ABSTRACT:

Coal is one of the world's most important sources of energy, fuelling almost 40% of electricity worldwide. The burning of coal produces coal ash that mostly consists of fly ash and bottom ash. Bottom ash (normally recognized as coal combustion residues) has been categorized as solid waste (garbage). However, the utilization of bottom ash in constructionrelated applications has received some attention within the last decade. This paper presents the engineering characteristics of kaolin, mixed with 25%, 50% and 60% of bottom ash. Kaolin, in powdered forms, was mixed with bottom ash and compacted at optimum moisture content. By adding bottom ash to kaolin, lower specific gravity, higher permeability and relatively speed of consolidation would be increased to a great amount to the mixture would be achieved. It was found that the granular texture of bottom ash increased the friction angle and decreased the cohesion of kaolin. The addition of 25% bottom ash leads to the highest shear strength among mixtures. This can be attributed to its granular nature which renders an increase in frictional of the mixtures. The California Bearing Ratio (CBR) test shows that the most economical mixture that gives the highest value of penetration resistance and CBR is kaolin to bottom ash ratio of 50%: 50%. It appears that the bottom ash could be suitable for various uses in civil constructions depending on the requirements of applications.