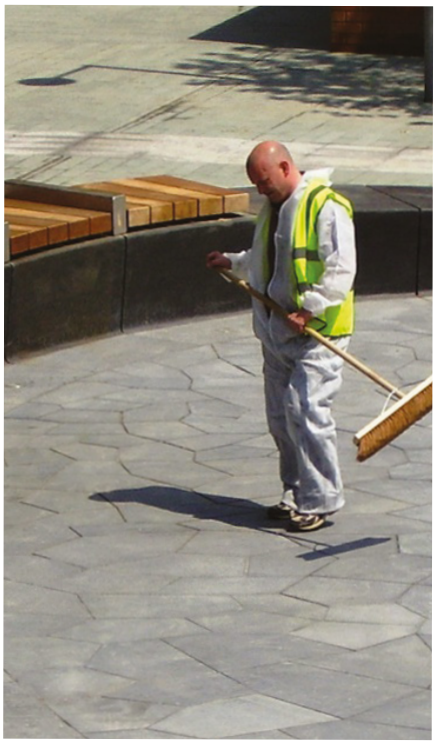
HARDSCAPE PRODUCTS

Eagley House, Deakins Business Park, Egerton, Bolton BL7 9RP

01204 565 500 **hardscapeproducts.co.uk**

Guidelines for the maintenance of areas of granite paving

Granite is a high-performance, igneous natural stone engineered by nature for the most demanding public realm environments. Its exceptional compressive strength and low-porosity make it a premier choice for urban infrastructure, offering a sophisticated aesthetic that requires minimal long-term maintenance in high-occupancy pedestrian zones and shared-surface schemes



Material Properties

Granite, regardless of colour or origin, shares common geological and physical characteristics due to its formation and mineral composition. It is primarily composed of quartz, feldspar, and mica, producing a hard, crystalline structure.

Key properties include:

- **Igneous Origin:** Formed by slow crystallisation of magma beneath the Earth's surface, creating a dense and durable stone.
- **High Hardness:** Typically, 6–7 on the Mohs hardness scale, providing excellent resistance to wear, scratching, and impact.
- **Thermal Stability:** Resistant to high temperatures due to its volcanic formation.
- **Low Permeability:** Naturally low water absorption, particularly when sealed.
- **Weather Resistance:** Performs well in exterior environments and resists rain, sunlight, and temperature fluctuations.
- **High Density:** Typically, 2.63–2.75 g/cm³, contributing to structural strength and durability.

Initial Maintenance

Materials are available for sealing the surface of the paving. These can be either impregnators or sealants to help with stain removal or to provide some some benefit in stabilising the sand in the joints in the short and longer term. If a surface sealant is used on paving, it must be applied in strict accordance with the manufacturers instructions. Sealants may affect the colour of the pavement and its slip/skid resistance and may require ongoing maintenance during the life of the paving. It is important that the surface of the paving is dry and clean before any sealant is applied.

Where new services are to be installed or access is required to existing services under the paved area, the paving should be lifted carefully, cleaned and stockpiled for later use. Before cleaning, identify the contaminant and select the appropriate treatment. Where the cozntaminant is unknown, test the chosen cleaning method on a small, inconspicuous area first. Devices for removing individual slabs are available. Once the initial paving has been removed, it should be relatively straightforward to uplift the area of paving. During relaying a slight surcharge should be created in the sand bedding course to allow for settlement of the paving following initial compaction and early trafficking. Typically, reinstated areas of paving should have a surcharge of 2-3mm over the surrounding paved area. As the majority of paving supplied by Hardscape is of industry standard and common dimensions and shapes, there should be no difficulty in obtaining replacement paving, however, to assure consistency and aesthetic harmony, these should be obtained from the original supplier.

Any replacement paving should be mixed with the existing paving to ensure an adequate colour blend between the old and new products.

Hazard Identification and Inspection

Regular inspections should assess the following conditions.

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

- 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.

Cleaning of Paving

General Dirt and Detritus

Routine cleaning should include sweeping and periodic low-pressure washing. Neutral cleaning solutions and low-abrasion equipment should be used where necessary. Thoroughly rinse surfaces after cleaning. To remove general dirt and detritus a cyclic maintenance regime is required. If detritus dulls the colour of the paving, it can be re-established by pressure washing or scrubbing with proprietary solutions following the manufacturers guidelines. This can be carried out by hand or by using industrial cleaning equipment. Ensure all soap has been thoroughly washed from the surface on completion of the cleaning.

Moss, Lichen and Algae

Moss, lichen and algae may grow on paving in areas which are heavily shaded or under trees or are not laid to an adequate fall, leading either to slow running off or ponding of surface water. If such growths do occur, the areas should be treated with an appropriate proprietary weed killer, used in accordance with the manufacturers instructions. Such products are most effective when applied during a spell of dry weather

Rust Stains

If rust stains occur on the paving, the first requirement is to eliminate the source of the staining. To remove rust stains, the surface should be wetted and the affected area treated with a prop solution. After cleaning, the paving should be well washed down to remove all traces of the acid.

Oil Stains

Oil does not penetrate readily into the body of granite paving, but if oil is spilt on the paving the spillage should be removed promptly with an absorbent material. After soaking up the majority of small spills, prompt washing with a prop solution should remove the stain. Steam cleaning can be used on paving to remove more extensive or stubborn stains, but if this is unsuccessful, an emulsifying degreasing agent should be employed. Brush the cleaner onto the affected area and then wash the emulsified oil away with plenty of water. Neither hot water, steam cleaning nor emulsifying agents will affect the colour of the paving.

Bitumen Stains

Bitumen does not penetrate readily into granite. The best method of removal is to leave the bitumen until it has cooled and remove it with a paint scraper or similar mechanical device. If it is particularly resistant, the use of ice to make the bitumen even more brittle may be required prior to scraping it from the paving. Any residue should be removed with an abrasive powder and finally the whole area rinsed with clean water. Certain proprietary cleaning agents are available to remove bitumen, but these should be tested on an inconspicuous area of paving first.

Paint and Graffiti

Both paint and graffiti are difficult to remove. Wet paint should be soaked up with an absorbent material. The area should not be wiped, as this will spread the paint. The spillage should then be treated with a suitable solvent, such as white spirit and the area washed with a strong detergent and hot water solution. Steam cleaning can also be employed. When paint has dried, it should be scraped off as far as possible and an appropriate paint stripper applied. This should be used in accordance with the manufacturers instructions.

Once the paint has been removed by the chemical, the area again should be washed with a strong detergent and hot water solution. Paint manufactures may often be able to give more detailed advice on the removal of their own products. There are companies specialising in the removal of graffiti and it may be necessary to consult them if there are large areas affected by the accident or as a result of vandalism.

Epoxy and Polyester Stains

Solidified epoxy or polyester resin can be removed by carefully burning the spillage with a blow torch or other heat source. Care must be taken not to inhale the fumes given off during the process. If after burning, a black stain remains on the paving, this can normally be removed by scrubbing the paving with a strong detergent and hot water solution. A small area should be tested before any large scale cleaning is undertaken.

Smoke and Fire Stains

Normally these stains can be removed by scrubbing with a strong detergent and hot water solution. Where the stains persist, a mixture of scouring powder and household bleach can be used, but this should only be used in very well ventilated area. When using bleach, it is important that the affected area is thoroughly washed once cleaning is completed.

Beverage Stains

These can normally be removed by scrubbing with a strong detergent and hot water solution. If the stain is persistent, apply a bleach solution and then rinse the area well with clean water.

Chewing Gum

Chewing gum is difficult to remove from all paving surfaces. Newly discarded gum can be scraped off using a scraper, but hardened gum can only be removed by either freezing the gum and chiselling it from the surface of the paving, or by using a high pressure water jet.

Scuff Marks

These can normally be removed by steam cleaning, or by scrubbing the area with a strong detergent and hot water solution.

Winter Maintenance

Granite paved areas may be treated with de-icing materials. Normal de-icing salts can be applied without any risk of damage to the pavement. Once the pavement has dried out after any thaw, however, the paving may be temporarily discoloured by the de-icing salts, as is the case for any other surfacing material. Normal weathering should soon remove such discolouration. If there is concern about the temporary discolouration of paved areas, then other de-icing materials, such as urea should be used.

Warranty

Granite paving is expected to have a service life exceeding 50 years when properly maintained, based on historical performance and Environmental Product Declaration (EPD) data.

A 10-year warranty from the point of purchase is provided to cover material defects and ensure the long-term performance of the paving system.

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 manufacturers 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.

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

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.

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