



Product Name: **Lime Putty Plaster Base and Finish Coat**

Manufacturer: Lancaster Lime Works

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### **Product Description:**

Lancaster Lime Works Putty Plasters are a carbonating, non-hydraulic plaster that is pre-mixed with lime, aggregate and water. It is made by mixing our high-calcium (98%+), High pH (12+), carbonating, high surface area, low magnesium, (slaked) lime putty (calcium hydroxide) with properly graded aggregate. Designed to replace historic lime-sand plaster. With high plasticity and superior workability, it forms a strong suction bond with masonry units, wood lath and ensures excellent tensile and compressive strength.

Our lime putty plasters are made with our carbonating lime. This means they must absorb Carbon Dioxide to set. The plaster will keep indefinitely in the original container if carbon dioxide is excluded.

Our lime putty plasters help control the humidity of the internal environment and resists mold and mildew all while being 100% natural with no cellulose, chemicals, bonding agents, gum binders, latex or out-gassing.

Depending on installation techniques and the skill of the installer, the finish coat can be used over the base coat to make a wide variety of historic plasters including Tadelakt, Marmorino and Venetian plaster. It is also used in the installation of Fresco work. The base coat can also be used as a finish coat if a semi-textured finish is desired.

### **Important notes:**

Preparation of the plaster, substrate and after care are just as important as correct application techniques. Proper installation is the key for a successful project. These instructions are a general guide and not a substitute for the years of experience it can take to become a proficient lime expert.

There are three main requirements for successful lime putty plaster installation. These requirements are for the base coat and finish coat.

They are:

- 1) **A firm and strong background**
- 2) **A textured background**
- 3) **A porous background**

Lime Putty Plasters adhere thru the suction action of water as they dry and require a solid, textured and porous background to properly adhere. **Do not use bonding agents**

## Preparing the Mix:

Carbonating lime putty plasters and mortars need to be 'knocked-up' - a process of mixing, beating or turning which energizes the lime. Add the minimum amount of water to make a workable spreadable mix.

For knocking up a single bucket of plaster use a heavy-duty right-angle drill with an eggbeater mixer attachment. Mix for approx. 3-5 minutes. A mixer that does not beat the mortar will not work well. For large quantities of plaster, a top loading - forced action mechanical mixer that "stirs" rather than "lifts" is ideal. Mix for approx. 5 minutes.

If a bell mixer is used, turn for long enough to achieve a suitable consistency without adding water (sometimes 20-30 minutes).

If more water is required, add **CAUTIOUSLY**. Too much water will render the plaster too heavy. It will take longer to dry and will have shrinkage cracks that will need to be compressed.

## Adding Hair:

A generous amount of hair is required for installation over wood lathe or unstable surfaces. Gently tease hair in towards the end of the 'knocking-up' process – avoid hair balls. Spread the plaster out on a mortar board, tease the hair onto the surface and then fold the plaster over itself. Repeat this process about three times. This evenly distributes the hair into the base coat.

You will need approx. 3 oz of 1 1/2" - 2" lengths of horsehair per five-gallon bucket of base coat. The actual amount needed will vary depending on installation techniques. Customers are responsible for adding enough hair.



Image of properly haired base coat of plaster. Approx one hair every 1/8 of an inch.



Image of a properly installed wood lathe that is ready to plaster. 1/4" - 3/8" gaps between the laths

### **Preparing the Surface:**

Masonry surfaces must be clean, free of dust, and loose material. The surface must be rough enough to allow the lime putty plaster to key in. If wood lathe is used it must be installed firmly with no "bounce" with 1/4" - 3/8" gaps between each lathe.

Pre-wet porous absorbent surfaces such as stones, bricks, and lathes. Spray with clean, non-chlorinated water, (usually 2 or 3 times) before application. The substrate must be wet enough when sprayed with water that the plaster does not flash dry when installed. It is critical that the installer understand that lime putty plasters are a carbonating material - which means they absorb carbon dioxide to set. This carbonation process takes place as the water leaves and carbon dioxide is pulled in.

If the plaster dries out before it carbonates, it will fail. The surface must be thoroughly wet before applying the plaster to avoid the moisture in the plaster being immediately absorbed into the dry substrate. The base substrate should have the same moisture content as the plaster. The plaster and the base substrate must dry together becoming one.

### **Applying the Plaster:**

Fill in deep spots on the substrate with base coat plaster (haired). This is often referred to as the "dubbing out" coat. This may or may not apply. The dubbing out coat is primarily needed on substrates with many undulations (stone/brick). This will create a semi-even surface so each subsequent coat of lime plaster can be applied at the same even thickness. This first (dubbing) coat should be left to harden before applying the first base coat. Evenly apply the first base coat with a steel float.

### **Thickness of Coats:**

When lime putty plaster is applied onto stone/brick/lath internally, it is usual to apply three or four coats.

- The (first) Lime Base Coat Plaster with hair is used for the scratch coat 3/8" thick.
- A (second) "leveling" coat is applied on top of the scratch coat 3/8" thick.
- The Lime Topcoat Finish Plaster (third and perhaps fourth coat) should be applied in two thin coats totaling approx. 1/8" thick each coat depending on the type of topcoat used and desired finish.



This is the backside of a properly applied lime putty plaster on wood lath



Scratching the base coat.

### **First/Base Coat:**

Using a stucco trowel, firmly push the haired plaster thru the gaps in the lath to ensure there are consistent “nibs” at the back of the lath. This ensures the plaster has a good finger hold on the wood lath as well as firmly pushing the aggregate together to ensure a secure base.

Once firm, scratch the plaster (to about 1/8-3/16” depth) diagonally using a scarifier. This could be the same day or up to a week, depending on drying conditions. This coat takes up any shrinkage and may crack. You need only worry if the plaster becomes detached from the background. Don’t overwork! Overworking this coat with the steel trowel can cause it to become detached.

### **Second Coat:**

Pre-wet the first coat of plaster. Apply the next “floating” coat (with no hair!) in the same method and thickness (3/8”) as above including the following:

The second coat (floating coat) needs to be floated and compressed while it is still soft enough to take the indent of your thumb. This will compress the plaster to avoid shrinkage cracks as well as flattening the wall. Use either a straight grained (for uneven surfaces), or cross grained (for flat walls and ceilings), wooden float, not a plastic float or steel trowel. A **sandy textured finish** is desired when prepping the second coat for finish plaster.

Floating and compressing is hard physical work. A little water sprayed onto the surface can help the process. Be careful not to add too much water before it has fully carbonated!

After the floating coat has been floated and the plaster has firmed up, use a Scarifier (wire comb) to form the key for the finish coat. You can also use a wood float with small nails or screws in it that barely protrude through. Rub the surface of the plaster with the float in small, circular motions to achieve a key depth of not less than 1/16”- 1/8”. The surface of the floating coat (second coat) should be scraped down with the side of the trowel. Brush to remove loose material whilst still green (holding moisture). This will remove loose particles of aggregate. Keeping them out of the finish coat of plaster.





### **Finish Coat:**

Several types of lime plaster topcoats can be applied after the float coat has cured.

*It can take a lifetime to perfect the various finish coat installations.*

Before applying the finish coat of plaster the wall should be thoroughly wetted again. Install at about 1/16" - 1/8". Once firm use a damp sponge float to work and compress the finish coat. If required, wet the surface before working it with a sponge float, by misting with water. Avoid over-wetting because it will draw too much lime to the surface.

Lightly work the topcoat of plaster to the desired finish using a stainless trowel. Finishing is artistic and will vary between artisans. Super fine plaster surfaces can have multiple coats of lime finish plaster with varying ingredients, pigments, and techniques. A Tadelakt Stone can also be used to achieve a smooth finish without leaving burnish marks.

Installation and finishing of 100% natural Lime Putty Plaster Finish Coats requires skill and practice to achieve professional results. Mock-ups must be completed before tackling an entire area.

### **Protection of the Installed Plaster:**

Allow each coat to 'go off' before applying the next one.

As a guide, it takes one-two days for the first coat, one week for the second, and a few days for the finish coat. This will vary depending on weather conditions and substrates. Each coat should be finished shrinking and hard enough to resist indentation from a knuckle but soft enough to scratch with a fingernail.

Protect new work as conditions dictate. For hot, dry or windy weather, damp hessian and plastic sheeting may be required to prevent rapid drying. Lime putty plaster will not set up if it stays continually wet. It sets thru several cycles of wetting and then allowing the plaster to slightly dry. Gentle misting may be necessary if areas of plaster are drying too quickly. In hot and dry conditions, a gentle but complete wetting of the plaster should be done several times to keep the plaster from flash drying.

Often the upper portion of the wall needs to be treated differently than the bottom of the wall. Moisture tends to gather at the base of the wall. Different elevations on the wall may need different levels of protection and moisture.

Do not use dehumidifiers and heaters to speed up the set. Good, even drying and ventilation is key. Accelerated drying will prevent carbonation and will cause the plaster to fail.

Gentle heat may be used cautiously in cold, damp buildings. Protect new lime plasters from frost. Work should not be carried out when temperatures are likely to fall below 41°F before carbonation has taken place. (water starts to freeze at 39°F). If work must continue in cold temperatures, although not advisable, the area should be fully enclosed with well-circulated even heating supplied.



Protect from rain - heavy rain can wash the lime out or draw it to the surface before the render has carbonated. A new render should be protected until surface carbonation has taken place.

### After Care:

Your finished lime plaster will care for your building for years to come as it helps control the humidity of the internal environment, resist mold and mildew. It gives a beautiful finish that no modern plaster can replicate. If desired, you can finish it with a 'breathable' limewash or milk paint. **Lime plaster should never be covered with latex or oil paints or coatings.**

### Approximate coverage rates:

One 5-gallon bucket of base coat covers approx. 12-15 ft<sup>2</sup> when applied at 3/8" thick (The coverage of the base coat when used on lath will be less depending on installation techniques)

Approx 3 oz of animal hair per five-gallon bucket of plaster for use over wood lathe or unstable surfaces. (More should be used depending on installation techniques.)

One 5-gallon bucket of Lime Putty Plaster Finish Coat covers approximately 125-175 ft<sup>2</sup> per bucket.

Actual coverage rates will vary. Custom plaster mixes are available.

### Storage of Plaster:

1. Store the plaster covered with water in airtight original buckets.
2. Nothing chemically changes in the lime plaster if it freezes, however you risk bucket breaking due to the expansion when water turns to ice.
3. Plaster with natural hair must be used within a week otherwise the high pH of the lime will digest the hair causing purification.
4. Premixed lime plasters and mortars will compact over time, although still very usable, they will take more effort to 'knock up'. For easier results use as soon as possible.

### Additional Information:

The application of lime putty plaster is more involved than using conventional modern plaster. Use an experienced lime plasterer or at the very least they should have some practical hands-on installation experience.

Have potential plaster contractors perform a mockup before entering into contract. It is not possible to cover every point in detail here, if further guidance is needed after following the advice herein, contact Lancaster Lime Works. We provide training for contractors, homeowners and specifiers which can save time on-site as well as ensuring a successful project. These instructions are to act as a general guide and are not a substitute for the many years of experience it can take to become a proficient lime expert.