

## Efflorescence or Why is my building all white?



Many buildings at some point in their history exhibit some form of efflorescence. What is efflorescence?

Efflorescence is a white chalky substance that often occurs on the surface of a masonry wall and it is comprised of water-soluble salts. When soluble salts are dissolved in water, this becomes a salt solution. The salt solution then moves to the surface of the masonry wall where the water evaporates and leaves the salts on the surface, that is efflorescence.

Because the efflorescence is typically displayed all over the face of brick, some may think this is caused by the clay brick. The clay has little or no soluble salts in it, so it is more probable that the transfer of the soluble salts from mortar, or grout which is contacting the clay brick, is causing the efflorescence. Clay brick can be tested by an ASTM C67 test for the presence of efflorescence by being immersed in distilled water for 7 days. This test usually results in a “non-effloresced” brick. Similar masonry materials that contain cement usually fail this test as they have a higher tendency to effloresce.



## Before and after cleaning of efflorescence.

The good news about efflorescence is that it can usually be cleaned off from the masonry wall using a good masonry cleaner. In some instances, the rain alone can wash this stain away.

If efflorescence occurs in a building in the first year of its existence, it is referred to as "New Building Bloom"! There is a lot of moisture in the walls and entire structure of a newly completed building, and it may take that first year with the heat on for the moisture to escape the walls and dissipate.



### Here are some positive things that can be done to eliminate efflorescence from even showing up on a masonry project:

- Material selection. Architect to choose non-effloresced brick or a material with low cement content.
- Architect to design the structure so that it will have minimal water penetration by the elements.
- Design the masonry wall with proper airspace (we like  $\frac{3}{4}$ " or a little more).
- Proper selection and installation of flashing with weep vents.
- Design flashing of other materials (used in conjunction with masonry) so runoff does not affect masonry. BIA recommends to waterproof masonry below grade or below the flashing location.
- Always use clean potable water in mixing mortar or grout.
- Keep materials intended for the structure dry.
- Cover walls when partially or completed with waterproof membranes.
- Proper filling of joints for mortar
- Proper caulking joints at control and expansion joints and around windows.

Another white stain that shows up on masonry projects is something called a lime deposit. This stain is harder to clean than an efflorescence stain and it requires a lot more scrubbing with chemicals to properly remove. This stain is primarily caused by mortar or grout being left in the space behind the brick intended as an air space thus forming a bridge across the cavity. The best way to avoid this stain would be to hire a union mason contractor who will have the properly trained men to install this correctly and eliminate this from happening.

**Do you have a question about efflorescence or other masonry topics? We've got answers!**

Call MAC at **847-297-6704** or email us at [info@masonryadvisorycouncil.com](mailto:info@masonryadvisorycouncil.com)

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