

اجندة طالب الدراسات العليا



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عنوان البحث للرسالة او الاطروحة:

Effect of Recycled Aggregate on Mechanical Properties of fiber reinforced High Performance Concrete

عناوين البحوث المستتلة:

Ultra-high performance reinforced by polypropylene fiber concrete made with recycled coarse aggregate

تقدير المناقشة: جيد عالي



New world is interested in preserve natural environmental resources and reduce losing of land used as a landfill for demolition waste concrete buildings to find alternatives and practices for sustainability green, land conservation and reduce natural resource losses. One of these practices is to reuse scrap concrete buildings as a recycled concrete aggregate in new concrete production.

This research aims to carry out a study of the mechanical properties of high performance concrete reinforced polypropylene fiber after partial replacement for natural aggregate by weight of recycled concrete rubble in several ratios, and replacement processes held two groups. The first groups related to the work of replacing normal coarse aggregate with coarse recycled concrete rubbles in three ratios, 25%, 50%, and 75%. The second groups related with replacing of normal fine aggregate with recycled fine concrete rubbles in three ratios which are 25%, 50%, and 75%. Mechanical properties studied in this research is the compression strength, splitting tensile strength, flexural strength, toughness, static modulus of elasticity, total absorption, and depth of water permeability under pressure for both groups.

In this study, high performance concrete produced from 25% of recycled coarse concrete as a replacement of natural coarse aggregate showed good mechanical property compared with other replacement ratios. It excesses high strength concrete, with high tensile strength, high static modulus of elasticity, and impermeable concrete. As a partial addition of recycled coarse aggregate alternative of natural coarse aggregate in fiber reinforced high performance concrete showed better mechanical properties results than replacing recycled fine concrete rubble aggregate.

In this investigation also found that the best percentage of replacing fine recycled aggregate concrete as a partial alternative of normal fine aggregate are at 50%.