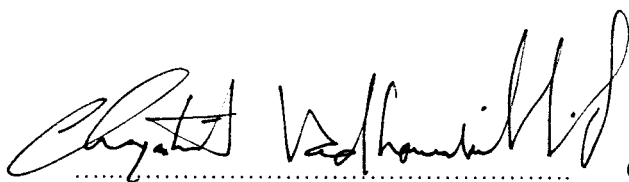


THESIS TITLE : A STUDY ON MAINTAINING CONCRETE WORK ABILITY
BY ADDING CEMENT SLURRY

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THESIS ADVISORY COMMITTEE :



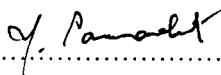
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ABSTRACT

This thesis aims to study how to improve workability of unworkable concrete by adding cement slurry and at the same time maintaining compressive strength of concrete.

The study was carried out using 2 concrete mix proportions, they were mix A of strength 350 Kg./Cm.^2 ($W/C = 0.48$) and mix B of strength 300 Kg./Cm.^2 ($W/C = 0.55$). The cement slurry used were of W/C , 0.56, 0.48, 0.40 for mix A and 0.65, 0.55, 0.45 for mix B

In the experiment, setting time for both mixes were tested. Concrete of each mix was left undisturbed at the time intervals of 30, 60, 90, 120, 150, 180, 210, 240, 270, 300, 330 minutes. During these intervals slump and flow were measured, and then brought back to the set value of 10 ± 1 Cm. , by the two methods of adding water and adding cement slurry (3 proportions) . Concrete specimens were cast and strength tests were conducted.

Results of this study showed that the initial and final setting times of mix A and mix B were in the same range. Mix A had a quicker rate of slump loss than mix B. It was also found that, for concrete mix A, water can be used to maintain workability with out loss of strength, when concrete was left up to 180 minutes

The relationships between an appropriate W/C and time after mixing for both mixes can be written in the form of equations as follows:

a.) concrete A (W/C = 0.48)

$$W/C = - 0.0382 * \ln (\text{Time}) + 0.6952$$

b.) concrete B (W/C = 0.55)

$$W/C = - 0.0268 * \ln (\text{Time}) + 0.6409$$

However, it can be roughly stated that the cement slurry of W/C of the same as that in concrete can be used to maintain workability as well as strength.