Crack Width Evaluation for Flexural RC Members with Axial Tension

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Abstract : Proof of controlling crack width is a basic condition for securing suitable performance in serviceability limit state. The cracking in concrete can occur at any time from the casting of time to the years after the concrete has been set in place. Most codes struggle with offering procedure for crack width calculation. There is lack in availability of design charts for designers to compute crack width with ease. The focus of the study is to utilize design charts and parametric equations in calculating crack width with minimum error. The paper contains a simplified procedure to calculate crack width for reinforced concrete (RC) sections subjected to bending with axial tensile force following the guidelines of Euro code [DS EN-1992-1-1 & DS EN-1992-1-2]. Numerical examples demonstrate the application of the suggested procedure. Comparison with parallel analytical tools support the validity of result and show the percentage deviation of crack width in both the procedures. The technique is simple, user-friendly and ready to evolve for a greater spectrum of section sizes and materials.