

**Computational model for reinforced concrete beams strengthened by epoxy bonded steel plates**

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**Abstract:** This paper presents a nonlinear finite element model for the flexure-shear response of reinforced concrete (RC) beams strengthened externally by epoxy bonded steel plates. The model includes a special interface element to simulate the thin epoxy adhesive layer and which allows for the metamorphosis of failure mode from plate yielding to separation as the plate thickness  $t_p$  is increased. The numerical results show close correlation to experimental data available for an RC beam strengthened by plates of various thickness.