

PARTIALLY PRESTRESSED CONTINUOUS COMPOSITE BEAMS. I.

Basu Prodyot K., Sharif Alfarabi M., Ahmed Nesar U.

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Abstract: The behavior of partially prestressed composite beams consisting of a concrete slab supported by a steel beam is analytically evaluated. The prestress is introduced in the negative moment regions when the slab acts compositely with the beam. The effect of this scheme on crack prevention in the negative moment region and savings in material due to superior structural action are considered. This is the first of a two-paper set. In the second paper the results of tests on a model continuous beam, of the type considered here, is presented and compared with the analytical predictions of this paper.