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STRUCTURAL BEHAVIOUR OF HIGH-PERFORMANCE CONCRETE USING METAKOLIN AND M-SAND

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ABSTRACT:

However, environmental concerns both in terms of damage by extraction of raw materials and carbon di oxide emission during cement manufacture have brought pressure to reduce the cement consumption by the use of supplementary materials. High-Performance Concrete (HPC) is the latest development in the concrete. Study has been carried out to assess the strength properties of HPC by replacement of cement by Metakaolin with three proportions that is 5%, 10% and 20% Natural Sand by M-Sand (Manufactured Sand) by six proportions that is 10%, 20%, 40%, 80% and 100% and with same aggregate binder ratio of 2.5 and various water binding ratios of 0.30, 0.35evaluating its compressive strength, split tensile strength and flexural strength. Metakaolin used as a partial replacement of cement which was treated as an economical and due to its pozzolanic action increases strength and durability properties of concrete.

Key Words: Manufactured Sand, Metakaolin, Plasticizer, Strength properties, High performance concrete.

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