

Seed lime bricks using level raw materials

Caicium Silicate brick generally know as sand -lime brick is considered to be one of the improved building materials when compared with common clay bricks. The research on sand-lime bricks was focused on the following aspects:

(i) study on use of local raw materials, (ii) optimization of processing codition, (iii) study on properties of brick samples made in the laboratory. Laboratory trials were carried out using the following types of hydrated lime and sand.

Shell lime: obtained from Lanka Ceramic Ltd, at Hungama, Dolomitic lime: Obtained from State Engineering Corporation at Matale Lime made in laboratory:Hydrated lime samples prepared in the laboratory from Miocene limes samples collected from Aruwakkalu. Dune sand: Sand having a very fine particle size gradation was collected from dunes in Puttalam area. Crushed rock sand:Available as a by-product of metal quarrying collected from Keangnam quarry at Athurugiriya. Steel mould (100 mm x 100 mm x 600 mm), hydraulic pressure machine and laboratory type autoclave were used for the trials. Test samples were prepared as follows to study the properties of lime-sand bricks.

Raw materials → Sieving → Mixing → Water spray → Pressing → Autoclaving

Results of laboratory trials indicated that attempts to make bricks made out of dolomitic lime was not successful because of expansion on autoclaving. Samples made from shell lime (from Hungama) and dune sand showed a 70% increase in strength over burnt clay bricks of type 1 (compressive strength \sim N/mm²). However, samples made out of laboratory made lime showed comparatively low strength.

Manufacture of sand-lime bricks can be easily carried out in Sri Lanka using local raw materials. It will not further exploit the use of valuable clay resources which could be used for purposes other than brick making.