

Buckling Behavior of FGM Plates Using a Simplified Shear Deformation Theory

Authors : Mokhtar Bouazza

Abstract : In this paper, the simplified theory will be used to predict the thermoelastic buckling behavior of rectangular functionally graded plates. The material properties of the functionally graded plates are assumed to vary continuously through the thickness, according to a simple power law distribution of the volume fraction of the constituents. The simplified theory is used to obtain the buckling of the plate under different types of thermal loads. The thermal loads are assumed to be uniform, linear, and non-linear distribution through the thickness. Additional numerical results are presented for FGM plates that show the effects of various parameters on thermal buckling response.

Keywords : buckling, functionally graded, plate, simplified higher-order deformation theory, thermal loading

Conference Title : ICCSEE 2015 : International Conference on Civil, Structural and Earthquake Engineering

Conference Location : Istanbul, Türkiye

Conference Dates : March 23-24, 2015