

# SITE PRACTICE AND TROUBLESHOOTING

## WATER PRESSURE WASHERS AND BRICKWORK

### - WHAT YOU NEED TO KNOW

It is NOT recommended to clean down brickwork using high pressure water washers.

The damage that can be done could lead to serious repercussions for the appearance and long term durability of the brickwork.

Brickwork is designed to perform adequately under normal weathering cycles including wind driven rain as long as it is built in accordance with British Standards Code of Practice and our own recommendations. High pressure water hoses can blast away mortar and damage the texture of bricks leaving the surface of the building vulnerable to future water penetration from natural weathering and also frost failure.

#### PRESSURE OPERATED CLEANING - WATER OPERATING PRESSURES

Cleaning method	Low pressure psi (bar)	Medium to high pressure psi (bar)
Water washing	Up to 250 (17)	250 to 1 000 (17 to 69)

NOTE The operating pressures given are not necessarily the pressures at the wall face. These may be strongly influenced by other significant factors, including: water flow rates; nozzle shape and size; nozzle wear; distance between the nozzle and the wall; distance and height between the equipment and the work face; angle and direction of the nozzle.

All of the factors including equipment pressure should be selected and adjusted to suit the substrate and soiling for each individual case.

#### CLAY BRICKWORK

Differences in surface texture, porosity, colour and hardness of clay bricks, within a wall (or even within individual bricks) should be identified prior to carrying out any cleaning operation.

Hardness and condition of mortar joints should also be assessed.

##### Reasons for Cleaning

Newly erected brickwork - usually comprise construction stains such as mortar residues and splashes. Lime bloom from new mortar and re-pointing containing Portland cement can also manifest itself and can take many months to weather away naturally.

Low pressure water based cleaning methods can be used to remove loosely adherent deposits with light brushing using a soft brush, if required. A proprietary brick cleaning agent should be used to remove mature deposits followed by a low pressure rinse with clean water.

With established brickwork- the main problem is atmospheric soiling, which is generally not water-soluble.

#### PROTECTION OF BUILDING SURFACES

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

points should be thoroughly sealed. Temporary catchments and gutters should be provided, if required, to efficiently remove water from the building and to avoid over-saturation at lower levels.

#### PRECAUTIONS FOR WATER CLEANING

##### Nebulous cold water spray

Sheeting protection should be used to prevent fine spray drift. Water penetration and associated damage can occur.

##### Low pressure washing

Fan or cone jet nozzles of 25° minimum should normally be used for low pressure washing (hot or cold water). Water and type of nozzle should be adjusted as applicable to the substrate and its condition. 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 (e.g. organic growth) from masonry prior to carrying out another cleaning process, and should be used for rinsing off wet abrasion debris and for pre-wetting and rinsing surfaces for chemical cleaning. It can damage friable stone, soft stone, and weathered or sound sand lime mortar joints.

Water penetration and staining problems can occur due to the large quantities of water used with this technique.

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#### PRECAUTIONS FOR WATER CLEANING CONTINUED

##### LOW PRESSURE HOT WATER SPRAY AT A MINIMUM SET TEMPERATURE OF 80 °C.

Glass, putty, paintwork, plastic pipes, window frames, and guttering should be protected when using low pressure hot water spray at a minimum set temperature of 80 °C.

##### MEDIUM TO HIGH PRESSURE WASHING

This requires a high level of operative control. It can have a cutting effect on surfaces. The technique can break down friable or delicately carved detail. It can remove aged but sound mortar pointing. It should not be used for initial rinse of chemical cleaning agents (as it can cause uncontrolled dispersal of concentrated chemical).

**High pressure washing (“hydroblasting”) must not be used on masonry.**

##### STEAM CLEANING

Steam cleaning should be used for operations that require low water usage (e.g. building interiors) and, with suitable solvents, should be used to remove isolated deposits (e.g. bitumastic paint, oil, grease, and chewing gum). Care should be taken that steam cleaning does not cause deposits to move to the edge of the cleaning area, giving an uneven appearance. Trials should be carried out to ascertain the effect of steam temperatures on stone, brick and terracotta. Steam and condensation can cause problems in interiors of buildings.

For further information refer to BS 8221-1 Code of Practice for cleaning and surface repair of buildings and BDA-Cleaning of Clay Brickwork, maintenance and repair no. 4.1.

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