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PREDICTION OF DEFLECTION IN POST-TENSIONED SLABS AT CONCEPTUAL STAGE OF DESIGN BY APPLYING RESUBSTITUTION VALIDATION TECHNIQUE

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ABSTRACT

An attempt has been made in this paper to develop an artificial neural network model capable of determining the deflection in post tensioned slabs at conceptual stage of design. A three span continuous post tensioned slab system with drop panels is generated using standard design software. The results of deflection at the mid span have been recorded for various slab configurations. Both single layered and doubled layered neural networks are developed and compared for their performance. Back propagation algorithm is employed for making the network learn. The results of deflection so obtained are used as a database for training the developed neural network. Re substitution validation technique is utilized for validating the selected network. Training, validation and testing of data is done using MAT Lab software. The outputs given by the artificial neural networks proved the success of this attempt in determining the deflection in post tensioned slabs.

KEYWORDS: Artificial Intelligence, Artificial Neural Networks, Deflection, Leven Berg-Marquardt Back Propagation, Post Tensioned Slabs, Resilient Back Propagation, Resubstitution, Training Function, Transfer/Activation Function, Validation