Recent developments and applications of geosynthetic reinforced soil walls

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Abstract

Recent developments and applications of Geosynthetic reinforced soil (GRS) walls were presented in this paper. High flexibility and stability of reinforced soil structures make them very useful structures and cause their extended applications as retaining structures at side embankments of roads, slopes, and as abutments especially at regions with high seismic risk. Pre-constructed GRS walls with large heights and their performance were investigated. GRS walls with rigid facing for railroad projects were assessed and compared with the traditional structures. In addition, GRS structures and traditional retaining structures for bridge abutments were compared.

Key words: Geosyntetic reinforced soil walls, recent developments, stability, displacements

1. Introduction

GRS structures are reliable structures that can satisfy engineers for their structural and architectural needs. The GRS structures are so flexible and usually show good performance during earthquakes. Therefore, such structures could be recommended for Iran as a country with high seismic risk. The GRS structures can be utilized in different geometries and large heights. In addition, different structural and architectural types of facing can be constructed for a GRS structure. Researchers and engineers suggested application of GRS structures in different projects including high ways, urban regions, rail roads, air ports, and bridge abutments.

Usually there is a weak engineering communication between geotechnical engineers and architectures. Geotechnical engineers gives their most attention to the stability and displacement of these structures. They might not be involved in engineering problems that architectures encounter. On the other hand, the architectures and structural engineers might not be aware of difficulties in such structures. In addition, usually they don't know exactly advantages of reinforced soil walls and how they can use them in big projects. This paper presents different application of such structures as well as their advantages.