

Cleaning brickwork

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Health and safety

All mortar mixtures, both wet and dry, are abrasive and alkaline. When working with wet mortar, waterproof or other suitable protective clothing should be worn. Guidance on the use of these materials can be found in MPA data sheet No. 20.

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Introduction

It is vital for its long term durability that fresh brickwork is not high-pressure jet washed.

This incorrect practice is sometimes used on building sites to remove mortar splashes on newly completed units to expedite their appearance for sale. In the process, the faces of the bricks first have diluted hydrochloric acid applied to them, which is then jet washed off.

This damages the face of the mortar joint. The bricklayer has spent time and care to create a clean, smooth finish to a mortar joint. This brings the cement to the front of the joint and seals the mortar creating a solid, finished surface. Jet washing with acid, usually too close to the face work, blasts off the sealed joint and also the face of the brick. This leaves the joint exposed, worn and exposed to the elements and potentially liable to further damage.

This learning text outlines measures to be taken to ensure cleaning of fresh brickwork is carried out in a safe manner.

Cleaning brickwork

Fresh mortar splashes on brickwork during construction should be removed by brushing with a soft brush or scraping with wooden scrapers. Hardened splashes, often only becoming visible when scaffolding is taken away and is more difficult to remove although some deposits may be removed by use of a chisel.



However, if there is extensive splashing, careful washing using a diluted acid solution and low pressure water may be required but this should only be carried out when the mortar is deemed to have cured, probably at least after more than 28 days after application, the generally accepted minimum curing time for cement-based products.

Before cleaning work begins, the hardness and condition of mortar joints must be checked and notice taken of the differences in surface texture, porosity, colour and the hardness of bricks within a wall.

Prewetting and rinsing

Washing should always be carried out with minimum wetting to minimise possible efflorescence - the white staining of brickwork - caused by drawing salts to the surface of the bricks.



Mortar splashes may be treated with a dilute hydrochloric acid solution, as bricks and joints should be assumed to be moderately to highly porous to chemical cleaner. Concentrated hydrofluoric acid-based cleaners should not be used and any acid solution should be washed off with clean water as quickly as possible. However, rinsing water should not be applied at excessively high pressures, or through an unsuitable nozzle. This is explained further in below.

Operating pressures

Cleaning method	Low pressure psi (bar)	Medium to high pressure psi (bar)
air abrasion	up to 40 (2.75)	40 to 100 (2.75 to 6.9)
Water washing	up to 250 (17)	250 to 1,000 (17 to 69)

Water and air pressures

Recommended water and air pressures to be used when washing brickwork are shown in the table below, taken from the British Standard publication BS 8221-1:2012, Code of practice for cleaning and surface repair of buildings, part one.

Operating pressures given are not necessarily the pressures at the wall face as these can be influenced by other factors, including:

- air, water and abrasive flow rates
- nozzle shape and size
- abrasive shape, hardness and size
- distance between the nozzle and wall
- distance and height between the pressure equipment and the work face

- angle of direction of the nozzle
- nozzle wear.

All these factors, including equipment pressure, should be considered and adjusted to suit the brickwork and soiling in each individual case.

Low pressure washing

Fan or cone jet nozzles of 25° minimum should normally be used for low pressure washing.

Pressure, angle and nozzle distance from the surface should be carefully controlled.



Protecting surrounding surfaces

When washing brickwork, care must be taken to protect surrounding surfaces which could be damaged if exposed to large quantities of water. It is essential to ensure:

- the minimum practicable amount of cleaning water is used with low pressure application
- all potential water entry points are sealed
- temporary catchments and gutters are provided, if necessary, to remove water from the surrounding area and to avoid over-saturation at lower levels.

Self-assessment questions

1 Why should you not use high-pressure jet washing on fresh brickwork?

A _____

2 How do you remove fresh mortar splashes from brickwork?

A _____

3 How can you remove extensive mortar splashing?

A _____

4 What acid would you use for cleaning mortar off brickwork?

A _____

5 What checks on the brickwork would you carry out before washing it?

A _____

6 how would you know what water and air pressures you should use when washing brickwork?

A _____

7 What size fan or cone nozzle would you use for washing brickwork?

A _____

8 What general site precautions should be taken when washing brickwork?

A _____

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Answers to self-assessment questions

- 1 This is likely to damage both the mortar joint and also possibly the surface of the brickwork. This puts in jeopardy the long-life of the brickwork.
- 2 Brushing with a soft brush or scraping with wooden scrapers.
- 3 Carefully wash using a diluted acid solution and rinsing with water under low pressure.
- 4 A dilute solution of hydrochloric acid.
- 5 Check the hardness and condition of mortar joints and the differences in surface texture, porosity, colour and hardness of the bricks.
- 6 Refer to table five in BS 8221-1:2012.
- 7 25°.
- 8 Ensure all neighbouring surfaces are protected against excess water.

MPA Mortar Learning Texts include:

- 1 Introduction to modern mortars
- 2 Cementitious materials
- 3 Aggregates
- 4 Admixtures, additives and water
- 5 Brick and block production
- 6 Properties of masonry mortar
- 7 Production, delivery and storage of mortar
- 8 Mortar testing
- 9 Specifications
- 10 Quality assurance
- 11 Construction
- 12 Properties of rendering mortar
- 13 Best practice - potential site problems
- 14 Cleaning brickwork



MPA Mortar is part of the Mineral Products Association, the trade association for the aggregates, asphalt, cement, concrete, dimension stone, lime, mortar and silica sand industries.

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