

Compressed Soil Blocks: An Eco-Friendly Alternative



Mud bricks have been used since ancient times but is still a viable, modern building material. Sun-dried mud bricks are a zero-carbon product, when it is not stabilised with cement or lime, making it one of the few eco-friendly products available in the construction industry.

The secret of a good mud brick lies in the soil used as raw ingredient in its manufacture (see Box). Once manufactured, these bricks can be used in the same building method and style as oven-fired bricks. The bonding used for the bricks can be lime or cement and sand mortar.

The aesthetics of the brick are so pleasing that many users have chosen not to plaster over them, allowing the earthy tones and natural texture of the bricks to shine through. But leaving the bricks unplastered means that electrical conduits and piping will be exposed in walls constructed of solid bricks. However this problem can be avoided by using hollow blocks which have space for running conduits and pipes through the hollow. In order to do this, a certain amount of pre-plan-

ning is required so that the conduits and pipes are laid into the brick coursing during construction.

Mud bricks can be used for both load bearing and infill purposes. In

fact, they can also be used as domes and vaulting for roofs so that the entire building can be constructed entirely from these eco-friendly mud bricks.

The Soil

Mainly Laterite soils are used for making soil blocks. In Sri Lanka this is available just a few centimetres below the organic top soil. Laterite soil is high in compounds of iron and aluminium and is reddish in colour. It has variable clay content and is therefore hard to specify. This soil is easily found in our tropical island where warm water filters through the soil removing all soluble chemical salts.

Soils unsuitable for making blocks are:

- Soils containing organic matter
- Soils which are highly expansive
- Soils containing excessive amounts of soluble salts such as gypsum, chalk, etc.

The Curing Process

The formed, compressed earth blocks are stacked in sunlight and covered with black tarpaulin. The black tarp absorbs heat and prevents the loss of water from the block which is crucial for the block to gain its full strength. The blocks are kept covered for 7 to 14 days and then left to dry for a total curing period of 4 weeks after which there will be no appreciable gain in strength.

Source: Dr Asoka Perera