

**THE DESIGN AND CONSTRUCTION OF POST TENSIONED FLAT SLAB**

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A dissertation submitted in partial fulfillment of the  
requirements for the award of the degree of  
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**DECLARATION**

“I/We\* hereby declare that I/we\* have read this thesis and in my/our\* opinion this thesis is sufficient in terms of scope and quality for the award of the degree of Master of Structure.

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Date : .....

## DECLARATION

I declare that this thesis entitled “**THE DESIGN AND CONSTRUCTION OF POST TENSIONED FLAT SLAB**” is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature : .....

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Date : 15 JULY 2011

## **DEDICATION**

To my mother and father, beloved husband and siblings

## **ACKNOWLEDGMENTS**

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## **ABSTRACT**

Post tensioning flat slab are not complex where the construction technique, structure behavior and design are all simple. The tendon install provide a suspension system within the slab and the simple balancing load were used. The principle of designing post-tensioning flat slab is based on the parabolic tendon profile which exerts to upward pressure and balance to the downward loading. The installation of post tensioning system should be done by experience personnel who can handle the problems occurs while installing, stressing and grouting process. This paper presents the results of case studies on two post tensioned pre-stressed flat slabs in which save in using reinforcement, helps in deflection and also provide head clearance for Mechanical and Electrical components to run.

## **ABSTRAK**

Pascategangan papak rata merupakan teknik pembinaan, kelakuan struktur dan reka bentuk semua mudah. Tetulang pasca tegangan yang menyediakan sistem penggantungan dalam papak dan pengimbangan beban yang mudah digunakan. Prinsip reka bentuk post-penegangan papak rata adalah berdasarkan susuk tendon parabola yang mengenakan tekanan dan kira-kira untuk loading ke bawah. Pemasangan sistem penegangan pos harus dilakukan oleh kakitangan pengalaman yang mampu menangani masalah-masalah yang berlaku semasa proses pemasangan, tegangan dan menyalut. Kertas kerja ini membentangkan keputusan kajian kes di dua pos ditegangkan papak rata pra-tekanan yang menjimatkan dalam menggunakan tetulang, membantu dalam pesongan dan juga menyediakan ruang untuk laluan komponen Mekanikal dan Elektrikal untuk menjalankan.

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## LIST OF SYMBOLS

$S_x=S_y$	Spacing
$\square_{sx}$	Moment coefficient for sagging moment in direction of $L_x$
$M_{sx}$	Bending Moment
$n$	Spanning coefficient
$l_x$	Span
$V_{sy}$	Shear Force
$\alpha$	Percentage of initial Jacking
$Z_t$	Section modulus
$M_s$	Moment at services
$M_i$	Moment at transfer
$\beta$	Percentage of balancing load
$f_{cs}$	Stress for compressive strength
$f_{ts}$	Stress for tensile transfer
$f_{tt}$	Stress for tensile transfer
$e$	Eccentricity