

Strengthening of shear-damaged RC beams by external bonding of steel plates

Sharif A., Al-Sulaimani G.J., Basunbul I.A., Baluch M.H., Husain M.

Magazine of Concrete Research

Vol. 47, Issue.173, 1995

Abstract: The repair and strengthening of damaged reinforced concrete (RC) beams using externally bonded steel plates has gained universal acceptance. This study presents test results and their interpretation for shear-damaged RC beams with deficient shear strength, strengthened by externally bonded steel plates. Different arrangements of steel plates were used in order to eliminate shear failure and develop ductile behaviour. The strength of all repaired beams was increased and the degraded stiffness of the beams was restored. However, the failure was sudden due to plate separation for most repaired beams, with the exception of beams repaired with full encasement at the shear zone. Such jacket-type repair enhanced the shear capacity and was so effective that flexural failure occurred for these beams.