عنوان مقاله:

THE ANALYSIS OF CHLORIDE DIFFUSION COEFFICIENT IN CONCRETE BASED ON NEURAL NETWORK MODELS

محل انتشار:

سومین کنفرانس بین المللی بتن و توسعه (سال: 1388)

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نویسندگان:

A Delnavaz - *Ph.D. Candidate, Dept. of Civil Engineering, Amir Kabir University of Technology, Tehran, Iran*

A.A Ramazanianpour - *rofessor, Amirkabir University, Civil Engineering Department, Tehran, Iran*

H.R Ashrafi

خلاصه مقاله:

Chloride diffusion is one of the major causes of deterioration of concrete structures. A large amount of research has been conducted to study the chloride diffusion of concrete, both experimentally and theoretically. Because chloride diffusion experiments are time consuming, it is desirable to develop a model to predict the chloride profiles in concrete. This paper studies the feasibility of using a neural network as an adaptive synthesizer as well as a predictor to meet such a requirement. So some neural network models to predict chloride diffusion coefficient were made. The models were trained by results of chloride profile experiments. Input parameters were water to binder ratios, the amount of silica-fume and environmental condition of samples. The output parameter was chloride diffusion coefficient. Neural network models are multi layer Perspetron models and they differ in the number of hidden layers and neurons. To control the accuracy of the model, an ANNs model was made and the result of the model was compared with test specimens. The result demonstrates that both neural network models have the ability of predicting the chloride diffusion coefficient with good accuracy.

کلمات کلیدی:

neural network model, chloride diffusion coefficient

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