

Experimental Studies on Reactive Powder Concrete Containing Fly Ash and Steel Fibre

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Abstract : Reactive powder concrete (RPC) is high performance and high strength concrete which composes of very fine powdered materials like cement, sand, silica fume and quartz powder. It also constitutes steel fibre (optional) and super-plasticizer. The present study investigates the performance of reactive powder concrete with fly ash as a replacement of cement under hot water and normal water curing conditions. The replacement of cement with fly ash is done at 10%, 20%, 30% and 40%. To compare the results of cement replaced RPC and traditional RPC, the performance of various mixes is evaluated by compressive strength, flexural strength, split tensile strength and durability. The results show that with increasing percentage of fly ash, improvement in durability is observed and a slight decrease in compressive strength and flexural strength is also observed. It is observed that specimen under hot water curing showed 15 to 20 % more strength than specimens under normal water curing.

Keywords : high strength concrete, the flexural strength of RPC, compressive strength of RPC, durability

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