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The Influence of Basalt and Steel Fibers on the Flexural Behavior of RC Beams

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Abstract : An experimental program is conducted in this research to investigate the influence of basalt fibers and steel fibers on the flexural behavior of RC beams. Reinforced concrete beams are constructed using steel fiber concrete and basalt fiber concrete. Steel and basalt fibers are included in a percentage of 15% and 2.5% of the total cement weight, respectively. Test results have shown that basalt fibers have increased the load carrying capacity of the beams up to 30% and the maximum deflection to almost 2.4 times that measured in the control specimen. It has also shown that steel fibers have increased the load carrying capacity of the beams up to 47% and the ultimate deflection is almost duplicated compared to the control beam. Steel and basalt fibers have increased the ductility of the reinforced concrete beams.

Keywords : basalt fiber, steel fiber, reinforced concrete beams, flexural behavior
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