

Turfstone should be installed in accordance to BS 7533-3:2005

'Pavements constructed with clay, natural stone or concrete pavers. Code of practice for laying precast concrete paving slabs and clay pavers for flexible pavements.'

Specific Turfstone installation points in association with BS 7533-3:2005

Tobermore Turfstone is a grass paving system designed for use in areas where a hard surfacing is required for vehicular access in a natural grass environment or other space where a naturalistic appearance is preferred. Tobermore Turfstone's honeycombed voids are designed to facilitate the growth of grass within a supporting concrete matrix, allowing grass to be cut in the conventional manner.

Typical uses include:

- Off-street residential parking
- Vehicular access for occasional usage (fire lanes, utility access, etc.)
- Overspill commercial or retail parking
- Occasional parking for cricket clubs, schools, churches, etc.
- Nature reserves, sensitive heritage sites and country parks
- Road verges
- Field entrances and farm tracks
- SUDS schemes

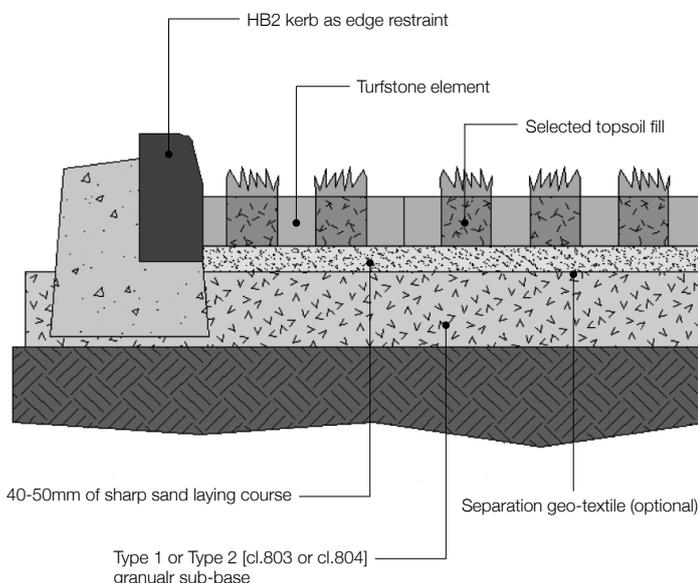
The Product:

Turfstone is a form of concrete block paving, with each element measuring 600x400mm in plan and 100mm in thickness. Each element weighs approximately 35kg and so we recommend machine-aided installation to comply with manual handling regulations. Special lifting aids that can be attached to excavators, tele-handlers and cranes are readily available.

Installation:

Turfstone is laid onto a sharp sand laying course over a load-supporting sub-base. A separation geo-textile may be used to prevent loss of laying course to the sub-base in certain cases. Restraining edges are normally required to prevent the Turfstone elements shifting sideways when trafficked.

A sub-base of crushed rock is spread levelled and compacted to the required depth. Type 1 or Type 2 granular material is normally used (cl. 803 or cl. 804 in Rol).



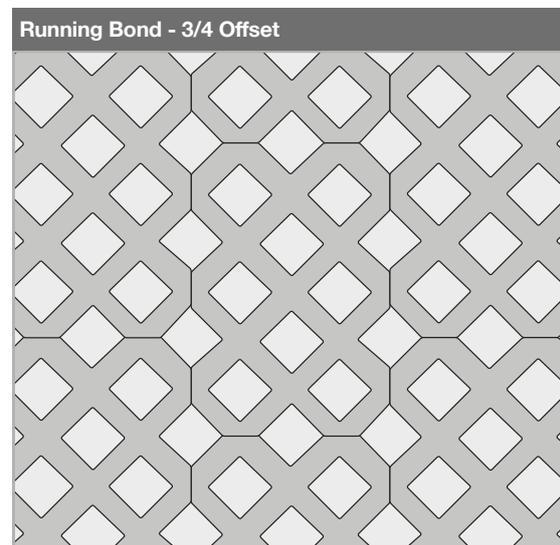
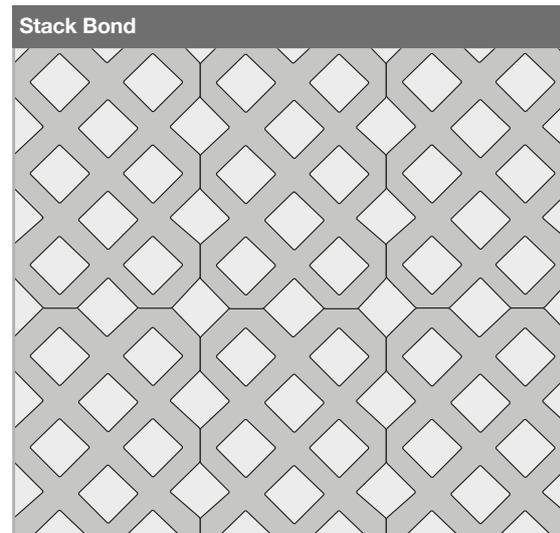
A laying course of sharp, gritty aggregate is then spread and screeded to level at a thickness of 40-50mm. This laying course may be sharp sand or a grit/coarse aggregate.

The Turfstone blocks are lifted into position and placed onto the laying course material. A minimum joint spacing of at least 2-4mm should be left between units. If the Turfstone units touch they may chip and spall.

Please ensure the blocks are laid the correct way up as per the image below. The side showing the small indentation must always be the top surface.



These are two typical laying patterns for the blocks.



Compact the Turfstone units by using a plate vibrator with a rubber plate to avoid cracking or chipping and to ensure the units are well compacted into the bedding sand. An occasional cracked Turfstone unit won't compromise performance. Care should be taken to ensure there are no significant lips (>5mm) between adjacent elements.

Backfilling:

The key to success with Turfstone is to use a quality loam to backfill the voids prior to seeding. Site excavated topsoil often contains too much clay which impedes free drainage during the winter months and bakes rock-hard in the summer. A good backfill mix comprises 50% sieved loam with 50% sharp sand. This ensures an open, friable and free-draining medium in which the grass covering can flourish.

When the Turfstone paving has been installed, the topsoil mix can be emptied onto the surface and distributed to fill the voids using shovels and rakes.

It is important to fill the voids as soon as the blocks are laid. This ensures the laying course does not become contaminated or disrupted by heavy rain which may result in the blocks needing to be repositioned.

Do not compact the topsoil backfill. Allow it to settle under its own weight and check the level after 2-4 weeks, topping-up if necessary.

Once settled, the soil should be slightly lower than the top of the Turfstone surface. This helps ensure that any vehicles are carried on the strong concrete surface rather than crushing the delicate roots and growing base of the grasses.

Seeding:

There are many different seed blends that are available for occasional vehicle overrun use, and different blends work best in different regions. Further, some blends are better suited to dry, open, sun-baked sites, while others contain a higher proportion of grasses that thrive in semi-shaded settings.

A typical grass blend suitable for most parking sites would be:

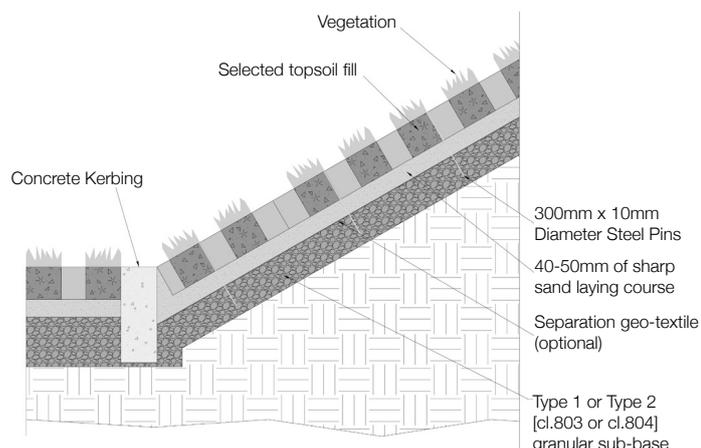
- 50% Perennial Ryegrass
- 20% Slender Creeping Red Fescue
- 25% Strong Creeping Red Fescue
- 5% Browntop Bent
- Specialist seed suppliers, such as...

Phoenix Amenity (Worcester) (<http://www.phoenixamenity.co.uk/>)

British Seed Houses (Banbridge) (<http://www.bshamenity.com/>)

Power's Seeds (Co. Kildare) (<http://www.powerseeds.ie>)

...can advise on the best mixture for any specific project.



Example: Erosion control 2:1 or gentler slope.

Use by vehicular traffic:

Turfstone, in common with all other grass paving and ground protection systems, has to be designed to suit the intended traffic usage. While it is possible to design Turfstone pavements capable of supporting large, heavy vehicles, the sub-layers need to be designed accordingly. Allowing heavy vehicles onto Turfstone pavements designed for cars can result in failure. Always design for the largest anticipated load. For much more detailed design advice please refer to the relevant British Standard.

The full strength of the installation will only be developed as and when the grass cover is fully established. The grass roots bind the units and provide much of the long-term load carrying ability. Early trafficking of the paved area may lead to some deflection and the area may require subsequent repairs.

Traffic should be kept to low speeds, walking pace (5mph ~ 8km/hr) or below is the maximum recommended.

Important note – Turfstone is not suitable for applications subjected to prolonged heavy duty trafficking. Turfstone is suitable as a pedestrian walkway as long as suitable footwear is worn. Stiletto heels would not be suitable for a Turfstone walkway.

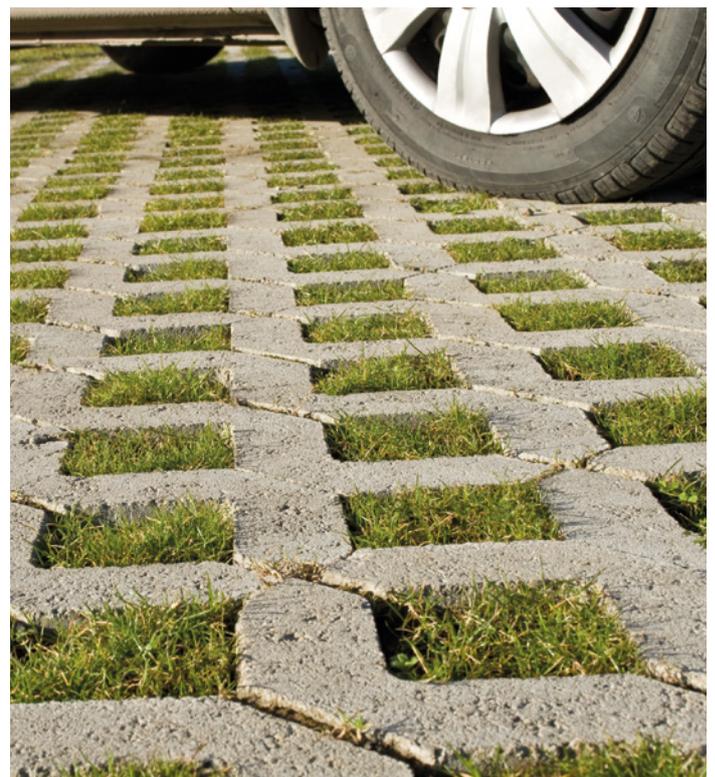
Maintenance:

The weak link in any grass paving system is the grass itself. It requires nourishment, moisture, drainage and protection from excessive crushing. Consequently, it is essential that the topsoil surface from which the grass grows lies below that of the concrete running surface by 2-5mm.

During the growing season, the grass can be mowed using conventional equipment, including ride-on mowers. Clippings are best removed to help reduce the build-up of thatch on the growing surface.

Although the generous 100mm depth of loam-based backfill will provide the grass with all the nutrients it needs for many seasons, occasional application of a general purpose feed can help boost growth in areas where thinning has occurred due to trafficking.

Any areas which develop standing water (ponding) for prolonged periods should have the soil voids emptied and replaced with fresh, free-draining material which can be re-seeded. Grass will not last long in areas which are regularly submerged.



instructions & warnings

(as referred to in Tobermore's Conditions of Sale)

Important Information

Any technical information provided by Tobermore in relation to any product (whether before or after order) is provided by way of GUIDANCE ONLY and, to the fullest extent permitted by law, without liability on the part of Tobermore for any loss or damage suffered as a result of relying upon it. Such technical information should not be relied upon in substitution for obtaining independent expert advice prior to using any product from both a suitably qualified engineer and building contractor, in particular, as to the suitability of the product for use at the intended site for the intended scheme.

CORE TERMS (PAVING & WALLING)

Product

All products should be carefully inspected for defects or damage upon delivery and prior to being laid or fitted.

Product Information

Within Tobermore, design and development of products is a continuing process, and product information is subject to change without notice. Accordingly, please check with Tobermore to ensure that the product information you have represents the most up-to-date product information.

Installation

All products should be installed in accordance with the latest British Standard.

Colour

Tobermore produces paving and walling products with excellent density and durability, however, as with all concrete products, slight colour variations are inevitable. Although every effort is made to ensure consistency of product colour, variations can occur. In particular, single colours such as Golden, Buff, Natural and Red will have variations. Tobermore therefore recommends that products are thoroughly mixed on site by drawing from a minimum of four pallets.

We would always recommend that when purchasing products, especially in larger quantities, that they are all ordered and manufactured in one batch to reduce the chances of getting colour variation.

Please note that the colour of new products will inevitably vary compared to those which have been installed for a period of time as weathering does take place.

All colour illustrations in Tobermore's brochures are as accurate as the printing process will allow. For a more accurate colour match please refer to actual product samples, which can be provided.

Efflorescence

Efflorescence is a white crystalline deposit that occurs naturally on the surface of concrete materials. Tobermore use market leading technology to significantly suppress the occurrence of efflorescence, however, if it occurs, it may mask the colour of the product for a period of time, but tends to be washed away gradually by rain. Tobermore do not replace products with efflorescence. Packs of products which have had packaging removed should always be re-covered with appropriate packaging to prevent the occurrence of secondary efflorescence.

Surface Scratches

Minor scuffs or bruises may occur during delivery, movement onsite, and installation (for example, during any plate vibrating process). In Tobermore's experience, these marks usually weather off through time.

Ordering

To avoid waste, please ensure that your contractor accurately measures the area on site before ordering products. In Tobermore's experience, dimensions taken from a project plan can vary significantly from the final layout.

Manufacturing & Quality Systems

Tobermore is a BS EN ISO 9001, BS EN ISO 14001 and BES 6001 registered company. Tobermore uses an integrated management system to manage all health & safety and environmental issues.

Product Maintenance

Routine cleaning and maintenance is required to keep the overall appearance of products in pristine condition.

Laying multi-blend coloured paving blocks, flags and walling products

To achieve an even blend of colour when laying multi-blend paving blocks, flags and walling products, it is desirable to mix from three or four different pallets.

Queries & Complaints

Please contact one of Tobermore's Paving & Walling Centres or offices (contact details at www.tobermore.co.uk) with any queries or complaints. Any complaints must be notified to Tobermore without delay.

CORE TERMS (PAVING ONLY)

Product Maintenance

Light coloured paving blocks and flags emphasise tyre marks and oil spills on the driveway. Please note that these products will need more maintenance if overall appearance is to be maintained.

Initial Cleaning

When an area has just been paved, allow it to settle for a few days. After this, you may wish to lightly hose down the paving to remove any excess sand or dirt. The area should then be treated with a weed killer suppressant two – three times per year as required.

General Cleaning

Paving requires regular maintenance, including regular sweeping to prevent the build up of detritus. Tobermore recommends that paving is cleaned two – three times per year.

For general cleaning of dirt and algae, vigorous brushing with a stiff yard brush with plenty of hot detergent solution (washing up liquid or non-bio washing powder), thoroughly rinsed with clean water, should suffice. Repeated treatment may be required for paved areas sited beneath trees or in permanent/near permanent shade.

A light power hose at medium pressure is generally all that is required to clean general dirt and grime. Any jointing material which is removed must be replaced. Do not use high pressure powerwashers as aggressive powerwashing can damage the product surface. A trial area should be tested before large scale powerwashing takes place.

Moss, Lichen and Algae

Thick growths of moss or lichen must be removed first by scraping out the joints and then treating the area with a moss killer such as anti-moss paving cleaner. Anti-moss is designed to remove moss, lichens and algae. It is best applied in dry weather. After being applied it will take a few days to be fully effective. Once the moss and lichens have been killed, they can easily be brushed off. Anti-moss also leaves a residue in the sand joint which will help reduce the likelihood of re-growth. The manufacturer's instructions should always be followed when using any cleaning agent.

Weeds

Large weeds should be removed by hand and then the area treated with a weed killer (available from any good garden centre). Smaller weeds can then be treated directly with weed killer and these weeds should start to die within days. The manufacturer's instructions should always be followed when using any weed killing agent.

Block Paving Sealer

It is possible to seal block paving with a resin material which combats staining and weed growth and which also enhances colour and appearance. The acrylic sealer is sprayed onto the block paving and forms a 'skin' on top of the paving and the jointing material giving an easily maintained finish. The manufacturer's instructions should always be followed when using any sealing agent.

