SHEAR STRENGTH OF NORMAL AND LIGHT WEIGHT REINFORCED CONCRETE DEEP AND SHORT BEAMS WITHOUT WEB REINFORCEMENT

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ABSTRACT

For deep reinforced concrete beams, the shear capacity can be predicted using empirical equations or the Strut-and-Tie Model Analysis as permitted in the EurocodeEC2 and ACI 318-08 Code. In this paper, a study is conducted to evaluate the predictive accuracy of Euro code EC2 empirical equation for shear capacity of deep and short reinforced concrete beams. The results indicate that for normal as well as high strength reinforced concrete deep beams, the Euro code EC2 predictions are overly conservative and Euro code EC2 equation proves to be more accurate in predicting the shear capacity of reinforced concrete short reinforced concrete beams. On the basis of experimental results of reinforced concrete deep beams, an empirical equation is proposed, which applicability is over a larger number of deep beams and has better predictive capability signified by higher value of Coefficient of Correlation as compared to Euro code EC2 equation.

KEYWORDS: Empirical equations, shear strength, deep beams, short beams.