ESTIMATION OF CONCRETE STRENGTH IN EXISTING STRUCTURES

A thesis submitted for the partial fulfilment of the

Degree of Master of Engineering in

Structural Engineering Design

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November 2008

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Acknowledgements

I wish to express my sincere gratitude to the project supervisor Prof. W.P.S. Dias for devoting his valuable time in assisting me to complete this research project successfully.

I wish to thank the Vice Chancellor, Dean of the Faculty of Engineering and the Head, Department of Civil Engineering for allowing me to use the facilities available at University of Moratuwa.

My sincere thanks to Dr.(Mrs) M.T.P. Hettiarachchi, the course and research coordinator of the project for her encouragement given to complete this project and other staff members in the Civil Engineering Department of the University for their fullest assistance and services extended.

I also thank Eng.Godwin Vithana, Director General, National Building Research Organization for releasing me to follow this postgraduate degree course.

I would like to thank to my family for their enormous support. Finally, I wish to thank everybody who helped me in numerous ways to complete my research project.

Akila K. Seneviratne

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ABSTRACT

This thesis focuses on estimation of the in-situ strength of concrete in existing structures by means of available data and methods which have been published by various authors from their research and investigations, performed in accordance with recommended codes of practices. Emphasis has been placed on the '**core test method**', scrutinizing the main influencing factors affecting the measured in-situ strength of concrete. In addition previously performed investigations and one of the case study results on specimens tested in several construction projects have been studied in order to produce reliable equations for calculating characteristic strength (f_k) of concrete. Finally, the interpretation of strength results has been formalized, using several paths with respect to conversion of in-situ concrete strength to material strength. This report also covers procedures on the 'Ultrasonic Pulse Velocity test' which is less tedious and a non-destructive test, in order to calibrate results with respect to core tests.