

Computation of lateral-torsional buckling loads for nonprismatic beam-columns

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Abstract

Lateral torsional buckling of prismatic and non-prismatic beam-columns is investigated in this report. The governing differential equations are derived for beam-columns with arbitrary boundary conditions and arbitrary loading patterns. The method of finite differences is applied to transform the problem to an eigenvalue problem. Computer programs are used to solve for eigenvalues and eigenvectors. Stability of uniform simply supported or cantilevered beam-columns is investigated. The effects of increasing axial load and tapering cross sectional depth are also examined.