CHAPTER 6

CLEANING OF CLAY BRICKWORK

CLAY BRICK for good

Environmentally Friendly

CLEANING OF CLAY BRICKWORK

Prevention is better than cure: Cover face brickwork during building or renovating operations to prevent mortar and paint stains.

General Precautions

Staining can mar the appearance of brickwork, but incorrect cleaning techniques can cause permanent damage. Consequently, any proposed method of cleaning should be tried out in a small unobtrusive area and left for at least a week to judge the results before the whole job is tackled. The techniques given here are intended for do-it-yourself work in removing relatively small areas of staining. A specialist contractor should be engaged for cleaning large areas of brickwork.

It is preferable to use wooden scrapers and stiff fibre brushes to avoid damaging the bricks but where chemicals are to be used, the brickwork should be thoroughly wetted with clean water to prevent it absorbing the chemicals, and rinsed thoroughly with clean water afterwards. Adjacent features such as metal windows and the area at the foot of the wall should be protected from splashing of the chemicals.

Many of the chemicals recommended are caustic, acidic or poisonous, so care should be taken and protective clothing and goggles should be worn. Volatile solvents should only be used indoors under conditions of good ventilation. It is essential to identify the type of stain or deposit before any cleaning operations are undertaken.

Preparation

Remember to thoroughly wet the brickwork with clean water before applying any chemical, and wash down with clean water afterwards. Bricklaying should be managed carefully to prevent unsightly staining from mortar.

Mortar and Mortar Smear

Where possible, remove larger pieces with a scraper, then wash, down with a dilute solution of a proprietary acid cleaner. The manufacturer's instructions must be strictly followed.

- Wet the brickwork thoroughly with water.
- Remove mortar with a proprietary acid cleaner.
- Remove any residual acid in the brickwork by washing down with water.
- When removing mortar smear from brickwork that has a potential to exhibit vanadium staining, the following final procedure is then recommended:
- Treat the brickwork with a 15 to 20% solution of Potassium Hydroxide to prevent the recurrence of the vanadium stain.

Lime and Lime Bloom

Follow treatment recommended for 'Mortar and Mortar Smear'.

In older brickwork lime staining originating from the reinforced concrete structure can be particularly difficult to remove. It is important to stop the flow of moisture through the structure to overcome the problem.

NOTE

Light coloured face bricks are particularly susceptible to severe staining if too harsh an acid is used -please consult your brick manufacturer or the Clay Brick Association.

Vanadium

Wash down with a 20% solution of Potassium Hydroxide. Do not wash the wall with clean water afterwards (Hydrochloric acid should never be used on vanadium stains since it 'fixes' them and turns them brown.

Efflorescence (white Crystals or White Furry Deposit)

This usually disappears rapidly from new brickwork by the action of wind and rain. Brushing or sponging down the wall at times of maximum efflorescence will also help, the salts brushed off should not be allowed to accumulate at the base of tile wall, otherwise they may be carried back into the brickwork by subsequent rain.

Lichens and Mosses

These can be killed with a solution of Copper Sulphate (1 kg to 10 litres of water) or a proprietary weed killer. Vegetable growth is generally indicative of damp brickwork and will usually reappear if this basic cause is not cured, (Green staining which does not respond to this treatment is probably due to Vanadium salts from within the bricks.) Boiling water or steam is very effective in cleaning mosses.

Running Water

Water running regularly down the surface of brickwork produces pattern staining and this can usually be removed by scrubbing after wetting with a high pressure mist spray of cold water. If this is not effective, the treatment recommended for mortar should be followed. Moisture movement concentrates salts and is the main cause of all staining.

Various Oils

Sponge with white spirit, carbon tetrachloride or trichloroethylene, Good ventilation is essential if volatile solvents are used indoors.

Paint

Apply commercial paint remover or a solution of trisodium phosphate (1 part to 5 parts of water by mass), allow the paint to soften, and remove with a scraper. Wash the wall with soapy water and finally rinse with clean water.

Rust or Iron

Wash down with a solution of oxalic acid (1 part to 10 parts of water by mass). (Brown staining which does not respond to this treatment, particularly at the junction of the brick and mortar, is probably due to manganese).

Manganese (Dark Brown)

Brush the stain with a solution of 1 part acetic acid and 1 part hydrogen peroxide in 6 parts of water.

Timber (Brown or Grey)

These stains are due to water spreading tannin or resin from the timber across the bricks and mortar. Normally they can be removed by scrubbing with a 1:40 solution of oxalic acid in hot water.

Smoke and Soot

Scrub with a household detergent. The more stubborn patches can be removed from the brick pores using trichloroethylene, although good ventilation is needed if this is used indoors.

Tar

Except where bricks are liable to surface damage, remove excess tar with a scraper, then scrub with water and an emulsifying detergent. If necessary, finally sponge with paraffin. Do not wet brickwork with water first.

Large Projects -Multi-Storeyed Buildings

Sandblasting is not recommended as a solution although it has been used in special instances overseas. High pressure cleaning is suitable if well managed by experienced contractors and with agreement and pre-planning between the architect, contractor, sub-contractor and brick manufacturer.

- Hand labour should be used to remove large mortar particles.
- Cleaning should only start about seven days after the building is complete when the mortar is set.
- Metal, glass wood surfaces, etc. should be appropriately masked.
- Cleaning should commence at the top of the building working downwards.
- The walls should be saturated with clean water before chemicals are applied.
- Choice of application pressures and chemicals are critical to the operation.

NOTES