



## Simulation of Actual RC Structures in Service By Thermo-Dynamics Integrated Computational System

The aim of this research is to evaluate the performance of RC structures in service by durability model of concrete. Based on the experimental data of existing RC structures such as carbonation depth and porosity of concrete, our model can simulate state of steel corrosion and carbonation rate of concrete at present and in the future. Through simulation of carbonation under various environmental conditions, the dominant factors of carbonation progress are extracted. Furthermore, we improve steel corrosion model considering the influence of carbonation and chloride concentration. Thus, the actual condition of steel in RC structures can be evaluated. Finally, we propose evaluation system for the performance of RC structure in service under arbitrary temperature and relative humidity.

