

# G2

GENERATION TWO PAVING

by **SVC URBAN**



# INSTALLATION & MAINTENANCE GUIDELINES

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# TRANSPORT & UNLOADING

Orders are usually unloaded on site by an all-terrain forklift, unless otherwise requested.

Whilst every effort will be made to place the pavers where requested on site, our obligation is to deliver kerbside only. The delivery driver will assess the site and will not complete the delivery inside the property if he considers the conditions to be unsafe or likely to cause damage to equipment or property.

**If the delivery driver is instructed to enter the site by the customer, neither SVC Urban nor the delivery driver will be responsible for any damage to property or products while on site.**

As soon as the product is delivered, customers should check the pallets for any obvious signs of damage. We should be notified of any concerns immediately.

Once the product is unpacked, but prior to installation, if the customer or landscape contractor has any concerns about the appearance of the product, they must halt the installation, take photographic evidence of the issue, and phone us to discuss. It is far more difficult to rectify any issues following installation.

**If evidence of the damage cannot be provided, either in photographic format or by returning the damaged product to us, we will not be held responsible for replacement of the product.**

# STORAGE

**Pavers should remain wrapped and sealed until ready to be installed.**

It is ideal for our pavers to be installed within two weeks of delivery to site. If the installation date is delayed, it is preferable to postpone the delivery date and leave the pallets stored in our warehouse. At the very least, products should be stored in a place on site that is not exposed to the weather or any form of moisture or extreme temperatures.

Although the product is properly cured prior to despatch, there will always be some moisture evident when the product is first unwrapped. This moisture retention is a result of the product curing while wrapped in plastic. This in effect aids the curing process, and adds to the long term strength and durability of the product.

**Please note** that if the protective wrapping deteriorates – or is partially removed – and the product is left on pallets for an extended period, discolouration may occur. This discolouration is caused by the outer edges of the product being exposed to different elements and temperatures than the product in the middle of the pallet. It is often referred to as ‘differential drying’, and may not be reversible (and so should be avoided at all costs).

**We will not be held liable for any discolouration or staining caused to product that has been stored incorrectly and/or for an extended period of time.**

# HANDLING & UNPACKING

As part of the installation process, products may be required to be double handled and re-stacked prior to laying. If this is the case, the best option is to **re-stack them on a pallet in the same format that they arrived**, making use of bubble wrap and other packing materials supplied.

When re-stacking products, every care should be taken to avoid damage to the product surface, corners and edges. If not re-stacking on a pallet, the base product should be placed on an even, stable surface as a minimum, with a protective material placed between each layer of product. Once re-stacked, the product should be fully re-wrapped to avoid differential drying (see above for more information).

## **PAVERS MUST NOT BE RE-STACKED IN A CRISS-CROSS FORMATION.**

Pavers should be stacked correctly with a protective material between each layer to avoid discolouration and marking. Stacking of product units in a criss-cross formation directly on top of each other causes the corners of the pavers to dry at a different rate to the body of the paver, **resulting in colour variation which is often permanent**. Even stacking pavers criss-crossed for short periods of time prior to installation can cause markings to appear on the surface.



**We will not be held liable for any structural or colour defects in product that has been unpacked and re-stacked.**

# PRE-SEALING

The pre-sealing of our paving products is usually left to the discretion of individual paving contractors. It is not a necessary part of the installation process, and in many cases is in fact inadvisable, as pre-sealing may cause moisture to become trapped within the paving structure.

**Please note:** If customers choose to pre-seal their products, they must be thoroughly cleaned prior to the application of sealer. See **CLEANING** below for the correct cleaning methodology. Any cement residue or markings on the pavers may be harder to remove once sealed.

**We recommend that customers should speak to an experienced cleaning and sealing contractor PRIOR to commencing installation. We can provide recommendations on the right sealing product and contractor to suit customers' individual project requirements.**

# INSTALLATION

We strongly recommend that our products be installed by a licensed and/or experienced contractor.  
**For all installation enquiries, customers should contact us PRIOR to commencing installation.**

## INSTALLATION ON A RIGID BASE

In most cases, our products are installed on a reinforced concrete base. This is our recommended method of installation, as a rigid pavement is not susceptible to differential movement (i.e. pavers that are laid on a flexible crushed rubble base are very likely to settle as the ground below compresses due to the increased weight. This settlement can be different across the site which leads to the pavers settling at different levels).

### 1. ENSURE YOUR CONCRETE SLAB IS FIT FOR PURPOSE

Paved areas that will be subject to vehicular traffic require a different degree of preparation to areas that will be subject to pedestrian traffic only.

**We recommend customers to consult a structural engineer to determine the site-specific thickness and reinforcement requirements for their concrete base slab.**

Carefully assessing the site and installing adequate drainage is essential. Many issues can arise from the pooling of excess water in and around the base slab. It is the responsibility of the customer's licensed contractor or project engineer to ensure that sufficient allowance has been made on site for drainage.

It is imperative that the concrete base slab is properly cured prior to installation.

# INSTALLATION

## INSTALLATION ON A RIGID BASE *cont'd.*

### 2. WATERPROOF YOUR CONCRETE SLAB

Efflorescence (salt displacement) can occur in paving areas. Salt attack is the result of efflorescence, and refers to the decay of masonry materials by soluble salts that normally reside in the soils below a paving structure. These salts will either accumulate in the pores of the paving units or be evident on the surface.

To avoid salt attack, we recommend including a waterproof membrane as part of the installation of the concrete slab, and prior to the application of mortar and our product.

### 3. TAKE CARE WHEN INSTALLING DARKER COLOURED PAVERS

Whilst manmade pavers generally do not absorb as much heat as natural stone, it is important to note that darker coloured product absorbs more heat than lighter coloured product.

When installing darker coloured product (such as our Char colour), it is imperative that extra care be taken to include expansion joints where required, to use the right admixture in the mortar mix (ensuring as strong a bond as possible), and to completely avoid installation on particularly hot days (32 degrees Celcius and above).

# INSTALLATION

## INSTALLATION ON A RIGID BASE *cont'd.*

### 4. TAKE CARE WHEN WORKING IN WARM CONDITIONS

**It is inadvisable to install our products on a rigid base in warmer weather (e.g. 32 degrees Celsius and above).**

Excess heat can lead to rapid dehydration of the laying system. This can lead to de-bonding from the mortar bedding or adhesive and rapid expansion and shrinkage of the product material.

If the day of installation is particularly warm, it is very important to employ a technique to keep the product cool while it is being installed, such as: using a hose to wet the pavers down, or setting up a shade cloth to keep the work area in shade. **Please note** that it is preferable to avoid this scenario entirely, and to install once the weather has cooled down.

Mortar ingredients left for prolonged periods in a wheelbarrow, bucket or cement mixer on a hot day will lose their structural integrity. If the mortar mix is allowed to dry out prior to installation, it will not bond properly. Under no circumstances should the bedding material be re-hydrated once mixed. Cement that has been re-hydrated will become weaker, and may affect the rigidity of the entire paving structure.

# INSTALLATION

## INSTALLATION ON A RIGID BASE *cont'd.*

### 5. DO NOT INSTALL IN WET CONDITIONS

Products should not be installed in wet (rainy) conditions. This will over-hydrate the laying system, affecting the bond and integrity of the mortar mix.

### 6. EXPANSION JOINTS

Expansion joints are a critical part of the design process for all paved areas and pool surrounds in both residential and commercial applications. They must be planned **prior** to installation.

Changes in temperature will cause movement in the paving system. Grout cracking, de-bonding of the product from the base slab and hairline cracks in the product may occur if expansion joints are not included in the paving plan.

A flexible caulking material (i.e. a professional silicone-based product, NOT cementitious grout) should be used to create expansion joints. The location of the joints should be addressed at the design stage of the project. If expansion joints have not been taken into account, consult with your installer before installation commences to avoid any issues with movement of the structure.

It is imperative to run expansion joints **both ways** (horizontally and vertically).

# INSTALLATION

## INSTALLATION ON A RIGID BASE *cont'd.*

**Expansion joints must extend beyond the grout line between the pavers and into the concrete base.** It is not sufficient to install a flexible joint that does not extend down into the concrete slab beneath. **Please note** that any expansion joint that is more than 10mm deep must have a foam backing or filler rod applied to the joint prior to the flexible caulking material being applied.

**We recommend consulting a structural engineer to determine the site-specific location and number of expansion joints required.**

Some paving patterns are not as conducive to the inclusion of expansion joints as others. For example, a stretcher bond (also known as brick bond) or Ashlar pattern can make it more difficult to plan for and execute expansion joints in regular intervals. For this reason, the most aesthetically pleasing result is likely to be achieved by plotting flexible joints on the paving layout, rather than including them as an afterthought during installation. It is possible to select a caulking material that is close in colour to the paving colour and/or grout colour.

Ensure that all joints are free of dust, debris and mortar prior to installation of caulking material.

***“It is up to the paving contractor to determine where [the joints] go based on the site conditions, pavement application, and pavement structure. Site-specific structural engineering advice should be considered.”***

Excerpt from ‘Stone and Concrete Paving Guidelines’, Landscaping Victoria

# INSTALLATION

## INSTALLATION ON A RIGID BASE *cont'd.*

### 7. PREPARE YOUR PAVERS FOR BONDING

A standard by-product of concrete paving manufacture is a light film of shiny cement that can be present on the underside of the paver. It is an important part of the installation process that this layer be removed by brushing with a wire brush or stiff broom. Failure to do so may result in this layer flaking off after installation and impeding the bonding of the underside of the paver to the mortar mix or glue. This cleaning process will also remove any dust, dirt or debris from the back of the paver that could interfere with the bonding process.

Please note that the concrete slab or screed surface onto which the product will be laid must also be free of dust and debris in order to ensure that bonding is successful.

Note:

The honeycomb-like layer on the back of the paver must be removed prior to installation.



# INSTALLATION

## INSTALLATION ON A RIGID BASE *cont'd.*

### 8A. INSTALLATION WITH TILE ADHESIVE (GLUE)

We recommend this method of installation when working with larger format paving products (600x600mm or larger). G2 products do not require this method of installation.

Customers must use an **exterior tile adhesive product**, as not all adhesives are designed to withstand outdoor conditions. When preparing the adhesive, it is imperative that customers follow the manufacturer's instructions.

The concrete base must have adequate fall to subsurface drains, and must be flat. If not, a **20mm thick white washed sand and off-white cement screed bed** must be installed to even out the area to be paved.

Exterior tile adhesive should be applied with a 10mm notch trowel to a minimum thickness of 3-4mm and a maximum thickness of 10-12mm (but all in one even layer - the glue itself must not be used as a levelling agent; this is the job of the screed bed), and pavers laid according to the nominated paving pattern. As detailed above, both the back of the product and the sub-base must be clean and free of debris prior to the adhesive being applied.

It is essential to achieve **full coverage** (corner to corner) of the back of the paving or coping unit AND the concrete sub-base on which the product is to be laid.

# INSTALLATION

## INSTALLATION ON A RIGID BASE *cont'd.*

**As with mortar-based laying, expansion joints must be planned and implemented when installing with tile adhesive (see EXPANSION JOINTS above for more information).**

### **8B. INSTALLATION WITH A SAND + CEMENT MORTAR MIX**

This method is an alternative to using tile adhesive, and is ideal for smaller format pavers and pool coping units (anything smaller than 600x600mm).

Ideal mortar bed thickness is between 20-25mm, and up to a maximum of 40mm. Too much mortar can result in shrinkage of the mortar bed, and therefore de-bonding of the product from the mortar.

We recommend 4 parts sand to 1 part cement. Of the 4 parts sand, 3 parts must be washed sand and 1 part white brick sand (DO NOT use yellow brick sand, which has a higher concentration of clay). The cement part must be off-white cement, NOT grey, which is more prone to slumping, again affecting the integrity of the mix.

**These quantities must be measured properly, using a bucket, rather than gauged by shovel loads.**

# INSTALLATION

## INSTALLATION ON A RIGID BASE *cont'd.*

It is advisable to paste the concrete slab with a mix of off-white cement plus a professional additive such as Mapei Planicrete (mixed to a slightly wetter than toothpaste consistency to ensure it is easy to paint with) prior to trowelling on your mortar bed. Please ensure this is a **WET-ON-WET APPLICATION**. It is also advisable to paste the back of each G2 product (after the flaky concrete backing has been removed – see **PREPARE YOUR PAVERS FOR BONDING** above) with the same cement and Planicrete mixture prior to laying on the mortar bed. Again, please ensure this is a wet-on-wet application.

**Please note that an exterior tile adhesive can be used as a bonding agent in place of a Planicrete + off-white cement mixture.**

To determine which professional additive or adhesive is appropriate for the installation, we recommend contacting Mapei Australia on 1800 652 666.

To ensure proper adhesion, each paving or coping unit must be worked into the base, rather than simply placed in position.

Under no circumstances should mortar mix be re-hydrated if it dries out on a hot day. Throw it out and start again, or risk de-bonding between the mortar bed and the paving product.

# INSTALLATION

## INSTALLATION ON A RIGID BASE *cont'd.*

### **9. CHECK THAT PAVERS HAVE BONDED BEFORE GROUTING**

Prior to grouting, ensure the product has bonded successfully to the sub-base. If the method employed has not been successful, it is much easier to solve the issue prior to grouting the joints between product units.

Before grouting pavers, always check to ensure that the correct coverage of adhesive has been achieved by lifting one paver and inspecting the base. The better the coverage, the stronger the system. If the correct coverage has not been achieved, it may be necessary to adjust the installation method before continuing with the installation.

### **MOST MISTAKES BECOME APPARENT WITHIN THE FIRST 24 HOURS!**

On the day following installation, work should be inspected. If the pavers sound hollow (drummy) when tapped, they may not have bonded to the mortar or screed bed. If this is the case, the laying method is faulty, and must be reassessed before installation continues.

### **IF IN DOUBT, DON'T GROUT!**

# INSTALLATION

## INSTALLATION ON A RIGID BASE *cont'd.*

### 10. GROUTING

G2 pavers feature a 2.5mm taper on all four sides. The specified size of the product module relates to the base of the product. The surface of the product module will be 5mm smaller in each direction (for example, a 400x400mm paver will measure 395x395mm on the surface).

When setting out prior to installation, it is advisable to leave a 3mm gap at the base which will result in an 8mm grout joint on the surface. **Please note** that not all G2 products taper (for example, our pool coping units do not taper).

There are two types of grout used for paving: a site-mixed sand and cement preparation, or a pre-mixed bagged grout.

Selection of grout colour is a personal choice. If using a pre-mixed grout, ensure it is compatible with masonry products in an outdoor application. To avoid unnecessary discolouration of product during installation, it is advisable to select a grout colour that is close to the product colour. Excess grout (known as grout smear) can be removed from the product surface with an acid wash following installation (see **ACID WASHING + CLEANING** below for more information). That said, it is preferable to avoid smearing the surface of the product with grout during installation. A grout gun can assist with accuracy when installing grout.

# INSTALLATION

## INSTALLATION ON A RIGID BASE *cont'd.*

If mixing grout on site, it is critical that batches are consistent to ensure uniformity (in both materials and water content). We recommend a fine washed sand mixed at a rate of 3 parts sand to 1 part cement. It is also advisable to use a professional grout additive in site-mixed grout to aid the flexibility and adhesion of the grout (most pre-mixed grouts already include such an additive). For information on professional grout additives, we recommend contacting Mapei Australia on 1800 652 666.

**A common error is adding too much water to the grout mix in an attempt to make installation easier. This is not desirable, as it weakens the grout (which will then become more susceptible to cracking and breaking out of the paving joints). The quality of the grouting process will impact on the final appearance of the paving.**

**Please note:** Some grout cracking will occur on all paving installations, and is not a sign of a faulty installation method. To avoid even small cracks, and as an alternative to cementitious grout, a caulking material can be applied to every joint (this is a step above caulking the expansion joints only). Caulking all joints in a body of paving can be a good solution when installing very large format paving or coping products (1000x500mm and above) which are more susceptible to movement and curling, even with the correct placement of expansion joints. It is possible to select a caulking colour that will complement the chosen paving or coping colour. To determine which professional caulking material is appropriate for the installation, we recommend contacting Mapei Australia on 1800 652 666.

# INSTALLATION

## INSTALLATION ON A FLEXIBLE BASE

G2 pavers may also be installed on a flexible sand and compacted rubble base. It is, however, important to check whether or not the base will provide adequate support to account for the intended usage of the area; e.g. a driveway requires greater structural support than a pedestrian pathway. If in doubt, customers should check with their installer or phone us to discuss.

In the case of a flexible installation method, the base must be adequately compacted and have appropriate drainage.

**Please note that installation on a rigid base (see above) is widely regarded as the best method of installation for quality paving products.**

# INSTALLATION

## INSTALLATION ON A PEDESTAL BASE

If a landscaping project necessitates installation via an adjustable pedestal system, customers should refer to the pedestal manufacturer's specific installation guidelines before placing an order.

We can provide information on the Breaking Load of the selected paving product to ensure allowance for the right number and placement of pedestals beneath the paved area.

Installation via pedestal system does not require grouting.

# ACID WASHING & CLEANING

To remove any grout smear or dirt from the product surface, a light acid wash may be required following the installation of our products. Acid washing is conducted after grouting and prior to sealing.

**We recommend all cleaning and sealing to be carried out by experienced contractors. Incorrect cleaning methods may result in acid burn, or in the pavers being irreparably damaged by the harsh cleaning products involved. When in doubt, seek professional advice.**

The manufacturing process and storage of our products may result in cementitious dust being present on the surface of the paver. When combined with the moisture contained in the wrapped pallet it may leave a light coloured film on the surface. This may also result in a bubble wrap imprint being visible on the pavers. These markings are removed during the acid washing process.

**Please note** if there is a difference in colour between paving and pool coping, or between any two G2 products of the same colour when installed side-by-side, it is most likely due to a difference in blasting method between the two pieces and not due to a colour batch variation (which, due to our strict quality control standards, is highly unlikely). Some of our products are dry-blasted, whilst others are water-blasted. The dry-blasted products are left with a light film of cementitious dust on the surface (as described above) that makes them look paler than the water-blasted products. This film must be removed via a professional acid wash following installation, which is best discussed with and carried out by an experienced cleaning contractor.

**REMEMBER – if in doubt, please contact us for advice!**

# SEALING

Choosing not to seal our product will not affect its life span. However, it is generally accepted that all paving products are better protected from staining when sealed (particularly where tannin stains from leaves or decking, or organic stains such as animal droppings or food spills may become an issue).

Most commercial paving applications will perform better when sealed, due to high volumes of traffic and the higher likelihood of staining. It is also advisable to seal paving and pool coping that are installed around a pool to protect the product from salt and other pool chemicals.

In most cases, a penetrating sealer is used on our products. This type of sealer doesn't change the appearance of the paver. It is important to use a quality sealer. While the sealer will not prevent the paving from getting dirty, it does provide a level of protection which assists when cleaning.

Our products should always be properly cleaned and completely dry prior to sealing.

There are many types of sealers available. Often the decision to seal comes down to individual site conditions and the level of protection required. We are able to recommend a professional sealing contractor to assist customers with their requirements.

**All references to sealing are in relation to protecting the surface of the paving from staining. Depending on specific site conditions, paving products, mortar beds and sub bases can be adversely affected by the ingress of moisture, which facilitates the mobilisation of salts and minerals which in time can be detrimental to paving. Adequate drainage and waterproofing of hard surfaces should be addressed and included in the landscape design process. Surface sealing does not address this issue.**

# MAINTENANCE & STAIN REMOVAL

Our products require minimal maintenance, particularly when professionally sealed.

A broom or high pressure hose is all that is needed for general maintenance to move dirt and dust from the surface. For stubborn stains, chemical-based cleaning products may be required.

**Please note** that we strongly recommend employing a professional to carry out all stain removal. Chemical cleaners can damage the product if not applied correctly.

In the event of organic stains such as animal droppings or leaf tannins, an alkaline product such as bleach may be used to remove the stain.

In the event of non-organic stains, a light acid wash may be the more appropriate treatment. Again, acid washing is best performed by an experienced cleaning contractor (see **ACID WASHING + CLEANING** above for more information). An acid wash that is not properly neutralised can burn the product.

Neither acid nor bleach will damage the sealant layer if applied correctly.

# G2

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by  SVC URBAN

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QUALITY, VALUE & SIMPLICITY

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