

# Clem Labine's Period Homes

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## Limewash Returns

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It's very popular now to restore old houses and to build new homes that look like they have been there for a 100 years or more. One of the decorative finishes that gives this centuries-old look is the use of a traditional European lime wash. Many paint manufactures have come up with look alike versions of the traditional material, but nothing replaces the real thing-- not only for its appearance but also for the health of the home.

While the romantic magic of limewashed homes amazes many of it admirers today, limewash has long been a common method of protecting walls and has been used for at least ten thousand years. Limewash is essentially a mixture of slaked lime putty (calcium hydroxide) in water that sets slowly by absorbing carbon dioxide from the air.

The chemical reaction that occurs produces crystals of calcite. These crystals are unusual because they have a double reflective index: light entering each crystal is reflected back in

duplicate. This results in the wonderful surface glow that is characteristic of limewashed surfaces and is not found in modern look alike paint products or imitation coatings.

Limewash was the early predecessor to modern paint products. But in its true application and effect on a wall it really acts more like an absorptive stain and it has different characteristics than modern paints. Limewash is not a coating that lays on the surface of the wall, but rather it penetrates into the surface of brick, stone and wood to create a peel-free surface. After it hardens limewash remains vapor permeable and will not trap moisture in the wall.

One of the attractive things about this traditional material is that it gradually wears off the surface of the wall and leaves a very pleasant uneven aged look. Many architects and designers seek this look but they have had challenges creating it for their clients because they have been using the wrong products, such as paint, to achieve the effect.

If it is a traditional look you want it may simply be best to go back to the traditional materials that have been delivering the real thing for thousands of years. Limewash develops a unique patina that is unrivaled by other coatings, and it is a traditional shelter coat, which gives protection, beauty and durability to stucco, stonework, plasterwork and brickwork.

When limewash was discovered man was not looking for a decorative finish to impress his neighbors. He had actually discovered a sacrificial treatment that protected his home against the worst weather. Early mud structures and adobe and wattle and daub walls were very vulnerable to climate, and limewash helped to protect these surfaces from rapid deterioration.

### **The Spring Traditions**

In Europe, the tradition in the spring was to cut back the hedges and limewash the house. Usually white, the material would be mixed up into a creamy consistency and applied with longhaired horse brushes over the entire house. The material would be very translucent and very thin, and it was worked into the surface by rubbing in circular strokes. Year after year this tradition was practiced until the very thin layers of limewash would become a thick protective finish with the ability to breathe.



In America very few authentic limewash homes exist today. Many have been since painted with white paints or some formulation of white Portland cement and sand coating. The evidence of this change in materials has become increasingly apparent, as many older homes have begun to show signs of rapid deterioration due to trapped moisture in the walls. Prior to the development of modern paints and Portland cement most homes were constructed of solid, porous materials, which keep the moisture out, by their sheer thickness and the high porosity or vapor permeability. This means the walls had the ability to dry out faster than the moisture could penetrate the thickness of the wall.

The use of open fires and in particular the kitchen fire, which remained alight throughout the year, aided rapid drying while providing both heating and ventilation. Some idea of the ventilation this provides can be gained by watching the speed at which the smoke pours out of the chimney, as air is drawn into the home at exactly the same rate. This ventilation ensured that any moisture present in the home was expelled through the chimney in a very short time.

A traditional limewash finish maintains the ability of a home to breathe, as it is one of the most permeable decorative finishes known. Tests show that limewash has a vapor permeability rating of 350 units, while many masonry paints are well below a rating of 75 units. If walls can't breathe, then, water can become trapped, which often leads to rapid deterioration. Peeling or blistering paint is often the most visible sign of trapped moisture, and this happens when the highest concentration of moisture forces through the paint--taking the modern paint off with it.

## The Material Used

As late as World War II limewash was still being used in the United States. Limewash is made by burning limestone, which produces a quicklime that is then mixed with water to form lime putty. The lime putty is mixed with water and other ingredients to produce a limewash. The use of limewash started to decline when the use of modern paints and acrylic coatings became popular.

Tallow was often added to limewash to make it water droplet resistant while retaining most of its qualities of water permeability. A type of animal fat tallow was primarily used with beeswax for candle making and therefore widely available in the 19th century. The butcher, the baker, and the candlestick maker--as the nursery rhyme suggests--was a source for tallow. More recently raw linseed oil has been added for the same purpose.



Other alternatives used today include casein, which resists dusting and can be used as an adhesive for difficult surfaces that may not absorb the limewash as readily as brick or wood.

Lime also helps prevent the spread of disease, which is why farmers would regularly limewash pen walls between livestock.

For colored limewash care should be taken in selecting pigments to make sure they are not affected by ultra violet light or have a reaction with the lime. Earth pigments are recommended because they are least likely to fade in the sunlight or by a chemical reaction with the lime. Colors need to be dry tested to ensure the correct hue has been achieved.

A mock up sample should be included as part of the decision process on any project. The material will dry many shades lighter than what appears in the wet container. A limewash may take several days to show its final color as it cures.

## Application

When applying limewash, safety goggles and gloves should always be worn because lime is irritating to the skin and eyes. Limewash is a water-based product and is most suitable for application onto an absorbent background. Traditionally it was applied to earth walls, brick, plasterwork, stucco, wood and stone. Concrete also takes limewash well because it is absorbent.

Limewash should not be applied over existing painted surfaces or drywall. Old paint should be removed, and if a paint stripper is used make sure that the pH of the surface has not been radically changed.

If an acid based stripper is used it may leave the surface of the wall with an acidic residue and the limewash will fail to adhere. All surfaces should be washed down with clean cold water and left until the surface is damp but not dripping wet. The best results are achieved by working the limewash into the surface of the wall by almost scrubbing it in with a brush stiffer than a paint brush but softer than a scrubbing brush. The application should be in a circular motion working it into the surface and spreading as far as possible. The work should be finished with vertical strokes.

Limewash cures by absorbing carbon dioxide from the air. If high humidity and low temperature persist during application this may prevent the material from curing and delay the carbonation process. Successive coats may be applied and are recommended after 6 hours drying between applications. Lightly dampen the surface before applying the next coat. Care must also be taken to make sure the limewash does not dry out too quickly from direct sunlight. A slow wet moist cure is ideal which means the applicators may need to apply the material during the late afternoon or evening hours.

Limewash must be applied as thinly as possible to facilitate this carbonation process and to prevent crazing and cracking. The best materials to use in restoring and preserving historic buildings are the original materials themselves. Limewash is now commercially available again and is available in a ready-to-use form. Limewash provides years of beauty, protection, and an authentic look--because it is authentic.

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