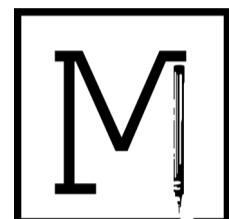




S O I L F U L S K I L L I N G



Masons Ink team had an immersive mud workshop in Kochi under the mentorship of the principal architects and a French mud expert, Emy Galliot.

In this 4 day workshop, the team got to try their hand at mud and lime plastering techniques.

This is a document summarising the various contents and processes attempted.

Kochi, India
January, 2020

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

EARTH OVEN: Finishing Layer

Techniques learnt: Earth plaster, Tadelakt



Materials:

1. Soil

2. Surkhi

3. Quarry Dust

4. Lime

Base Mud Plaster - 2 : 1 with 5 percent lime

2	1
Seived soil (5 mm)	Quarry dust

Lime Plaster - 4 : 2 : 1 : 1

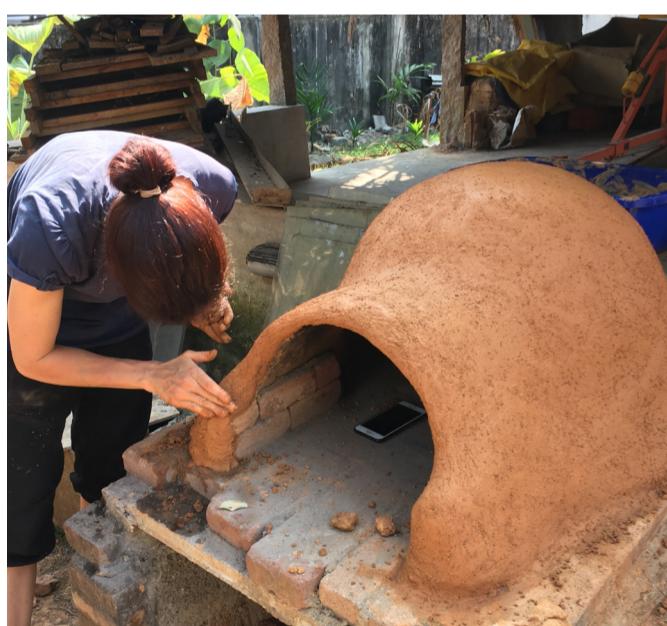
4	2	1	1
Shell Lime*	Quarry Dust	Seived Soil (2 mm)	Surkhi

Process:

1. The earth oven was first coated with a mud plaster. This was let to dry over night. The following day the surface was prepared for the lime plaster by dry brushing it to remove loose particles and wetting the surface with a sponge.
2. Then the lime plaster was applied on the surface. Once the plaster had begun to slowly dry, the surface was rubbed continuously in a circular motion with a pebble stone until the particles on it had become tightly packed, smooth and had developed a slight shine to it.
3. This was left to dry and sweat overnight. This happens because the lime is still expelling water out as droplets and it settles on the outer layer of the plaster.
4. A coat of black soap solution* was applied on the surface and any loose particles were removed. It was polished once again using a smooth pebble stone and any visible cracks on it were sealed.
5. This was let to dry. The black soap solution* was repeatedly applied on the surface everyday for the following 10 days.



Gaia : Earth Oven's intial condition



Mud Base plaster is being applied



After a coat of lime plaster



Polishing using a pebble stone in progress



Black soap solution is being applied over the plaster



The finish of Tadelakt

* Preparation method mentioned later in the document

EARTHEN PLASTER



Techniques learnt: Lime paint, Lime plastering, Earth finish and scraffitto

Materials:

1. Soil
2. Surkhi
3. Quarry Dust
4. Lime

Base lime plaster - 4 : 2 : 1

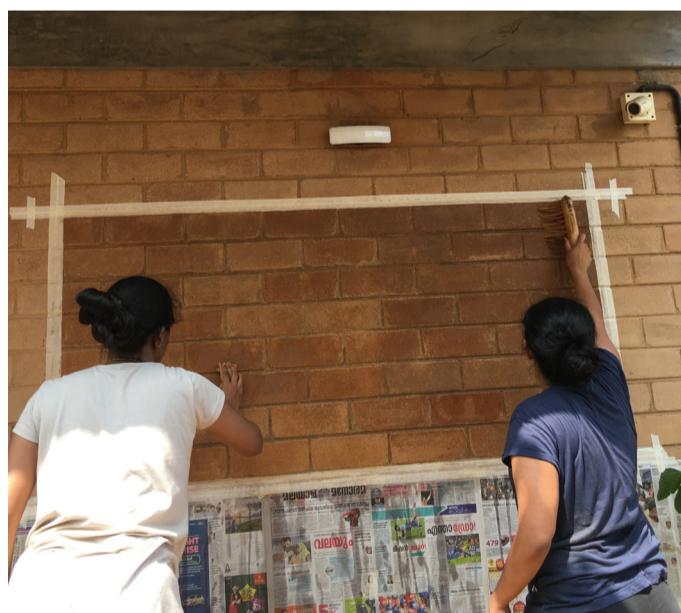
4	2	1
Shell Lime*	Quarry Dust	Surkhi

Final mud plaster - 1 : 2 : 2

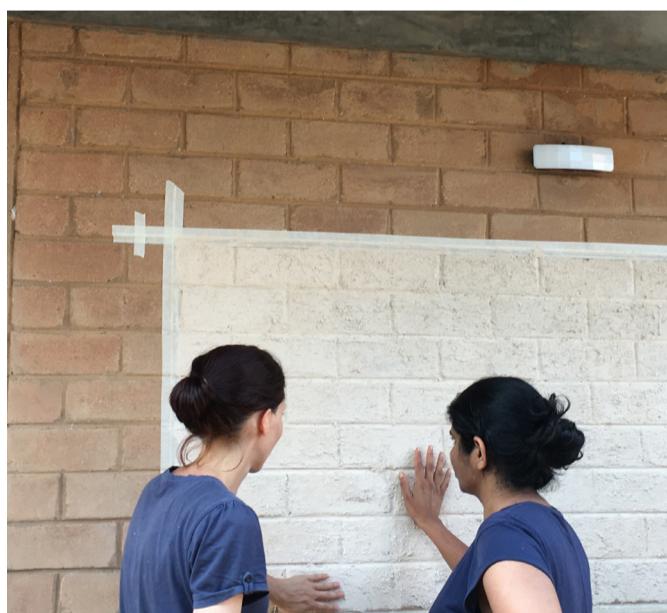
1	2	2
Powder Lime	Seived Soil (2mm)	Seived Sand (2mm)

Process:

1. The surface of the exposed CSEB wall was marked out. Then it was prepped by wetting it with a sponge.
2. A coat of sandy lime paint (Mix of lime and unseived quarry dust) was applied over the masonry to create a rough finish. Once this sandy lime paint coat had dried, the surface was prepared by moistening it with a sponge.
3. Then the base lime plaster mix was used to plaster the surface. This was let to dry completely.
4. For the final coat, the surface was prepped by moistening it with a wet sponge. Next, the final mud plaster mix was used to plaster it.
5. When the mud plaster is semi set (still malleable), the design for the scraffitto was aligned and taped onto the surface.
6. The drawing was transferred onto the plaster by marking it with holes using a toothpick. The drawing was then removed.
7. The marked out design was carved out of the wet plaster to reveal the plaster behind.



Surface is being prepped



After a coat of sandy lime paint



Base layer of plastering



Second Layer of plastering



The design is getting transferred onto the plaster



Carving out the design

* Preparation method mentioned later in the document

RAMMED EARTH PLANTER REPAIR

Techniques learnt: Tadelakt, Natural Insect repellent



Materials:

1. Soil
2. Surkhi
3. Quarry Dust
4. Lime
5. Varnish
6. Natural Insect Repellent

Process:

1. The Rammed Earth planter was cleaned with a dry brush.
2. The natural neem insect repellent* was injected into the planter on the outer and the inner surfaces.
3. Then, a coat of varnish was applied on the outer surface of the planter.
4. The top surface of the planter was plastered with a mix. [remainder of Gaia's lime plaster and the remaining base lime plaster layer of scraffito]
5. Once the plaster had begun to slowly dry, the surface was rubbed continuously in a circular motion with a pebble stone until the particles on it had become tightly packed, smooth and had developed a slight shine to it.
6. This was left to dry and sweat overnight. This happens because the lime is still expelling water out as droplets and it settles on the surface of the plaster.
7. A coat of black soap solution* was applied on the surface and any loose particles were removed. This was polished once again using a smooth pebble stone and any visible cracks on this surface were sealed.
8. The surface was let to dry. The black soap solution* was repeatedly applied on it everyday for the following 10 days.



Rammed Earth Planter



Varnishing of the outer surface



Plaster of the top surface in progress



Black soap solution application in progress



Preparing to transfer the plant into the planter



Final look of the planter

* Preparation method mentioned later in the document



NATURAL INSECT REPELLENT

Materials:

1. Neem
2. Garlic
3. Water

Process:

1. In a vessel with one litre of boiling water, neem leaves were added to the brim. A handful of garlic was also added.
2. This mix was let to boil for a while until the extracts from the neem are drained into the water and the colour had turned dark green.
3. This mix was then drained to separate the liquid and the leftover boiled leaves.
4. This liquid was used as the natural insect repellent.



Collecting Neem leaves



Adding Neem leaves to boiling water



After boiling the mixture for a while, the liquid is strained.

BLACK SOAP

Materials:

1. Savon Noir Mou
2. Water

Process:

1. A small scoop of Savon Noir Mou paste was added to about 2 litres of water.
2. This was warmed till the paste mixes well with the water to form a solution.
3. The resultant solution is called black soap which is used to polish tadelakt.



Mixture of water and Savon noir mou is being made



The mixture is getting heated till it forms a solution



Product: Savon Noir Mou

SHELL LIME



Materials:

1. Shell Lime

2. Water

3. Muslin Cloth

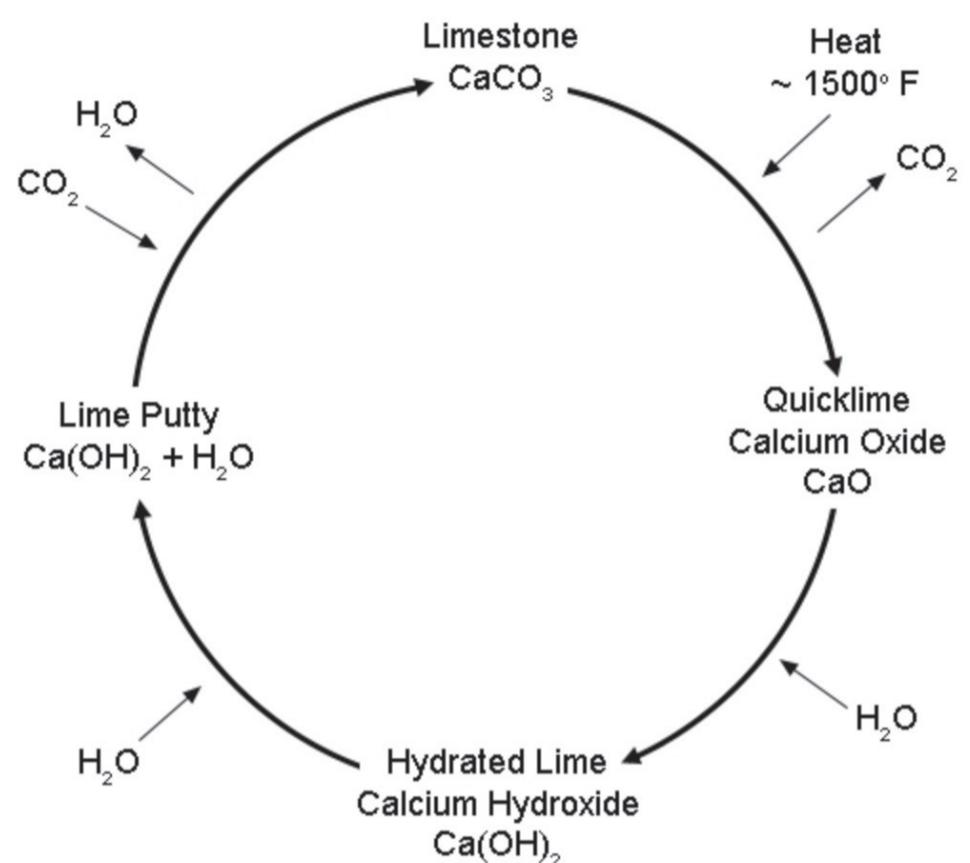
Process:

1. Water was added to processed shells in a metal container

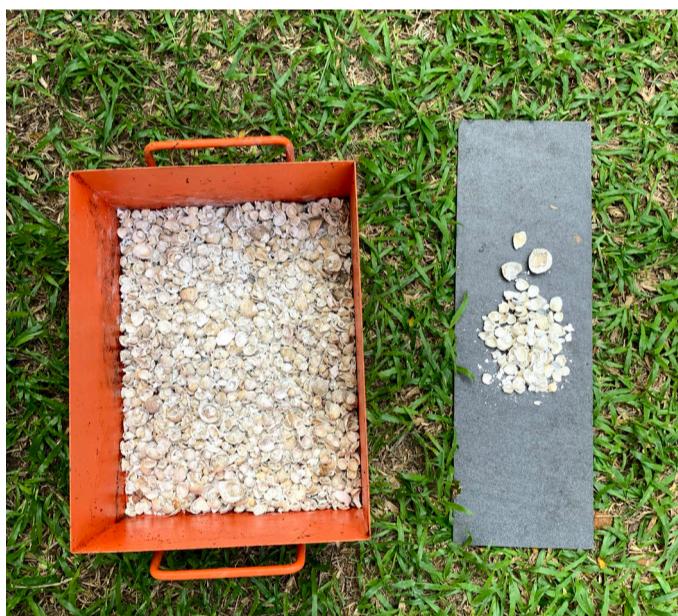
2. An exothermic** reaction occurred and as a result lime putty was obtained.

3. The excess water from the lime was drained using a muslin cloth.

The Lime Cycle



**Caution : Since the exothermic reaction expels a lot of heat, the container used needs to be metal and not plastic, as plastic container may melt away due to this reaction



Processed Shells are placed in a metal container



Water is being added to the shells



A exothermic reaction slowly begins to occur



The reaction continues till all the shells have reacted with water.



Shell Lime is the output of this reaction



The excess water from the shell lime reaction is drained using a muslin cloth.



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