عنوان مقاله:

Shear Behavior of Strengthened Ferrocement RC Beams by Steel Wire Mesh

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خلاصه مقاله:

This paper investigates the possibility of strengthening a ferrocement RC beam with steel wire mesh under static loading. This experimental study included testing ten normal and high-strength concrete specimens made with ferrocement. The main parameters were the steel wire mesh layers ۴, ۸, and ۱۰ in addition to the compressive strength and shear to span to depth ratio of ۱.۸ and ۲.۵. The cracking load, ultimate load, deflections, initial stiffness, energy absorption, diagonal and compressive strains, and crack pattern and failure modes of such beams were discussed. The outcomes exhibited that the beams behave linearly until they reach about ۲۱.۵% of the ultimate strength for the normal concrete beam and ۲۳.۲% for the high-strength concrete beam. The steel wire mesh presence affected the ultimate strength of the concrete beam, which increased the cracking load by an average of ۱۵.۵% for the high-strength RC beam and by ۲۴.۲% for normal-strength RC ones. The ultimate load was increased by an average of ۴۰% for the high-strength strengthened beams and with less percentage for the normal ones, which was ۳۱%. The ratio affected the ultimate load-carrying capacity and maximum displacement directly, which increase led to a decrease in the ultimate load-carrying capacity. The strengthening by steel wire mesh enhanced the initial stiffness, ductility, and energy absorption. Doi : ۱۰.۲۸۹۹۱/CEJ-۲۰۲۲-۰۸-۰۵-۰۴ Full Text : PDF

کلمات کلیدی:

.Steel Wire Mesh; Ferrocement; Compressive Strength; Ductility; Energy Absorption