

Compressive Strength and Capillary Water Absorption of Concrete Containing Recycled Aggregate

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Abstract : This paper presents results of compressive strength, capillary water absorption, and density tests conducted on concrete containing recycled aggregate (RCA) which is obtained from structural waste generated by the construction industry in Turkey. In the experiments, 0%, 15%, 30%, 45% and 60% of the normal (natural) coarse aggregate was replaced by the recycled aggregate. Maximum aggregate particle sizes were selected as 16 mm, 22,4 mm and 31,5 mm; and 0,06%, 0,13% and 0,20% of air-entraining agent (AEA) were used in mixtures. Fly ash and superplasticizer were used as a mineral and chemical admixture, respectively. The same type (CEM I 42.5) and constant dosage of cement were used in the study. Water/cement ratio was kept constant as 0.53 for all mixture. It was concluded that capillary water absorption, compressive strength, and density of concrete decreased with increasing RCA ratio. Increasing in maximum aggregate particle size and amount of AEA also affect the properties of concrete significantly.

Keywords : capillary water absorption, compressive strength, recycled concrete aggregates

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