

Ductility, stiffness and toughness of modified spliced steel reinforced concrete

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Abstract:

The splice is placed in a constant moment in the region of the beam, and hence constant tension. In the field of reinforcing bars, the practical stress state provides an accurate representation of the bond strength of the tested member. This paper deals with to investigate the Reinforced Concrete (RC) beams had insufficient splices subjected to four-point bending test, and how to modify the splice region using Carbon Fiber Reinforced Polymer (CFRP) sheets. This idea will be absence the very expensive other methods for splicing the steel bars. Seven beams (150x200x1200)mm are investigated, they having different splice configurations. Novelty of this study may be considered in highlighting the importance of confined using CFRP sheets the insufficient splice reign of tensile reinforcement. Further improvements are possible by the addition of CFRP sheets in the vicinity of head-to-head splice regions in RC beams. Experimental results show, when CFRP sheets used in the splice region lead to enhance the capacity of spliced steel bars, and it can be implemented in many types structural elements. In addition, the ductility and toughness indices are observed for the modified insufficient splice are very close to the standard spliced specimen.