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Abstract

In the past, remarkable behavior evaluations were carried out on concrete beams reinforced with FRP bars in the longitudinal direction without shear reinforcement. The aim of this study is to develop an artificial neural network (ANN) approach for predicting shear resistance of concrete beams. Proposed method considers geometric and mechanical properties of cross section and FRP bars, and shear span-depth ratio. Capability of the proposed method was compared with existing approaches in the literature using comprehensive database. The existing approaches include the American Concrete Institute design guide (ACI 440.1R-06), ISIS Canadian design manual (ISIS-M03-07), the British Institution of Structural Engineers guidelines (BISE), JSCE Design Recommendation, CNR-DT 203-06 Task Group, and Kara. The findings show that proposed method has excellent agreement with the experimental database.

Keywords: ANN; FRP Bar; Shear Resistance; Concrete Beam.

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