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عنوان مقاله:
Optimization of Cantilever Retaining Walls

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خلاصه مقاله:
This paper presents an optimization algorithm for the design of reinforced concrete cantilever retaining walls. A special efficient computer program has been developed for this purpose. For the analysis of lateral earth pressures on the wall, the well known Coulomb, Rankine, and wedge methods are used. The backfill may be homogeneous or stratified. It can also be horizontal or inclined. The effects of surcharge, hydrostatic water pressure, seepage water pressure, and seismic loading on the lateral earth pressure were incorporated. Input parameters are generally the height of the wall, backfill slope, and backfill and base soil geotechnical parameters. Appropriate strengths for concrete and steel were introduced to the optimization scheme. Structural stability due to bending moment and shear force, geotechnical considerations such as sliding, overturning,settlement and bearing capacity were taken into account. The costs of construction material mainly concrete, reinforcement steel, and formwork have been considered for various acceptable materials. In the analysis, the geometry of the wall was optimized and compared with the .recommended values. It will be shown that the optimization of cantilever retaining walls can reduce the costs involved

کلمات کلیدی:
Retaining walls, cantilever wall, optimization, reinforced concrete, stability, bearing capacity, settlement

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