

Proceeding of the
National Conference
on
Recent Innovation in Engineering

22-23, February 2017



NCRIE-2017



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EXPERIMENTAL INVESTIGATION OF REINFORCED CONCRETE BEAMS WITH AND WITHOUT CFRP WRAPPING

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ABSTRACT:- The focus of the present work is to compare the effect of carbon fiber reinforced polymer (CFRP) wraps on reinforced concrete beams on load carrying capacity. The experimental study consist of casting of four sets of reinforced concrete (RC) beam of grade M30 (control, U-wrap, Bottom wrap, u-wrap at 45 degree). All beams are weak in shear. First set of RC beam termed as a control RC beam (SET-I) are cast. Second set of two RC beams (SET-II) are cast; all are loaded up to initial crack after curing for 28 days and then strengthened using CFRP wrap in tension zone. Third set of two RC beams (SET-III) are cast; all are loaded up to initial crack and after curing for 28 days and then strengthen using UCFRP wrap in shear zone. Fourth set of two RC beams (SET-III) are cast and after curing for 28 days strengthened using 45 degree U wrap. All beams will be in a simply supported span and subjected to Two Point loading. The result of the experiment may show that the use of CFRP as external strengthening will be significant enhancement on ultimate load, crack pattern and deflection.

Keywords—Reinforced concrete beam, CFRP, wrapping crack, deflection, , strengthening of Concrete Structure.

DESIGN OF FLY ASH STABILIZED FLEXIBLE PAVEMENTS AND ITS ECONOMICS

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ABSTRACT:- In India Most of the time flexible pavements need to be constructed over problematic and poor sub grade. Such sub grades have low California Bearing Ratio (CBR), which leads to more thickness of the pavement. Decrease in availability of suitable granular sub-base and granular base course materials for highway construction leads to a search for economic method of converting locally available troublesome soil to suitable construction materials. Fly ash can be effectively utilized for improving the engineering properties of the weak soil. The present research was carried out to study the effect of fly ash stabilization on Maximum Dry Density (MDD), Optimum Moisture Content (OMC) and California Bearing Ratio (CBR) of the sub grade soil. Also the pavement section has been designed as per Indian Practice Code IRC 37:2012 for different traffic intensity and construction cost estimated for 1 km pavement section resting on unstabilized and stabilized sub grade with different percentages of fly ash. The study shows that 10 percent fly ash will be more effective in material and cost optimization.

Keywords—Stabilization stabilization, flyash, california bearing ratio, economical analysis.