

**Interaction of steel jacket platform with surrounding soil.**

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**Abstract:** The purpose of this investigation was to study the behaviour of a fixed offshore jacket platform subjected to wind and wave loading. Conventional analysis techniques consider the superstructure and the pile supports as different structural systems that were analyzed separately. Compatibility between the two entities is often only obtained in an approximate sense. The purpose of this study was to present a methodology for performing analysis of the complete structure pile soil system; to demonstrate its application; and to compare the results obtained in this integrated analysis to those found by means of a conventional analysis procedure. This study also presents a methodology, based on the finite element method, for developing lateral soil resistance pile displacement relationships for a single pile subjected to cyclic lateral loading. Undrained soil strengths were used in conjunction with the total stress analysis. The resistance/displacement response behaviour was compared to conventional one dimensional criteria.