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Effect of Confinement on Axially Loaded Short Concrete Columns

This paper presents experimental investigations of Reinforced Concrete columns strengthened with steel strips and steel jacket under axial compression loading. Total of six specimens were prepared in the laboratory, out of which; 1) two columns were unconfined columns, 2) two columns were strengthened with steel strips and 3) remaining two columns were strengthened with steel jacket. All specimens were subjected to axial compression loading in increment till the failure of specimens using UTM at NUST. It was concluded after the experimental work that the steel strips enhanced axial load carrying capacity by a factor upto 1.54 times and steel jacketing enhanced the capacity by a factor of 2.38. It has also been observed that the steel confinement increased the cracking load by a factor upto 1.5 to 2.66 for strips and jacketing respectively. Failure occurred due to crushing of concrete and buckling of steel strips and jacket between the fasteners. The confinement of concrete with steel strips and jackets is quite viable and economical option to increase its axial load carrying capacity.

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