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A METHOD FOR CRACK WIDTH EVALUATION OF CONTINUOUS COMPOSITE GIRDER BRIDGES ACCOUNTING FOR SHEAR-LAG

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A numerical procedure for crack width evaluation of steel-concrete composite girder bridges under negative bending moment is proposed. The procedure is combination of 3-dimensional finite element (FE) analysis with smeared crack model and a bond-slip differential equation. From the FE analysis, the averaged behaviour including shear-lag as well as cracking is calculated. Then, the crack width is evaluated by using the differential equation and the FE results. Attention is paid to the consistency between the FE modelling and the employed bond-slip differential equation. The obtained crack widths are shown to compare well with those from experiments on composite girder specimens.

Key Words: continuous composite bridge, crack width control, effective width, smeared crack model, shear lag


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