

# **INVESTIGATION OF ENGINEERING PROPERTIES OF LATERITE BRICKS**

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## **Abstract**

There is a deficiency of raw materials for housing in Sri Lanka because of population growth. So there is an unfulfilled demand for traditional raw materials such as river sand and clay. Serious environmental problems are caused because of over excavation of above raw materials. To prevent this situation we should focus towards low cost and environmental friendly alternative raw materials which are existing in sufficient amount in Sri Lanka.

Laterite soil and quarry dust are most abundant resources in western part of the Sri Lanka. Bricks can be manufactured using mainly laterite soil and cement. Because of the lack of the required particle size distribution the strength of the earth bricks can be reduced.

To improve required particle size distribution quarry dust was mixed with laterite. The initial results indicated that adding 45% of quarry dust improves the compressive strength of laterite brick. Then laterite bricks were produced using laterite soil, quarry dust and cement mixtures with various percentages. The dry and wet compressive strength was measured from the produced bricks. Sieve analyze was done for laterite soil, quarry dust and the best material mixture to get the particle size distribution of above materials.

Particle size distribution curve of the laterite was used in this study was poorly graded and addition of 45% quarry dust corrected this deficiency. The brick which is made from laterite and quarry dust mixture can be stabilized using low amount of cement. This brick is more suitable for wet conditions as well as dry conditions. Because of this brick 55% of quarry dust can be saved while achieving higher compressive strength than 100% quarry dust. The material mixture (45% of quarry dust with laterite) is more economical and environmental friendly for brick production for walling.

**Key words-** Bricks, Cement, Laterite, Quarry dust