

FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING

DEPARTMENT OF BUILDING SURVEYING

**PROTECTION AGAINST CORROSION OF CONCRETE REINFORCEMENT
IN MARINE ENVIRONMENT – CASE STUDY WESTPORT, KLANG**

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ABSTRACT

Corrosion of concrete reinforcement can threaten the integrity and safety of a concrete structure and is a wide spread problem in coastal regions. Corrosion can lead to spalling, loss of reinforcing steel, loss of structural integrity, and reduced service life. Lately, a number of accidents that involved lost of life and property due to lack of control of concrete quality in several constructions have been widely reported. These include, sudden collapse of the floor of a building during construction, the collapse of a jetty in Penang, hotel in Singapore and Thailand and condominium collapse in Ulu Klang.

First of all, this dissertation discusses the goal, scope and research methodology of this study. The dissertation contains reviews in theoretically the characteristic and the behavior of reinforcement concrete. Besides that, it also focuses on why and how corrosion occurs. Discussed in this chapter are explanations of: the basics of corrosion theory, corrosion zones, and forms of corrosion, corrosion process and effects. This is followed by a comprehensive discussion on the suitable method of protection and others method available to protect from corrosion of reinforce concrete. From there on, the dissertation will analyze and determine the level of corrosion at the selected jetty/port of the case study and Investigate into several different effective and economical ways to protect reinforcing steel at the jetty from further rapid deterioration. Evaluate a range of protection strategies for

maintenance and repairs of existing structure. Finally, it contains the analysis of the findings from the case study and the overall conclusion and recommendations to the study based on the analysis have been made respectively.

Therefore, the emerging technologies are increasingly used for the repair and rehabilitation of reinforced concrete structures due to their effectiveness and ease of installations. For long-lasting cost effective structures and facilities, these emerging technologies are already used for corrosion prevention in new concrete structures exposed to more corrosive environments.

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