

Design optimization of continuous partially prestressed concrete beams

Al-Gahtani, A.S., Al-Saadoun, S.S., Abul-Feilat, E.A.

Computers and Structures

Vol. 55, Issue.2, 1995

Abstract: An effective formulation for optimum design of two-span continuous partially prestressed concrete beams is described in this paper. Variable prestressing forces along the tendon profile, which may be jacked from one end or both ends with flexibility in the overlapping range and location, and the induced secondary effects are considered. The imposed constraints are on flexural stresses, ultimate flexural strength, cracking moment, ultimate shear strength, reinforcement limits cross-section dimensions, and cable profile geometries. These constraints are formulated in accordance with ACI (American Concrete Institute) code provisions. The capabilities of the program to solve several engineering problems are presented.