

Stress Variation of Underground Building Structure during Top-Down Construction

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Abstract : In the construction of a building, it is necessary to minimize construction period and secure enough work space for stacking of materials during the construction especially in city area. In this manner, various top-down construction methods have been developed and widely used in Korea. This paper investigates the stress variation of underground structure of a building constructed by using SPS (Strut as Permanent System) known as a top-down method in Korea through an analytical approach. Various types of earth pressure distribution related to ground condition were considered in the structural analysis of an example structure at each step of the excavation. From the analysis, the most high member force acting on beams was found when the ground type was medium sandy soil and a stress concentration was found in corner area.

Keywords : construction of building, top-down construction method, earth pressure distribution, member force, stress concentration

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