

COMPUTER-AIDED MODELING OF SERVICE LIFE OF CONCRETE STRUCTURES IN MARINE ENVIRONMENT

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Tóm tắt bằng tiếng Việt:

Corrosion of steel reinforcement due to chloride penetration is identified as a main cause of damage in reinforced concrete (RC) structures exposed to marine environments. In the present paper, reliability-based service life model by integration of finite element chloride penetration model into Monte Carlo Simulation is proposed to predict the chloride penetration profile in concrete and the service life of concrete structures in probabilistic manner. The model is capable of effectively accomodating the time- and space- three dimensional chloride transport, chloride binding as well as the effect of steel reinforcement, cracks, concrete cover replacement/repair. The model thus offers a more realistic and reliable tool for the service life design of reinforcement concrete structures in marine environment. The model is capable of effectively accomodating the time- and space- three dimensional chloride transport, chloride binding as well as the effect of steel reinforcement, cracks, concrete cover replacement/repair. The model thus offers a more realistic and reliable tool for the service life design of reinforcement concrete structures in marine environment.

Từ khóa: Service life; RC structures; Corrosion; Numerical modeling; Chloride peneretration

Tóm tắt bằng tiếng Anh:

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Key words: Service life; RC structures; Corrosion; Numerical modeling; Chloride penetration