

Structural performance of beam using high volume bottom ash as fine and coarse aggregate replacement

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ABSTRACT

Coal fired power plant produces abundance of by-product in the form of bottom ash and fly ash that can be categorized as a waste which threatens environment as well as health and safety of human life. Every year, large number of coal fire plant wastes is disposed and this put pressure to disposal site as the site could almost reach its design capacity. Hence, innovative and sustainable solutions may require to reduce the amount of waste such as reusing the waste as construction materials for infrastructure development. This paper discuss, the coal bottom ash (CBA) used as fine and coarse aggregate replacement in reinforcement concrete (RC) beams. The RC beams with CBA were tested under four point bending test to investigate the behaviour of the RC beams under bending. The deflection and applied load was recorded while the cracking pattern was observed and marked to evaluate the behaviour and the performance of RC beams. The results show that the performance of RC beam with CBA replacement was comparable with the normal RC beam as the crack pattern and applied load was almost the same.

KEYWORDS

Reinforced concrete beam; Structural beam; Coal bottom ash; High volume replacement

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