RENDERING - THE NEED TO BREATHE

Many older properties can suffer from damp problems, cracking or hollow render and flaking paint. It can be difficult to pin down the causes and there is often conflicting advice to contend with even before taking the plunge with expensive repairs or damp treatment.

Before this century building techniques and materials were very different from those employed today. Traditional properties need to "breathe" to allow moisture inherent in a solid wall construction to evaporate from the external stonework or render.

Lime Putty was the base product widely used to produce mortar, plaster and limewash for traditional buildings. Lime putty mortars offer advantages over cement based mortars for the external rendering of these properties, especially when decorated with a breathable paint such as limewash.

- Their porosity allows the structure to breathe.
- They can accommodate general movement better.
- Their self healing nature reduces cracking problems.

In contrast to these breathable lime materials, too many traditional buildings are repaired and renovated using harder and impermeable materials designed for modern buildings of completely different construction methods. The result is often worse dampness problems.

To manufacture lime putty, first limestone is burnt in a kiln to produce quicklime. The quicklime is then mixed with water to produce a boiling liquid which is passed through a sieve and then left to mature in a pit or tanks for a number of months. This process is called slaking and the resultant lime putty ends up the consistency of cream cheese.

The mature lime putty is then mixed with a sand to make a lime mortar. Coarse sands are typically used for building and pointing and finer sands for finer plastering. Animal hair is teased into the mixes for backing coats of plaster. The mixed lime mortars should be left to mature for a further week or two before use as this minimises any tendency for the mortar to shrink and crack during curing.

In particular, hard cement renders and many masonry paints fail to allow the moisture that is continually being sucked up from the ground to evaporate easily to the outside. This may result in damp, cold walls, condensation, flaking paint, rotten skirting boards, joists and other timber fittings, increased heating bills and a never ending battle to hold back the dampness from the inside. Chemical damp course injections, tanking and even drylining are common prescriptions wherever the "professional" has failed to understand the basic requirements of a traditional property. In the worst case scenario the combination of sealing the external and internal walls leads to a dramatic rise in the moisture levels in the wall, causing severe damage to earth and timber framed structures.

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Guidelines for rendering are set out below :

1. Try and establish the nature of the existing render and paint. Get as many opinions as possible on the causes of any dampness problems and other, possibly cheaper solutions.

2. Before commencing work on a listed building ensure that you have the necessary consents

3. If you're using a builder, see their previous work and talk to the clients. If undertaking the work yourself attending a practical course can be of enormous benefit.

A typical render specification:

1. Ensure that appropriate scaffolding is in place and the worksite safe for workers and public

2. Take off the existing render, except any existing sound lime mortars, taking care not to damage the structure. Look out for very thick patches of render that are effectively load bearing. It may be preferable to render on top rather than risk rebuilding an area.

3. Dub out any deep holes in the wall with a haired lime putty mortar, rebuilding defects with cob blocks, bricks or stone as appropriate.

4. Treat wooden lintels with preservative and counter batten with oak lath if rendering over them

5. Apply one hand harled coat of lime putty mortar to provide a key to the wall. This is usual with cob but depends on the state and size of stone.

6. Apply sufficient coats of haired lime putty mortar to smooth the contours of the wall. With a suitable animal hair in the mortar coats can be applied up to 20mm thick rather than the 10 –12mm thickness of unhaired mortar. The hair reduces any slumping whilst applying and shrinkage cracking whilst curing.

7. Apply a top coat of floated or hand harled lime putty mortar as desired.

Damping & curing:

It's very important to control suction from the wall by light spraying with water half an hour before applying each coat (especially cob and porous brick) and in warm weather it will be necessary to spray each coat afterwards. Whatever the season, protect each render coat during the curing process from all the elements such as hot drying wind, strong sun, rain and frost. A heavy cloth such as hessian sheeting will provide a suitable physical barrier.

Materials:

Lime putty mortars gain added strength by carbonating over many months with atmospheric carbon dioxide. Whilst pure lime putty mortars are suitable inside or for sheltered locations, it's recommended that for exposed elevations each coat of lime mortar has a pozzolan added. These are burnt clays that react with the lime to give harder more frost resistant renders and historically ranged from volcanic ash, crushed bricks and other forms of burnt clay. Cornish clay is burnt today to produce a powerful

purpose made pozzolan called Metastar and very little is needed to produce the necessary strengthening.

Curing:

All coats need to be given a few days to harden before subsequent coats are applied. To test whether a coat is 'green hard' the surface should be resistant to a fingernail. Many factors will influence the timing such as the season, exposure of wall and the thickness of the coat but it's normal to expect a couple of days for the scat coat to harden and perhaps 3 - 5 days for each of the thicker coats.

Painting:

It's important that lime renders are not totally sealed with an inappropriate paint. Limewash is the most cost effective paint to apply, offers the most traditional finish and will aid rainwater shedding .

Three or four coats of limewash mixed with linseed oil should be painted on the final coat of render. Where a mixture of differing wall surfaces is to be painted its possible that a silicate masonry paint will also be suitable.

Health & Safety:

Always wear suitable protective clothing, including eye protection and gloves as lime mortar can cause damage to eyes and skin.

Conclusions:

Lime mortars are easy to use and can readily be applied by the enthusiastic amateur given a little tuition and guidance. Although, the work needs to be carried out correctly, the beauty of the traditional building is that it rarely looks right when everything is straight and perfect, so the DIY owner can begin work comfortable in the knowledge that a certain amount of 'character' would not look out of place.

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