عنوان مقاله:

A Finite Element Formulation Based on 3D Degenerated Shell Element for Analysis of Functionally Graded Shells

محل انتشار:

ششمین کنفرانس بین المللی مهندسی عمران (سال: 1382)

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خلاصه مقاله:

A finite element formulation based on the 3-D degenerated shell element with 40 degrees of freedom is derived for the analysis of the thermoelastic behavior of functionally graded shells. The element accounts for the varying elastic and thermal properties through the thickness by an integration through-the-thickness routine. The nonlinear heat transfer equation governing the through-the-thickness thermal distribution is treated using the Rayleigh-Ritz method. Two examples of functionally graded structures are examined. The effect of the volume fraction of the constituent materials and the order of the Rayleigh-Ritz trial function to solve the nonlinear heat equation are also investigated

کلمات کلیدی:

functionally graded material, finite element method, shell, thermal loading