

Simplified methods have been derived to analyze load introduction problems of orthotropic stiffened shells. Axisymmetric shell elements based on the transfer matrix method have been proved to solve load introduction problems precisely and effectively. In the case of nonaxisymmetric cylindrical shell structures, the model is based on analytical derived element stiffness matrices of curved shear panels that are connected with ring frame elements (curved beam elements) and stringer (rod elements). The element stiffness matrices are based on analytical solutions, the set of linear equations of the system (entire structure) is solved numerically. Due to the analytical description of the element stiffness matrices, a significant reduction of number of equations of the system is possible that allows a rapid analysis.

