

## EFFLORESCENCE

Efflorescence is most prevalent in the early life of the building, particularly the first year. In many areas it will not reappear after the first year, and in those situations where it does, it will be less evident than the initial occurrence. Some progressively reduced occurrence can be visible in the second and third year and possibly beyond. It commonly occurs in spring, following wet winter working conditions, when the building dries out for the first time.

Visible as a harmless deposit of soluble material on the surface of brickwork, its texture may vary from light and fluffy to hard and glassy, depending on its composition. The deposits consist of natural occurring soluble salts which vary considerably throughout the country, not only within the clays used for the manufacture of bricks but also in the constituents necessary for the production of the mortar i.e. sand and cement.

Apart from the salts derived from the bricks and mortar, almost any salt can form efflorescence if it is introduced as a contamination from external sources. The quantities of salts involved are small and a tiny percentage of soluble sulphates in the bricks or the Portland cement is sufficient to account for the amount of efflorescence usually seen.

Salts in brickwork are dissolved by the water which is introduced during construction or from rain. As the wall begins to dry out, the solution of salts becomes more concentrated and the dissolved salts will be deposited on the surface of the brickwork. This tends to be more prevalent at low temperatures, i.e. early Spring.

### Protection

Little, if any, masonry is immune from the potential effects of efflorescence. Factors which influence the incidence of efflorescence are:

- *Design and detailing, e.g. lack of protection in cills and copings.*
- *Site practice, e.g. failure to protect unused bricks and newly built brickwork.*
- *Site inadequacies -failure to observe design requirements e.g. inadequate formation of dpc. detailing.*
- *Site exposure - specific building elevations can be more at risk than others by their position in relation to prevailing wind and rain conditions. Also particular areas of exposed brickwork, e.g. parapets.*



Attention must be given to these aspects in order to minimise the risk of efflorescence. Guidance on detailing and protection is given in the Code of Practice for the Use of Masonry, BS 5628, Part 3, Materials and Components, Design and Workmanship.

## TECHNICAL INFORMATION SHEET 2

Efflorescence during construction can be minimised by maintaining a high standard of workmanship. Items for particular consideration include the following:

Bricks should be stacked onto, a clean, firm level surface. They should be protected from rain, mud splashes, etc. by covering with waterproof sheeting.

Turn back the scaffolding board closest to the brickwork at all interruptions to construction.

Newly erected masonry should be covered to protect cavities and stop masonry becoming saturated. Unless instructed, the method of "dipping" bricks prior to laying should be avoided.

Equally important is the incorporation of the appropriate d.p.c.'s, copings and cills at the design stage. No amount of good site management can alleviate efflorescence from a badly designed construction.

### Remedial

**In considering remedial treatments, efflorescence should preferably be allowed to weather away naturally. Its removal can be accelerated by dry-brushing with a soft to medium nylon/bristle brush.**

**A wire brush should not be used.**

**The residue being collected and removed so that it does not re-enter the brickwork at a lower level.**

**The use of a silicone treatment should be avoided since this can result in more permanent problems.**

The majority of efflorescence concerns relate to newly constructed brickwork. Recurrent efflorescence on older established brickwork can often be taken as an indication that water is entering the masonry as a result of failure of weathering and other protective measures, e.g. faulty gutters.

For further help and advice contact the **Design & Technical Helpline** on **0844 800 4576**.

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