

Building with rice husks

A workshop in the mountains of Thailand

Our workshop took place in northern Thailand at Chiang Dao Roundhouses, where I have been building with rice husks for the past couple of years.

There were eight participants from eight different countries, including Australia; three were women and five men, ranging in age from 20s to 50s. Some of the participants elected to stay on site sharing roundhouses, and this gave them a first hand experience of living in a space created by rice husks.

The purpose of the workshop was to build a dome, giving our participants a wide variety of hands-on experiences of building with natural materials, without using any electrical tools.

On site were a team of local people from our village, already experienced in this kind of building. They had built the circular 5m diameter slab for our workshop dome, from concrete to guard against termites, before the workshopers arrived.

The bags of rice husks, which provide wonderful insulation and have dehumidifying properties, had been prepared before the start of the workshop. We had gone to local rice mills and filled a few hundred second-hand polypropylene bags with the unwanted husks.

Bags of rice husks are not loadbearing, which earthbags are, so you need to create a frame for your building, to support the roof and onto which you can attach the bags. Our first task was to build this frame, using six posts 2.2m high that had been concreted into the slab along with a mix of steel reinforced rods (rebar) and bamboo, woven in a trellis up the walls and then arching up to form a dome.

We began by bending and attaching a horizontal rod of rebar to the top of the posts, forming a circle. Then the first dome shaped rebar was bent into place, going vertically from one post, crossing over in the shape of an arch to the opposite post. To get the shape I wanted, two teams, one

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at each post, held the ends and lifted it until I was satisfied with the height before attaching it to the posts. We then added more arches. Its peak was two metres from the top of the posts.

Soon our trellis was completed and we were able to begin on the walls. The first layer of bags was filled with gravel and the second layer with sand, providing protection against any kind of water gathering at the bottom of the building. Then came the bags of rice husks. Light weight, easy to manipulate around corners and stuff into small awkward areas by doors and windows, the walls went up easily in a just over a day.



We learned how to mix the earth, sand and rice husks with water into a mud plaster. This can be done with bare feet until the addition of lime, which is caustic to the skin. It was added to stabilise the mix, make it more durable and repel insects. The mix was put on to the bags. This was good fun! The mud was slapped on to the bags and then worked in with the fingers. Due to the shape of the bags, there were some large gaps that were filled with our plaster mix dipped into straw. After this layer dries, a second, third and fourth go on, each layer drying in between.

A final layer of plaster was made mostly of lime soaked in water to create a creamy texture, with a little earth and sand sifted through a fine mesh, and a dollop of wheat paste mixed in. It was applied with a trowel to create a smooth finish. This layer required a slow steady hand, very different from the first layer of plaster. ♦

'Every day of building was not just a great learning experience, it was fun. Now I know that I'm not a complete idiot with a saw, hammer or machete (actually smiling about that right now) and it has given me a lot of confidence in my building ability,'
JULES.

The next rice husk workshop at Chiang Dao is in November 2015.
www.chiangdao-roundhouses.com



Links & resources

♦ **Maggie's Blog**
maggimck.wordpress.com

♦ Inspirational books

- *Building With Earth: A Guide to Flexible-Form Earthbag Construction*, by Paulina Wojciechowska. Chelsea Green Publishing Company, 2001.
- *Home Work: Handbuilt Shelter*, by Lloyd Kahn. Shelter Publications, 2004.