

考慮土壤結構互制作用之房屋結構動力分析

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摘要

In traditional structure analysis, the support conditions of the structure are always assumed as fixed, hinged or elastic spring. But in fact, the soil is an unbounded domain with complex nonlinear materials. Therefore, for some particular important public facilities the soil-structure interaction (SSI) must be considered in the seismic analysis and design. In this study, in order to investigate the influence of soil-structure interaction on the superstructure as well as on the substructure, the 3D finite element software MIDAS / GTS is used to investigate the dynamic behavior of building structure and soil under seismic loading. The results shown that with the consideration of soil-structure interaction affects the nonlinear soil properties will consume most of the seismic kinetic energy; and the energy transfer to the superstructure as well as the pile foundation is decreased. Therefore, by using analysis results without consider SSI affect as design data is a conservative design approach.

關鍵字 : Soil-Structure Interaction, Seismic, Dynamic Behavior.