

AN ABSTRACT OF A THESIS

THE VIBRATION OF TRUNCATED CONICAL CYLINDERS

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The problem of a thick conical cylinder under free vibration was analyzed using a nine-node Lagrangian finite element that was formulated directly in the conical coordinate system. The governing equations for three-dimensional dynamic elasticity were derived by specializing the equations of elasticity for generalized curvilinear coordinates to conical coordinates. Results for frequency and mode shape were presented in tabular and graphical format. Vibration results for free-free boundary conditions were compared with similar results in the existing literature. New results were obtained for a variety of end boundary conditions.