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Using Construction Wastes and Recyclable Materials in Sustainable Concrete Manufacture

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Abstract : Sustainable construction materials using solid construction wastes are of great environmental and economic significance. Construction wastes, demolishing wastes, and wastes coming out from the preparation of traditional materials could be used in sustainable concrete manufacture, which is the main scope of this paper. Ceramics, clay bricks, marble, recycled concrete, and many other materials should be tested and validated for use in the manufacture of green concrete. Introducing waste materials in concrete helps in reducing the required landfills, leaving more space for land investments, and decrease the environmental impact of the concrete buildings industry in both stages -construction and demolition-. In this paper, marble aggregate is used as a replacement for the natural aggregate in sustainable green concrete production. The results showed that marble aggregates can be used as a full replacement for the natural aggregates in eco-friendly green concrete.

Keywords : coarse aggregate replacement, economical designs, green concrete, marble aggregates, sustainability, waste management
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