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Study of Fly Ash, Rice Husk Ash and Marble Powder as Partial Replacement to Cement in Concrete

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Abstract : Now days, the waste rice husk from rice mill, marble powder from tile industry and fly ash from steam power plant are necessary to utilize as partial replacement of cement for concrete production. Large scale production of cement required consumption of raw materials and energy as well as emissions to air which posse's environmental threat in various areas of country. Apart from the environmental threat, there still exists the problem of shortage in many areas. Therefore, substitute material for concrete needs to be considered. The paper aims to analyze the compressive strength of concrete cubes and flexural strength of concrete beams made from partially replaced cement, sand, and coarse aggregate. This research study adopted in laboratory on 48 total specimens of grade M25 concrete cubes of size 150x150x150mm and concrete beams of size 100x100x500mm were casted. Out of the 48 concrete specimens cast, 6 each were made out 10%, 20%, and 30 % replacement of fly ash, rice husk ash and marble powder to cement in concrete. It was found that the compressive strength and flexural strength of concrete made from the mixture of 20 % partially replaced cement, sand and coarse aggregate was similar than the concrete made from without replaced cement , sand and coarse aggregate.

Keywords : Fly ash, Rice husk ash, Marble powder, Compressive strength, Flexural strength.

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