

Bonding Characteristics Between FRP and Concrete Substrates

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Abstract : This study focuses on the development of a fracture mechanics based-model that predicts the debonding behavior of FRP strengthened RC beams. In this study, a database includes 351 concrete prisms bonded with FRP plates tested in single and double shear were prepared. The existing fracture-mechanics-based models are applied to this database. Unfortunately the properties of adhesive layer, especially a soft adhesive layer, used on the specimens in the existing studies were not always able to found. Thus, the new model's proposal was based on fifteen newly conducted pullout tests and twenty four data selected from two independent existing studies with the application of a soft adhesive layers and the availability of adhesive properties.

Keywords : carbon fiber composite materials, interface response, fracture characteristics, maximum shear stress, ultimate transferable load

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