

عنوان مقاله:

PREDICTION OF COMPRESSIVE STRENGTH AND DURABILITY OF HIGH PERFORMANCE CONCRETE BY
ARTIFICIAL NEURAL NETWORKS

محل انتشار:

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خلاصه مقاله:

Neural networks have recently been widely used to model some of the human activities in many areas of civil engineering applications. In the present paper, artificial neural networks (ANN) for predicting compressive strength of cubes and durability of concrete containing metakaolin with fly ash and silica fume with fly ash are developed at the age of ۳, ۷, ۲۸, ۵۶ and ۹۰ days. For building these models, training and testing using the available experimental results for ۱۴۰ specimens produced with ۷ different mixture proportions are used. The data used in the multi-layer feed forward neural networks models are designed in a format of eight input parameters covering the age of specimen, cement, metakaolin (MK), fly ash (FA), water, sand, aggregate and superplasticizer and in another set of specimen which contain SF instead of MK. According to these input parameters, in the multi-layer feed forward neural networks models are used to predict the compressive strength and durability values of concrete. It shown that neural networks have high potential for predicting the compressive strength and durability values of the concretes containing metakaolin, silica fume and fly ash.

کلمات کلیدی:

artificial neural networks, high performance concrete, metakaolin, silica fume

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