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An Experimental Investigation on Bella Stone Dust as Partial Replacement of Fine Aggregate in Concrete

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Abstract: *The increasing demand for natural sand in concrete production has led to environmental degradation and depletion of natural resources. In response to this challenge, the present study investigates the potential use of Bella Stone Dust as a partial replacement for fine aggregate in concrete. Bella Stone Dust, a by-product generated during the crushing of stones, poses disposal issues and environmental hazards if not managed effectively. This research aims to evaluate the suitability of Bella Stone Dust as an alternative material in concrete mixes. A comprehensive experimental program was conducted in which Bella Stone Dust partially replaced fine aggregate at varying percentages of 0% to 100% by weight. The M-30 grade concrete tested for workability and concrete specimens were tested for compressive strength and split tensile strength at 7, and 28 days of curing. The results indicated that up to a certain percentage, the inclusion of Bella Stone Dust enhanced the mechanical properties of concrete, with the optimum performance observed at a specific replacement level..*

Keywords: Bella Stone Dust, Sustainable Construction, Environmental Impact, Fine Aggregate Replacement

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