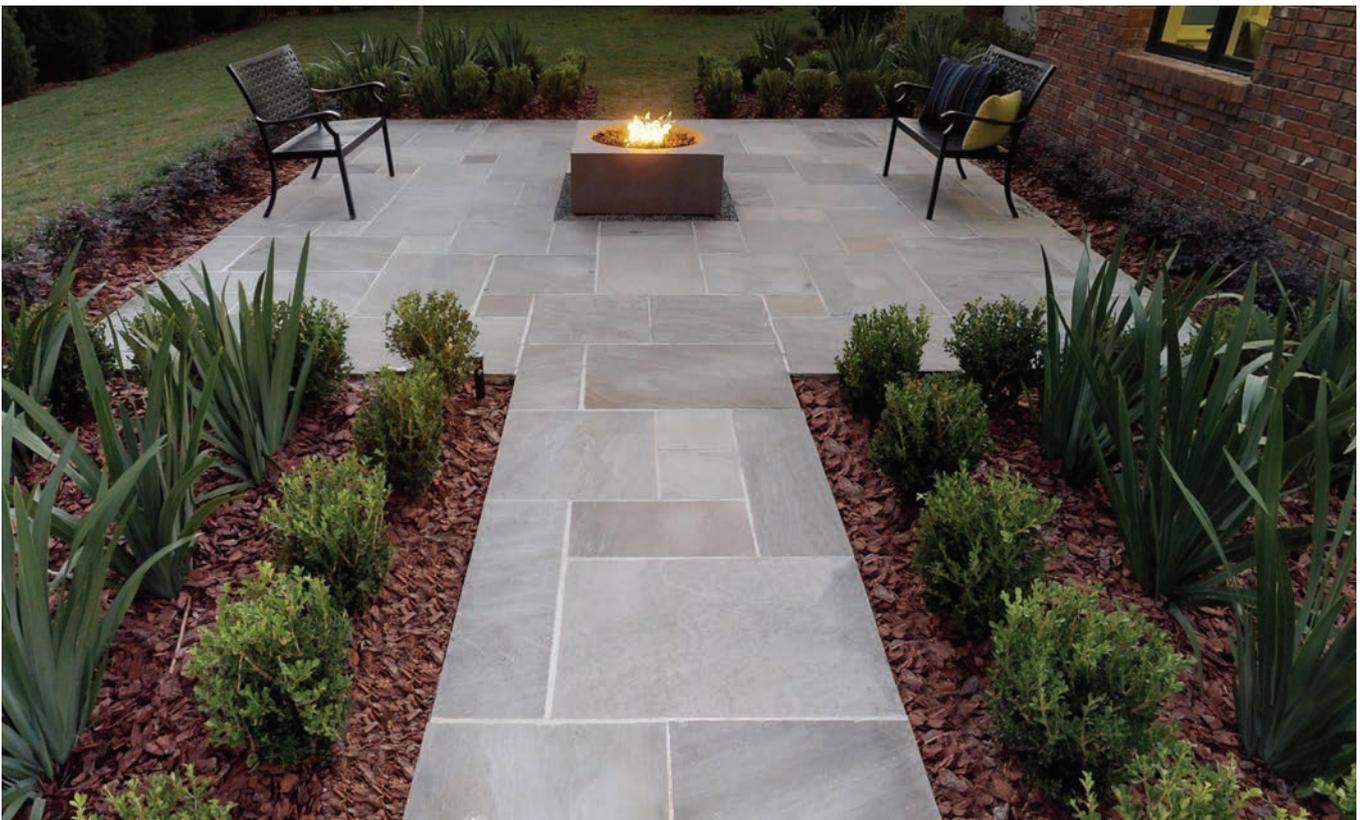


Guide to Understanding Natural Paving

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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.

Tel: 0330 333 8030 Fax: 0330 333 8040

Email: customerexperience@talasey.co.uk

Talasey Group, St Vincent House, Normanby Road, Scunthorpe, DN15 8QT.



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 recognised 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 hard landscaping 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 a 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 bespoke and individual designs which will outshine the likes of 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.
- Each piece of natural stone has a unique blend of colours and tones.
- All of our Natural Stone makes a durable frost resistant paving and walling.
- Natural stone is generally easy to clean.
- Using natural stone materials may add greater value to your property.

Natural stone is uniquely formed, each piece of stone has its own characteristics, colour variations, veining, markings and occasional charming imperfections.

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 CO² into the atmosphere.

"Stone is already ahead of almost all building materials in its green credentials."

The Stone Federation, 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

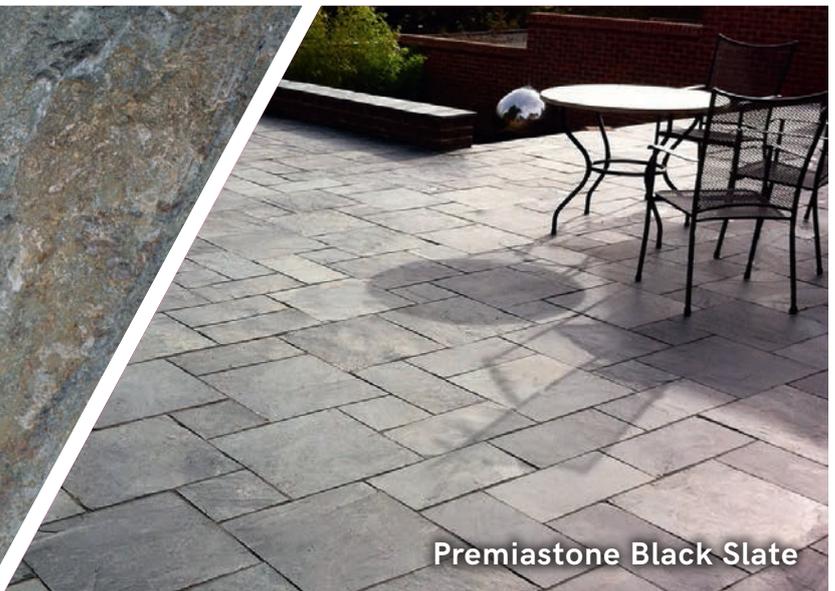
Igneous rock comes in two forms, Extrusive or Intrusive. Extrusive rock is formed on the earth's surface, when there has been a volcanic eruption, i.e., Lava which then cooled rapidly forming small crystals, of which basalts are an example. Intrusive rocks crystallise within the earth's crust without erupting, the magma cools slowly allowing large crystals to form. Intrusive rocks are generally granites.

Sedimentary

As the name suggests, these rocks are formed from sediment that has 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. Examples of sedimentary rocks include Sandstone and Limestone. Sandstone is predominantly silica sediment, often with beautiful shade variations and unique striations, that are even further enhanced when wet. Limestone is predominantly carbonates, such as calcite and dolomite. Our limestones are very dense in nature with low absorbency, displaying the occasional unique mineral vein. Our sandstone and limestone ranges are versatile and broad in choice.

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 a denser form of rock. Examples of metamorphic rocks include Quartzite, Marble and Slate. Our Slate ranges are resilient to weathering and are easy to maintain.



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 and UKCA marked, in line with UK Government guidelines. Industry standards BS EN 1341 (Slabs), BS EN 1342 (Setts) and BS EN 1343 (Kerbs) specify the requirements and test methods for each of these. The required testing covers area's including water absorbency, flexural strength and frost resistance.

We have had all of our natural stone products tested to provide assurance of quality 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 our testing of our Sandstone products in an easy-to-read chart, allowing our customers to make an informed choice when purchasing their natural stone.

We have Product Data Sheets available upon request with some design guidance to further assist with your decision making.

For Declaration of Performance (DOP) documents, please visit the knowledge hub on www.naturalpaving.co.uk

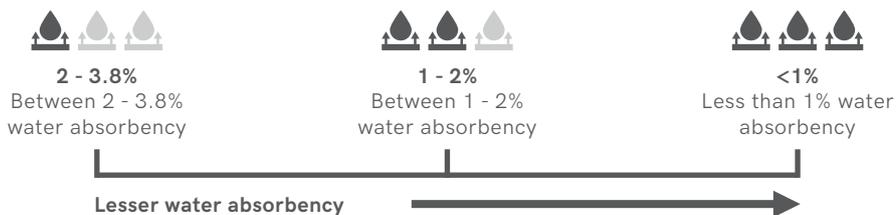


All Natural Paving Products are fully CE marked. For full Declarations of Performance go to www.naturalpaving.co.uk

Stone Standard Scale for Sandstone

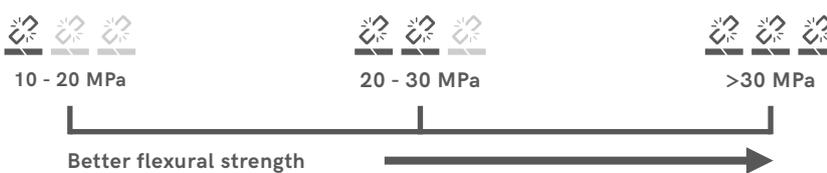
Our Stone Standard is based on testing results which are carried out as part of our quality and compliance management and show the performance of our sandstone flagstones and block paving products against three key criteria: Water Absorption; Flexural Strength and Frost Resistance. With a simple visual grading system, the Stone Standard enables homeowners 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-situ.

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 labour 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 labour in the stone industry, but also inhumane and unsafe working conditions for all stoneworkers. 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 labour. 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 ourselves on various charity projects with our ultimate aim of eradicating child labour and improving education standards within the stone regions of India.

For further information please visit
www.naturalpaving.co.uk



Ethical Trading Initiative
Respect for workers worldwide



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

We have a large network of stockists from whom you can purchase our natural stone from. To find your nearest Natural Paving stockist contact our Customer Experience Team or visit our website and use our friendly live chat service.

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 colour blends that can be present in the stone. Remember each piece of stone is unique, sometimes displaying differing shades, mineral content and veining.
- It is recommended that you visit a local stockist of Natural Paving Products to see the stone laid out where possible. Only selecting from photos, catalogues, websites or one sample is not advised.
- We recommend mixing from as many different packs as possible during installation to create a natural blend. As we work through a quarry and its different seams, a batch may exhibit some variation in general shades and characteristics from the next, even whilst within our product specifications.
- Order enough of the product to cover the entire area you wish to pave, as above, batches can vary through different seams in the quarry. The colour tones of today's order will not be the same as an order for the same product at a later date.
- When placing your order, we recommend you order an extra 10% to allow for any cutting, personal selection or breakages that is required.
- Consider the choice of the surface finish you have chosen and take into consideration the people who will be using the area. For young children and older people, a more textured finish may be better suited as this gives extra/additional traction.
- Consider where you are going to be installing 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 kerbside from our merchants. It is important that the driver has easy access and manoeuvrability 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. For example, not all our products are suitable for vehicular traffic or around swimming pools.

Speak to our Customer Experience Team for further advice. We are here to help.

Call: **0330 333 8030** | Email: **customerexperience@talasey.co.uk**

Or visit the knowledge hub on **www.naturalpaving.co.uk**

Receiving your Natural Stone

Remember:

- Take care and stand to one side when removing the packaging and banding, when removing the product out of the crate. The crates may have weakened during transit and could be unstable. Ensure you open the packaging on level ground.
- The product is quite heavy, and some larger pieces can weigh over 25kg. Consider this when arranging the delivery, as you may need appropriate lifting equipment, or an extra pair of hands.
- If you are going away whilst the product is installed, we'd recommend that you check the product is to your satisfaction before you go, or ensure your installer clearly understands your expectations.
- Once you receive your shipment of natural stone, inspect all the product. If you have any issues with the delivery, report them straight away to your merchant and do not lay the stone. Talasey Ltd will not accept any liability for product, deemed unsatisfactory, that is laid. Before installation commences a certain amount of sorting of the product may be required to ensure consistency of colour, texture and dimensional tolerance. Dry laying the products before laying them permanently is an ideal way to do this.
- 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.
- This is a beautiful, natural product and each piece will be unique. You can expect colour 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 & 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 25kg, more than one person helps in completing the lift, or that suitable lifting equipment is used.

Furthermore, we would also recommend that gloves, a safety boot with steel toe caps and oil resistant sole, ear defenders and protective clothing should be worn. 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 particles produced by high speed cutting devices. Training may be needed to operate certain equipment; it is your responsibility to ensure this takes place where necessary

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

For further information on Health & Safety, please visit the knowledge hub on www.naturalpaving.co.uk

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



Face Protection



Protective Gloves



Eye Protection



Hearing Protection



www.naturalpaving.co.uk

For further information or technical advice call
0330 333 8030

Distributed by Talasey Ltd
www.talasey.co.uk


TALASEY
GROUP

Ready to Go

When installed correctly, any of our natural stone will assure you of many, many years of service and beautifully paved areas. Part of the beauty and attraction of natural stone is that it contains many natural variations in terms of tone, shade and texture. Our next few pages guide you through some basic installation tips and where to find more detailed advice. Just as importantly, we have some tips on what-not-to-do followed by some General Information on certain potential characteristics and specification advice. Finally, we have our aftercare advice.

Don't forget you can always call our Customer Experience Team if you require more help.

Once Delivered

Inspect your products - Report any issues to your merchant before you begin installation so we can work with them to resolve the situation as quickly as possible. Do not lay product you are not satisfied with; we will not accept any liability or costs once laid.

Going away? - If you are not going to be around during installation, we strongly recommend you inspect the product before you go, or ensure your installer is clear on your expectations.

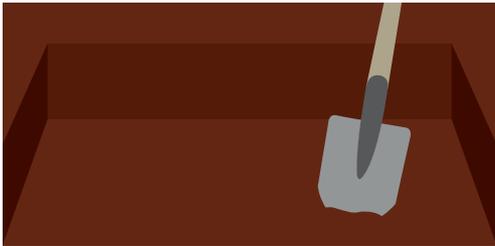
Ready to Start

Mix from crates - To avoid colour banding, remember to mix from as many crates as possible as you go. Predominant shades may vary from crate to crate.



Installation

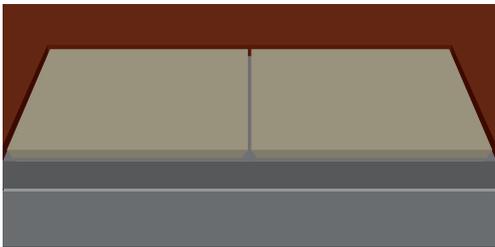
The Five Main Steps to Getting the Job Done - Natural Flags and Slabs



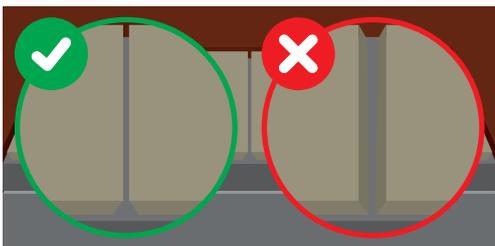
Dig out the ground to required depth.



Compact your sub-base.



Always lay on a full mortar bed.



Lay correct way up.

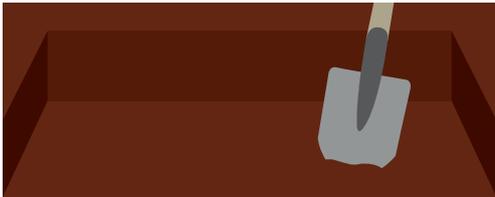


Fill joints using one of our great Pavetuf Jointing products.

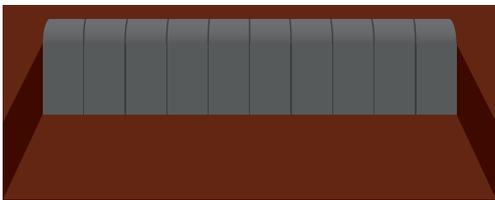
For our full detailed Natural Paving Planning & Installation Guide, please visit the Knowledge Hub on www.naturalpaving.co.uk

Installation

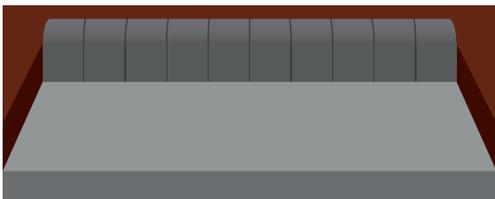
The Six Main Steps to Getting the Job Done - Natural Block Paving



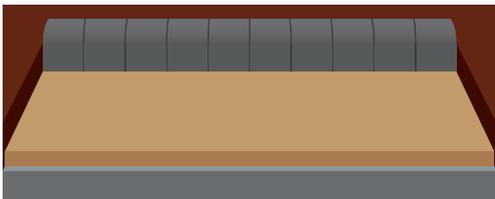
Dig out the ground to required depth.



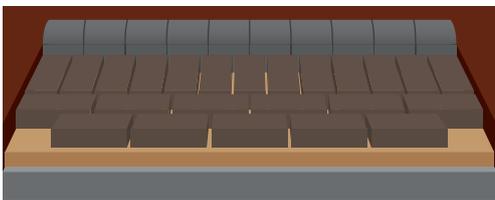
Install your edge restraints.



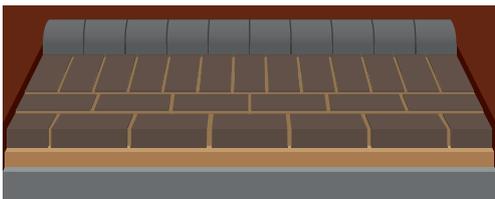
Compact your sub-base.



Lay and compact your sand screed.



Lay correct way up.



Sand your joints and compact.

For our full detailed Natural Paving Planning & Installation Guide, please visit the Knowledge Hub on www.naturalpaving.co.uk

DON'T DO THIS!

Incorrect Laying Methods

Spot Bedding

Spot bedding, sometimes known as dot and dab, or ring 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/bed transparency, 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. Ring bedding also falls under this category where a ring of mortar is put around the edge and central dabs of mortar in the centre. The voids will fill with water and can cause the construction to fail. We would always recommend laying a flagstone on a full mortar bed. Unfortunately, once reflective staining occurs there isn't much that can be done to reverse the effects.



Installing Upside Down

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

Riven Paving - When a piece of stone is selected at the source, it is analysed for its best side. Not only is the appearance considered but also the texture of the surface and edges. Always lay the larger face upwards and if laid upside down, the result is usually unsightly larger joints, calibration marks (long cut grooves) and unsightly surface and edges.

Square Edged Paving - When laying square edged paving, it is important to ensure that the textured side facing upwards. Our ranges are produced with a textured finished to assist with the slip resistance when laid. The back of the slab is normally smooth and, on close inspection, will potentially have faint saw marks from production.

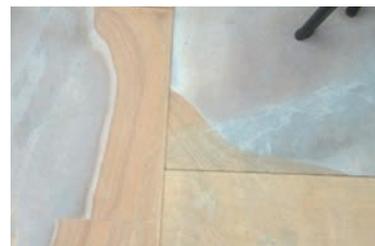


Butt Jointing

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

One result can be 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.

Furthermore, it does not allow for an appropriate pointing method that is critical for overall construction stability. We would recommend a joint width of 10-12mm between flagstones and 2-5mm between block paving.



Acid Staining

Some acid-based cleaners can badly stain or permanently discolour your paving, always take expert advice before applying any chemical cleaners to check they are suitable for your specific stone type.

Hydrochloric acid based cleaners, such as brick acids and some generic patio cleaners, should never be used unless under expert guidance.

Sandstone will exhibit orange/yellow/brown marks as the acid pulls naturally residing iron content to the surface of the paving. It exhibits most clearly on predominantly grey and green ranges. If staining has occurred there may be nothing that can be done to totally rectify the staining. Using our Pavetuf Rust Remover may help but may not remove all the staining. Other proprietary chemicals are also available.

Granite can exhibit a similar condition to Sandstone.

Limestone can be affected with bleaching and overall lightening. This maybe irreversible, depending on limestone type.



General Information



Natural Formations / Mineral Content

Natural formations and mineral content can appear as random patches, striations, natural veins, crystallisation, inclusions or what some people call "fossils". All these formations may be more distinctive when wet or drying. All are part of the natural beauty and individuality of your stone. The most common ones are discussed below:

In Limestones, veins may look like hairline cracks or score marks on the surface.

In Limestones and slates, mineral content oxidation can occasionally form a crusty surface finish of different shading.

Sandstone can exhibit natural inclusions of different material, very often, carbon or iron. Carbon Imprints can even look like fossils. Sandstone can exhibit patches or striations of different coloured mineral content, that only appears after weathering.

Granite can include quartz-like veining; and dark inclusions known as 'Xenoliths'.



Colour Variation

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, texture and mineral content, and so to achieve an attractive, blended finish where all hues and finishes are evenly distributed, and not banded 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, randomise the paving within that one pack; on larger projects, mix from at least three packs. The more the paving is randomised before laying, the better will be its finished appearance.



Iron Content / Rusty Coloured Markings

Some stones will contain higher levels of iron naturally, particularly sandstones, granites and some slates. Stone can weather naturally over time to reveal these orange markings or they may be visible prior to installation. These occurrences are part of the natural beauty and individuality of your stone.

Very widespread orange staining commonly appears due to the use of improper cleaning chemicals, particularly relevant with sandstones and granites. Brick acids and many general patio cleaners contain hydrochloric acid. This pulls the naturally occurring iron within the stone to the surface, often completely overshadowing the original predominate shade you purchased.

There is a threat of orange staining when using weed and moss killers and fertilisation products near your natural stone. Ones containing Ferrous Sulphate are particularly bad. Take extra care when using these sorts of chemicals around any surfaces.

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, particularly, once the protective coating is worn off on iron & steel furniture.

The use of 'Pavetuf Rust Remover' may help with the removal of staining left by metal structures and the iron found naturally in some natural stone. There are other specialist and general cleaners on the market but always check the data sheet for compatibility with your stone and carry out a trial area first.



Swimming Pools

Not all our products are suitable for use around a swimming pool. Please contact our Customer Experience Team for specific range design guidance.

Some ranges may discolour when in proximity to chlorinated pools.

Salt water pools can result in salts penetrating deep into the pore structure of some stones. This may result in long term damage as residing salt crystals continue to grow within.

Some ranges long term durability and performance can be affected when in proximity to swimming pools.



Dust, Scuffing & Tool Marks

In any given crate, you may find some of your units are affected by dusty sediment, scratches or scuffs or tool marks. All these occurrences will be more prominent if the slabs are dry when unpacking and all tell a story of the processing or the journey to your job.

Some units or batches may have a dusty appearance. This is simply cutting dust, usually from the calibration process. Your slabs do go through a washing process but some can be left over. This will wash off with light washing.

On occasions, your stone may have experienced an arduous voyage to get to the UK. Some movement will occur in the crates that may result in some scuffs or scratches. This should not concern you as it generally washes off with light washing or natural weathering.

Riven stone is split along natural bedding lines with hand tools. Depending on the nature of a given riven stone, e.g. Classicstone Golden Fossil, occasionally, some tool marks may be evident due to the effort required. This is part of the rustic charm of riven stone but if not to your liking, it generally diminishes with natural weathering.



Dimensions & Specification

As common to our industry, all dimensions stated on our literature, packaging and website are nominal and subject to manufacturing tolerances.

Be assured, all are in compliance with BS EN1341:2012. For full dimensional specification and specific design guidance please contact our Customer Experience Team.

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 discolouration. Depending upon the type of stone and discolouration and/or stain that appears there are potential solutions.





Organic Staining

Algae growth does not damage the paving but can be unsightly to some; and worst case be dangerous when paving becomes slippery as a result. Algae growth is very common and can take hold on all sorts of surfaces and materials throughout our environment. It is most commonly green but can take a variety of hues and colours. It is usually relatively easily removed.

Lichen growth is also not uncommon, seen on paving and walls. Often in the form of black or white spots when seen on paving and they can be more stubborn to remove. Thankfully, they are much slower growing than algae, they are usually more common on some sandstones than alternatives such as limestone or slate purely due to the pore structure and properties of the stone. Both Algae and Lichen growth conditions are more common in; shaded, slow drying areas and/or paving surfaces with poor gradients, where water can sit and puddle.

Bird droppings can stain paving, particularly prevalent when their diet contains berries.

Leaf staining is even possible. Be aware, certain leaves and other plant life can stain paving. Some leaves and plant life will leach tannins when they lay on the ground that can discolour paving and standing water.

Recommendations:

We recommend that you maintain your areas regularly. Sweeping up leaves and debris helps minimise the risk of leaching tannins and the creation of wet sodden patches that can further assist organic growth. Do not use wire brushes as they may scratch the surface of your paving. Maintain shrubbery and trees to minimise shading. Clean the paving surfaces with soapy water and a broom; or jet washers on controlled low pressures with a fan and holding 12" - 18" away from the surface (take care not to damage the pointing also); or with appropriate proprietary cleaners.

Once discolouration has occurred, there are a number of cleaners in our Pavetuf range that may be appropriate for your specific needs, most commonly the use of Pavetuf Green Off may help the safe removal of these type of conditions. In particularly badly stained areas, more than one application may be required.

If using any proprietary cleaners, always test an inconspicuous area first to ensure the product has no adverse effects.

For further advice on your specific needs please contact our Customer Experience department.



Efflorescence

Efflorescence, most commonly, is a transient phenomenon of Ordinary Portland Cement. As the cement within the mortar base hydrates, calcium hydroxide is produced. Subsequent drying of the whole construction following saturation draws the calcium hydroxide, in the mortar, to the surface of the stone where it reacts with the carbon dioxide in the atmosphere. The result is a deposit of calcium carbonate on the surface which manifests normally as a white solid but can also make the paving appear to colour fade or cause a bloom on the surface of the stone, sometimes referred to as 'lime bloom'.

- Installing onto saturated ground conditions can be a factor in the extent of the occurrence.
- Poor bedding and sub-base methods can be a contributory cause, however, sometimes its just simply down to site and environmental and/or cement batch variables, that cannot be controlled.
- Usually occurs shortly after laying. Typically, the seasons of Spring & Autumn are more prone to exhibiting Efflorescence.
- Typically, it's a temporary condition that will dissipate with natural weathering. General practice is to allow a period of weathering before taking remedial action.
- It is possible for some stones to contain natural salts that may migrate to the surface of the stone. The appearance is essentially the same.

Recommendations:

- If you are considering sealing your paving, it is very important that you do not seal the areas until you are confident that the potential for efflorescence has passed.
- Pavetuf Salt Eraser may help to speed up the removal. There are other specialist and general cleaners are on the market but always check the data sheet for compatibility with your stone and carry out a trial area first.



Delamination

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 riven sandstones and limestones.

- Due to the structure and nature of certain riven sandstones, limestones and slates there is a small chance of some units exhibiting some degree of delamination. The top surface of these stone types are dressed by our stonemasons but following early weathering post-installation some chips and flakes may present themselves.
- The surface of the stone can flake away, exposing the next layer of stone underneath, leaving flakes of stone loose on the paving. This should be just swept away and disposed of.

Recommendations:

- Ensure the product is not butt jointed. This will encourage delamination, chipping and spalling.
- As this is a natural occurrence, even after dressing by the stonemasons, it cannot be predicted or prevented. Its unlikely to occur once the paving has weathered a cycle of the seasons.
- This occurrence will dissipate over the short to medium term and does not affect the long term durability and performance of the stone.



Bed Transparency

Generally, a characteristic occasionally associated with sandstone, but can exhibit on other stone types such as granite. It can be dependent on conditions beyond reasonable control but on the occasions it occurs it generally goes unnoticed to the untrained eye, unless the stone is laid on beds, as described in our 'Spot Bedding' advice.

- It can be dependent on how well the entire construction; substrate, sub-base etc drains and even the level of the water table may be a factor.
- Some individual stones can exhibit the occurrence more than others.
- It is caused by differential drying conditions of where the stone is in contact with the mortar bed, even a full mortar bed will not necessarily have 100% contact.
- It can be as a result of alkalis from the cement bed migrating through the stone and staining the surface, often temporary when of this nature.
- Its more noticeable in single shade ranges.

Recommendations:

- Always lay on a full mortar bed.
- For lighter coloured sandstones or granites consider changing OPC to white cement.



Other Weathering

Weathering is something that cannot be prevented. As the stone is exposed to the elements, organic growths and environmental contaminants, over time it will weather, and it can change in appearance.

- The stone can be expected to change in colour slightly.
- Limestones, once exposed to UV light, slightly acidic rain and natural weathering will start to go lighter. This process is a natural oxidisation of the stone and does not affect the durability. Black limestones will go lighter shades of grey and other coloured limestones will go lighter in colour.
- Any paving surfaces will get dirty and need some maintenance.
- Any paving surfaces will get icy, and subsequently potentially slippery, in sub-zero conditions.
- Dark staining agents will be more apparent on lighter coloured paving.

Recommendations:

- In an external environment, weathering cannot be prevented, but its effects can be minimised and maintained with regular cleaning. Consider our range of 'Pavetuf' cleaners to aid maintenance.
- Consider carefully using a sealer, either prior to or post installation, only when the conditions are right to help reduce the effect of the natural process. Products like our 'Pavetuf Satin Sealer' or 'Pavetuf Satin Ultra' may help minimise the weathering process.
- If another manufacturers sealer is used you will need to check it is suitable for your specific stone type and how often it will need to be re-applied as part of a planned maintenance regime.
- If your black limestone has already faded, we have a colour restorer that may help to darken the limestone, 'Pavetuf Back to Black'. All our sealers are water based which are safe to use on your paving. We would never recommend any kind of sealer or colour restorer that is solvent based.
- Try to use a chemical granular alternative to common de-icing salts. Common de-icing salts can discolour your paving and damage your pointing. Many of the chemical alternatives purport to be kinder to the environment too.

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 specialise 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 normal 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 should be used with care, use on a low pressure and on a wide fan and hold 12" - 18" away from the surface. Power washers fitted with a rotary patio cleaner are generally appropriate. Power washers are more likely to damage pointing rather than natural stone paving but they could cause some delamination. Inappropriate use can actually force staining agents deeper into the pore structure of stone.

Strongly acidic or alkaline cleaners may also cause severe damage to the stone and create other environmental problems. Never use hydrochloric acid based cleaners. Always check the instructions on the product before using it to clean your natural stone and/or take expert advice if in any doubt.

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.





	Stains that each cleaner removes												Size options			
	Algae, moss, mildew, fungi	Black & white spot lichens	Heavy soiling	Light soiling	Grease & oil**	Leaf & plant staining	Bird droppings	Efflorescence/salts	Rust/iron ore	Solvent sealers paints/varnish	Mud	Atmospheric pollution	BBQ grease, oily food stains**	1 litre	5 litre	25 litre***
Deep Cleaner* : A deep penetrating cleaner for the easy removal of heavy soiling from all hard landscaping areas.			✓	✓	✓		✓				✓	✓	✓	✓	✓	✓
Resin Bound Cleaner : A powerful heavy duty cleaner for resin bound aggregate surfaces.			✓	✓	✓		✓				✓	✓	✓	✓	✓	✓
Green Off Cleaner : For the removal of algae, moss, leaf staining and organic growths from all hard landscaping areas.	✓		✓	✓		✓	✓				✓	✓		✓	✓	✓
Wood Deck Cleaner : Effective for the removal of organic growths and staining from wooden decking.	✓		✓	✓		✓	✓				✓	✓		✓	✓	✓
UPVC & Fascia Cleaner : An effective UPVC cleaner for the removal of organic growths and staining.	✓		✓	✓		✓	✓				✓	✓		✓	✓	✓
Wall & Render Cleaner : A non-corrosive cleaner for the removal of organic growths and staining for brick and rendered walls.	✓		✓	✓		✓	✓				✓	✓		✓	✓	✓
Composite Cleaner : A concentrated acid free cleaner for use on composite decking, fencing and doors.			✓	✓			✓				✓	✓		✓	✓	
General Cleaner* : A general cleaner for regular maintenance on all hard landscaping areas.				✓			✓				✓	✓		✓	✓	✓
Rust Remover : An effective, non-corrosive rust stain remover for hard landscaping products.								✓						✓		
Salt Eraser : For the removal of efflorescence/salt from the surfaces of paths, drives and patios.							✓							✓	✓	
Porcelain Cleaner* : A concentrated porcelain and ceramic cleaner for internal and external use.				✓			✓				✓	✓		✓	✓	
Sealer Remover : Easy to use sealer remover for use on solvent and polymer based sealers, paints and varnishes.									✓					✓	✓	

*Can be used internally as well as externally

Sealing

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

An important factor to consider if 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 could 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 efflorescence to appear. This can then be washed off before sealing.

If using a breathable sealant, the paved area can usually be sealed straight 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.





Invisible: Easy to apply, invisible sealer for long lasting protection. Available in a 1ltr, 5ltr and 25ltr tub.

Satin: Easy to apply sealer, for long lasting protection with a satin finish. Available in a 1ltr, 5ltr and 25ltr tub.

Invisible Ultra: Professional deep penetrating invisible sealer giving the highest level of protection and superior stain resistance. Available in a 1ltr and 2.5ltr tub.

Satin Ultra: Professional deep penetrating satin sealer giving the highest level of protection and long lasting stain resistance. Available in a 1ltr and 2.5ltr tub.

Back to Black: A colour reviving sealer to restore black stones and granites. Available in a 1ltr, 5ltr and 25ltr tub.

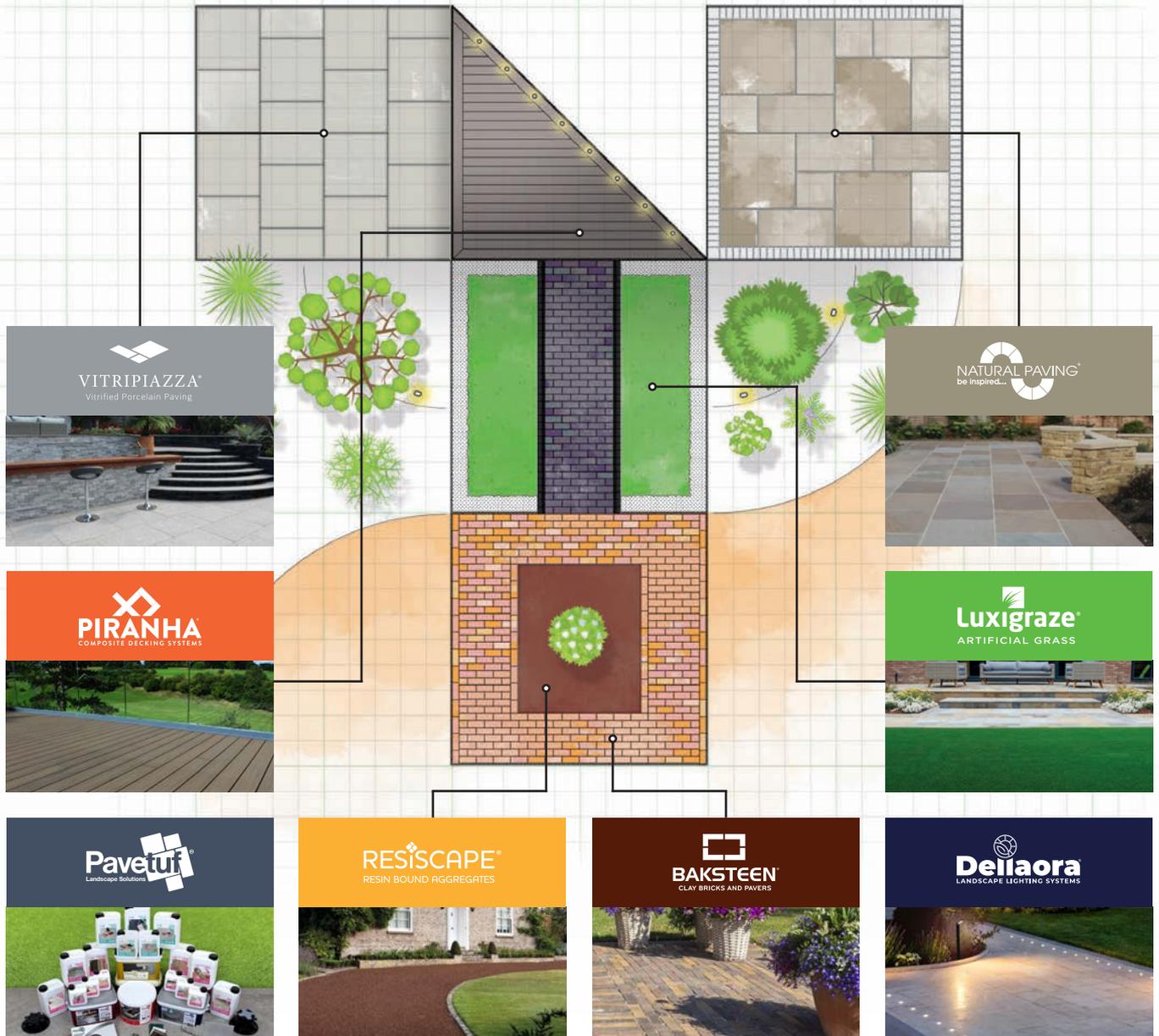
Features								Use on these materials								Look	
Environmentally friendly	Colour Enhancing	Waterproofing	Breathable	Superior stain resistance	Stain resistance	Superior scrub rate	UV stable	Use straight after installation	Black slates, granites & limestones	Slate & limestone	All other natural porous products & stone	Masonry	Brickwork	Concrete paving	Tarmac	Invisible finish	Satin finish
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
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The Ultra product options provide our highest level of sealant protection, with superior stain repellent properties that allow for a longer period of time before any spillages will soak into and stain the paving. This gives Homeowners more time before they need to clean any spillages.

TOTALLY TALASEY

TALASEY ARE PROUD TO BRING YOU THEIR EXTENSIVE PORTFOLIO OF THE FINEST LANDSCAPING PRODUCTS AND SOLUTIONS



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See website for terms & conditions
info@talasey.co.uk
 0330 333 8030
www.talasey.co.uk



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