect the slabs from staining. Once dry you can lay your slabs, make sure that the rough surface is facing upwards to add grip. **Do not** 5 spot bed, instead use a level screed.

### Pointing and grouting

Wait at least 24 hours for the paving to set before walking over the slabs. Start by raking out the joints to make enough space for the mortar. Make sure your cement is fairly dry to avoid staining on the slabs. Tightly compact the mortar in the joints and wash away any left over residue from the slabs with a damp cloth.

### Aftercare

Remember to keep your patio paving slabs clean by washing it every 6 months. Check and repoint any settled joints, clean and remove weeds. You may also wish to seal the patio paving slabs to add further protection, you should wait at least 6 months after installation before sealing the slabs. Start by making sure the slabs are clean you can do this by using a stone cleaner like builders clean. Once dry you can begin to seal. Always follow the instructions on the bottle and test on a small slabs before committing to the whole patio. Stainstop is a popular choice for sealants.