

**THE STUDY ON THE STRUCTURAL BEHAVIOUR OF
PRECAST PRESTRESSED HOLLOW CORE SLAB
WITH TOPPING UNDER UNIFORMLY
DISTRIBUTED LOAD IN SERVICE CONDITION (USING ANSYS)**



**A Report Submitted to the Faculty of Civil Engineering
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of a Degree in Bachelor of Engineering (Honours) (Civil)**

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Acknowledge

The aim of this project is to present the analysis of precast Prestressed Hollow Core slab that describe current development in the finite element analysis. The choice of using the finite element method of analysis is, for the user, considerably eased by the ready availability of finite element analysis packages. For engineers, an answer to within 10 % of the correct answer is acceptable.

In the analysis of PHC slab under distributed load with topping using finite element, care had to be taken to ensure that elements were always used within the boundaries of their theoretical development. Early activity in this field was largely due to the needs of structural design. Chapter 2 lays the foundation and theoretical of the PHC slab. A general view of the field of finite element in PHC analysis is given in chapter 3. This categorises different type of element as SHELL63, SOLID65 and LINK10 formulation.

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TABLE OF CONTENT

<u>TITLE</u>	<u>PAGE</u>
CHAPTER 1	
1.0 INTRODUCTION	1
1.1 General	1
1.2 Statement of Problem	4
1.3 Objective	5
1.4 Scope of Work	6
1.4.1 Computer Programme Analysis Application (Finite Element Analysis)	6
1.4.2 Laboratory Testing (Experimental)	8
CHAPTER 2	
2.0 LITERATURE REVIEW	10
2.1 General	10
2.2 Special Features and Merits of Hollow Core Slab	12
2.3 Failure Mechanism of PHC slabs	15
2.4 Calculation of Deflection	16
2.5 Calculation of Stress and Strain at mid span	20
2.6 Concrete Topping	21
CHAPTER 03	
3.0 FINITE ELEMENT ANALYSIS	23
3.1 General	23
3.2 Element Type	23
3.2.1 SHELL63 Elastic Shell	23
3.2.2 SOLID65 3-D Reinforced	25
3.2.3 LINK10 Tension-Only or Compression-Only Spar	27
3.3 Solution Method	29
3.3.1 Solid Modeling	29
3.3.2 Material Properties	29
3.3.3 Constraint	30
3.3.4 Load	30
3.3.5 Load Application	30

Chapter 01

1.0 INTRODUCTION

1.1 General

A fundamental aim of prestressed concrete is to limit tensile stresses, and hence flexural cracking, in the concrete under working conditions. Design is therefore based initially on the requirements of the serviceability limit state. Subsequently considered are ultimate limit state criteria for bending and shear. In addition to the concrete stresses under working loads, deflections must be checked, and attention must also be paid to the construction stage when the prestress force is first applied to the immature concrete.

Design of prestressed concrete may therefore be summarize as

1. design for serviceability cracking
2. check stresses at transfer
3. check deflection
4. check ultimate limit state-bending
5. design shear reinforcement for ultimate limit state