HARDSCAPE PRODUCTS

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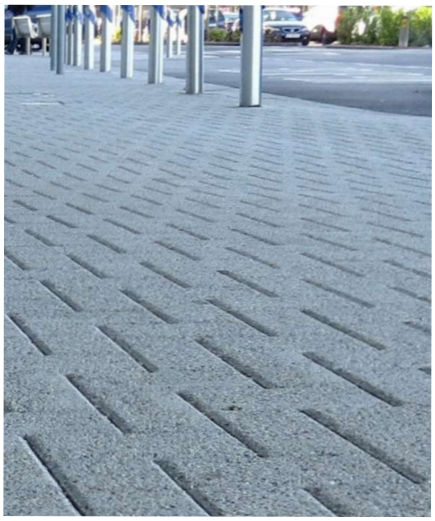
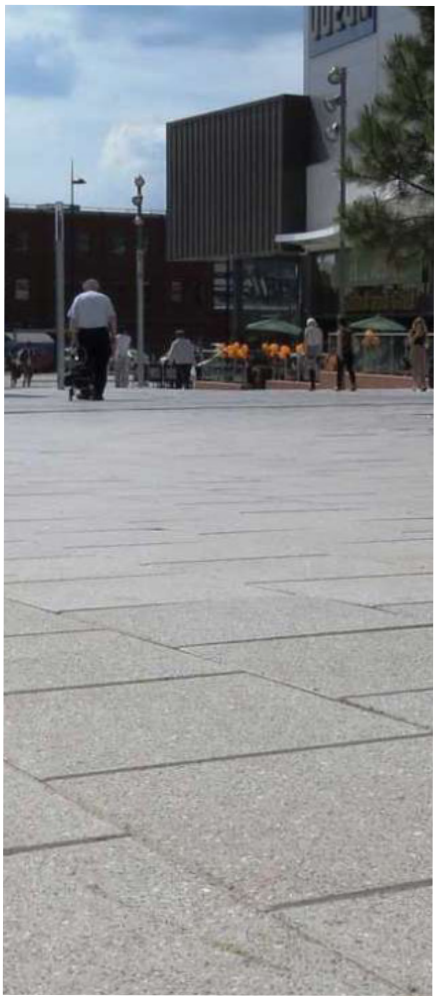
Guidelines for the maintenance of areas of Classic Modular block and flag paving

Classic modular block and flag paving provides a sound, durable and visually pleasing surface and finish which should last for many years when installed and maintained correctly.





Material Properties

Concrete is an artificial composite material composed of a binding agent (usually Portland cement), water, and aggregates such as sand, gravel, or crushed stone. Admixtures can be added to improve workability, setting time, or durability.

Hardscape supply paving slabs, setts, blocks,

kerbs, and large units used as benches or bases for wooden benches. These all come in many sizes, forms, colours, and finishes.

The typical composition of concrete includes:

Cement (10–15%): Acts as the binding material, most commonly Portland cement.

Water (15–20%): Initiates hydration and affects workability; too much or too little water can weaken the concrete.

Fine Aggregates (25–30%): Usually sand, filling voids and improving smoothness.

Coarse Aggregates (40–50%): Gravel or crushed stone, providing bulk and strength.

Admixtures (0–5%): Optional additives to enhance specific properties.

Key properties include:

Flexibility: Concrete blocks, kerbs, and paving can be engineered to suit a vast range of applications. Radial shapes, transition units, repeating oblique patterns, and large shaped units are easily created and replicated using concrete in set molds or production lines.

Compressive Strength: Ranging from 15-30 N/mm² or higher, depending on application.

Density: Normal weight concrete typically is around 1,800-2,400 kg/m³.

Durability: High resistance to weathering and heavy loads.

Shrinkage: Concrete shrinks as it matures, causing potential cracking, which requires control joints.

Thermal/ Fire Resistance: Fire resistant with low heat conductivity, with a specific heat capacity of 800-1000 J/kg°C.

Hazard Identification and Inspection

Regular inspections should assess the following conditions, which apply to all concrete products.

Surface Condition

- Cracked slabs or blocks (hairline or structural cracks)
- Spalling or surface breakdown
- Excessively worn or polished surfaces affecting slip resistance
- Loose paving units or rocking slabs
- Missing units creating hazards

Level and Alignment

Uneven levels between units (trip hazards)

- Subsidence or settlement indicating sub-base failure
- Heave or uplift (often caused by roots or frost)
- Misalignment or movement from the original layout

Jointing and Bedding

- Missing or failed joint material
- Widened or eroded joints
- Vegetation growth (weeds or moss)
- Water ingress through joints

Drainage

- Standing water after rainfall
- Blocked drainage channels or gullies
- Incorrect surface falls directing water away from drainage points

Edge Restraints

- Displaced or loose kerbs
- Failure of edge restraints causing spreading
- Damaged transitions between surfaces

Safety and Accessibility

- Trip hazards (generally >15 mm level difference)
- Slip hazards caused by algae, moss, oil or polishing
- Damaged tactile paving at crossings
- Obstructions or poorly positioned street furniture

Structural Integrity

- Repeated settlement or rocking slabs indicating sub-base issues
- Damage from heavy vehicles or service traffic

Cleanliness

- **Efflorescence:** Check for white powdery residue. (Further details below)
- Debris build-up affecting drainage
- Oil, gum or chemical staining
- Surface deterioration from salts or chemicals

Inspection frequency should be determined by site usage, risk level, and local authority requirements.

General Maintenance

Before cleaning, identify the contaminant and select the appropriate treatment. Where the contaminant is unknown, test the chosen cleaning method on a small, inconspicuous area first. These maintenance guidelines apply to all concrete products.

Efflorescence

Efflorescence may occur on the surface of paving as a patchy white or milky deposit. In simple terms this occurs as a natural phenomenon where the free lime from the cement used to manufacture paving can react with the moisture and local environment to produce a Calcium Carbonate deposit on the surface. Efflorescence causes no damage to the paving in any way and although deposits can be unsightly, they will disappear over time and more quickly in areas where the paving receives more traffic. Efflorescence is not caused by a problem with the Paving or the manufacture of it. It is naturally occurring and whilst every effort is made to minimise efflorescence, it is unfortunately not possible to eliminate this. Hardscape advise against the use of any acid cleaners to remove efflorescence, as these are often very harsh on the surface and may cause permanent damage. It is best to let efflorescence weather away naturally.

General Dirt and Debris

Regular brushing and hosing down with water should be all that is required to clean properly maintained paving. Pressure washing is not recommended for regular cleaning. This should be reserved for very dirty areas and carried out without using excessive pressure and keeping the lance at a low angle relative to the surface. Joints are likely to need topping up after pressure washing operations.

Weeds

Certain types of weeds and grasses can grow in between the joints in a paved surface. Particularly in flexible laid areas, the jointing sand will hold a certain amount of moisture and over time detritus builds up in the sand and the weeds will live off this. Usually weeds only grow in areas where the paving receives very little traffic or if it has been poorly maintained. Weeds can be removed manually before they become established by pulling low on the stem to drag out all the roots. Often treating the area with a suitable weedkiller will treat the rest. When using weedkiller, it is best to try the selected product and concentration in an inconspicuous area first to ensure it doesn't stain or damage the surface of the paving. Weedkiller should be applied in dry conditions for optimal effect. Where the area being treated has been particularly neglected, a second treatment may be required. The weeds may take some time to die and can then be removed by hand.

Algae and Moss

Algae generally form in damp areas and tend to grow in or around the paving joints and may spread over time. Usually seen as a thin green growth on the paving, algae shouldn't be mistaken for moss which tends only to grow in very damp joints. Algae can be treated easily using an appropriate water-based fungicide. The colour fastness of the surface should be checked in a small inconspicuous area before treating the whole area. Sealing the treated pavement will dramatically reduce recurrence and aid future maintenance.

Moss is commonly seen in all material types and tends to grow in shaded, damp and unmaintained areas. Typically, moss will form in the joints of paved areas where the sand remains damp and nurtures the growth of moss. Moss can be treated using an appropriate water-based fungicide. It is advised to test first on an inconspicuous area ensuring that it does not stain the surface. When the moss had been killed, it can be brushed or scraped off and the surface cleaned.

Lichen

Paving which hasn't been cleaned or treated for long periods of time is prone to developing Lichen growths which is a fungus which can live off the minerals deposited on the surface and can spread over large areas in some cases. This is very common and seen as white or black spots dotted around the paving. This type of growth unlike algae tends to penetrate the surface and the longer its left.

Treat only the affected areas with an appropriate proprietary biocide or weed killer 2 to 3 times per year following manufacturer instructions. Application is most effective during dry weather.

Rust Stains

Identify and remove the source of rust. Clean the affected area using a mild acidic solution or poultice, then rinse thoroughly.

Scuff Marks

Clean using a small stiff brush and water to minimise abrasion of the surface

Chewing Gum

Fresh gum may be removed by light scraping. Hardened gum can be removed by freezing and chipping away.

Oil Stains

Absorb excess oil using an absorbent material. Clean the area with a suitable neutral or mild detergent and rinse thoroughly. Steam cleaning can be used for more stubborn stains.

Bitumen

Allow bitumen to cool before removing mechanically using a scraper. Ice may help make the material brittle. Remaining residue can be removed with abrasive powder and rinsed.

Paint and Graffiti

Fresh paint should be absorbed without wiping. Clean the area using a suitable solvent followed by rinsing with water. Steam cleaning or low-pressure washing can be used for more stubborn stains. Dried paint should be scraped off before applying an appropriate paint remover. Specialist graffiti removal services may be required for large areas.

Beverage Stains

Brushing and hosing down with water should be all that is required to clean occasional beverage stains. Low pressure washing or steam cleaning may be used for stubborn contamination when continual and excessive.

Winter Maintenance

Concrete paving can be treated with standard de-icing salts without damaging the surface. Temporary discolouration may occur after thawing but normally disappears through natural weathering.

Where aesthetic concerns exist, alternative de-icing materials such as urea may be used.

Health and Safety Risks

Hazardous Substances

Some cleaning methods involve chemicals that may be harmful if misused. Always follow manufacturer safety instructions. Ensure:

- Suitable PPE is worn (Goggles, gloves, overalls)
- Surrounding materials and infrastructure are protected
- Public access is controlled during cleaning operations
- Adequate ventilation is maintained
- Flammable materials are protected from ignition sources
- Care taken to avoid chemical run-off into drains or vegetation

Any significant chemical or contaminant release into drains or watercourses must be reported to the Environment Agency.

Manual Handling

Damaged paving should be repaired or replaced promptly to prevent further deterioration and reduce trip hazards Potential hazards during removal include:

- Cuts from sharp edges
- Musculoskeletal injuries from lifting heavy paving units (often over 30 kg)
- Impact or crush injuries when breaking paving units

Mechanical lifting equipment should be used wherever possible.

Respirable Crystalline Silica (RCS)

Concrete commonly contains between 25% and 75% silica. Cutting or grinding concrete produces RCS dust, which can cause serious respiratory diseases including silicosis, lung cancer, and COPD. Control measures should include:

- Wet cutting or dust suppression
- Local Exhaust Ventilation (LEV)
- Suitable respiratory protection (FFP3 or P3 filtration)

Warranty

Concrete paving or blocks expect to have a **service life exceeding 25 years** when properly maintained, based on historical performance and Environmental Product Declaration (EPD) data.

A **5-year warranty from the point of purchase** is provided to cover material defects and ensure the long-term performance of the paving system.

PLEASE NOTE – Any advice, recommendation or representation given by an employee of Hardscape Products Ltd shall not be made liable and therefore acted upon entirely at the Customer's own risk.