

Use of Marble Chips as Partial Replacement of Coarse Aggregate in Concrete

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Abstract: *The marble industry produces a significant amount of waste, with approximately 70% of minerals wasted during the mining, processing, and polishing stages, resulting in environmental contamination. The accumulation of marble waste poses a serious environmental threat, demanding innovative solutions. Utilizing waste materials in construction, especially as recycled aggregates, presents a sustainable approach to mitigate environmental impact. Marble chips, when employed as coarse aggregate in concrete, alleviate the demand for natural resources, reduce energy-intensive mining processes, and alleviate landfill burdens. This shift towards recycled aggregates is in line with global efforts towards sustainable development. Additionally, ongoing research indicates the feasibility of incorporating waste marble into concrete paving block production, further diversifying its applications. Embracing recycled materials in construction not only addresses environmental concerns but also promotes resource conservation and pollution reduction, marking a significant step towards a more sustainable future.*

Keywords: marble chips, concrete, aggregate replacement, aesthetic enhancement, environmental conservation, sustainable construction, mix design, workability, strength, durability, natural resources.