

# Steel fiber bond strength to estimate fRi parameters

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## Abstract

This paper presents the results of the safety assessment of the  $\beta_1$  coefficient that correlates the residual flexural tensile strength parameters fRi ( $i = 1, 2, 3$ , and  $4$ ) in steel fiber reinforced concrete (SFRC), collected through experimental notched beam flexural tests in three points, according to the fib Model Code 2010 (fib, 2013), with the bond strength ( $f_{u,f}$ ) of the hook-end type steel fiber in the concrete mix. The SFRC beams were chosen, which presents the load-opening ratio curve of the crack, F-CMOD (Crack Mouth Opening Displacement) in softening behavior, the compressive strength of the concrete,  $25 \text{ MPa} < f_c < 80 \text{ MPa}$ , the fiber volume content,  $0.25 \% < V_f < 0.80 \%$  and the fiber aspect ratio,  $60 < l_f/d_f < 95$ . The results in 46 prisms notched of the database formed by 13 studies, showed a considerable influence of the fRi x  $f_{u,f}$  ratio with lower variability of around 10%. Thus, through statistical resources, empirical proposals were established to estimate the residual flexural tensile strengths, as a viable and economical alternative to the design project.

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