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Numerical Modeling of Various Support Systems to Stabilize Deep Excavations

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Abstract : Urban development requires deep excavations near buildings and other structures. Deep excavation has become more a necessity for better utilization of space as the population of the world has dramatically increased. In Lebanon, some urban areas are very crowded and lack spaces for new buildings and underground projects, which makes the usage of underground space indispensable. In this paper, a numerical modeling is performed using the finite element method to study the deep excavation-diaphragm wall soil-structure interaction in the case of nonlinear soil behavior. The study is focused on a comparison of the results obtained using different support systems. Furthermore, a parametric study is performed according to the remoteness of the structure.

Keywords : deep excavation, ground anchors, interaction soil-structure, struts
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