GENERAL GUIDELINES FOR THE CLEANING AND MAINTENANCE OF NATURAL STONE
Contents

1. Scope
2. General
3. Health & Safety
4. Maintenance of Paving
5. Cleaning of Paving
6. Efflorescence
7. Acid Washing
8. Sealants
9. The Use of Mechanical Sweepers on Paved Areas
10. The Use of Power Washing Equipment on Paved Areas
11. Further Reference
1.0 Scope

The following information should be read as a general guideline only for general cleaning of natural Yorkstone paving laid in accordance with British Standard Codes of Practice. A specialised cleaning company should be contacted and consulted before embarking on any of the following suggestions.

2.0 General

These notes are intended for general guidance and are not intended to be exhaustive.

All surfacing materials, may during service, experience some degree of surface staining and therefore require regular maintenance and good cleaning practice to maintain the overall appearance of the paving.

3.0 Health & Safety

Certain cleaning methods described involve the use of chemicals. Therefore it is important that any safety warnings issued by the chemical suppliers should be carefully read and strictly adhered to at all times.

In general the following precautions should be taken:

When using chemicals, protective clothing such as gloves, goggles, boots and overalls should be worn.

Adequate ventilation is required when using chemicals in confined spaces.

When using flammable materials all sources of ignition and naked flames should be removed from the area to be cleaned. In particular smoking MUST be prohibited.

When diluting acids, ALWAYS add acid to water and not water to acid.

Any clothing that is contaminated with chemicals should be disposed of safely.

When using any chemicals, care must be taken not to damage, contaminate or stain any adjoining materials, landscaping or finishes.

Care must be taken to protect personnel operating in the area of the cleaning from any injury or hazard created by the cleaning. The appropriate First Aid must be available on site.

NOTE: Before undertaking any cleaning operation a trial should be carried out on a small, preferable inconspicuous area, to determine the effect of the chemicals before treating a large area.
4.0 Maintenance of Paving

4.1 Early trafficking of areas of flexibly laid paving

Once the flexibly laid surface is complete (including complete filling of all the unit to unit joints) generally it can be opened to traffic. If the underlying bedding sand has been saturated by heavy rainfall, either during or immediately after compaction of the paving, trafficking should be delayed.

If saturation has occurred, the paving should not be trafficked by construction vehicles and no other traffic should be allowed until the laying course sand has been allowed to drain.

4.2 Initial Maintenance

During the very early life of flexibly laid pavements, the joints between the units will be relatively porous. The ingress of water can consolidate jointing sand, therefore it is important that the joints are regularly ‘topped up’ with sand to replace the sand consolidated by rainwater or removed by other factors.

The joints will soon become semi-impervious as the build up of surface detritus seals the joints. Until this has occurred the paving should only be brushed by hand. Mechanical Sweepers, and in particular sweepers with high suction forces should not be used, as there is a real risk of further loss of jointing sand.

4.3 Winter Maintenance

Normal de-icing salts can be applied on some natural Yorkstone paving without risk of damage to the pavement, but once the pavement has dried out after any thaw, the paving may be temporarily discoloured by the salt material as for any paved area. Normal weathering should soon remove such discolouration.

If there is concern to avoid temporary discolouration of a paved area, then other de-icing materials, such as ‘Urea’, should be used.
5.0 Cleaning of Paving

5.1 General Dirt and Detritus

To remove general dirt and detritus, regular brushing is recommended. The stone floor should be washed when required with a specialist stone soapless detergent using clean warm water and in accordance with the manufacturers guidelines. This should be applied with a clean cloth, mop or soft brush or washer dryer machine for larger areas.

Ensure all the area has been thoroughly washed with any surplus being removed. On completion of the cleaning the resulting run-off should be carefully channelled to either drainage points or containers where it can be safely disposed. The stone should be allowed to dry naturally.

5.2 Moss, lichens and algae

Moss, lichen and algae can be prevalent on hard surfacing where the area is heavily shaded, is under trees or is not laid to an adequate fall. If such growths do occur and are considered undesirable then the area should be treated with a proprietary weed or moss killer used in accordance with the manufacturer's instructions. Such products take some days to be effective and are most effective when applied during a spell of dry weather. The washes work best if any thick growths are scraped off first and the wash is well brushed in. Some treatments leave a residue to discourage the re-growth of the moss and algae but this will only be of limited value if the surrounding conditions leave the paving damp and in shade.

NOTE: Products containing Ferrous Sulphate can chemically react with the natural stone products resulting in a brown stain to the surface. Please check with the manufacturers of the weed or moss treatment for further advice on this matter.

5.3 Rust Stains

Initially action must be taken to eliminate the sources of staining.

To remove the rust stain, the surface should first be wetted with clean water and then the affected area treated with a suitable dilution of an appropriate acid solution. Please refer to 7.0, Acid Washing.

5.4 Oil Stains

Oil can penetrate readily into hard surfacing materials but it should not stain if any spillages are removed promptly with an absorbent material i.e. paper towels, cloth or absorbing granules.

Do not attempt to wipe the stain as this will drive the oil into the surface of the units and spread it over a wider area.

If the stain persists then an emulsifying degreaser should be employed. Brush the cleaner onto the affected area, leave for a period of time according to the manufacturers instructions and then wash the emulsified oil away with plenty of clean water.

Alternatively the surface can be scrubbed with a detergent and hot water taking care to ensure that the strength of the detergent is not detrimental to the appearance of the paving. However for persistent oil staining, steam cleaning may have to be considered.
5.5 Bitumen Stains

Fresh bitumen should be allowed to cool down before removing it with a paint scraper or similar. If it is particularly resistant, the use of ice to make the bitumen 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.

5.6 Graffiti & Paint Stains

Both paint and graffiti are difficult to remove from most hard surfacing materials. Fresh wet paint should be soaked up with an absorbent material without wiping the paint, as this will spread the stain. It should then be treated with a suitable solvent such as white spirit and then the area washed with a de-greasing agent taking care in the disposal of the run-off material.

Dried paint should be scraped off as far as possible and then an appropriate paint remover applied.

NOTE: Paint manufacturers may often be able to give more detailed advice on the removal of paint and graffiti. Therefore they should be consulted directly for specific recommendations.

5.7 Epoxy & Polyester Resin Stains

Areas of solidified epoxy or polyester resin can be removed by carefully burning off the area with a blowtorch. Care must be taken not to inhale any fumes given off.

If after burning a black stain remains, this can be removed by scrubbing with detergent and hot water. For larger areas grit blasting may have to be considered, however the effect of such treatment on the micro texture of the surface should be carefully considered. Again it is advised that a small area be tested before any large-scale operations are undertaken.

5.8 Smoke, Fire and Tobacco Stains

Normally such stains can be removed by scrubbing with detergent and hot water. Where the stains persist, a mixture specialist stone cleaning company should be contacted.

5.9 Beverage Stains

These can normally be removed by scrubbing the stain with specialist stone soapless detergent hot water. Rinse the area with clean water taking care to dispose of the run-off safely.

5.10 Chewing Gum

Chewing gum is a particularly difficult substance to remove from hard surfaces.

Newly discarded gum can be scraped off by using mechanical scraper but hardened gum can only be removed by either freezing the gum and chisel it from the surface of the paving or utilise a hot water/steam cleaner.

For specific advice on chewing gum removal it is recommended to contact specialist contract cleaning companies directly for further details.
5.11 Scuff Marks from Vehicle Tyres

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

Ensure that the joints are not subjected to prolonged exposure as this may have a detrimental effect on the jointing material. See section 10.0.

5.12 Cement and Lime Staining

Both types of staining can occur on paved surfaces usually as a result of contamination from other sources such as concrete street furniture or the use of onsite mortars and concrete.

Cement and lime deposits are generally insoluble and therefore require treatment by a suitable acid cleaner to fully remove the staining. Please refer to section 7.0, Acid Cleaning.
6.0 Efflorescence on Natural Yorkstone

Efflorescence or lime bloom is a transient phenomenon of ordinary Portland cement. Its effect is to lighten the colour of the stone and can appear as a white deposit covering part or the entire surface. Except in severe cases, the phenomenon disappears completely when the surface is wet and re-appears as the units dry out.

The phenomenon is temporary and will disappear with time as a result of natural weathering and trafficking processes.

Efflorescence is not a manufacturing fault, and is not detrimental to the long-term performance and durability of the units in any way.

Alternatively efflorescence can be removed chemically by using a suitable acid cleaner. Please refer to section 7.0, Acid Cleaning.
7.0 Acid Washing

Stubborn and persistent stains that will not generally weather away naturally will require the application of a specific acid cleaning treatment to remove them.

The cleaning product will contain specific application instructions however the basic principles will be as follows:

Prior to any acid cleaner being applied the surface must be thoroughly wetted with clean water to prevent the acid being absorbed directly in the paving. A suitable dilution of stone cleaning acid should then be prepared and applied to the affected area.

As the staining begins to dissolve, some frothing may be apparent which should be followed by agitation of the surface using a stiff bristle brush to completely remove all trace of the stain.

Once this process has finished, the whole surface should be rinsed thoroughly with clean water, taking care to dispose of the run-off safely. In the vast majority of cases one treatment will be sufficient, however, in some cases re-treatment may be required.

When using any form of chemical treatment the following guidelines should be strictly adhered to:

- With deeper stains the degree of acid treatment may result in an acid etched appearance.
- Protective clothing (gloves, boots, goggles etc) should be worn at all times when using chemicals and the appropriate first aid measures must be available on site.
- Take care to ensure that surrounding materials and landscaping are protected. Soft landscaping and exposed metals can be severely affected by chemical treatments.
- It is better to treat several times with the correct dilution than to use concentrated acid which may damage the surface of the unit.
- **Extreme care MUST be taken when using chemical cleaners on wet stone products as these are less resistant to such treatments.**
- When diluting acids always add acid to water and not water to acid.
8.0 Sealants

Proprietary sealing agents and impregnators are commonly used on paved surfaces to reduce moisture penetration of the laying course material and minimise staining from spillages. Whilst such products may offer certain short-term advantages, any benefits must be measured against the longer-term disadvantages of such systems on paving products.

If any other form of surface sealing is used on the pavers it must be applied in strict accordance with the manufacturers instructions and it must be accepted that is may have an effect on the colour and appearance of the paving, its slip/skid resistance and may require on-going maintenance during the life of the paving. It is important that the surfaces of the pavers are dry and clean before any sealer is applied.

In all cases, a sample area should be used to test the effectiveness and number of applications required to create the desired protective finish.

9.0 The Use of Mechanical Sweepers on Paved Areas

The following recommendations deal with vehicles and associated equipment of use on paved footways/footpaths/pedestrian areas and roads.

The equipment should be purpose designed to sweep the particular area and surfacing product. If there is any doubt the vehicle manufacturer should be consulted.

Where possible low ground pressure tyres should be fitted to reduce the risk of breaking or cracking of flags.

Tyres should be inflated according to the manufacturer’s recommendations, again to ensure minimum weight distribution per square mm.

Polypropylene brushes and NOT wire brushes should be used for sweeping to prevent damaging the stone surface.

Sweeping brush pressures should be set to the minimum required to suit the particular task, that is surfaces swept regularly will require a lower setting than those swept infrequently or those covered with heavy deposits.

When sweeping, engine revolutions should be set at the minimum required to maintain vacuum (suction) pressure.

Operators, including reliefs, should be trained to manufacturers recommendations and tyre and brush pressures should be regularly checked.

Advice should be given to operators that, when equipment is stationary of left unattended, suction, brush rotation and water jetting equipment should be switched off to avoid the risk of damage to the area below the stationary equipment.

In new or re-laid areas, agreement should be reached on a period of manual cleaning (at least four weeks) to allow the paving to settle and the joints to seal. This period may be reduced by using either a water based boning agent or electrometric prepolymer sealant and by agreement with the cleansing authority on an appropriate sweeping regime.

Following the use of mechanical cleaning operations, resanding of the joints in flexibly laid areas may be necessary.
10.0 The Use of Power Washing Equipment on Paved Areas

To aid in the removal of surface staining power washing equipment is often considered. Whilst such techniques offer certain benefits, particularly for larger areas, it is important that care is taken in their use to avoid damage to the structural integrity of the paving.

When using any form of Power Washer the following guidelines should be strictly adhered to:

This method should not be used in freezing conditions.

The power washer should be used on a setting which is sufficient to remove the dirt without causing any further distress. A low-pressure setting is recommended.

Do not direct the power lance directly down onto the paving as this can result in loss of jointing material.

Ideally a spraying movement should be adopted holding the power lance at a shallow angle, not greater than 30 degrees across the diagonal (i.e. not parallel to the joints).

Certain high-pressure jetting machines have been known to mark/damage the surface of certain types of paving material, it is therefore prudent to carry out a small test area before commencing on a larger area.

The area should be inspected after cleaning to ensure that joins are full.

11.0 Further Reference

For specialist technical advice and information on approved suppliers of products and services contact:

Stone Federation of Great Britain,
Channel Business Centre,
Ingles Manor,
Castle Hill Avenue,
Folkestone,
Kent, CT20 2RD.
T: 01303 856123
Website: www.stone-federationgb.org.uk

NOTE: In all instances, reference should be made to current British Standards and Codes of Practice as appropriate to the work to be performed.