

عنوان مقاله:

Optimum Cost DESIGN of RCC RETAINING WALL with GA

محل انتشار:

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خلاصه مقاله:

During last decades, economical criteria are the most important factor in civil engineering projects. Cantilever retaining walls, as reinforced concrete retaining structures, are required to resist against a combination of lateral earth pressure and hydrostatic stress. Genetic Algorithms (GAs) method is a general search and optimization algorithms inspired by Darwin's Evolution Theory. In the recent years, GA is rapidly extended in many fields such as criminal suspect recognition, music composition, earthquake epicenter detection and many other fields. The application of algorithm genetic (GA) for nonlinear constraint optimum cost design of reinforced concrete cantilever (RCC) retaining wall is argued in the present research. A genetic algorithm is applied to achieve the optimized design of the RCC retaining wall. The main feature of GA is the ability to change nonlinear constraints problems to linear with no constraint problems. It is well established that genetic algorithm can be successfully applied to the optimum cost design of RCC walls. The results of optimization process of 6 RCC retaining walls show 30% to 5% reduction in total cost with respect to the same walls with initial design. The difference in percents of reduction respect to height of wall is proportion to the rate of steel to concrete and their prices. In high walls the rate of steel to concrete is more since their reduction of cost is less. During the optimization all stabilities controls respond to overturning, sliding, bearing capacity, the location of resultant, minimum and maximum steel rate in sections are satisfied

کلمات کلیدی:

Retaining wall, Algorithm Genetic, optimization

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