Forticrete

LIME BLOOM

What is lime bloom?

All cementitious materials are susceptible to lime bloom, which appears as thin white patches or as an over-all lightening of colour. The latter is sometimes mistakenly interpreted as units being made in of a lighter colour.

Cause and prevention

Lime bloom happens when free 'lime' in the form of calcium hydroxide (which is slightly soluble in water) migrates to the surface as the material dries out. On reaching the surface it reacts with carbon dioxide from the atmosphere to produce a surface deposit of calcium carbonate.

During Construction, Masonry blocks, Cast Stone and Precast units should be protected from rain as much as possible. At the end of the day work should be covered, this is particularly important in the case of hollow blocks to avoid saturation. Prevention of excessive moisture will reduce the risk of lime bloom which is generally attributable to a build-up of moisture within the wall.

Lime bloom is sometimes referred to as efflorescence, which is not the same, as that refers to water soluble salts which are brought to the surface by excessive wetting.

Lime bloom is not detrimental to the performance of the building and is an aesthetic issue only.

Lime Staining.

Remediation for lime bloom

Lime bloom is transient and normally disappears as a result of normal weathering, rainwater being slightly acidic dissolves the deposits over a period of time. The length of time will depend upon factors such as rainfall and exposure of site etc.

Lime staining or weeping

The cause of lime staining is similar to lime bloom, however, prolonged saturation will cause a build-up of carbonated material. The source is more often from the mortar joints which can leech across the face of the surrounding masonry.

For further help and advice contact Forticrete Technical on 01909 775000 or email technical@forticrete.com

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Remediation for lime staining or weeping

NB: Not applicable to polished masonry

All cleaning work needs to be carried out by a qualified /specialist contractor who is conversant with the susceptibility of masonry, walling and cast stone to various cleaning materials and processes.

The following procedures are given by way of guidance and may prove useful.

We would urge caution: when applying any cleaning methods it is advisable to carry out a test area before commencing upon the main work. Always start with the least aggressive treatment and then proceed to the next. Firstly commence with a general cleaning down with water and a mild detergent using a bristle (not wire) brush.

If the problem still remains when the stonework is dry you can apply a proprietary non-acid based masonry cleaner. You should consult the manufacturer of the cleaner as to its suitability for use on cast stone, walling and masonry products. Ensure that you wet up first and always use weaker solutions first and increase as necessary. Notwithstanding the manufacturer's instructions keep the dwell time to a minimum, scrub off with cold, clean water and do not let products dry in. Rinse thoroughly with a hosepipe.

As a last resort a Hydrochloric acid based cleaner can be used. Great care is needed when these types of cleaners are used. Again you should consult the manufacturer of the cleaner as to the suitability of the cleaner for cast stone, walling and masonry products.

Follow manufacturer's instructions, wet masonry, use weak solutions first, increasing strength as necessary. Notwithstanding manufacturer's instructions, only allow the product to remain on masonry for a very short time before rinsing with hosepipe, repeating the treatment as necessary. Do not use neat acid on masonry, walling and cast stone.

Notwithstanding any cleaning manufacturer's instructions do not use high pressure washers to rinse masonry, walling and cast stone as these can 'blast out' the fines on the surface resulting in swirling patterns which cannot be removed (refer to Technical Information Sheet 2- Pressure Washers).

Please ensure that you protect adjacent surfaces and obtain all information regarding Health and Safety regarding the use of cleaning materials and follow the recommendations.

A note on efflorescence (water soluble salts).

Similar in appearance to lime bloom, efflorescence is best left and allowed to weather away. Water Soluble Salt efflorescence tends to disappear when wet as it returns to a soluble form, some may soak back into the masonry and reappear to a lesser degree as it dries. After a few weathering cycles the salts have often completely disappeared.

Further Information

Further details on cleaning of concrete can be found in BS 8221-1:2012 Code of practice for cleaning and surface repair of buildings-Cleaning of natural stone, brick, terracotta and concrete, or BRE Digest 449 Part 2 Cleaning exterior masonry: methods and materials.

Note: Saturation may increase the presence of lime bloom/efflorescence.

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