

Guidelines for the maintenance of areas of Kellen paving

For more than a decade now, the ingenious modular concrete Kellen range from Hardscape has provided a creative and imaginative alternative to traditional hard landscaping paving products.



Initial Maintenance

Sub-base construction

Flexible block paving requires a sub-base of graded and broken stone (unbound granular material) topped off with 30mm to 50mm grit sand for bedding. The thickness of the load bearing sub-base depends on the frequency and type of vehicular traffic. For commercial applications a layer of 150mm+ is recommended.

The sub-base material should be spread out in layers no thicker than 150mm. Once level, it should be compacted by multiple passes with the compacting equipment, both longitudinally as transversely, until full compaction is achieved. Once compacted, the level of the sub-base layer should be checked. Any part of the sub-base deviating from the required level by 10mm+ should be raked off or topped up with additional material and re-compacted to the correct level. Sub-bases of thickness greater than 150mm should be constructed in layers not exceeding 150mm. For example, a 250mm thick sub-base would be constructed as 150mm layer, laid and compacted and 100mm layer laid and compacted over it.

Paving

The concrete pavers should be paved equally in height, angle and in line (with help of a taut string) with enough jointing space, not too tight against each other.

Fill jointing space

Brush in jointing space with dry jointing sand, preferably with a surplus of fine particles. Repeat this several times, also after compacting the paving. Leave jointing sand on the pavement after finishing the work.

Compacting

Clean the surface of the paving from sand or other particles. Compact the paving in dry conditions with a wacker. Make 4-6 passes over each section of paving, alternating passes at 90° to the previous pass. Vibrate capacity > 4000/min.

Recommended:

Height of block (in cm)	Wacker plate (Kg)	Excentricity (force in KN)	Type (for example)
6 – 7	130	< 18	DPS 1740/50/60
8 - 10	170 - 200	> 20	DPS 2340/50/60
12 >	200 - 600	> 23	

For paving blocks with a top layer use a mat attached to the base of the wacker to prevent spalling damage to the edges of the pavers.

Especially for Liscio beware of scratching the surface. Make sure that the surface is clean and cover it with a mat or an old carpet as precaution.

Finishing

Especially for Breccia, Sabio, Martello, and Liscio we advise to use fine sand for final brushing.

Maintenance

The surface of the paving blocks can be cleaned with a sweeping-vacuum cart. Use plastic brushes. An alternative method is using high pressure water jets. Avoid the joints. To prevent weed from growing a polymer jointing sand can be used.

Rigid Fixing

For the rigid fixing of concrete paving slabs we recommend the guidelines as laid out in:

BS 7533-4:2006 – Code of practice for the construction of pavements of precast concrete flags or natural stone slabs.

BS 7533-12:2006 – Guide to the structural design of trafficked pavements constructed on a bound base using concrete paving flags or natural stone slabs.



Cleaning Best Practice

Equipment Required

The best results are achieved by using the correct equipment correctly.

- Hot/cold water pressure washer with variable pressure and temperature.
- Rotary floor cleaning tool.
- Lance with high and low pressure option.

Cleaning Process

For the best results the cleaning of Kellen paving requires hot water pressure washing, initially the surface should be pre swept to remove any loose debris. Once the debris has been removed the set the machine to between 80 and 100 bar and the temperature to 100 degrees centigrade.

The first process is to remove the chewing gum using the lance with the low pressure option, using the high pressure keep the nozzle at a 45 degree angle 5cm away from the gum and remove in a methodical movement, once the gum is removed turn the lance to low pressure lift and move to the next piece without causing joint damage and repeat the process.

When the gum is removed attach the rotary floor tool you may need to increase the pressure to 120 bar (depending on your nozzle sizes) use the rotary floor tool in a uniform manner cleaning either up and down or side to side slightly over lapping each pass.

Finishing Process

On completion of the cleaning using the rotary floor tool re attach the lance and turn it to low pressure, keep the lance a distance from the paving and rinse the loose sand back into the joints leaving the paving clean.

Once the surface is completely dry the joints may require a topping up using dry kiln sand, this should be minimal as long as the cleaning process is correct.

Surface Protection

To preserve and protect from staining and gum adhesion on the Kellen Paving I would advise that it is protected using Pavesaver or Pavesaver Ultra a surface impregnator available from Hardscape.

Health and Safety

Some of the cleaning methods described above involve the use of chemicals which may be damaging or dangerous if not used in the correct manner. It is important that safety warnings issued by the manufacturer of the chemicals should be read carefully and strictly adhered to.

In general, the following precautions should be taken:

- When using chemicals, protective clothing such as gloves, goggles, boots and overalls should be worn.
- Ensure there is adequate ventilation in confined spaces.
- When using flammable materials, ban the use of cigarettes, naked flames and other sources of ignition in the immediate vicinity.
- When diluting acids, always add acid to water and not water to acid.
- Dispose of, safely, any clothing which is contaminated with chemicals.
- Ensure care is taken not to damage, contaminate or stain any adjoining material.
- Protect personnel operating near the area to be cleaned from any injury or hazard created by the cleaning.
- Whenever possible, care should be taken to ensure that the disposal of 'run-off' materials containing chemicals does not harm personnel, animals or any part of the environment.
- Trials should be carried out on a small, preferably inconspicuous, area of paving to determine the effect of the chemicals before treating a larger area.

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