

Advanced composites in bridge construction and repair

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Abstrak

Advanced composite materials for bridge structures are recognized as a promising alternative to conventional construction materials such as steel.

After an introductory overview and an assessment of the characteristics of bonds between composites and quasi-brittle structures, *Advanced composites in bridge construction and repair* reviews the use of advanced composites in the design and construction of bridges, including damage identification and the use of large rupture strain fiber-reinforced polymer (FRP) composites. The second part of the book presents key applications of FRP composites in bridge construction and repair, including the use of all-composite superstructures for accelerated bridge construction, engineered cementitious composites for bridge decks, carbon fiber-reinforced polymer composites for cable-stayed bridges and for repair of deteriorated bridge substructures, and finally the use of FRP composites in the sustainable replacement of ageing bridge superstructures.