REALICTIC MODELS FOR VERIFYING SHEAR IN REINFORCED CONCRETE MEMBERS

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ABSTRACT

As strength in concrete in stress grows fast, it is necessary to consider more accurate structural method. Most of the modern codes are based on the analysis of laboratory tests and use very empirical expressions. The different methods used on these codes remain conservative and have been left outdated because analyzing each and every variable that influences shear strength is a complex matter.

This article is based on the research made by Collins [1] with their Compression Field Theory (CFT), later Vecchio and Collins [2] presented the Modified Compression Field Theory (MCFT). Years later Bentz, Vecchio and Collins [3] developed the Simplified Modified Compression Field Theory (SMCFT), being this one less accurate but easier to apply.

This article presents models based on MCFT and SMCFT and shows examples using MCFT and SMCFT compared to the results in the same example using ACI 318-11 and CAN23.3-04. These results show that stirrups variation between MCFT and ACI 318-11 and CAN23.3-04 gave 33% and 64% respectively, and the variation between SMCFT and ACI 318-11 and CAN23.3-04 gave 2% and 25% respectively.

Keywords: Strength, Shear, Reinforced Concrete.