

# Flexural fatigue strength prediction of steel fibre reinforced concrete beams

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## ABSTRACT

*Results of an investigation conducted to study the fatigue strength of steel fibre reinforced concrete (SFRC) containing fibres of mixed aspect ratio are presented. Approximately eighty one beam specimens of size 500 mm x 100 mm x 100 mm were tested under four-point flexural fatigue loading in order to obtain the fatigue lives of SFRC at different stress levels. About thirty six static flexural tests were also carried out to determine the static flexural strength of SFRC prior to fatigue testing. The specimens incorporated 1.0, 1.5 and 2.0% volume fraction of corrugated steel fibres. Each volume fraction incorporated fibres of two different sizes i.e. 2.0 x 0.6 x 25 mm and 2.0 x 0.6 x 50 mm by weight of the longer and shorter fibres in the ratio of 50% - 50%. Fatigue life data obtained has been analysed in an attempt to determine the relationship among stress level, number of cycles to failure and probability of failure for SFRC. It was found that this relationship can be represented reasonably well graphically by a family of curves. The experimental coefficients of the fatigue equation have been obtained from the fatigue test data to represent the curves analytically.*

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