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Utilization of Recycled Waste as Filler in Foam concrete

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Abstract

The rapid urbanization has led to the enormous increase in wastes being disposed of. This paper aims at identifying the possibility of using recycled materials such as crushed glass and plastic wastes in foam concrete as a substitute filler for fine river sand. A protein based foaming agent has been adopted for the study. The workability and strength of different mixes, made using preformed foam, at varying densities using powdered glass and plastic wastes have been investigated. Analysis of foam concrete mixes to identify air-void distribution and its relationship to strength has been done. Effect of superplasticizer inclusion and the corresponding change in the water to solids ratio on compressive strength has also been carried out. The study showed that incorporation of recycled wastes is effective to produce foam concrete of strength that will permit its use for bearing wall applications. Incorporation of PCE based superplasticizer was observed to be effective in enhancing the strength of foam concrete.

Keywords: *Foam concrete; Sustainable material; Recycled waste; Air-void structure; Water to solids ratio*

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