

UN-Habitat Sri Lanka

Sustainable Construction Using Alternative Technologies

Mud Concrete Blocks (MCB) for Wall Construction



About Mud Concrete Blocks (MCB)

- MCB is an environmentally friendly technology for wall construction introduced by the University of Moratuwa, Sri Lanka.
- Having been subjected to rigorous laboratory and field testing, it is proven to be of good strength, with the ability to withstand extreme weather conditions.
- UN-Habitat has used MCB to construct walls in several community buildings.
- MCB can be manufactured at community/household level, using available gravel and soil mixed with cement.
- As the cement proportion varies with the soil composition, initial testing of soil is important to prepare high quality blocks.
- Curing of MCB is not necessary, as the soil mix contains sufficient water to harden the cement, as the blocks are kept covered with polythene after casting. This is an added advantage in areas where water is scarce.



Methodology

- MCB can be made using available gravel and soil mixed with cement (5% – 8%). The composition of native soil can be adjusted by adding gravel, sand or clay to reach the suitable proportion.
- The mould for casting the blocks is made of timber or steel plates in the form of honeycomb assembly arrangement to accommodate 24 to 32 blocks together.
- Placing the mould on a hard, level surface ensures a smooth surface while mould oil or grease mixed with diesel is applied over the inner surface of the mould to reduce friction when removing the blocks.
- The mould can be dismantled after 6 to 8 hours after pouring the concrete and used for casting another batch of blocks within the same day.
- After keeping the blocks under a polythene sheet for about a week, they are ready to be used to build walls.
- The mortar mix used to build the walls consists of a mix of clay, sand and cement. A mix of one part of cement, 3 parts of sand and 3 parts of soil is recommended.



Benefits

- Resources required are locally sourced.
- Buildings constructed with MCB offer improved thermal comfort over those built with cement blocks or burnt bricks.
- This technique reduces consumption of cement and sand, and can be produced by unskilled workers, without a machine, and is therefore less costly.
- Walls, built properly using this material are aesthetically pleasing, eliminating the need for costly plaster.

More information and Related Resources

- **Building Environmentally Friendly Community Infrastructure:** <http://unhabitat.lk/news/project-for-rehabilitation-north-east-news/building-environmentally-friendly-community-infrastructure-multi-purpose-community-centre-batticaloa-district/>
- **Introducing environmentally friendly construction techniques:** <http://unhabitat.lk/news/introducing-environmentally-friendly-construction-techniques-for-post-conflict-housing-and-community-infrastructure/>