

A Comparative Study between Displacement and Strain Based Formulated Finite Elements Applied to the Analysis of Thin Shell Structures

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Abstract : The analysis and design of thin shell structures is a topic of interest in a variety of engineering applications. In structural mechanics problems the analyst seeks to determine the distribution of stresses throughout the structure to be designed. It is also necessary to calculate the displacements of certain points of the structure to ensure that specified allowable values are not exceeded. In this paper a comparative study between displacement and strain based finite elements applied to the analysis of some thin shell structures is presented. The results obtained from some examples show the efficiency and the performance of the strain based approach compared to the well known displacement formulation.

Keywords : displacement formulation, finite elements, strain based approach, shell structures

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