GUIDANCE FOR THE INSTALLATION OF CONCRETE KERBS

The following information is a simplified version of the detailed information contained in BS 7533 and therefore should be considered guidance for the installation of concrete kerbs. We strongly advise that this guidance is read in conjunction with the relevant BS 7533 standards.

Product Inspection

Upon delivery, all products should be inspected and any issues identified must be reported prior to installation.

Prior to Commencing Installation

Prior to commencing, it is good practice to sort the products to ensure consistency of colour, texture and dimensional tolerance.

Health & Safety

It is the installer's responsibility to ensure that all safe working practices are being used and full PPE must be worn.

Installation

Excavation

The depth of excavation required will depend on several factors; the height of the kerb or edging selected, the orientation that it will be laid, and the intended upstand. (i.e The difference in height between the top of the kerb or edging and the paved surface).

Excavate to the desired depth and fully compact the ground.

Bedding of Units

The inclusion of a sub-base beneath the kerbs is not usually necessary as the kerbs and edgings are laid on a concrete bed. The bed and kerb unit will restrain the sub-base for any adjacent paving.

Kerb and edging units should be placed onto a bed of C7/8 or ST1 concrete. **(Image 1)** the typical mix for this concrete is 6 parts aggregate, 3 parts sharp gritty sand and 1 part cement. (Strength 7 N/mm^2)

The bed should be sufficiently deep for the chosen product and application. See typical details in annex 1.

Image 1

Laying to line and level

Kerb units should be placed onto the concrete bed and tapped down to line and level using string lines to ensure the correct positioning is achieved.
See images 2 & 3.

Image 2

Image 3

Joints

Kerbs and edgings can be laid close jointed with 2 - 4mm joints without the use of mortar or with wider 5 - 10mm joints pointed with mortar.
See Images 6 and 7.

Butt jointing (i.e. products touching) is not recommended as this can lead to units chipping.

Special shaped units such as droppers, radii kerbs and corners are bedded in the same way as standard units.
Where mortared joints are used, allowance should be made for expansion by omitting mortar from a joint every 15 metres. The mortar should be allowed to harden sufficiently before the kerbs or edgings are haunched.

A concrete haunch should be placed behind the kerbs or edgings. Haunching is where concrete is placed at the rear of the kerb to hold them in place. **(Image 4)** The concrete haunch should be brought up to around two thirds of the height of the kerb or edging. It should be smoothed off using a trowel or shovel. **(Image 5)** Sometimes it may have to be reduced to accommodate the materials that will be at the back of the kerb. (eg: the paving). Allow the concrete to harden before commencing the paving to avoid displacing the kerbs.

Image 4

Image 5

Tolerances

All products are manufactured with permitted dimensional tolerances. Bedding onto a concrete bed allows any tolerances in height to be accommodated during installation.

Image 6 - Close Joints

Image 7 - Mortar Joints

Wide joints should be fully filled with mortar. **(Image 7)** Extreme care should be taken to ensure that decorative kerbs to do not become stained with mortar. Any excess mortar should be cleaned off immediately with clean water.

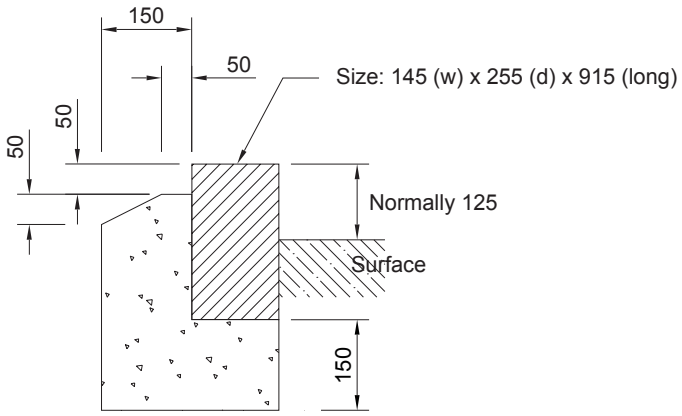
Important: Standard kerb units and special kerb units will have been manufactured at different times and therefore slight shade variations are unavoidable. Any slight variations will dissipate as the product matures.

Inclement Weather

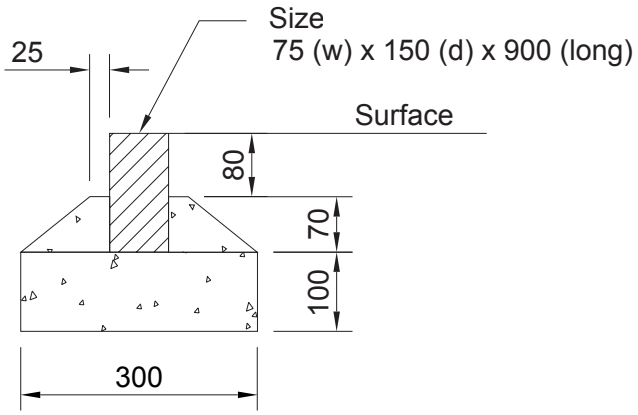
During poor weather the installation should be stopped. It is good practice to cover the kerbs if the weather conditions are such that the work may be put at risk.

Laying should not be undertaken when the temperature is below 3°C. At the end of the working day all unfinished areas and opened packs of products should be covered to prevent saturation by rain.

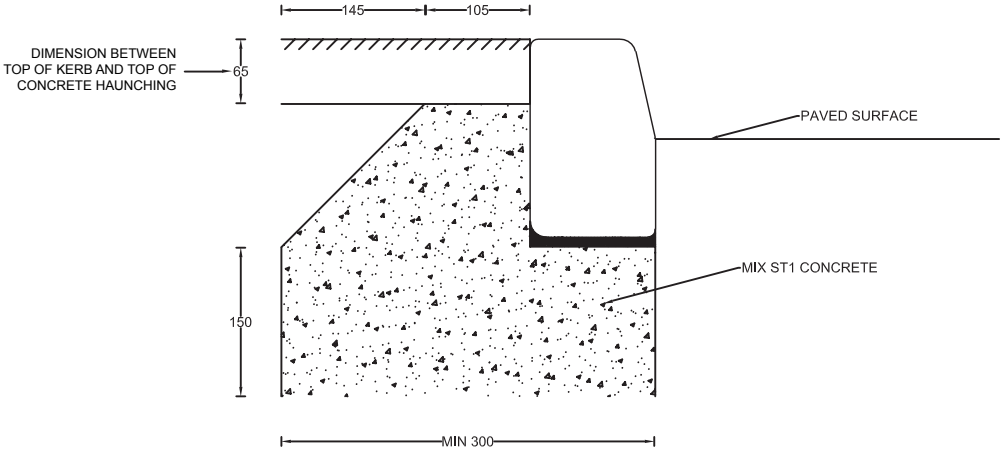
1. Fusion Kerb



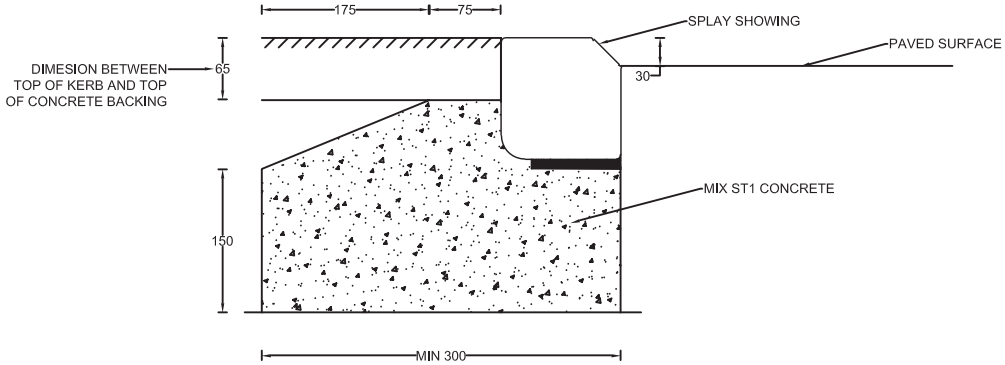
2. Fusion Edge



3. Kerb Large / Tegula Kerb Large



4. Kerb Small



All Kerbs & Edgings to be installed to the relevant British Standard
Bedding and haunching to be concrete class ST1 (C7/8) or stronger depending on application.
Minimum bed thickness of 100mm.
Tobermore Concrete Ltd will not be liable for any loss or damage resulting from the use or reliance on any drawings provided

Instructions & Warnings

As referred to in Tobermore's Conditions of Sale

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.

Prior to Installation
It is good practice to sort products to ensure consistency of colour, texture and dimensional tolerance. Any defects must be reported without delay. If products are installed with any form of defect which was clearly apparent prior to installation the installer will be responsible for all costs incurred to rectify the issue.

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

Colour/Shade & Texture
Tobermore produces paving and walling products with excellent density and durability. All products are manufactured in batches using naturally extracted raw materials including aggregates, pigments and cement etc. Products such Braemar, Sienna, Fusion, Mayfair Flags, Manhattan, City Pave and Fusion Kerbs are manufactured using premium naturally occurring granite aggregates. To achieve their final appearance some products undergo secondary processes, this involves shot blasting or grinding the surface of the product.
Whilst we have several factory procedures in place to help control shade, colour and texture within and between batches we cannot guarantee consistency. This is due to the natural materials and secondary processes. Therefore, slight variations in the finished products is normal between and within batches. These variations actually enhance the character and natural beauty of the products.
To achieve the best possible finish we recommend the following advice is followed to evenly distribute any slight variations in shade, colour and texture over a large area.
When the circumstances allow complete one area of paving, one retaining wall or one house / building by using products taken from the same batch. This is achieved by checking the batch code label displayed on the packs.
Always, thoroughly mix products from a minimum of three packs.
Where products are supplied in packs with vertical slices always take them "vertically slice by slice" this ensures that colours are distributed evenly.
When the circumstances do not allow the use of products from the same batch then it is extremely important to minimise possible colour banding /shading by always, thoroughly mixing products from a minimum of three packs concurrently with some overlap between deliveries / batches.
Mixing thoroughly from a minimum of three packs is of particular importance when installing single colours such as Golden, Buff, Natural, Charcoal, Graphite, Silver, Mid-Grey, Sandstone, Alto Silver, Aaron Stone, Jura Grey and Innis Black.
We would always recommend that when purchasing products, especially in larger quantities, that they are all ordered at the same time.
Please note that the colour of new products will inevitably vary compared to those that have been installed for a period of time as weathering does take place.
All colour illustrations 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.
Colours and textures illustrated are representations and therefore should not be expected to be an exact match.
Note: Whilst we strive to ensure consistency, complimentary products such as Kerb Specials, Step Flags, Facing Brick Specials, Historic Circles etc. may not be an exact colour / texture or shade match to the standard version of the product as they will have been manufactured at varying times using different processes.

Tegula
Tegula is manufactured using a secondary process that distresses the edges and corners of the blocks to give the desired aged antique appearance. The process randomly distresses the blocks, therefore some blocks will be more distressed than others will, this is completely normal and does not affect the product performance.

Staining
Some chemicals that are commonly used in gardens such as lawn feed containing Ferrous Sulphate can stain concrete products. Any chemicals that are spilt must be removed immediately by rinsing away with clean water. Please check the information on the instruction label of the container holding the chemical.

Moisture
Occasionally, after installation, some units may show variations in shade and have a patchy appearance. This is due to the varying amounts of moisture within the concrete and the ground. The drying out process of concrete continues in-situ after installation. Some units may also retain more moisture than neighbouring units and take longer to dry out. This is caused by the variations in density of the naturally extracted aggregates used in the manufacturing process. Given time and natural weathering, the capillaries within the surface of the concrete will gradually close and any patches or moisture retention will dissipate as the product matures. This does not affect long-term performance.

Efflorescence
Efflorescence is a crystalline deposit that occurs naturally on the surface of concrete materials. It usually appears as white deposit but can also be brown or yellow in appearance. 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.
To reduce the risk of surface scratches we strongly recommend the use of a vibrating plate with a rubber protective mat.

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.
Depending on the layout of the project, we recommend ordering an additional 2 - 5% of material to allow for cutting, detailing and wastage.

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.
All concrete products can develop algae, lichen, and moss growths due to environmental conditions and may require cleaning. Areas adjacent to plant borders and trees may discolour from transfer of plant-life. Tobermore cannot accept responsibility for any of these conditions.

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)

Paving installed unbound should have a close joint width of 2-5mm to allow for the dimensional tolerances of products and to create a gap to allow the brushing in of kiln dried jointing sand. The straightness of lines will be dependent on workmanship and product tolerances. String lines must be used to help achieve straight lines.
Tobermore do not recommend Butt jointing as this will make achieving straight lines more difficult.

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 2-3 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 2-3 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 power-washing 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.

FOR HYDROPAVE PRODUCTS
Installation - Hydropave
Tobermore recommends that its Hydropave products be installed in conjunction with a BS EN 7533-13:2009 designed permeable paving system.
Note: A permeable paving design relies heavily on using the correct aggregates. Prior to installation, we would ask you to test both the 4/20mm coarse graded aggregate and also the 6.3-2mm bedding and jointing grit as per the relevant British Standard specification (BS EN 13242:2002). In particular, the material should be categorised as LA20 according to Table 9, SZ18 according to Table 10 and MDE15 according to Table 11 within this standard. The grit should be insoluble in dilute hydrochloric acid and should be naturally occurring material. In our experience, incorrect use of aggregates is one of the most common reasons for failure of a permeable paving system.

Joint Filling
All joints must be filled to the top with 6.3 – 2mm grit to prevent movement and spalling of the blocks. We recommend that after a few weeks use, any joints which have settled and are not full, are topped up with grit. Joints should be kept filled at all times. You will need approximately one tonne of grit for every 100m2 of 80mm paving.
Note: Care should be taken that the permeable joints do not become contaminated as work on the scheme is completed. Special care needs to be taken when soft landscaping is carried out so that soil does not enter the joints. When this type of work is being carried out, the surface of the permeable paving should be protected by an appropriate cover to protect the joints from being contaminated.

Hydropave Maintenance
Please refer to Tobermore's detailed 'Permeable Paving Maintenance Guidelines' available on our website: www.tobermore.co.uk

FOR EASYCLEAN PRODUCTS
Handling & Installation
During installation, the surface should be protected at all times from scratching and abrasion.
Once the protective glue dot has been removed do not stack flags directly on top of each other.
Use a plate vibrator with a rubber mat.
Do not scratch the surface with tools. (Spade, trowel etc.)

User advice
Do not drag garden furniture across the surface of the flags.
Do not pressure wash.
Do not use chemical cleaning products (e.g. solvents/acids).

FOR FACING BRICK & COUNTRY STONE PRODUCTS
Important Note:
Where the circumstances allow, it is beneficial to complete one building / structure using bricks taken from one batch and mixed on site from a minimum of 3 packs to avoid colour banding / shading. If the circumstances do not allow for this then it is important to minimise the possibility of banding / shading by always mixing bricks from 3 packs concurrently with some overlap between deliveries.
Where the site conditions allow, it will also be beneficial to take receipt of as many bricks as possible at an early stage to maximise colour consistency throughout the site.

Installation – Facing Bricks
Please refer to Tobermore's detailed 'Guide to the use of Tobermore Concrete Bricks' available on our website: www.tobermore.co.uk

Installation – Country Stone
Tobermore's Country Stone products are designed to recreate traditional stone sizes and to co-ordinate with standard cavity wall construction. When used in housing projects, a clear cavity must be retained.
All work must be protected during construction and must be designed and built in accordance with accepted industry standards and practice. Builders familiar with conventional brickwork will find that similar installation principles apply.
Joints can be finished flush or tooled depending on the overall effect required. Raked joints are not recommended. It is vital that all horizontal and vertical joints between Country Stone blocks must be compacted and free from voids. Shell bedding should not be used.

Good Practice during Construction - Facing Bricks & Country Stone
- If mortar dry's on the surface of the bricks it will stain the product and may not be removed.
- Mortar extruding from joints should be removed when the mortar is wet and during the process of laying.
- Any mortar smears on the brick surface should be removed by dry or wet brushing.
- Scaffolding should be installed as per regulatory instructions. Please note that mortar can drop and hit the scaffolding and then also go onto the wall. You should inspect the work area at all times to ensure the brick surface remains mortar free.
- When it rains be careful that any wet mortar on the scaffolding does not get 'splashed' onto the wall.
- When work stops or is interrupted by inclement weather conditions, brickwork should be protected immediately with polythene sheeting that is held in place with a suitable fixing. If new brickwork is not protected efflorescence, patchy mortar colour, patchy brickwork and staining can occur.
- Bricks should always be covered with polythene sheets to avoid getting damp or dirty when not being used.

General Cleaning Advice - Facing Bricks & Country Stone
- It is always important to keep bricks as clean as possible while laying and tooling. See Good Practice above.
- If mortar has been allowed to dry on the surface of the bricks the options you have to clean it off are as follows; Each process should be tested first and should ensure the facing bricks are not damaged - Dry brushing b. Wet brushing c. Using a 'like coloured' brick to rub the stained brick d. Pressure washing - should only be used as a last resort as it will damage the surface and the mortar joint if not completed correctly (this method cannot be attempted until the area has been allowed to set for a minimum of 7 days).
- Acid cleaning should be avoided.

Movement Joints and Mortar Guidance - Facing Bricks & Country Stone
1. NHBC recommends that walls constructed of concrete facing bricks should have vertical movement joints included every 6m to allow for drying/shrinkage, see PD6697:2010 section 6.2.6.3.4, maximum ratio for brickwork panels is to be 3:1 length : height. PD6697:2010 section 6.2.6.4 gives advice on joint positions, the benefit of brickwork reinforcement at window openings is covered in section 6.2.6.7 of the same document. Movement joints should be planned prior to commencing any construction to enable them to be concealed behind down pipes etc. and ensure the aesthetic of the building is maintained.
2. It is important to ensure that the mortar specified for the construction is suitable for the contract, see table 15 of PD6697:2010 - class M4 is the maximum recommended for normal external facing brick walls. This should not be exceeded when using Tobermore Concrete facing bricks.
3. We would recommend that you discuss this guidance with all parties involved in the design, construction and installation of this scheme. We also recommend that you refer to BS EN 1996-1-1 and PD6697:2010.
4. Specific professional advice should be obtained at all times before commencing building work.

Important Guidance Information: Tobermore Concrete Facing
1. Professional advice, specific to the project, should be sought before commencement of the building work.
2. Tobermore Facing Bricks have different properties to clay bricks especially in relation to moisture movement. Please refer to 'Guide to the Use of Tobermore Concrete Facing Bricks', which is available on request or at www.tobermore.co.uk
3. Tobermore recommends that vertical movement joints be spaced at no more than 6m apart. Panels of brickwork where the length: height ratio exceeds 3 are particularly vulnerable to cracking; if they cannot be avoided they should include movement joints at closer centres.
4. Movement joints should be planned prior to any construction so that they can be concealed behind drainpipes etc. Further guidance on moisture movement is available in the 'Guide to the Use of Tobermore Concrete Facing Bricks' and BSI documents BS EN 1996 (Eurocode 6) and PD 6697 (Recommendations for Design).
5. It is important to ensure that the mortar specified is suitable for the construction, see Table 15 of PD 6697. Mortar of strength class M4 will generally be suitable. Please refer to 'Guide to the use of Tobermore concrete facing bricks', which is available on request.
6. When building with dissimilar materials allowances should be made for differential movement. Design guidance from a structural engineer should be sought when combining dissimilar materials such as clay and concrete facing bricks. Examples of using dissimilar materials would be where a clay brick is used to build up to the dpc level and then Tobermore concrete facing bricks are used above the dpc. In some circumstances the dpc acts as a slip plane to separate the two materials which helps to dissipate tensile stress. However expert guidance should always be sought as to ensure structural stability as further slip planes or bed reinforcement may need to be incorporated into the design.
7. It is recommended that this guidance is discussed with all persons involved in the design and construction of the building work.

FOR SECURA PRODUCTS
Installation - Secura
All Secura products should be installed in accordance with British Standard BS8002. When constructing a retaining wall, ensure that you follow the design provided by the scheme engineer.