



CENTRE D'ART
DIANE DUFRESNE

PAVER MAINTENANCE FOR COMMERCIAL INSTALLATIONS

UNILOCK[®]
DESIGNED TO CONNECT

UNILOCK PAVERS have proven their durability to architects, engineers and landscape designers in commercial applications for more than forty-five years and with proper maintenance they will continue to perform beautifully for years to come. This guide is intended to provide property owners and managers with useful information for developing a maintenance plan that delivers a solid return on this important investment.

SEALING

Unilock pavers do not require sealing to maintain their structural integrity. However, some owners choose to apply a transparent sealer in order to:

- enhance the color of the pavers
- give them a wet or glossy appearance
- prevent substances from penetrating the surface

Pavers that are sealed are generally easier to keep clean than unsealed pavers, thus reducing cleaning costs. However, a sealer that is applied after the pavers are installed will generally need to be **re-applied after two or three years**. Applying sealers too often will create a milky haze.

Some Unilock products are sold with sealers that are pre-applied in the factory. **Unilock Easy Clean™ Stain Resistance** provides integral surface protection from stains. Speak to your local Unilock Representative for more information.



CLEANING

A regular cleaning routine should be part of your maintenance plan, ranging from simply sweeping or blowing loose debris from the pavement surface, to less frequent deep cleaning with cleaning products and/or water.

STEPS:

1. Inspect the surface for cracked or broken units and replace as needed
2. Pull back or protect adjacent vegetation to protect from over-spray if using cleaning solutions
3. Wear protective clothing including goggles if using cleaning solutions
4. Spray water using a hose or power washer at an angle not greater than 30 degrees across the surface in order to minimize disturbance to jointing material
5. Thoroughly rinse cleaning solutions from the surface and channel to suitable drainage points
6. Inspect the area for integrity of joint material and replace as necessary



WEEDS

The best strategy to prevent weeds is to keep paver joints full. When joints are not kept full, windblown seeds can become lodged in the joints and germinate. If this happens, weeds can be removed by hand, burned or managed with herbicides. Consider using biodegradable products that won't damage adjacent vegetation or pollute water supplies.

Preventative joint maintenance removes debris before it can be trapped in the joint material. The scale of the equipment used to remove debris will vary depending on the project size, age and product type. The larger the paver installation, the larger the equipment.

For joints that are prone to erosion, consider reducing future maintenance costs by replacing the material with more technologically-advanced polymeric sands, joint sealers or epoxy mortars that are less prone to erosion.



COMMON TOOLS FOR CLEANING PAVER JOINTS



Hand-Held Bristle Broom



Leaf Blower



Rotary Brush Machine



Broom Sweepers



Regenerative Air Sweepers

JOINT MATERIAL CHOICES

REGULAR CONCRETE SAND	The original joint material. Angular makeup provides some lock up of material in the joint.		\$
JOINT SAND STABILIZER	A clear, microporous acrylic emulsion that penetrates the joint sand and helps hold it in place. Once set, it remains flexible to accept some movement in freeze thaw conditions. TIP - for maximum effectiveness, ensure joint sand is dry before applying.		\$\$
POLYMERIC SAND	A mix of graded sand and polymer, formulated for filling narrow or wide joints. Ideal for sloped installations. Applied dry, it hardens after moistening and remains flexible to accept some movement in freeze thaw conditions.		\$\$\$
FLEXIBLE EPOXY MORTARS	Available for commercial installations where high traffic resistance and minimal maintenance are required. High strength and self-compacting, they can be water permeable. Available in a variety of strengths, these mortars are applied in a wet format when temperatures are above 0°C (32°F)		\$\$\$\$

SURFACE STAINING

CONCRETE EFFLORESCENCE

Efflorescence is a naturally occurring calcium salt that can sometimes appear on the surface of concrete and clay products. Efflorescence does not affect the structural integrity of concrete; it is a purely aesthetic issue that typically disappears with no further intervention after a season of rainfall. However, if desired, the process can be accelerated by washing the surface with an Efflorescence Remover.

The chemistry of efflorescence; as cement interacts with water, calcium hydroxide is produced. This interacts with carbon dioxide in the atmosphere as the concrete dries, to produce calcium carbonate which appears through the pores of the concrete surface as a white residue. Repeated exposure to wetting and drying accelerates the wicking of this calcium carbonate to the surface.



STUBBORN STAINS AND GUM

For heavily soiled areas, and stubborn stains such as oil and gum, special stain removers or paver cleaning solutions can be used with a high-pressure washer or steam cleaner. Removers often work best when allowed to soak into the stain for 5-10 minutes before being washed, and a second application may be required. Remember to angle the pressure washer at 30 degrees to avoid damaging the paver or its joint material. Non-factory applied sealer may need to be reapplied after the cleaning is complete.



REMOVING RUST STAINS

Rust stains are caused by water running over oxidizing metal on the paver surface. When the metal object is not obvious, the cause may be metal shards left behind by plowing blades, or fertilizers containing ironite. Rust Remover cleaning solutions are available or in severe cases owners can choose to replace the stained paver.



WINTER MAINTENANCE

DEALING WITH SNOW

Equip plow scrapers and blades with shoes or high-density plastic blades to reduce the risk of damaging paver joints and the surface of the pavement. While scraping the surface without this protection will not compromise the structural integrity of Unilock pavers, it may effect the aesthetics of the surface by leaving behind rust marks and further damage the finish.

In contrast, a rotational snow broom (non-metal) can be used to remove snow safely from the paver surface.



Snow Broom for snow removal

DEALING WITH ICE

Rock Salt - Sodium Chloride (NaCl) for temperatures as low as 20°F (-7°C)

Calcium Chloride (CaCl₂) only when necessary when temperatures are below 20°F (-7°C) to -2°F (-19°C)

Follow the directions listed on the deicing product bag but use sparingly. Only apply the minimum amount necessary to melt the snow and ice. Over applying the product can still result in damage to concrete. Sweep and remove any excess deicing chemical after the ice and snow melts. After the winter season, thoroughly wash the paver surface to remove any excess deicing chemical remaining.

DO NOT USE:

- Magnesium Chloride (MgCl₂)
- Calcium Magnesium Acetate (CMA)
- Potassium Chloride (KCl)
- Potassium Acetate (KA)
- Fertilizers containing Ammonium Nitrate and Ammonium Sulfate

These chemicals rapidly attack and disintegrate concrete.



Rust marks on pavers from metal blade plow



Paver damage and rust from metal plow blade



Over salted pavers

CAUSES AND REPAIR OF SURFACE DISTORTIONS

THE IMPORTANCE OF WATER DRAINAGE

Pavers built as part of an overlay system, on top of solid surfaces such as concrete or asphalt, must be built with adequate drainage systems. If not, ejection of the joint and base material by water being forced through the joints under passing loads can result, often referred to as 'pumping' or 'water bleeding'. Sand slurry that is ejected through the joints by pumping can result in surface staining of the pavement close to joints; base or soil deformation is another indicator.

The poor drainage that causes pumping can be rectified early in the pavement's life by removing the units, repairing the base and installing drainage as needed before replacing the pavers. **If this problem is not caught early, catastrophic failure and destruction of the pavement can occur over time, particularly in areas with vehicular loads.**



PAVER SWELLING

Swell is an upward bulge in the pavement surface commonly caused by frost action in the subgrade or swelling soil. Remove the pavers to determine the cause of the swell, correct the source of the underlying problem if possible, re-level the base and reinstall the paver units.



SETTLEMENT

Settlement is commonly found adjacent to buildings or curbing where it is difficult for the installer to adequately compact the base material. When settlement occurs in other areas, causes can be water retention in the base material, washed out bedding or joint sand, or loose edge restraints that allow pavers to move apart. To repair settlement, remove the pavers, compact and re-level the underlying base material. If the surface needs to be adjusted more than 1-1/2" (40mm), DO NOT re-level by adding bedding sand alone; be sure to add material to the underlying base.

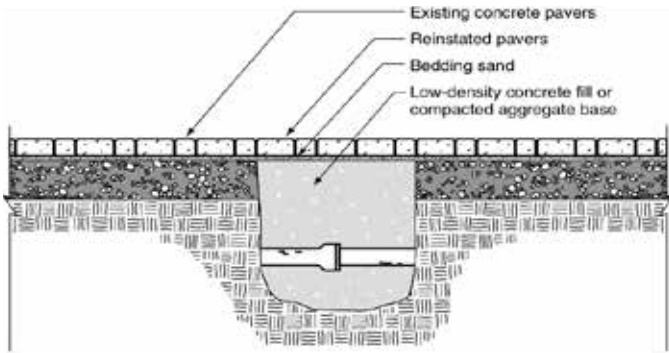


HORIZONTAL CREEPING

In vehicular applications, areas that are subjected to repeated braking, accelerating or turning in an area accompanied by loss of joint sand and/or edge restraint, the joint lines can sometimes bend, following the direction of the moving wheels. This horizontal creeping will eventually open paver joints, damage pavers, and accelerate deterioration. For mild creeping, maintenance involves topping up the joint material to minimize future movement. For severe creeping, remove units back to an area with stable, consistent joints, then re-install pavers creating consistent joints. Spread joint material and re-compact.



Cross section of reinstated utility cut into interlocking concrete pavement. (ICPI)



Pavers pulled for underground repair

UTILITY REPAIRS

The ability to repair underground utilities without causing irreparable damage to the pavement surface is a major advantage of Unilock pavers over other pavement material choices. Simply follow these steps:

1. Remove the area of pavers above the utility repair, plus approximately 18" (0.5m) on either side of the area.
2. Dig a trench to access the utility and perform the repair.
3. Refill the trench with base material and compact.
4. Replace paver bedding material and level.
5. Reinstall the pavers and compact.
6. Refill the joint material and compact, topping up the joints until full.



Site repair awaiting reinstatement



DESIGNED TO CONNECT.

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