

## Mindlin Cylindrical Panels with Twist and Double Curvature

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An open cylindrical panel, which has a twist around the lengthways direction and double curvature in the radial and lengthways directions, is a better shell model of turbine blades. In order to analyze vibration characteristics accurately, a precise relationship between strains and displacement components of the shell model is derived on the general shell theory and the first order shear deformation theory. By using the principle of virtual work and the Rayleigh–Ritz method, the governing equation for free vibration of the model is presented. The effects of parameters such as curvature and twist on vibration are studied.

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