

IMPACT OF CURING ON STRENGTH OF CONCRETE

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ABSTRACT

The present paper deals with the impact of insufficient curing on the strength of M15 concrete. The parameters of the study include the curing periods 3, 7, 9, 12, 15, 18, 21, 24 and 28 days for 25°C, curing techniques adopted were air and captivation under water using Portland Pozzolona Cement. The specimen cubes were cast and cured under dissimilar conditions prior to testing. The study demonstrates that the method and duration of curing to a great extent affects the strength of concrete. Hence, excellent management of proper field curing is of the extreme significance. On the basis of interpretation of the results the following outcomes were made. Firstly, full time curing for 3 days and then air curing up to 15 days for 25°C gave desirable compressive strength of 15.90 N/mm^2 and was seemed adequate & justified. Secondly, 5, 7, 9 and 12 days full time curing with air curing up to 15 days for 25°C later was found to produce the concrete with sufficient strength, more than that desired for M15 concrete. Finally, full time water curing for 7 days is justified, as it gave the desirable compressive strength of 15.20 N/mm^2 of M15 concrete. In conclusion, the study makes a value addition in the parameters like conservation of water, reduction in project duration and expenditure on electricity/fuel, which in turn reduces the overall cost of the project in the regions where temperature is below 25°C .

KEYWORDS: Portland Pozzolona Cement (PPC), Full Time Curing (FTC), Concrete Mix (M15), Mean Strength (MS)