

FORMULA FOR LIME PLASTER

BASE COAT / ADHESIVE COAT --- lime soil

Ingredients:

- Water (quantity: depends on the workability of the mix)
- 1 or 2 gallons of the cactus water which serves as a natural binder (latex) and curing retardant
- Hair or fiber: handful
- 1 bucket of lime
- 2 buckets of sifted clay (1/8 " screen)
- 4 buckets of sharp sand (not too fine)

Procedure:

- Wet the surface to receive the base coat with 1 day of anticipation. Wet before applying: it must not drip but rather be moist in order to accept the plaster.
- Mix the fiber into the water and cactus water first. This allows the fibers to be thoroughly dispersed and not become concentrated in a ball of sand or lime.
- While the mix can be done by hand in a wheelbarrow, better results will be achieved using a mechanical mixer. The best is a mortar mixer with a stationary drum and revolving blades.
- Apply the coat with a plaster gun or with a wood float. If applied with a gun, use a wood float to work the base coat into the wall (reason: the wood float absorbs the moisture and thus keeps the moisture uniform and does not weaken the finish of the plaster)
- The coat or render must be applied with good force but not overworked.
- Rake the surface while it is still manageable or wet in order to create keys for the next coat. Also, you can create keys with gloved fingers. A rake can be made from bicycle spokes or purchased at a plaster supply distributor. The thickness of the coat is $\frac{3}{8}$ th to $\frac{1}{2}$ inch.
- If a compressor of sufficient size (17 C.F.M.) is used for a single gun the plaster may hit the wall with enough force to negate the need for trowelling and raking. The gun will leave a stippled finish that serves as a key for the finish coat.
- The cactus water must be made with anticipation by slicing enough cactus (nopal is the best) to fill a five gallon bucket or more and mixing into a 50 gallon drum (1 large trash can). Let it ferment (absorb) until it achieves a slimy texture. Do not use the cut up portions of the cactus, only liquid. Include to this mix, approximately 1 or 2 gallons of cactus water.

SECOND AND LAST COAT-lime

Ingredients:

- Water (quantity: depends on the workability of the mix)
- Synthetic fiber or ixtle

- 1 bucket of lime
- 1 Bucket of fine marble aggregate (marmolina). It is a pozzolan, which causes a reactive combination with the lime to create a Roman-like cement.
- 2 buckets of sand. The size of the sand granules will have much to do with the finished texture. That is, the finer the sand (although it must still have sharp grains of varying size) the smoother the finish you will be able to easily attain.

Procedure:

- Mix the ingredients to a manageable state.
- The previous coat must be moist in order to receive the following coat.
- Apply the coat with good force with a wooden float and rub out to a smoother texture by using the same wood float, but do not overwork the coat or, again, apply with a plaster gun.
- “Cold” joints should be avoided as they will show through the color wash or paint. Care, therefore, should be taken to make certain there are enough qualified men on the job to move from a corner to a corner without a cold joint.
- This coat will vary in thickness from $\frac{1}{4}$ " to $\frac{1}{2}$ " depending on the desired texture and the size of the sand granules.
- After 6 to 8 hrs, it is ready to receive the finish color wash. If lime paint, as opposed to a wash is to be used longer periods of time may pass as long as the surface is moistened in advance.
- This plaster must be maintained moist but not wet for a minimum of 3 days (lime cures with water and air-it carbonates. Too much or too little water will stop the carbonation. Frequent usage of water of small quantities is ideal. The structures facing south and west will require the most misting. During the heat of the summer, drops (plastic or tarps can be hung on the outside of the scaffolding) should be used to shade walls in direct sun.

LIME PAINT

Ingredients:

- 2 parts of water mixture (in these 2 parts of water will be a small portion of cactus water: For example using a gallon measurement there will be $1\frac{1}{2}$ gallons of water to a $\frac{1}{2}$ a gallon or less of cactus water to equal 2 full parts of water mixture) The reasons for using cactus water are that it's a natural binder which will resemble latex paint and it retards the curing process, thereby improving the hardness of the finished plaster.
- 1 part lime
- Pigments to reach desired color. (Caution: too much pigment can have a negative impact on the adhesion of the lime.)

Procedure:

- Mix and maintain in total suspension (whip)
- Apply on a damp/moist surface, but not wet.
- Apply with a brush, roller, or a pistol (spray)

COLOR WASH (FRESCO)

Ingredients

- Water and pigment

Procedure:

- Mix water and pigment(s) thoroughly.
- Fresco must be applied while the finish coat is still fresh. This could be a minimum of 2 to 6 hours or a maximum of 8 +/- hours. Weather and humidity are the determining factors.
- Frescoes are necessary to achieve dark colors. Attempts to achieve dark colors with lime paint will be frustrated because too much pigment will interfere with the adhesive properties of the lime.

NOTES

In situations where lime plaster is to be applied over a concrete or cinder block surface, it is important that the substrate not be smooth. It is necessary to provide a key.

The importance of the quality of the lime cannot be over-emphasized. There are three main factors that determine quality. They are the quality and purity of the limestone that is mined, the care, skill, and heat used in processing the limestone into hydrated lime, and very importantly, the age of the product when it is to be used. If lime bags are stored too long they absorb humidity and the lime loses its effectiveness as a stabilizer, resulting in an inferior or totally unsatisfactory end product. We strongly recommend lime from Calidra as their rapid turnover assures freshness and our results using their product have been consistently successful. Of course we cannot specify the use of a single manufacturer's product but another source should be proven to be of high quality prior to extensive use.