

عنوان مقاله:

Reuse of Wastes in Concrete

محل انتشار:

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خلاصه مقاله:

The concrete is considered to be the 2nd most abundantly used material in the world after water. Since, its preparation causes rapid environmental degradation. Therefore, efforts are being made for a sustainable development to secure the environment. This study was design to study the usage of locally available waste materials in concrete. The cement was replaced by MWG, sand by waste glass and coarse aggregate by demolished concrete material, at varying proportions. More than 150 cylinders were casted using various ingredients proportionality to study the compressive strength at 7th day, 14th day and 28th day. An additional 60 prisms were also prepared to study the 28 days flexural strength. Using SYSTAT software, the percentage partial replacement of cement, fine and coarse aggregate, for the matrix of green concrete preparation, was calculated to be 9%, 37% and 74%, respectively, with a water-cement ratio of 0.45. The ultimate laboratory analysis of the green concrete, illustrates that its compression and flexural strength is 3-4% more than that of the normal concrete rendering cost saving and reducing environmental impact. The paper besides using various gradation of waste glass as partial replacement of cement and fine aggregate and recycled aggregate as partial replacement of coarse aggregate also used a novel technique of Response Surface Analysis to reach optimum replacement volume fractions

کلمات کلیدی:

Wastes, environmental preservation, concrete, strength

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