

Structural-Geotechnical Effects of the Foundation of a Medium-Height Structure

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Abstract : The interaction effects between the existing soil and the substructure of a 5-story building with an underground one were evaluated in such a way that the structural-geotechnical concepts were validated through the method of impedance factors with a program based on the method of the finite elements. The continuous wall-type foundation had a constant thickness and followed inclined and orthogonal directions, while the ground had homogeneous and medium-type characteristics. The soil considered was type C according to the Ecuadorian Construction Standard (NEC) and the corresponding foundation comprised a depth of 4.00 meters and a basement wall thickness of 40 centimeters. This project is part of a mid-rise building in the city of Azogues (Ecuador). The hypotheses raised responded to the objectives in such a way that the model implemented with springs had a variation with respect to the embedded base, obtaining conservative results.

Keywords : interaction, soil, substructure, springs, effects, modeling , embedment

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