World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Behaviour of Beam Reinforced with Longitudinal Steel-CFRP Composite Reinforcement under Static Load

Authors : Faris A. Uriayer, Mehtab Alam

Abstract : The concept of using a hybrid composite by combining two or more different materials to produce bilinear stress–strain behaviour has become a subject of interest. Having studied the mechanical properties of steel-CFRP specimens (CFRP Laminate Sandwiched between Mild Steel Strips), full size steel-CFRP composite reinforcement were fabricated and used as a new reinforcing material inside beams in lieu of traditional steel bars. Four beams, three beams reinforced with steel-CFRP composite reinforcement and one beam reinforced with traditional steel bars were cast, cured and tested under quasi-static loading. The flexural test results of the beams reinforced with this composite reinforcement showed that the beams with steel-CFRP composite reinforcement had comparable flexural strength and flexural ductility with beams reinforced with traditional steel bars.

Keywords : CFRP laminate, steel strip, flexural behaviour, modified model, concrete beam
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020