



Applying a Three Coat Lime Render

There are a number of different substrates you could be working with, from a simple masonry wall to a timber lath substrate, and we have tried to keep the following guide as generic as possible.

The following guide applies equally to both NHL and lime putty renders, and Cornish Lime stock an extensive range of ready-mixed base coat and top coat renders to suit all applications, supplied as both NHL drymix and lime putty mixes. We also supply premium quality lime putty plasters for fine plastering work.

Preparation is key

As with most things in life sufficient preparation is key, and when carrying out any type of rendering making sure the surface is thoroughly cleaned and free of all dust or debris is of paramount importance.

Also ensure the surface is not too smooth and, if so, first score or roughen the surface sufficiently to provide a good key for the first coat to adhere to.



Avoiding the pitfalls of lime rendering

Lime renders can be temperamental and do require due care during their application and their infancy, and can fail from excess shrinkage, drying back too quickly, or weather damage during the early stages of their set. However, applied properly, they will provide both protection and decoration to virtually any structure.

Weather - Failure can usually be avoided through basic preparation and, when necessary, sheltering from poor weather. Simple wetting tests, observation and planning at the outset is also strongly recommended.

Shrinkage - as initial shrinkage takes place in the drying out phase, this can be beaten back by using a

plasterers' float and dampening the wall as required - pressing the float home evenly, and in a close circular motion but only if necessary.

Drying out too quickly - Lime renders should never be allowed to dry too quickly, and a render that is simply allowed to dry out too quickly is more than likely to fail. There is a vast difference between a render that has been allowed to carbonate and one that was simply allowed to "dry out too quickly".

If in any doubt see our curing lime mortars and renders guide for further guidance

Weather permitting

You should also pay attention to the weather, as strong sun, wind, frost and rain will all have a bearing on the overall performance of a long-lasting, defect-free lime render.

Work needs to be kept dry enough to allow the lime enough time to set, but do not allow it too dry back too quickly. Try to shield work from direct or wind-driven rain, and where necessary use hessian curtains to stop the work drying out too quickly from wind or strong sun. It is also very important to avoid frosty conditions during the render's early set, particularly within the first 14 days.

Filling large voids

As lime mortar is more expensive than the stone usually to hand, you can pack out large voids or hollows with a combination of lime mortar and stone.

Pre-wetting the surface

To better control potential shrinkage, we highly recommend pre-wetting the surface to avoid moisture being drawn out of the render coat and into the substrate. Try to avoid over-wetting; a pump-up garden sprayer is well suited for this purpose, as a hosepipe will deliver too much water in most cases. In the case of very porous materials such as cob, chalks, and clunch, along with different types of soft brick or stone, the use of a hosepipe may indeed be appropriate.



Scoring / Scratching in

Once the INITIAL set has taken place, key the wall using a convenient tool to make a groove in the render of sufficient depth that will allow the subsequent coat something to grab, or hang on to, without over scoring or tearing the backing coat.

Diamond keying is recommended for scratching in, and a three-pronged lath scratcher is a simple tool to knock up.



Remember: The scoring should not be such as to tear the render off the wall.

Choosing Your Mortar

Selecting the correct mortar for your application is essential. There are many factors that need to be considered including strength, performance and workability.

Cornish Lime manufacture and supply a wide range of mortars for site mix and premixed options using lime putty and natural hydraulic lime (NHL). It is advisable to contact us if you are unsure of which mortar to use for your application or for further information on how to apply your mortar.

First Coat (Bonding Coat)

On any surface one should be looking to apply a uniform thickness of lime render of about 9-12 mm (plasters being the top coat are applied much thinner, 4-7 mm).

For the best results it is recommended to actually 'throw, cast or harl,'

The material for a cast-on coat should be wetter than that for normal rendering and should incorporate more gritty material. Thrown on by hand, it will provide a suitable bonding coat for the scratch coat. A thrown coat offers a superior bond simply from the action of casting on, and is far less likely to delaminate from the substrate. This is of primary importance on very porous surfaces – such as cob or soft brick – or impervious surfaces such as granite or engineering brick.



Alternatively, apply the first coat as normal using a laying-on trowel, using even pressure to 'press' it on or into the wall. Lime mortars are extremely cohesive but require more effort than for cement bound render, requiring greater pressure to press the render onto the surface (aided by the pre-damping).

Application should be reasonably even and once applied should not be overworked or straightened too much. In simple terms, lay it up and leave it.

Note: It is of the utmost importance that an adequate set has taken place in the base coat. To follow on too soon with subsequent coats will result in much greater shrinkage problems, as the individual layers will shrink back at differing rates.

Second Coat

The second coat should be treated the same as the first, and applied before the first coat has developed too much of a set. In normal conditions this should be about one week, but there is no hard and fast rule to the time it may take; Surfaces that are very damp will take longer to harden up. Ultimately, a leather dry consistency is the aim.

The second coat is the straightening coat, so after application the work needs to be ruled/staffed off, to further straighten the work to produce the desired level of finish (if necessary).

Once sufficiently set the render should be rubbed up with a normal float and finished with a devil float to slightly score, forming a key for the topcoat of plaster.



Final Coat

The final coat is treated much the same as the previous coats, assuming any straightening required has been carried out prior to this point.

Once the surface has been laid, avoid rubbing up the work too soon, leaving it for as long as is practically possible.

Top coat plasters will normally have a greater lime content and use a finer sand, so will be more prone to shrinkage problems. Working on lime mortars too soon results in free lime being pulled to the surface (Case Hardening), which affects the properties of the material and can sometimes lead to failure.

The choice of sand in the topcoat is also important dependent as this determines the finish. For a basic smooth finish most BS1200 sands will do, but for work requiring a higher quality finish much finer sand would be required.

Most importantly, the thickness of the final topcoat is crucial and should not be applied any thicker than 5-7mm. Lime plasters supplied by Cornish Lime from stock are mixed at 2:3 Lime: Sand, using the most mature lime putty we have in stock.

In Summary

- Surface preparation needs to be thorough
- Lime mortars are harder to apply as they need to be drier than that for cement renders, with greater pressure applied
- Once applied, they require more looking after than a cement render: Keep them damp and protect them from the weather (see our Curing Lime Mortars guide)
- Hair or fibres must be incorporated when render is going onto a lath carrier
- Lime mortars are essential for allowing a building to breath, protecting from moisture damage
- While cement renders are generally cheaper, lime mortars are natural and are more environmentally friendly.
- Lime renders can be painted after they have cured, a breathable paint is required (see our Breathable Paints Explained article)



The information given in this document is for guidance purposes only and is not intended to be a specification.