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Surface water proofing of cement mortar and concrete

The extensive use of traditional building materials like bricks and sand has caused considerable environmental problems in Sri Lanka. Therefore, there is a need to find alternative building materials that will reduce the use of sand and bricks. Cement stabilized soil blocks manufactured with laterite soil is one of the alternatives. These are generally manufactured using machines. This makes it less accessible to communities in rural areas. Therefore, it is useful to determine the strength characteristics of manually compacted blocks.

It is shown with a detailed experimental programme that blocks produced with either 2% or 4% cement contents can give good strengths when the fines content is less than 30%. The compaction ratio is 1.65. The estimated wall compressive strengths for these blocks were in excess of 0.9 N/mm2 which is quite sufficient for single storey houses. Any laterite soil can be modified by adding sand to contain the fines less than 30%. When soil is available at site, even with the paid labour the cost of a block was Rs.3.50/= or Rs 4.50/= with 2% or 4% cement respectively.

Since the dimensional accuracy is high the block walls can be given a pleasing appearance without plastering, thus the demand on sand also can be reduced. Therefore, manually compacted cement stabilized soil blocks can be considered as an environmentally friendly cost effective material.