

عنوان مقاله:

AN INVESTIGATION ON THE USING OF CEMENT STABILIZED RECYCLED CONCRETE AND BRICK IN PAVEMENT LAYERS

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خلاصه مقاله:

construction and demolition waste materials are among the main causes of environmental pollution in cities. On the other hand, construction of highway pavement layers requires a large volume of quality materials, which their production is costly and environmentally disturbing, as they are taken from natural resources and used after processing. In addition, in some projects, appropriate materials to be used for pavement construction, cannot be found near the project site, and need to be transported from long distances. Therefore, finding an application for the construction and demolition waste materials in highway pavements would be an economically and environmentally effective measure. This paper describes the results of an experimental research on the physical and mechanical properties of cement stabilized recycled concrete and brick produced from construction and demolition waste materials. Waste concrete and brick were grounded, graded and mixed together in 5 different proportions, and stabilized by different amount of cement contents, and were tested. Compaction, unconfined compressive, tensile and bending strength, and durability tests were conducted on the specimens. The compaction tests show that the maximum dry density and optimum moisture content is affected by the cement content and the proportion of concrete and brick in the mixture. In addition, up to a certain amount of cement content, the compressive strength of different mixtures increases with increasing the cement content, beyond which the strength decreases with increasing the cement content. The tensile and bending strength of the mixtures are also shown to be dependent on the type of mixture and cement content. A relation is found between the bending and tensile strength and the compressive strength. The durability tests show that the mixtures satisfy the requirements

کلمات کلیدی:

recycled concrete, recycled brick, strength, pavement, durability

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