

عنوان مقاله:

Investigation of Delamination Failure Externally Bonded Shear FRP-Reinforcement

محل انتشار:

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خلاصه مقاله:

An effective and unique technique for the strengthening of reinforced concrete beams is adding fiber reinforced polymer (FRP) sheets to external sides of the concrete. In recent years, numerous studies on concrete beams reinforced by FRP sheets have been conducted but theoretical and numerical studies concerning the FRP shear strengthening of reinforced concrete members have been rather limited. It is well known that debonding phenomena often prevent strengthened beams from attaining their full load capacity and experimental studies are validate this but usually papers do not specifically see the interfacial behavior between the bonded FRP and concrete so the result don't have good agreement with laboratory results. This study aims to show debonding failure of concrete beams reinforced by FRP sheets in various strengthening strategies such as side-bonded FRP sheets, U-wrap with carbon fiber polymer and simulating the debonding failure modes by finite element models. According to our analysis the debonding is the most important failure modes in reinforced concrete by strengthening FRP sheet and our results have good agreement with others experimental studies. The model used to show how the thickness and width of FRP sheets may influence debonding failure of the reinforced beams.

کلمات کلیدی:

Delamination, FRP, Shear Strengthening, Concrete beam

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