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Performance of Reinforced Concrete Beams with Ground Blast Furnace Steel Slag

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ملخص البحث باللغه الانجليزيه

.**Performance of Reinforced Concrete Beams with Ground Blast Furnace Steel Slag**

The current paper presents an experimental investigation to study the performance of simply supported reinforced concrete beams with ground blast furnace steel slag (GBFS) as coarse and fine aggregates. The results showed that the compressive strength , splitting tensile strength and flexural strength were enhanced by 119.20%, 120.0% and 123.70% respectively in the case of using GBFS in the concrete mix. Nine beams were cast and tested to study the performance of the reinforced concrete beams with GBFS. The beams were divided into two groups, the first group consists of six solid beams to study the effect of using concrete mix with and without GBFS as a part of concrete cross section with percentage (0% (as reference beam), 100%, 50%, 66% and 33%). The experimental results of the test specimens showed that the ultimate load capacity increases from 146.5 % to 122.4% for beams with different ratios of concrete slag with comparing to reference beam. While the second group consists of three infected beams (without concrete cover) to study the strengthening of reinforced concrete beam with concrete slag layer instead of the traditional method of strengthening. The results showed that the ultimate load capacity increases by 110.2% and 140.8 % for beams strengthed by traditional methods and by slag layer respectively with comparing to reference beam.