

# Guidelines for the maintenance of areas of limestone paving

Limestone paving is a popular natural stone option known for its durability, dense structure, and consistent, soft-toned aesthetic, making it suitable for both modern and traditional paving schemes.



## Material Properties

Limestone paving is a natural sedimentary stone formed over millions of years from compacted marine organisms and minerals, known for its dense structure and elegant, consistent colour tones. It offers exceptional durability and weather resistance, providing a hard-wearing, non-slip surface that stays comfortable underfoot in both summer and winter. The stone is naturally versatile and low-maintenance, available in a wide array of shades to suit both modern minimalist and traditional rustic designs.

### Key properties include:

- **Durability:** It is hard-wearing and strong stone (3-4 on the Mohs scale) capable of withstanding heavy foot traffic and harsh weather conditions
- **Density:** Limestone paving that we supply has a density range from 2.34t to 2.72t per m<sup>3</sup>, providing a solid, stable, and long-lasting foundation, often lasting for decades if maintained properly
- **Porosity & Water Absorption:** While porous, limestone is much less porous than sandstone, making it highly suitable for damp climates. However, it still requires sealing to prevent staining, moisture absorption, and to

maintain its colour

- **Surface Texture & Slip Resistance:** Limestone typically features a smooth, lightly textured surface often described as having an "orange peel" feel, which provides good slip resistance, even when wet. It is available in riven (natural), tumbled, sandblasted, or sawn (smooth) finishes
- **Thermal Properties:** It is naturally insulating, meaning it stays relatively cool underfoot in the summer and does not become excessively cold in winter
- **Colour Range:** Colours tend to be consistent and range from light creams, beiges, and whites to darker tones like grey, blue, and black
- **Acid Sensitivity:** As a calcium-based stone, limestone is sensitive to acid, meaning acidic cleaners should never be used, as they can cause etching and permanent, dull marks

## Hazard Identification and Inspection

Regular inspections should assess the following conditions.

### Surface Condition

- Cracked slabs or blocks (hairline or structural cracks)
- Opening or loosening in areas of fossilisation
- 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.

## 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.

### General Dirt and Debris

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.

### Moss, Lichen and Algae

These typically occur in shaded or poorly drained areas. Treat affected areas with an appropriate proprietary pH-neutral biocide or weed killer following manufacturer instructions and rinse thoroughly afterwards. 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 pH-neutral detergent and hot water. Steam cleaning may be used for stubborn marks where appropriate.

### Chewing Gum

Fresh gum may be removed by scraping. Hardened gum can be removed by freezing and chipping away, or with high-pressure water cleaning.

### Bitumen

Allow bitumen to cool before removing mechanically using a scraper. Ice may help make the material brittle. Proprietary cleaners may be used following a test on an inconspicuous area.

### Paint and Graffiti

Fresh paint should be absorbed without wiping. Low-pressure wash cleaning 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

Clean using a mild detergent and hot water. Low-pressure wash cleaning can be used for more stubborn stains. Steam cleaning may be used for stubborn contamination where appropriate.

### Smoke and Fire Stains

Clean using a pH-neutral detergent and hot water. Low-pressure wash cleaning can be used for more stubborn stains.

## Winter Maintenance

De-icing salts and agents can have a detrimental effect on Limestone paving. Scaling, pitting, and delamination may occur if the agents applied soak into the materials. Please consider alternative methods such as regular sand or Calcium Magnesium Acetate (CMA), which are both safe for the materials and the environment. Avoid the use of Rock Salt (Sodium Chloride), Ammonium Nitrates, or Sulphates, as these can corrode, mark, or damage the paving.

## 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)

Limestone generally contains less than 5% crystalline silica. Cutting or grinding limestone may be lower risk than other natural stones, but would still produce 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

Limestone 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.

**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.

