

MODIFIED MOMENT-AREA METHOD FOR DEEP CANTILEVERED BEAMS

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Abstract

It is well known that the shearing force effect needs to be included into the determination of the displacements of a deep beam having the length to depth ratio less than 10. However, in some loading situations and beam configurations, the methods such as the Castigliano's theorem are quite mathematically complex and time-consuming. In this paper, a modified moment-area method for cantilevered beams that includes the shearing force effect is presented. This method is based on the Bernoulli-Euler beam theory. It has been shown that the analytical method is easy to apply and the results are in good agreement with the ones obtained by using the Castigliano's theorem.

Published in Suranaree Journal of Science and Technology, Vol. 6, No 3, September-December, 1999.