

ABSTRACT

Earth blocks are used for construction and there is need to check the best mix proportion of materials to obtain the best blocks in terms of properties and costs. Locally available red soil was tested for its engineering properties like atterberg limits and sieve analysis. Earth blocks of the following mix proportions were made; mix 1(100% red soil), mix 2 (8% lime and 92% red soil), mix 3 (5% lime, 40 % QD and 55% red soil), mix 4(8% lime, 62% red soil and 30% QD), mix 5 (68% red soil, 12 % lime and 20 % QD) and mix 6 (75 % red soil, 15 % lime and 10 % QD). Seven (7) blocks were made from each mix; six (6) of them to determine the compressive strength and one (1) to determine the moisture content. An average value of compressive strength of two (2) blocks in each mix was obtained after 7,14 and 28 days of curing. The moisture content was measured after 28 days of curing. Mix 4 comprising 8 % lime,62% red soil and 30 % QD was found to have the highest compressive strength of 5.6 N/mm² after 28 days. Increase in compressive strength with increase in lime content up to 12 % was noted and above 12% a decrease in compressive strength. Mix 6 was found to have the lowest moisture content. Decrease of moisture content with increase of lime was noted on different mix proportions.

It was concluded that a mixture of 8% lime, 30% QD and 62% red soil was capable of producing ecofriendly and economically sustainable blocks of excellent engineering qualities in terms of increased strength and reduced moisture ingress, that could be used as masonry blocks for various construction works. It was recommended that other studies could be carried out to investigate compressive strength of earthblocks made from other types of soils ,as well as the durability tests on the blocks. Also research could be made on any additives that can be added to lime to lower the percentage of lime needed in stabilizing earth blocks