

ANALYSIS OF THE INFLUENCE OF INCOMPLETELY INTERACTIVE
CONNECTORS ON THE LOAD BEARING CAPACITY OF STEEL-CONCRETE
COMPOSITE BEAM BY TAKING INTO ACCOUNT CRACKS ON FLANGE

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Abstract:

This paper presents results of study of applying Eurocode 4 (Europe) to analyze the influence of incompletely interactive connectors on the load bearing capacity (in terms of strength and deflection) of the steel-concrete composite beam by taking into account cracks on slab (reinforced steel-concrete or steel-concrete composite slab with profiled sheeting). In addition, the paper proposes some calculations to choose the reasonable percentage of redistribution of moment resistance for continuous steel-concrete composite beams to minimize the risk of cracking at sections of the two intermediate supports bearing negative moment and to effectively promote the participation on work of composite slab at the section bearing positive moment within span of beam.

Key words: Steel-concrete composite beam; Continuous beam; Headed stud; Shear connector; Cracks; Fully interactive connectors; Incompletely interactive connectors; Plastic moment resistance; Reduction of plastic moment resistance; Effective width of concrete flange; Deflection; Percentage of redistribution of moment resistance.