



TADELAKT PLASTERING

A technical document detailing the process



Masons Ink team had an immersive tadelakt workshop in Sarjapur under the mentorship of the principal architects.

In this 3-day workshop, the team got to try their hand at tadelakt plastering. This is a document detailing the technique and process attempted.

Sarjapur, India
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I N T E R N A L W O R K S H O P



SAMPLING

Before beginning the work, samples were worked out on another wall having the same finish. This helped understand adhesion, strength and performance of the mix, and colour once the finishing layer dries. Variations in ratios were made in order to achieve best possible result.

TADELAKT



A waterproof plaster surface used in Moroccan architecture to make baths, sinks, water vessels, interior and exterior walls, ceilings, roofs, and floors. It is made from lime plaster, which is rammed, polished, and treated with soap to make it waterproof and water-repellant

THE BASE LAYER

1. Preparation of surface

A mesh is cut out in the profile of the surface. Fevicol is diluted in water and used to stick the mesh to the wall. A strip of masking tape is stuck along the edges of the wall in order to maintain a clean finish.

2. Lime water film

A coat of lime mixed with water (paint like consistency) is applied with a brush.



Mesh stuck to the wall



Application of lime water film



Prepared wall for base coat

4. Dampening

Once the Fevicol and lime paint has dried, the wall is prepared for plastering by dampening it with a sponge to prevent it from absorbing moisture from the plaster.

5. Application of base layer

The first coat of lime mortar around 1cm thick is applied using a trowel and floater. This is to create a bonding layer between the wall and colored lime plaster.

Once this layer dries, it is scored uniformly to give a rough texture.



Dampening the wall



Application of base coat

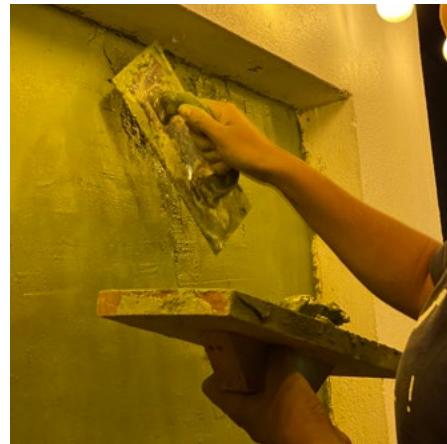


Scored base layer

THE FINISHING LAYER

6. Application:

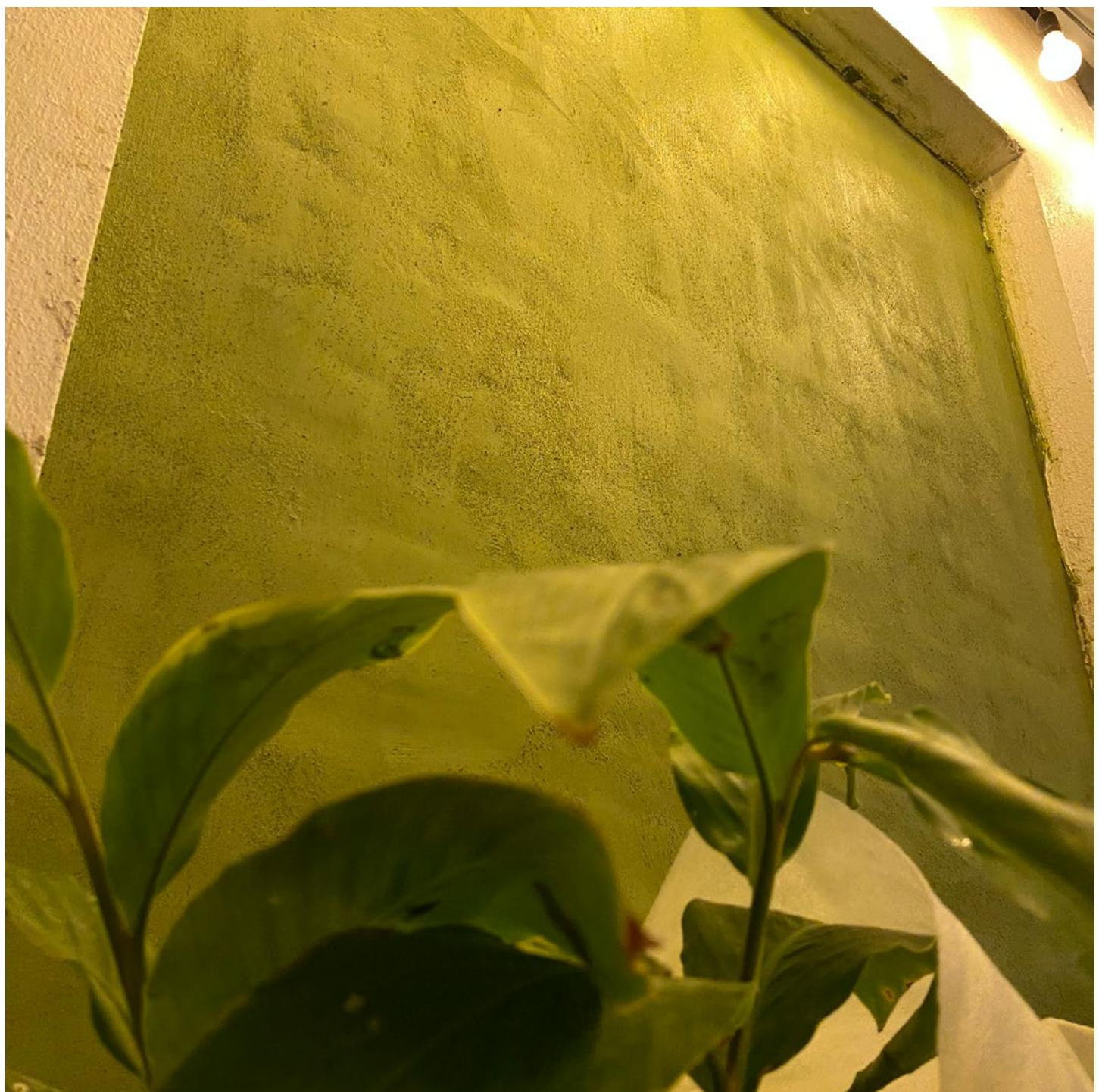
A uniform layer of colored lime plaster is applied on the surface using a floater and trowel. This is done from the bottom of the wall to the top. It is smoothened and evened out by running the floater along the wall in the same direction. This evens the thickness of the layer.



Application of finishing layer



Evening of finishing layer



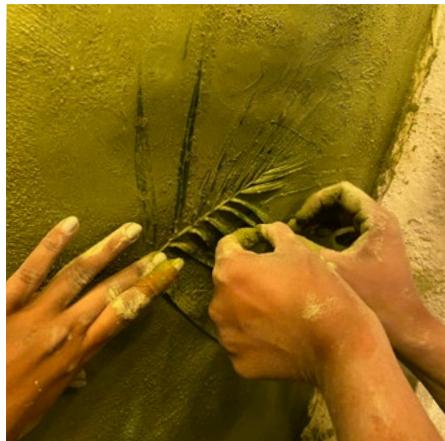


7. Polishing

This must be done at the right moment when the mortar is semi dry. If done when the mortar is too wet, it rips the plaster off in patches. Polishing packs the particles of the mortar, creating a smooth and shiny finish.

For leaf imprints, fix the veined surface of the leaf onto the wall before polishing by rubbing over it with the pebble. Continue polishing over the surface and gently remove the leaf once the surface has set.

Once the wall is polished, let it rest for a night.



Fixing of leaf



Polishing with pebble



Finished surface after polishing



Washing the surface with black soap water



8. Black soap water wash

1 tbsp of black soap paste is boiled in 2 L of water until it dissolves.

The wall is bathed with this water by gently rubbing it with hands. Cracks which appear are rubbed over with the pebble. This step is repeated for a week until all cracks are filled.

DETAILS OF MIX

1. Base Layer

Materials:

1. Rock lime(slaked)
2. White Cement
3. Sand
4. Water

1	2	4
White cement	Sand	Lime

Method of preparation:

1. Seive sand to obtain particles of uniform size (<20mm).
2. Add sand to the rock lime and mix slowly. Add water accordingly.
3. Mix white cement until the mixture is even.

2. Finishing Layer and Color

Materials:

1. Rock lime(slaked)
2. Sand
3. Oxide Colors- blue, green and yellow
4. Water

7% of total weight	1	2
Color	Sand	Lime

Method of preparation:

1. Seive sand, to obtain particles of uniform size (<20mm).
2. Add sand to the rock lime and mix slowly. Add water accordingly.
3. Color is added in a powder form to this mixture. The lime mortar is folded repeatedly until a unifor color is achieved.



Fixing of leaf



Colour mixing



Base mix and finishing layer mix

Rock lime: Lime in rough powder form, obtained from lime stone.

Shell lime: Lime in sea shell form, which goes through an exothermic reaction and obtains a putty-like consistency when water is added.

Observation: Both forms of lime work well for tadelakt.

Use gloves while preparing the base coat and final coat.



Mixing of Colour:

Final mix -

Weight of 1/2 bandli of lime mortar: 5.2kg

Weight of bandli: 0.5kg

Weight of 1 bandli of lime mortar: 10.4kg

Total weight of lime mortar: Weight of lime mortar- weight of bandli
 $10.4 - 2(0.5) = 9.4\text{kg}$

7% of lime mortar weight=658gm

A trial ratio of colour mix was done to understand the shade of green that is achieved.

Green: 305 gm

Yellow: 188 gm

Blue: 165 gm

The resulting shade of green was dark when the mix was wet but turned more pastel once dry. A much brighter mix was preferred. The ratio was adjusted to reduce the green oxide powder and increase the amount of yellow and blue as they produced brighter shades.

It was noticed that adding or subtracting from green and blue changes the brightness of the mix. Only green gives a pastel color. Blue makes the mix much brighter. Yellow makes the mix paler.

4. Around 13% of the total color weight is used to add or subtract to blue and green based on the trial

Green: $305 - 84.2 = 220\text{gm}$

Yellow: $188 + 20 = 208\text{gm}$

Blue: $165 + 42.1 = 207\text{gm}$

A buffer of 23g was maintained before testing the shade. The colour produced was a slightly brighter green, hence blue is added as the remaining 23gm,to obtain the brightest color possible.

For a marbled effect of color on the wall, leave small portions of pure blue color in the colored mortar.

This marbled effect is also noticed when polishing is done more in one portion. More polishing=more blue smears

Material Checklist:



White cement
Rock lime (slaked) Sand
Water
Color (Oxide colors) Black Soap water
Nylon Mesh
Fevicol

Tool Checklist:

Bandlis (atleast 4)
Trowel (small and big sizes)
Green mesh (to protect from sunlight and for seiving sand)
Floaters (plastic and steel)
Sponges
Tarpaulin (to collect extra lime plaster that falls during the process)
Masking tape
Blades
Garbage bags (to discard big chunks of lime and sand)
Weighing machine (for extremely sensitive weights)
Scissors
A huge plastic bin (to discard grey water)
Buckets and mugs (3 in number)
Pebbles with flat surfaces (for polishing the wall)
Gloves (for each participant)
Paint brushes (medium size for swatching color, huge brushes for work on the wall)
Plastic containers and lids (For mixing colors)
Leaves (for inlay)



POINTS TO NOTE

Before step 1(applying the mesh):

- It is preferred that the surface is scored uniformly to help the base layer of lime plaster adhere to the wall. Deep uneven scoring pattern defeats the purpose.
- Ensure the masking tape is visible throughout the process for easy removal in the end.

Before step 5(base layer):

- Spread a plastic sheet/ tarp to collect and reuse any plaster that falls during the process.

Before step 7(polishing):

- Leaf imprints can be added for aesthetics. Choose soft leaves with a well-defined vein pattern. It takes at least 2 hands to hold the leaf in place, and one hand to rub the plaster until the leaf sits in the plaster. Continue rubbing as usual, carefully remove the leaf.
- Leave spots where the mortar moves. Rub over spots where particles move slightly. Fill in gaps with the fine plaster collected over your stone or hands. Remove tiny stones that come in the way with a sharp object.
- If air bubbles emerge, gently rub over the patch until the bubble is broken.
- If a patch rips, take fresh mortar, apply over with a small trowel and let it sit for a while before polishing again.
- The stone can be cleaned with a wet cloth when there is too much friction while rubbing.
- Unnecessary marks on neighboring walls should be wiped off with a wet cloth before it dries.
- Choose your stone carefully: A flat surface on the polishing side, a good grip on the other side, easy to hold, not too heavy.

Before step 8(black soap water wash):

- Gloves aren't required while using black soap water. They are required only where lime putty is being used.

After step 8(black soap water wash):

- If the plaster is hard and the masking tape doesn't come off, dampen the edges with a sponge, and use a trowel with a scale as a guide to chip off the edge. The masking tape will come off easily after this.



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