

Flexural behavior of beams reinforced by GFRP bars with CFRP sheets immersed in epoxy as shear

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Corrosion in steel bars is considered a big problem because corrosion is mainly responsible of decrease virtual age of structures and many risks indicated by deterioration. In addition, corrosion increases the cost of maintenance, particularly structures exposed to harsh environmental condition. FRP bars (Fiber Reinforced Polymer) became an alternative material from traditional steel bars. FRP had properties made it used in civil engineering sectors which are lightweight, non-corrosive, non-conductive made it a preferred alternative from steel bars in aggressive environments. FRP bars don't have yield made it can not bind outside its linear behavior to make ties, because of the brittle behavior of FRP bars up to failure. So that, the new innovative manner by using CFRP sheets stirrups immersed by sikadur330 for produce beams can resist the harsh condition and purely reinforced with FRP in a new manner can provide stirrups in full different sizes and with lower cost. Twelve beams reinforced with GFRP bars in three different ratios of tension reinforcement (four beams for each ratio). Three control beams with steel stirrups: two beams were designed to fail in shear. Whilst, the residual nine beams with shear reinforcement made from CFRP sheets strips, immersed by sikadur330. The main variable were studied is the change in type and amount of secondary reinforcement and change in amount of primary reinforcement. The test was conduct under four point loading and in simply supported conditions. The result of tested beams illustrated that, beams had a higher percentage of tension reinforcement and shear reinforcement