

Wisit Saelim 2010: Influence of Electric Current on Electrochemical Chloride Removal in Reinforced Concrete. Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Assistant Professor Wanchai Yodsudjai, D.Eng. 106 pages.

This research presents the method of rehabilitation of reinforced concrete structure deteriorated from chloride attack. The electrochemical chloride removal is used to remove chloride ion from the reinforced concrete structure. The objective of this research is to find the appropriate parameters for this method; that is, type of electrolyte solution, electrical potential and charging duration. As a result, there is a good tendency for using the electrochemical chloride removal method to remove chloride ion from the reinforced concrete structure. For 28 days charging duration, this method can remove chloride ion up to 76% by using  $\text{Ca(OH)}_2$  solution as electrolyte with 15 Volts DC electrical potential.

In addition, the decrease chloride content in areas far from the installed electrolyte area is conducted. It is found that, Efficiency of extraction chloride in concrete decreases as the distance from the installed solution electrode increase. This is consistent with the equation of Nernst planck which describes the movement of chloride ions mobility through the concrete by electric current.

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Thesis Advisor's signature