

CDR BULLETIN

MASONRY EFFLORESCENCE

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By Michael Showalter

Efflorescence and calcium carbonate staining can occur during or after construction is complete. Both are white in color and are the direct result of moisture in the wall. Efflorescence appears as a powdery salt residue, while calcium carbonate appears in hard, crusty stains and in some extreme instances forms stalactite-like features.

Excessive efflorescence or calcium carbonate staining on the face of the masonry wall usually is the result of one of the following:

1. Too high a water content in masonry units and/or mortar during construction.
2. Lack of physical protection of the building during construction in wet weather
3. Ineffective flashing and coping assemblies to prevent rain water from entering the wall.
4. Lack of cleaning and sealing of the veneer following the curing of the mortar.

If the masonry veneer is applied over a wood frame wall, continued efflorescence or calcium carbonate staining could signal deterioration in the structural framing.

Masonry attached to a wood frame wall is typically separated from the sheathing by a “weather-resistive barrier” consisting of a single layer of asphalt impregnated building paper. Continued high moisture levels behind the masonry can overwhelm the building paper. Once overwhelmed, the moisture levels of the wood framing rises and organic organisms can begin their decay of the framing. Often, organisms such as molds and fungi colonize within the wetted walls bringing other challenges to the building and its tenants.

While efflorescence and calcium carbonate involve a different process and result, the cure for each is proper construction, cleaning, sealing and maintenance of proper weather proofing assemblies to minimize water penetration into the masonry wall.

