



# Understanding & Installing Natural Stone Paving



# Contents

- 04 The History of Natural Stone
- 05 The Benefits of Natural Stone
- 06 The Geology of Natural Stone
- 08 Choosing Natural Stone – Quality
- 10 Choosing Natural Stone – Ethically
- 12 Helping You Make the Most of Your Natural Stone Products.
- 14 Things to Consider When Ordering
- 15 Receiving Your Natural Stone
- 16 Health and Safety
- 17 Installation Methods
- 18 Laying Flagstones
- 20 Natural Stone Block Paving
- 22 Incorrect Laying Methods
- 24 Aftercare of Your Natural Stone
- 25 Green Staining / Efflorescence
- 26 Black Staining / Iron Imperfections
- 27 Through Bed Staining / Weathering
- 28 Delamination / Surface Imperfections
- 29 Salt Damage
- 30 Cleaning
- 31 Sealing

**Acknowledgements:**

David Richardson, Natural Stone Consultant - [www.diagenesis-consulting.co.uk](http://www.diagenesis-consulting.co.uk)  
Tony McCormack – [www.pavingexpert.com](http://www.pavingexpert.com)

# Welcome

This booklet has been produced as a guide to the properties and characteristics of natural stone products. We hope this will help our retailers, customers and end users to better understand, use and enjoy our natural stone landscaping products.



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# The History of Natural Stone

**Throughout history, natural stone has been a widely used premium material in building and construction. Known for its durability, longevity and beauty, natural stone has been used to build some of the worlds most recognized structures, including The Great Sphinx of Giza, The Taj Mahal, The Great Wall Of China and the Ancient Pyramids of Egypt, the oldest of which is thought to be around 4,750 years old.**



Today, not only is natural stone regularly used in the construction of buildings, but it has become a desirable and highly sought after product for domestic and commercial projects. Due to advances in quarrying and technology, natural stone can be processed at a much smaller cost and in less time than before, allowing manufacturers to meet this high demand at an affordable price.

As the leading independent supplier of natural stone products, we have produced this document to explain the benefits of natural stone, why it is the best choice for your landscaping project, and how to care for your natural stone products to make your investment last a lifetime.

# The Benefits of Natural Stone

**As the stone is natural, no two pieces are the same, allowing designers and homeowners to create stunning custom and individual designs which will outlive concrete and other man-made building materials. Some of the benefits natural stone has to offer include:**

- The diversity of the product allows it to be used in a number of applications.
- Natural stone will age well and improve in appearance over time.
- Each piece of natural stone has a unique blend of colors and tones.
- Natural stone typically makes a durable frost resistant paving.
- Natural stone generally is easy to clean.
- Using natural stone materials may add greater value to your property.

Natural stone is uniquely formed, making each piece of stone characteristically subject to color variations, veining, markings and occasional charming imperfections. As no 2 pieces are identical, natural stone products offer homeowners a truly custom landscaping option.

Unlike man-made products, stone is a truly natural product simply taken from the ground and processed using low energy machinery, as opposed to needing high energy, fuel burning processes that pump vast amounts of CO<sup>2</sup> into the atmosphere.

**“Stone is already ahead of almost all building materials in its green credentials.”**

The Stone Federation, [www.stonefed.org.uk](http://www.stonefed.org.uk)



# The Geology of Natural Stone

**The oldest rocks on earth are thought to be over 4.4 billion years old, each formed via different geological processes. At many locations the rock outcrops sufficiently close to the surface so that it can be quarried or mined.**

There are three major groups of rocks:

## **Igneous**

Formed by molten magma from within the earth. When magma erupts, it cools and solidifies to form volcanic rocks. An Igneous rocks mode of formation and composition generally makes them very hard, strong, resistant to wear and resilient to weathering. Examples of Igneous rocks include Granite and Basalt.

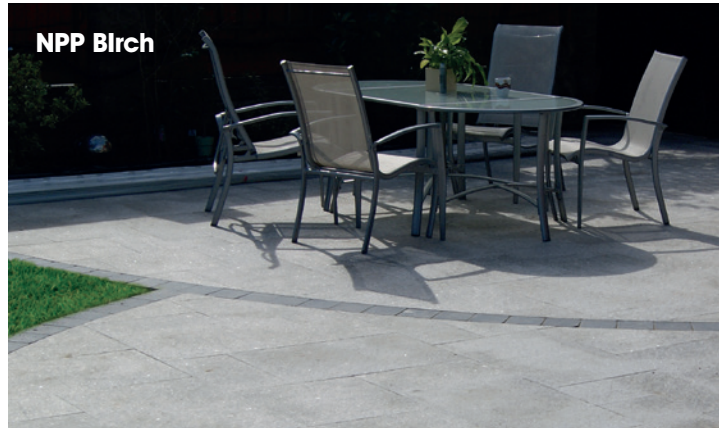
## **Sedimentary**

These rocks are formed from materials that have settled at the bottom of a body of water or been deposited in a desert environment and have then been compressed over millions of years, creating a layered stone. The sediment comes from eroded rocks carried there by rivers. Examples of sedimentary rocks include Sandstone and Limestone.

## **Metamorphic**

These are originally either igneous or sedimentary rocks that have been exposed to concentrated heat and/or pressure which causes them to change into another form of rock. They are usually resilient to weathering and are therefor very strong. Examples of metamorphic rocks include Marble and Slate.

**For further information please visit [www.geology.com](http://www.geology.com)**



# Choosing Natural Stone - Quality

**As there are so many types of natural stone available, it is important to choose the right natural stone product for you. All of our stone is CE marked to meet with EU regulations that were introduced in July 2013. European standards EN1341 (Slabs), EN1342 (Pavers) and EN1343 (Curbs) specify the requirements and test methods for each of these. The CE testing covers areas including water absorbency, flexural strength and frost resistance.**

We have had all of our natural stone products tested to show the various properties of each stone and how the stone is likely to behave and react under different circumstances. We have also created our Stone Standards guide which provides the key data from the CE testing of our Sandstone products in an easy to read chart, allowing our customers to make an informed choice when purchasing their natural stone.



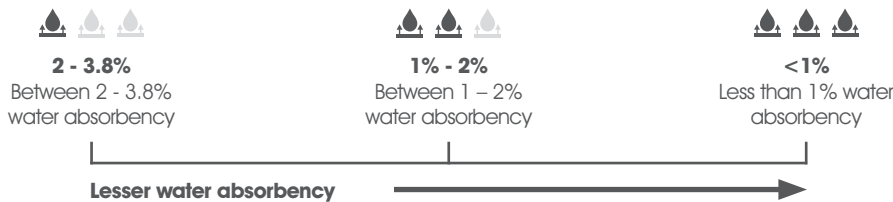
All Natural Paving Products are fully CE marked and ASTM tested.



# The Paving Stone Standard

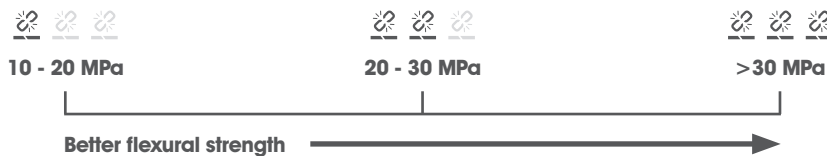
**Our Stone Standard is based on testing results which are carried out as part of our compliance with the CE Regulations and show the performance of our sandstone flagstones and block paving products against 3 key criteria: Water Absorption; Flexural Strength and; Frost Resistance. With a simple visual grading system, the Stone Standard enables home owners to understand the performance of the stone and therefore help to select the most suitable product for their purpose.**

## Water Absorption



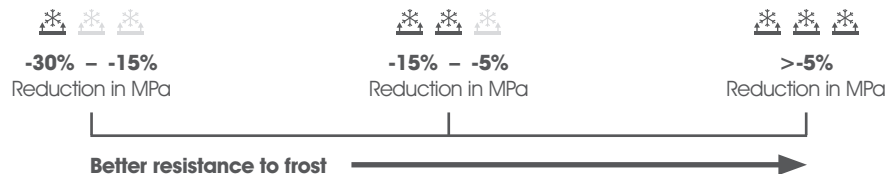
Sandstones with a higher water absorption have the tendency to go green. To help prevent this we recommend sealing with one of the Pavetuf Sealants.

## Flexural Strength



The flexural strength of a stone gives an indication of how strong the stone is. The flexural strength is measured in megapascals (MPa). The higher the number, the less chance it has of failing or delaminating once in place.

## Frost Resistance



Frost can sometimes attack stone, but most are very resistant to it. We measure this by testing the flexural strength of stones after a cycle of freezing and thawing a batch of samples. We have graded our stones on the percentage difference between the maximum flexural strength test before freezing and the strength test after a repeated freezing. Stones that are not acceptable for the UK market do not appear in our collection.

**2016 Stone standards**  
Aiding customer choice



**Please note: The stone standards are applied to all Natural Paving sandstone flagstones and block paving.**

# Choosing Natural Stone - Ethically

**Being fully aware of the inhumane practices that exists in parts of the world, Natural Paving Products has made a firm commitment to demonstrate to our industry just how natural stone mining should be conducted successfully and ethically.**

We are a part of the Ethical Training Initiative (ETI) and ask that when you purchase your natural stone products, you ensure they are ethically sourced.

**By only purchasing ethically sourced stone you will help to ensure that:**

- Child labor is not used for the quarrying of stone, allowing children to instead get an education, which then allows their parents to get work in the quarries.
- The working conditions in which the stone was mined are safe and hygienic.
- Fair wages are paid to the workers who quarry the stone.
- The hours of work are not excessive.
- Workers are treated in a fair and humane way.

Understanding the importance of ethical sourcing is vital. By supporting and working with the ETI, we can help to eradicate not only child labor in the stone industry, but also inhumane and unsafe working conditions for all stone workers. By sourcing stone ethically, we are helping more children get into schools, giving them the best possible start to life, whilst also giving their parents the opportunity to have a secure and safe job.

Natural Paving Products has engaged with Kailash Satyarthi, an Indian children's rights and education advocate and an activist against child labor. He founded the Bachpan Bachao Andolan (BBA Save the Childhood Movement) in 1980 and has acted to protect the rights of more than 83,000 children from 144 countries. As part of the BBA auditing process, Kailash and his team have visited our factory and he is now working very closely with us on various charity projects with our ultimate aim of eradicating child labor and improving education standards within the stone regions of India.

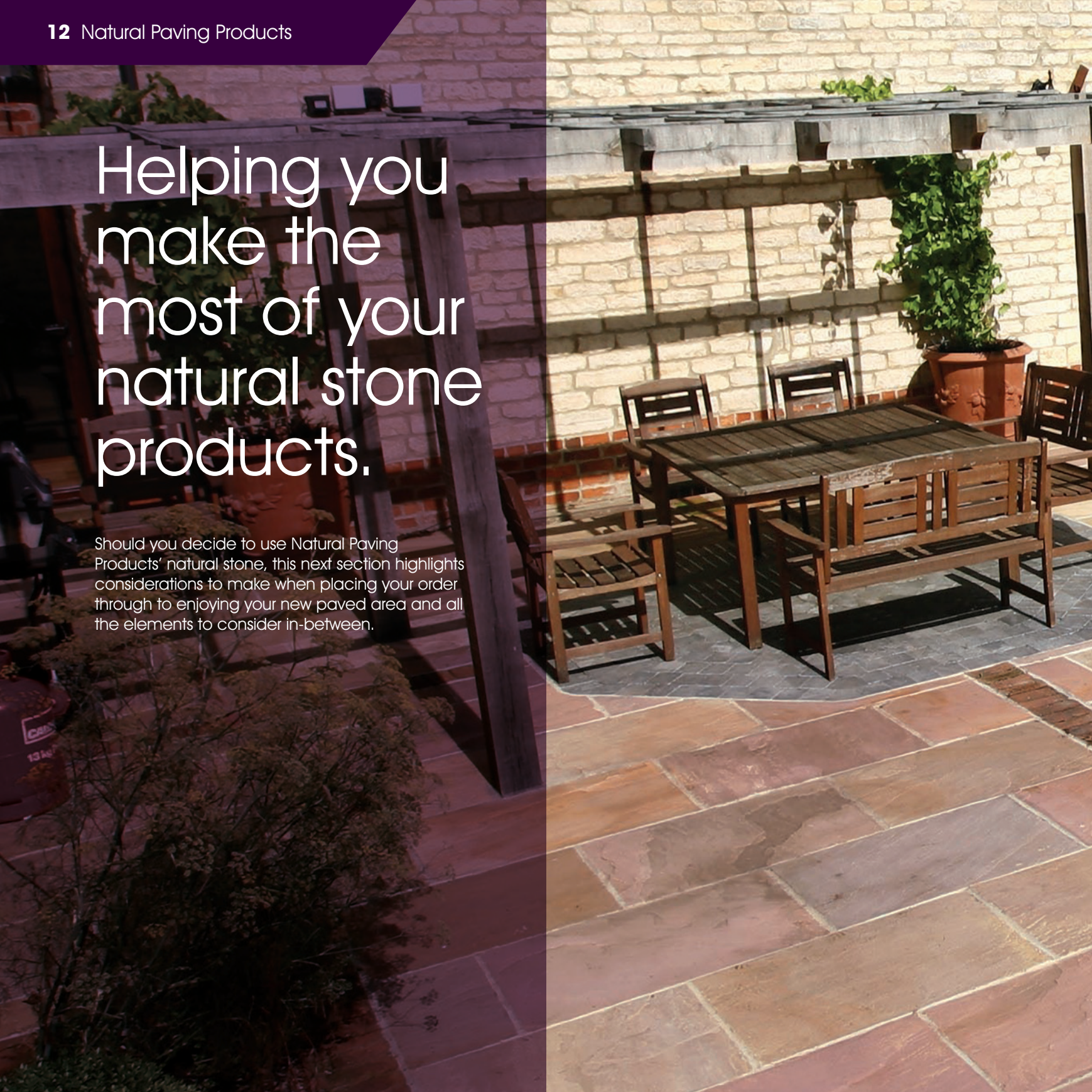
**For more information please visit [www.ethicaltrade.org](http://www.ethicaltrade.org)**





# Helping you make the most of your natural stone products.

Should you decide to use Natural Paving Products' natural stone, this next section highlights considerations to make when placing your order through to enjoying your new paved area and all the elements to consider in-between.





# Things to consider when ordering

## There are a few things to consider when placing your order for natural stone:

- If you have received a sample piece please be aware that this is only a small representation of the color blends that can be present in the stone.
- As it is a natural product the veining and color can also differ between the pieces of stone within the same pack.
- When placing your order, we recommend you order an extra 10% to allow for any breakages or cutting that is required.
- Order enough of the product to cover the entire area you wish to pave, as the color can vary through different seams in the quarry. The color tones of today's order will not be the same as an order for the same product at a later date.
- Consider where you are going to be laying the stone. If the area is shaded, the stone will be more likely to attract organic growths that result in staining, as it will remain damp for longer periods. If the stone is going to be in direct sunlight for prolonged periods of the day, you can expect some fading over time.
- Products being delivered direct to site/homeowners will be delivered curbside from our dealers. It is important that the driver have easy access and maneuverability at the delivery site. Please note that the drivers cannot unload very far from the vehicle, so you will need to consider how the products will be moved to the project area.
- Finally, consider what the stone is going to be used for. Not all of our products are suitable for vehicular traffic.





# Receiving your natural stone

**We have a large network of dealers from whom you can purchase our natural stone. To find your nearest dealer, please visit our website. Remember:**

- Take care when removing the packaging and banding and when removing the product out of the crate as the crates may have weakened during transit and could be unstable.
- The product is quite heavy, and some larger pieces can weigh over 55lb. Consider this when arranging the delivery, as you may need appropriate lifting equipment, or an extra pair of hands.
- Once you receive your shipment of natural stone inspect all of the product. If you have any issues with the delivery, report them immediately to your dealer and do not lay the stone.
- After you have unpacked the delivery, consider the environment and recycle the packaging products. There could be wooden crates, plastic ties and plastic wrapping on the delivery, which should all be recycled. Any waste stone could also be recycled and used for aggregates. You can talk to your dealer to see if they have any recycling facilities.
- This is a beautiful, natural product and each piece will be unique. You can expect color and veining variances between each piece of stone. Some of our ranges have riven surfaces and some pieces may be more riven than others, which adds to the natural rustic charm of the product.

Please note that all product sizes, weights and thicknesses stated are nominal.

# Health and Safety

**HEALTH AND SAFETY MUST BE ADHERED TO.** A number of items within Natural Paving's product range are heavy or awkward in shape to lift. We recommend that when moving pieces over 55lb, more than one person helps in completing the lift, or that suitable lifting equipment is used.

Furthermore we would also recommend that gloves are worn when handling our products. When cutting our products either with chisels or a rotary disk, it is essential that suitable eye protection is also worn. Always ensure that suitable respiratory protection is worn to avoid the inhalation of dust particle produced by high speed cutting devices.

## Silica Dust

Silica dust is a natural substance found in most rocks, in varying amounts. The dust is generated from cutting and chiseling natural stone materials. Silica dust in some cases can cause serious health issues, therefore it is extremely important that when cutting and chiseling any natural stone products, adequate respiratory protection is worn.

**For further information on Silica dust please visit [www.hse.gov.uk](http://www.hse.gov.uk).**

**For further information on Health & Safety, please visit our downloads section at [www.naturalpavingusa.com](http://www.naturalpavingusa.com)**

**It is your responsibility to ensure that you comply with all applicable health and safety legislation and guidelines.**





# Installation Methods

**Any natural stone landscaping project is a significant investment, and so the installation of the stone should be done correctly to minimize the risk of any problems once it's laid.**

If you decide to use a professional contractor, thoroughly research the installer and their company, check online reviews, ask for references from previous projects of a similar nature, visit previous jobs, and make sure you are comfortable in dealing with the company.

Competent installation of natural stone paving and walling is a professional job best undertaken by an experienced installer. However, if you do decide to install the stone yourself, do plenty of research into materials and methods, and seek the best advice on how to carry out the installation. When natural stone paving is laid incorrectly, problems can occur after the project is finished, which is one reason why we always recommend an experienced installer lays the paving.

This next section guides you through the basics of correct laying methods for natural stone flagstones and stone block paving, and also indicates certain laying methods which should be avoided, as they often result in staining, damage or they could adversely affect the looks and usability of your paving.



# Laying Flagstones

**Part of its charm is that all natural stone varies in tone and texture, so ensure you have enough of the chosen product(s) on site to complete the project, as later batches may have slight differences in shade or finish.**

- ✓ When laying, always randomly select and mix the product from several packs as this will minimize any risk of color banding.
- ✓ Flagstones must always be laid on a “full bed” of sand and cement mortar that supports the whole flag, not just the corners.
- ✓ Use 6 parts of sharp sand or all-in ballast with 1 part cement. Mix together then add just enough water to make a mortar that binds to a sticky consistency: a good guide is that there should be sufficient water to allow the mix to be molded into a ball without falling apart, but not so much that water would run out of it, if it were to be squeezed in the hand. A plasticizer added to the mortar during mixing will improve workability.
- ✓ To improve adhesion, consideration should be given to applying a slurry primer or a paste of SBR with cement to the underside of the flagstones prior to bedding.

## Plan ahead!

Think about where it would be best to start laying, and set-up lines and levels to guide the laying process. Think about how the paving will be drained.

- ✓ Spread a layer of bedding mix that is roughly 2” thick and slightly larger than the base of the flagstone being laid. Place the first flagstone onto this bed and use a rubber mallet to carefully tap it down until it is at the correct level.
- ✓ Repeat the process with the next flagstone, adjacent to that just laid, leaving a joint width of 1/4” - 1/2”, and again, tap down to level. Repeat this process, laying one flagstone at a time until the whole area is covered.
- ✓ The joints of flagstone paving look best when pointed with a mortar. Make a pointing mortar by mixing 4 parts of soft or building sand with 1 part cement. Again, add as little water as possible to bind the mortar without over wetting it, and use a plasticizer as directed. Use a small pointing trowel to feed the pointing mortar into empty joints from the edge of a larger trowel and then use a pointing bar to press it down firmly and to polish it when the joint is full.



- ✓ Brush off any excess mortar from the stone before it dries taking care not to stain the surface.
- ✓ Keep off the new patio for the first 24-36 hours, by which time the initial set of the mortars should be complete. After 3-7 days, the patio should be fine for full use.

# Natural Stone Block Paving

**All block paving, whether it's a patio, a pathway, a terrace or a driveway requires at least three layers: a sub-base to give it strength; a laying course of sharp sand to support the blocks; and the paving blocks themselves. It also needs to have firm edges to hold the paving securely in place, and the right kind of jointing to fill the gaps.**

- ✓ The sub-base should be at least 6" deep for driveways and 4" for paths, patios and other areas with no vehicular access. The laying course should be approximately 1"-1 1/2" in thickness when compacted. Take into account the thickness of the blocks being used plus the need to remain at least 6" below the Damp Proof Course (DPC) of any adjacent building when calculating the depth of excavation required:

**6" below DPC + Thickness of block + 1-1 1/2" bed + 4-6" sub-base**

- ✓ Set up taut string lines as necessary to act as guides to alignment and levels. Think about how the paving will drain; slope towards open areas of garden or drainage collection points such as linear channels or gullies.
- ✓ When constructing the restraining edge courses, mix concrete for the bed and haunch using 6 parts all-in ballast with 1 part cement, or 4 parts 2/5" gravel with 2 parts sharp sand and 1 part cement. Add just enough water to bind together the dry ingredients. Place the edge course units onto a bed of concrete approximately 4-5" deep and tap down to level using a rubber mallet.



- ✓ Level out the sub-base material (often referred to as Type 1 or MoT1) to create a finished profile which matches that intended for the paving. It's vital that the next layer, referred to as the laying course or bed, has a regular, uniform thickness, so the sub-base needs to be accurate to around 2/5". Check the level and add or remove material as necessary to create a reasonably accurate profile.
- ✓ The laying course is formed by 'screeding' the slightly-damp sharp sand to the required level. Building, soft, plastering or masonry sand is not suitable as it may cause the finished paving to settle or stain.
- ✓ Relying on the edge courses or string lines as level guides, spread and level a layer of sharp sand roughly 50mm-55mm thick.
- ✓ Pass over the sand once or twice with a vibrating plate compactor to partially compact. Use a length of straight timber to scrape off the top of the sand layer, reducing its level in the process and creating a smooth, even surface, approximately 25-40mm thick, on which to lay the paving blocks.
- ✓ Tidy up and smooth off the levelled-out sand using trowels so that an even, regular surface is created. The finished profile of the sand bed will be the same as the finished profile of the paving, so take time to get it right. The finished screed should leave the blocks 5-8mm high so they can be compacted downwards when laid.
- ✓ Never walk on the screeded laying course before it is covered by the paving blocks. Always work 'uphill', and choose a starting point that is a straight edge or a right-angle corner. As natural stone varies in tone and texture, ensure there is enough of the chosen paving on site to complete the project, and always randomly mix the paving from several packs during installation. This will minimize the risk of color bands or groups of identically toned paving appearing within the paved area.
- ✓ Place each block carefully onto the laying course. To avoid spalling and/or chipping of the blocks, a gap of 2-5mm is required (roughly the thickness of a trowel blade). Try to place the blocks straight down onto the bed so that bed sand isn't trapped in the joints.
- ✓ Once blocks have been laid, they can be walked upon with care, but other than the person laying the blocks, try to keep everyone else at least one yard back from the leading edge.
- ✓ Lay all the full blocks first. Blocks to fill any gaps at the edges or around drainage fittings can be cut to size using a hired-in block splitter or disc cutter fitted with dust suppression equipment. Avoid very small cuts that are less than one-third the size of a full block. Instead, cut two blocks, each being more than half a block, and use these to fill the gap.
- ✓ Once cutting-in is completed, check the area for any damaged blocks and replace them before undertaking the jointing, as unjointed blocks are much easier to remove than ones that have had the joints filled with the sand.
- ✓ The joints between adjacent blocks are filled (jointed) by sweeping a selected kiln-dried sand over the surface to fill them completely. A vibrating plate compactor is then used to travel across the paving in several directions, compacting down the blocks and settling the jointing sand. Once completed, some joints may need topping-up with extra sand.
- ✓ Check the jointing sand again in 4-6 weeks' time as it may have settled further. Fully topped-up joints will ensure the paving gives you many years of reliable service.

For more detailed advice please visit [www.Pavingexpert.com](http://www.Pavingexpert.com)

# Incorrect Laying Methods

## Spot Bedding

**Spot bedding is where the installer leaves spaces beneath the flags, rather than laying the flagstone on a full mortar bed.**

This method can lead to reflective staining, which appears as unsightly circular marks on the surface of the stone. The marks can appear days after installation or a few months after the paving has been laid.

We would always recommend laying a flagstone on a full mortar bed.

Once reflective staining occurs there isn't much that can be done to reverse the effects, as it is due to the incorrect installation of the stone.

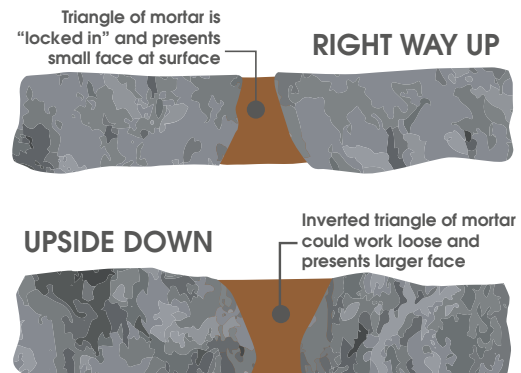


## Installing Upside Down

**When installing a flagstone, it is important to ensure it is laid the right way up.**

When a piece of stone is selected at the source, it is analyzed for its best side. Not only is the appearance considered but also the texture of the surface and edges.

This is taken into consideration as when it comes to laying the stone, the edges need be at the right angle to allow for a good joint, and if upside down, the result is usually unsightly larger joints.



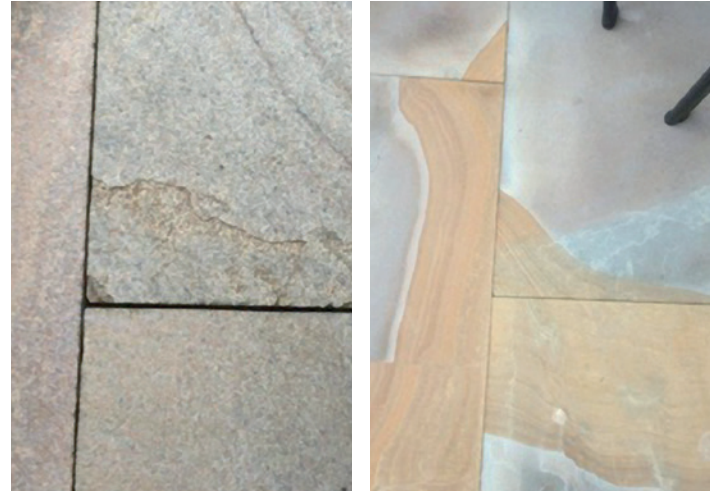
## Butt Jointing

**This occurs when no joint space is left between adjacent paving units, the stone is effectively 'buted' together and this can cause a number of issues once the stone is laid.**

Spalling, where the stone starts to chip due to direct contact with surrounding paving units is often a result of butt jointing.

Butt jointing also promotes delamination of some types of stone. This is where the surface of the stone starts to chip and flake off. Although delamination can occur naturally, butt jointing encourages this occurrence.

We would recommend a joint width of (1/4" - 1/2") between flagstones and 2-5mm between block paving.



## Mixing from all Packs

**When laying any type of paving, it is important to mix paving from a number of packs as it is laid.**

Natural stone often varies in tone and texture, and so to achieve an attractive, blended finish where all hues and finishes are evenly distributed, and not clumped together in one or two areas, mixing paving from various packs is essential.

Obviously, it depends on the size of the project. When it's a single pack job, randomize the paving within that one pack; on larger projects, mix from at least three packs if at all possible.

The more the paving is randomized before laying, the better will be its finished appearance.



# Aftercare of your natural stone

Different environmental conditions can result in circumstances that lead to a change in the appearance of natural stone; this may sometimes be a stain or surface discoloration. Depending upon the type of stone and discoloration or stain that appears there are potential solutions.

**DO NOT CLEAN STONE WITH ACID!**



**NO LIMPIES LA PIEDRA CON ACIDO!**



## Green Staining



### Appearance & Causes

- Caused by shaded areas on the paving which cannot dry.
- Poorly drained areas where water can sit.
- Damp areas which moss and algae can thrive.
- Extract from fallen leaves which have been left in place.
- Staining is usually green in color, has also been known to be yellow and black.

### Prevention & Solutions

- Regularly sweep your paved area to avoid any growths from taking hold. Only use soft bristled brushes on natural stone, as wire brushes will scratch the surface.
- Regularly maintain overhanging shrubbery to allow sunlight and air onto the paved area.
- Once staining has occurred, there are specialist and general cleaners on the market which can tackle this type of problem.

## Efflorescence



### Appearance & Causes

- Typically a naturally occurring phenomenon where salt from the bedding materials migrates up through the stone and appears on the surface.
- Will leave white marks on the surface of your stone.

### Prevention & Solutions

- Typically occurring shortly after laying, this cannot be prevented as this is a natural occurrence.
- It may wash away over time with weathering.
- Specialist and general cleaners are on the market which are known to tackle this issue.
- Check the data sheet for compatibility with your stone and carry out a trial area first, in an inconspicuous spot.

## Black Staining



### Appearance & Causes

- Caused by colonies of black Lichen on the stone.
- The Lichen will feed off the minerals in your natural stone, eventually burying themselves further down into the stone over time, making them difficult to remove.
- Can appear as black spots or as larger black stains.

### Prevention & Solutions

- Regularly sweep your paved area to avoid growths from taking hold. Only use soft bristled brushes on natural stone, as wire brushes will scratch the surface.
- Once staining has occurred, there are specialist and general cleaners on the market which can tackle this type of staining.
- Check the data sheet for compatibility with your stone and carry out a trial area first.

## Iron Imperfections



### Appearance & Causes

- Orange staining can appear on a stone where Iron is present. This can be from within the stone itself, or from an external source.
- Some stones contain iron naturally, and stone can weather over time to reveal these orange markings.
- There is a threat of orange staining when using weed killers and fertilizer products near your natural stone. Take extra care when using these sorts of chemicals around natural stone.
- Staining can also occur from metal structures left on the stone. When the metal reacts with water, it will begin to rust and leave a stain on the stone.

### Prevention & Solutions

- There are cleaners available on the market which have been known to resolve this type of staining in some cases.
- Check the data sheet for compatibility with your stone and carry out a trial area first.
- Take extra care when using fertilizer around natural stone. Even once the chemicals have been sprayed, the rain can wash them onto your natural stone which can result in staining.
- Do not leave any metal garden furniture or sculptures on your natural stone for long periods of time. Regularly move the furniture and clean the paved area.

## Through Bed Staining



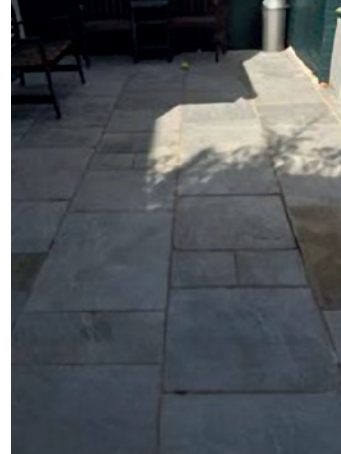
### Appearance & Causes

- This staining is the result of water soaking through the stone and reaching the mortar bed, making it wet again.
- Results in 'damp' looking patches on the surface of the stone.
- This is more likely to occur if the flagstones have not been installed on a full mortar bed.

### Prevention & Solutions

- When installing natural stone, lay on a full mortar bed. This will not prevent through bed staining, but will reduce the chances of it taking place. All good practice guidance suggests that paving should be fully bedded and not laid on dots and dabs.
- On light colored stones use lighter colored sand and cement.
- Consider using a bonding slurry.
- Try a test piece before undertaking full project.

## Weathering



### Appearance & Causes

- Weathering is something that cannot be prevented. As the stone is exposed to the elements, over time it will weather and it can change in appearance.
- The stone can be expected to change in color slightly. For example, some of our Grey stones have been known to reveal some brown/orange hues after weathering.
- Some products may fade with weathering, especially in sunnier climates. Black stones have been known to weather to a dark grey color.

### Prevention & Solutions

- Weathering cannot be prevented.
- Sealers are available on the market which can help the stone retain it's color, preventing or delaying the fading process.
- The sealer will need to be re-applied regularly as part of a planned maintenance regime.
- Products are also available on the market which can restore faded colors already lost to weathering.

## Delamination



### Appearance & Causes

- Delamination is typically water and temperature related and can be linked to a number of causes including moisture sensitive minerals aligned with the natural bedding or cleavage in a rock. This is usually more evident in slate which often has a repetitive thin layering but can be seen in some sandstones.
- The surface of the stone can flake away, exposing the next layer of stone underneath, leaving chips of stone loose on the paving.

### Prevention & Solutions

- As this is a natural occurrence, it cannot be predicted or prevented.

## Surface Imperfections



### Appearance & Causes

- These can appear in the form of small brown marks or pits on the surface of the stone.
- Can often be the result of small mud lenses naturally present at the surface of the stone.
- Weathering of the mud lens can result in the development of a small hole or pit.
- Some sections of stone may never reveal an imperfection, while others can weather and reveal themselves after days, months or years.

### Prevention & Solutions

- Natural stone varies in its makeup, it cannot be predicted what is within every piece of stone and how it will react to weathering.
- Should an imperfection weather on the surface and leave a hole, there are specialist fillers on the market to resolve this issue.

# Salt Damage

## Appearance & Causes

- When in contact with stone, water containing salts may penetrate deep into it, eventually evaporating and leaving behind salt crystals. These crystals continue to grow within the stone's structure.
- Over time the crystal growth will cause expansive forces that can result in the breakdown of the structure of the stone, often causing cracks and chipping on the surface of the stone.
- The stone surrounding the pool will become chipped, and weathered in appearance.

## Prevention & Solutions

- Take expert advice on the pool system used to prevent this issue.



# Cleaning

**Regular maintenance and cleaning of your new natural stone area is recommended to keep the area looking its best. There are various cleaners available on the market. Some cleaners specialize in dealing with specific types of stains, and others are general cleaners.**

We recommend you brush your paved area regularly as well as cleaning it from time to time. Ensure you use a soft bristled brush when sweeping your paved area, as tougher wire brushes could scratch the stone.

Brushing the stone will provide the safest option for keeping the stone clean, using water with a neutral pH soap or detergent should be sufficient for routine maintenance. Power washers may be too powerful and cause damage to the surface of the stone and the mortar joints. If they are used do so with great care and at your own risk.

Strongly acidic or alkaline cleaners may also cause severe damage to the stone and create other environmental problems.

Always check the instructions on the product before using it to clean your natural stone.

Before using any cleaning products on your natural stone test a small, discreet area of paving first to make sure you are happy with the result.

**Do not use acid on natural stone as damage will occur!**



# Sealing

**There are many sealers available on the market that offer different finishes. Natural stone does not have to be sealed and so sealing is a personal choice. Some sealers are designed to affect the appearance of the stone, such as leaving a satin or invisible finish. Sealing can help delay the absorption of liquids also.**

An important factor to consider in deciding to seal your stone is whether or not the sealer is breathable because if it is not then mobile salts in solution can be trapped beneath the surface. An example of a potential problem caused by the use of the wrong sealer would be where efflorescence develops but the sealer prevents salts from exiting through the sealed surface. The build-up of the salts not only can result in a difficult to remove stain but can often cause disruption and breakdown of the surface itself.

With unbreathable sealants, merchants will normally recommend that you wait three months before sealing your recently paved area, to allow for efflorescence to appear. This can then be washed off before sealing.

If using a breathable sealant, the paved area can usually be sealed right after installation, but always check with the product manufacturer.

If you make the decision to use a sealer on your natural stone, test the product on a small, discreet area first, to make sure you are happy with the result.





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