



WATTLE AND DAUB

A technical document detailing the process



The Hobbit Series

This workshop is a part of the Hobbit House series, held at the project's site in the spirit of upskilling the women workforce and labourers. As a firm, we believe in gender equality, with it being a core part of our efforts in uplifting women in construction and addressing the issues they face at the root level.

Masons Ink team and participants had an immersive wattle and daub workshop in Hosur under the mentorship of the principal architects. In this 2-day workshop, the team and participants got to try their hand at the wattle and daub technique. This is a document detailing the technique and process attempted.

The external finish of lime plaster that was done after this workshop is also explained in this document.

Hosur, India
May, 2022

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

WATTLE AND DAUB



A composite building method used for making walls and buildings, in which a woven lattice of wooden strips called wattle is daubed with a sticky material made of a combination of wet soil, sand, and straw.

THE STRUCTURE

1. Bamboo Preparation and treatment:

The bamboo is first coated in a layer of cashew oil to protect it from termite and insect attacks. This step must be performed well in advance so that the oil may dry.

The bamboo slats are then cut to fit the frame of the panel to be daubed. The frame in this case was made of MS L-angle.



Bamboo coated with cashew oil



Cutting of bamboo slats to size



Shed made of MS framework

2. Making the wattle

Two (or more depending on the size of the panel) supporting horizontal slats are fixed to the frame with the edges behind the L-angle.

Vertical slats of bamboo are then fixed into the frame with alternative concave and convex facing surfaces of the slats. A sufficient gap between each vertical is maintained. More horizontal bamboo slats are woven into the verticals to form the wattle.



Fixing of vertical bamboo slats



Weaving horizontal slats



Finished weave

Bamboo coated with cashew oil to be handled with gloves as the oil causes severe burns.



THE FILLING

3. Preparation of daub

Materials:

1. Mud
2. Quarry Dust
3. Dog hair
4. Water

1	1
Mud	Quarry dust

Method:

1. Sieve quarry dust and mud to obtain particles of uniform size. Ensure there is no organic matter present in the mud.
2. Pull apart clumps of dog hair and mix them evenly with the mud until the strands of hair are visibly holding the mud together in every fistful of mix.
3. Add the quarry dust to the mud and mix uniformly.
4. Add water as per requirement and knead (stomp) the mixture, folding it several times until the desired consistency, which is that of a plastic dough is reached.



Dry mixing with dog hair



Wet mixing by stomping



Finished daub mix

4. Application of daub

Once the wattle is assembled, the daub is to be applied. Application is performed in pairs where a handful of mud is scooped and pressed onto the wattle from either side.

Application of the daub is to be done starting from the bottom of the frame. Both participants must remain in coordination so that mud is being pressed on the same spot on either side of the wattle.

The mud is then allowed to dry.



Application of daub

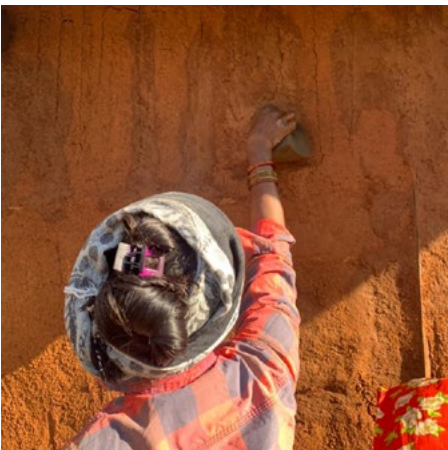


Finished wall of daub

5. Sponging

Once the mud has dried, a damp sponge is used to dab the surface.

Any hairline cracks are sealed during this process by rubbing the sponge over and using mud already present on the surface to seal up the crack.



Sponging the surface



Sponging the surface



Sealing of hairline cracks



Interior of the walls



Finished wattle and daub walls

Larger cracks on the surface are sealed by taking a bit of mud from the same mixture onto the sponge and applying it over the crack to seal it.



Material Checklist:

Wattle and Daub

Bamboo slats
Cashew oil
Metal wire/ties
Mud
Quarry dust
Water
Dog hair

Tool Checklist:

Bandlis (4-5)
Trowels (Small and big sizes)
Sponges
Tarpaulin
Green mesh (for sieving)
Buckets and mugs
Large plastic bin
Protective gloves (for each participant)
Sickle (to cut bamboo)

LIME PLASTER



THE FINISHING LAYER

1. Preparation of mix

- Sieve surkhi, to obtain particles of uniform size.
- Add surkhi to the rock lime and mix slowly. Add water accordingly until the consistency is that of a smooth viscous paste that sticks to the trowel when kept inclined.
- Dog hair is added to this mixture and mixed until there is an even amount of hair seen in every scoop of mix.

1	3
Lime	Surkhi

2. Preparation of surface

The surface is prepared by brushing away any loose particles using a coir brush. Before plastering the lower layer is dampened once with a sponge.

3. Plastering

Using gloved hands, the Lime plaster is applied onto the surface starting from the top and working to the bottom. Two coats were applied to the surface, a third layer may also be applied.

4. Smoothing

The layer of plaster is then smoothed out using a pebble with a flat surface.



Brushing the surface



Applying the plaster



Smoothing the plaster



Material Checklist:

Lime Plaster

Rock Lime

Surkhi

Dog Hair

Water

Tool Checklist:

Bandlis (2-3)

Trowels (Small and big sizes)

Coconut coir brush

Sponges

Tarpaulin

Green mesh (for seiving)

Buckets and mugs

POINTS TO NOTE



Before step 1 (bamboo preparation)

- The bamboo used must be thin enough to have the flexibility for weaving in a wattle but not too thin that it lacks the strength to stand.
- Cashew oil causes severe burns to the skin, extreme caution should be exercised while handling the bamboo.

During step 2 (making the wattle)

- When horizontal slats are fixed, it should be made sure that it is well secured to the frame
- Bamboo slats that give a larger bend in the weave should not be used.
- While weaving the wattle, one should take caution with the knots in the bamboo.
- The finished wattle should have a certain tightness to it and the bamboo should not sit loose.

Before step 3 (daub)

- When mixing the dry mix, any stones, leaves, or organic matter are to be removed from the mix
- The wet mix is to be stored wrapped in a tarp and kept moist. The mix is not to be left out in the sun.
- Spread a tarp below the surface to be worked on to collect and reuse the daub that falls off during the process.

During step 3 (daub)

- The daub applied should not be too thick or clumpy.
- The edges of the L-angle frame should be packed well with mud to prevent cracking between the joints.
- While applying the daub, too much water should not be used or the mix will crack while drying.

Before step 3 (smoothing)

- Pebble used should be chosen carefully – a flat surface on the polishing side with a good grip on the other side makes it easy to hold and not too heavy.



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