

Wienerberger Technical Guidance

WATER PRESSURE WASHING CLAY BRICKWORK

Staining in newly built brickwork can result from a number of different causes, such as poor workmanship, poor detail design and accidents. Staining can cause a negative perception with clients and residents and it is therefore understandable that a quick solution to removing the stains is often sought.

One such perceived solution is the use of high pressure water washing of the brickwork, however this is **NOT** recommended.

Although brickwork is extremely durable when designed and executed correctly, the surface of the bricks and the mortar joints can be damaged under high pressure cleaning. It is not then possible to repair the brick surface, leaving it vulnerable to natural water penetration from wind driven rain, and also the possibility of frost attack.

There are many clay bricks on the market that vary considerably depending on the raw materials used, the manufacturing and firing process, and the age of the bricks.



Fig.1 high pressure washing NOT recommended

Water-based cleaning methods should be used to remove loosely adherent deposits only, with light brushing using a soft bristle brush (not wire), if required. Atmospheric deposits on clay brickwork are generally not water soluble, and chemical or wet abrasive cleaning processes should be used.

It is important to note, as mentioned above, that the mortar also requires assessment particularly the condition of the joints prior to any cleaning operation.

If pre-wetting and rinsing are required for a treatment (such as the use of dilute hydrochloric acid to remove mortar spots), this should be carried out with minimum wetting to minimise efflorescence caused by drawing salts to the surface of the brickwork.

Large amounts of water are potentially hazardous to buildings and proper precautions should be provided so that water does not enter the building. A system should be established so that the minimum practicable amount of cleaning water is used and that all potential water entry points are sealed.

NEBULOUS WATER AND FINE WATER SPRAYS

For nebulous water or fine water spray cleaning, the amount of water used should be the minimum required to maintain a wet surface. Once deposits are softened, they should be removed by brushing or pressure jets as appropriate. Water sprayed in pulses controlled by an electronic timer should be used to reduce the quantity of cleaning water.

HOT WATER

Hot water (at least 80 degrees) should be used to remove the solubility of alkaline cleaning agents to soften and remove some paints. Hot water should be used to rinse off paint and graffiti removers.

WATER PRESSURES

Water pressures should conform to the table below:

OPERATING PRESSURES		
Cleaning method	Low pressure psi (bar)	Medium to high pressure psi (bar)
Water washing	Up to 250 (17)	250 to 1000 (17 to 69)

NOTE: The operating pressures shown are not necessarily the water pressures at the wall face. These can be strongly influenced by other factors such as:

- water and abrasive flow rates
- nozzle shape and size
- distance between nozzle and the wall
- distance and height between the pressure equipment and the work face
- angle and direction of the nozzle
- nozzle wear

All of the factors including equipment pressure should be selected and adjusted to suit the substrate and soiling for each individual case. Nozzle wear and the frequency of replacement to carry out a consistent performance should be considered prior to carrying out a cleaning operation involving pressure nozzles and abrasives.

LOW PRESSURE WASHING

Fan or cone jet nozzles of 25 degrees minimum should normally be used for low pressure washing (hot or cold water). Water pressure and the type of nozzle should be adjusted as applicable to the substrate and its condition. Rotating nozzles should be used for rinsing inside recesses of surfaces such as mouldings and carvings. Pressure, angle and nozzle distance from the surface should be carefully controlled. Cleaning should be carried out by wetting and softening, rather than cutting with the water.

Low pressure washing should be used after softening the deposit with fine water spraying, or to rinse off superficial deposits from masonry prior to carrying out another cleaning process. Low pressure water should be used for rinsing off wet abrasion debris and for pre-wetting and rinsing surfaces for chemical cleaning.

MEDIUM TO HIGH PRESSURE WASHING

This utilises water cutting action and should only be used on impact resistant surfaces.

STEAM CLEANING

Steam cleaning should be used for operations that require low water usage. Steam cleaning (with suitable detergents or chemicals) should be used to remove isolated deposits (eg. grease, chewing gum). Care should be taken to ensure that steam cleaning does not cause deposits to move to the edge of the cleaning area, giving an uneven appearance.

With any cleaning operation, it is highly recommended that a trial clean takes place first on an inconspicuous area of the brickwork to assess the success of the results.