

Specialists Q & A on the use of lime plastering

Q What are the advantages of using lime plaster?

A They allow buildings to breathe which is essential for older buildings that have been constructed with lime mortars and soft bricks or stone. Lime plasters reduce the need for gypsum plasters, which can fail in damp walls, cement based plasters, and renders which tend to be impervious and can trap moisture in walls. Lime plasters are best suited to any building built before the 1920's when most buildings were constructed using lime mortars.

Q What is the difference between putty lime, hydraulic lime and hydrated lime?

A Lime putty is a wet paste and made by burning pure calcium carbonate such as chalk or limestone in a kiln and driving all moisture out of the stone making it highly reactive, which is commonly known as quicklime. Then the quicklime is added to water and a slurry is formed known as putty, which matures with age to become a sticky paste. Hydrate lime goes through a similar process but is then ex-

posed to much less water making it less reactive but retaining its dry nature as a powdered product so it never matures to become a good binder in its own form. Hydrate is used as a plasticiser for cement mixes. Hydraulic lime is a powder and also burnt but the limestone is not pure calcium carbonate and contains impurities such as clays and silicates which change the reactive nature of the lime and allow it to set chemically when exposed to water.

Q What type of lime should be used for lime plastering?

A Lime plaster can be made with lime putty or hydraulic lime but hydrate is too weak. Putty is best for ceilings and lath work as it has better flexural strength and sticks well to laths. Hydraulic lime is fine as a hard wall plaster where there is no movement in the substrate.

Q Is it important to ensure the ready mixed lime plaster is more than three months old?

A Putty based ready mix wet mortars don't need to be aged, the putty itself needs aging over three months to gain a good sticky consistency; the mortar is most workable if a few days old. Hydraulic based dry mix mortars need to be fresh as they set chemically by exposure to water and usually have a shelf life of 6 months, assuming the sand was well dried before blending.

Q To avoid shrinkage, should hair be added to the lime mix?

A Hair is added to help lime mortars bind or hold onto laths but can still shrink and crack if cured too quickly. Hair is always used on lath and plaster work but is not necessary on brickwork.

Q How do I make a lime wash?

A Lime wash is simply lime putty, water and a mineral pigment, and for external use a water repellent such as linseed or tallow is added.

Q Can lime plaster be applied to plasterboard?

A The only benefit to applying a lime plaster to plasterboard is the aesthetic look, however this same look can be achieved by adding a small amount of plastering sand to gypsum plaster. If you really want to use lime plaster on your gypsum board then there are a number of options but none are truly recommended as 100 per cent fail safe as the plaster tends to crack and can fall off, but a method I've used is as follows: Apply a generous PVA coating to the plasterboard, when the PVA becomes touch dry but not fully cured skim over with a 3:2 fine lime plaster, adding 10-20 per cent gypsum at the point of use. Then control the drying process, by not working in extreme temperatures, ideally don't do this at the height of summer or when it's really cold and make sure you mist spray the surface to retard setting over the first day.

Q What protective clothing should I wear?

A Lime is similar to cement in its corrosive properties so gloves and goggles are recommended.

Q How do I store unused lime plaster?

A Wet mix lime plasters could last for years if the binder has no clays or impurities in the aggregate. If so, then ensure the surface of the plaster is fully covered with a layer of water for storage of a few weeks, however for longer periods place the plaster in a smaller container to reduce the risk of exposure to air and in all cases keep the plaster frost free, ideally in a garage or shed and in winter with hessian wrapped over.

Q Are there environmental benefits to using lime?

A Lime is generally considered better than gypsum and cement due to the extraction and factory production methods, however, it is also worth remembering that lime allows a building structure to be fully recycled after the end of its life as the brickwork can be dismantled and the mortar and plaster crushed up and reused as a base for new mortars. Lime mortars should be softer than the brick or stone and allow moisture to escape from a wall, which extends the life of the structure and makes a building breathable – thereby reducing the relative humidity in a building and the risk of trapped condensation within a wall.