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Investigation of Static Stability of Soil Slopes Using Numerical Modeling

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Abstract : Static stability of soil slopes using numerical simulation by a finite element code, ABAQUS, has been investigated, and safety factors of the slopes achieved in the case of static load of a 10-storey building. The embankments have the same soil condition but different loading distance from the slope heel. The numerical method for estimating safety factors is 'Strength Reduction Method' (SRM). Mohr-Coulomb criterion used in the numerical simulations. Two steps used for measuring the safety factors of the slopes: first is under gravity loading, and the second is under static loading of a building near the slope heel. These safety factors measured from SRM, are compared with the values from Limit Equilibrium Method, LEM. Results show that there is good agreement between SRM and LEM. Also, it is seen that by increasing the distance from slope heel, safety factors increases.

Keywords : limit equilibrium method, static stability, soil slopes, strength reduction method
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