

Application of Artificial Neural Network for Prediction of High Tensile Steel Strands in Post-Tensioned Slabs

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Abstract : This study presents an impacting approach of Artificial Neural Networks (ANNs) in determining the quantity of High Tensile Steel (HTS) strands required in post-tensioned (PT) slabs. Various PT slab configurations were generated by varying the span and depth of the slab. For each of these slab configurations, quantity of required HTS strands were recorded. ANNs with backpropagation algorithm and varying architectures were developed and their performance was evaluated in terms of Mean Square Error (MSE). The recorded data for the quantity of HTS strands was used as a feeder database for training the developed ANNs. The networks were validated using various validation techniques. The results show that the proposed ANNs have a great potential with good prediction and generalization capability.

Keywords : artificial neural networks, back propagation, conceptual design, high tensile steel strands, post tensioned slabs, validation techniques

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