

**BEHAVIOUR OF REINFORCED CONCRETE BEAM WITH
METAKAOLIN UNDER STATIC LOAD**

By

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Report is submitted as
the requirement for the degree of
Bachelor Engineering (Hons) (Civil)

**UNIVERSITI TEKNOLOGI MARA
APRIL 2005**

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ACKNOWLEDGEMENT

In the name of Allah, The Most Gracious and The Most Merciful

First of all, I would like to thank my co-supervisor, Mr. Mohd Amer bin Yusoff. He is an excellent example of a university lecturer who cares about his students at a personal level. His encouraging remarks and positive attitudes have always given me confidence. It has been an honor and a privilege to work with him for their outstanding performance in this field. Also to Mrs. Cotilda Cindy Petrus whom is my supervisor who has been patiently monitoring the development of my final project.

Next I would like to express my grateful appreciation to Mr. Fadzil Bin Arshad who gives me valuable information about metakaolin and assisted me in completing my research. He always available when I need his advice and encouragement.

I also would like to thank Mr. Efendi, the technician who spends a lot of time to monitor me and giving a guide while handling the equipment.

I would like to express my sincere gratitude to my parents for being very supportive and loving in encouraging me to finish up my studies. Not forgotten to Mohd Azman, Mahathir, Mohd Zabidi, Mohd firdaus and also to all my classmates, your helps are truly appreciated and I will always remember it.

Finally, Great Thank to the Almighty where on His permission that I could complete my thesis.

ABSTRACT

The purpose of this study is to study the behavior of high strength reinforced concrete of grade 60 incorporating MK7003 by replacement at 5%,10% and 15% to weight of cement with water cement ratio of 0.35 cured in temperature under static load.

Structure beams properties that have been investigated are crack location, deflection, and modulus of elasticity due to bending of reinforced concrete respectively. Eight (8) numbers of beams with respective percentage of MK7003 are casted and underwent static load to failure.

This laboratory study is done in the Civil Engineering Laboratory, UiTM Penang by using 1000KN Universal Testing Machine. The result obtain shows by replacing a certain percentage of MK 7003 into concrete have increase the concrete strength and 10% of replacement are give the best result in term of higher compression strength and higher ultimate load at failure. The result shows the different behavior of beam contain different percentage of MK 7003

CHAPTER ONE

INTRODUCTION

1.1 GENERAL

The need for durable and effective material for both new construction and repair purpose is currently of interest as well as the improvement in the codes of practice in the construction industry, to bring about long service life of structures.

Mineral admixtures, especially imported silica fume (SF), have been used in Malaysia for about a decade. While the local fly ash, which has only been introduced in concrete industry a few years ago, is significantly gaining wider acceptance. However, the high cost and its stickiness of silica fume as well as the low early strength development of fly ash were recognized as their weak point.

Metakaolin, the product of processed-heat treatment of natural kaolin, is widely reported as a quality and effective pozzolanic material, particularly for the early strength development. [Jirawat Suwanpruk, 2002]

A few report investigated the potential of local kaolin from several areas in Malaysia, mainly used in ceramic industry and painting. Metakaolin in Malaysia has been investigated as potential supplement for cement materials for use as repair material and as substitute for imported silica fume in high strength concrete. The Micron of Metakaolin is considered to be very small compared to Fly Ash (FA), based on this statement we can see that in the normal condition, the mixture of Metakaolin is 10%-