

Properties of Compressed Earth Blocks Enhanced with Clay Pozzolana

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Abstract : The high cost of cement and its greenhouse effect on the environment have led to the use of alternative building materials in the production of block and bricks. This study seeks to investigate the properties of compressed earth blocks (CEBs) enhanced with clay pozzolana. CEBs of size 290 × 140 × 100 mm were prepared with 10, 20 and 30 % weight of clay pozzolana. The CEBs were compressed at a constant pressure of 5 MPa and cured for 28 days. The blocks, after 7, 14, 21 and 28 days of curing were tested for density, water absorption, compressive strength and erosion. It was found that amount of pozzolana content did not have much influence on blocks' density. There was a decline in water absorption of the stabilised blocks ranged between 32.8% and 252.2% over the unstabilised blocks. The highest compressive strength (3.75MPa) of the stabilized blocks was achieved at 28th day of curing with 30% clay pozzolana content, which showed an improvement of 116.8% strength over the unstabilised blocks. Furthermore, there was a statistically significant difference in the erosion resistance between the stabilized blocks and the unstabilised blocks. The study concludes that the inclusion of the clay pozzolana increased the properties of the CEBs, and therefore recommended for use in the building of houses.

Keywords : clay pozzolana, compressed earth blocks (CEBs), compressive strength, erosion test

Conference Title : ICCBC 2018 : International Conference on Clay Based Ceramics

Conference Location : Paris, France

Conference Dates : March 15-16, 2018