عنوان مقاله:

Local Buckling Analysis of Rectangular and Longitudinally Stiffened Functionally Graded Plates using the Finite Strip Method

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خلاصه مقاله:

Local buckling of rectangular, through thickness Functionally Graded Plates (FGPs) is investigated in many studies. The in-plane load capacity of a plate can considerably be increased by addition of stiffeners. Two forms of buckling are considered in the stiffened plates, i.e. local buckling of the plate between the stiffeners and overall buckling of the plate-stiffener combination. The present study considers local buckling of long stiffened plates made of a FGM. The upper surface of the plate is made of a ceramic and continuously changes through the thickness of the plate to a metallic surface. The longitudinal stiffeners are made of the same metallic material of the FGM. The plate is uniformly loaded in direction parallel to the stiffeners. Finite Strip Method (FSM) is applied to analyze the buckling load. Local buckling coefficients for rectangular FGM plates with different boundary conditions are determined and shown in graphs versus aspect ratio. Results for stiffened FGM plates under uniaxial compression are presented.

کلمات کلیدی:

FGMs; Rectangular plates; Stiffener; Local buckling; Finite Strip Method

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