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Strength Properties of Concrete with Partial Replacement of Cement by Flyash and Fine Aggregate by Granite Powder

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Abstract : The advancement of concrete technology can reduce the consumption of natural resources and energy sources and lessen the burden of pollutants on environment. Presently large number of Granite powder is generated in natural stone processing plants with an impact on environment and humans¹. And also Fly ash is generally considered as a waste material that is produced as a by-product of coal combustion process. The physical and chemical properties of fly ash are similar to cement, which allows it to be used in concrete. Granite powder is one of the waste materials obtained during extraction, cutting and polishing granite stones from the quarries and commercial industries. The main objective of this project is to study the mechanical properties of concrete mixtures in which fine aggregate (sand) and cement were partially replaced with Granite powder and Fly ash. The replacement is done by 5%, 10%, 15% , 20% and 20% of cement by fly ash and 5%, 10%, 15%,20% and 25% of fine aggregate by granite powder to evaluate the effect of presence of these replacement materials on the strength of specimens.

Keywords : Concrete, Compressive strength, Industrial waste, Low cost, Fly ash, Granite powder, OPC cement.

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