

Single storey houses with hand moulded chip concrete blocks for Sri Lanka

Sri Lanka is presently facing serious environmental problems due to extensive use of building materials such as sand and bricks. Therefore, there is an urgent need to reduce their use. One alternative to this is hand moulded chip concrete (HMCC) blocks. It can use by-products of metal crushing industry such as 6 - 8 mm chips and quarry dust. When hand moulding is used solid blocks of width 125 mm can be produced. The length and height are 300 mm x 200 mm. this is ideal for the external walls of single storey houses since the building regulations need a thickness of 125 mm. these can be used without plastering since it can give a good finish. HMCC blocks are specially suitable for housing projects planned with self-help type construction by governmental and non-governmental organizations.

With an experimental programme it was found that a mix of 1: 8: 14 cement, fine aggregate (either sand or quarry dust) and chips can be used for HMCC blocks. A characteristic compressive strength of 0.9 N/mm² could be achieved when 1: 5 cement sand mortar is used for wall construction. This strength is quite sufficient for single storey construction.

A cost study based on the actual material quantities have indicated that the cost of blocks will be Rs 12/= and Rs 9.50/= for 125 mm and 100mm blocks, respectively, with

unpaid labour. Two labourers can manufacture about 30 blocks in two hours. This is a competitive cost for an environmentally friendly material.