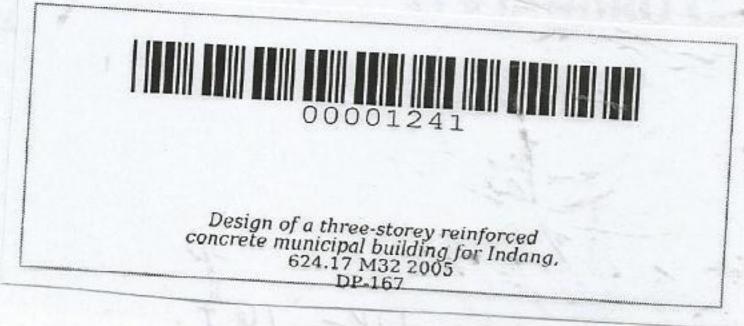
DESIGN OF A THREE-STOREY REINFORCED CONCRETE MUNICIPAL BUILDING FOR INDANG, CAVITE

Undergraduate Design Project
Submitted to the faculty of the
Cavite State University
Indang, Cavite

In partial fulfillment of the requirements for the degree of Bachelor of Science in Civil Engineering



EMERSON D. MARASIGAN ROWENA R. MARERO March, 2005

ABSTRACT

MARASIGAN, EMERSON D. and MARERO, ROWENA R. Designof a Three - Storey Reinforced Concrete Municipal Building for Indang, Cavite. Undergraduate Design Project. Bachelor of Science in Civil Engineering. Cavite State University, Indang, Cavite. March, 2005. Adviser: Engr. Allan Rowel V. Alonalon.

The capacity of the Structural Aided Analysis and Design (STAAD Pro) computer software to perform analysis was presented. The scope of the problem was limited to the plan and design of a three – storey municipal building. Different loads like lateral, vertical and seismic were used to analyze the structure. The seismic analysis and other parameters were based on the specifications of the National Structural Code of the Philippines (NSCP). The Ultimate Strength Design (USD) method was adopted for the design and checking of the structure.

The main objectives of the study were to be able to analyze and design a reinforced concrete building, determine the estimated cost of materials and present a scaled model.

The study showed difference in loadings on the structural members produced a section that was different from each other. In order to manage the difference and to have uniformity, the structural members with the biggest section was adopted. In general, safety, economy and aesthetic aspects were the factors considered for the design.

TABLE OF CONTENTS

	Page
BIOGRAPHICAL DATA	iii
ACKNOWLEDGMENT	V
ABSTRACT	xi
TABLE OF CONTENTS	xii
LIST OF TABLES	XV
LIST OF FIGURES	xvii
LIST OF APPENDICES	xviii
INTRODUCTION	1
Significance of the Study	2
Statement of the Problem	3
Objectives of the Study	3
Scope and Limitations of the Study	4
Time and Place of the Study	4
REVIEW OF RELATED LITERATURE	5
Building	5
Elements of a Building	5
Structural Design	5
Reinforced Concrete Design	6
Concrete	6
Load	8

Dead Loads	8
Live Loads	8
Plumbing	8
Estimate	9
Specifications	9
Aggregates	9
Concrete Hollow Blocks	10
NOTATIONS AND SYMBOLS	11
MATERIALS AND METHODS	17
Data Gathering	17
Site Investigation and Inspection of the Proposed Site	17
Design of Architectural Plans	18
Analysis and Design	18
Estimates of Cost Expenditures	37
Development of Scaled Model	48
RESULT AND DISCUSSION	49
Data Gathering	49
Site Investigation and Inspection of the Proposed Site	50
Structural Analysis	51
Design and Computations	51
Structural and Architectural Plans	57
Cost Estimates	58
Specifications	58

Development of Scaled Model	59
SUMMARY, CONCLUSION AND RECOMMENDATION	60
Summary	60
Conclusion	62
Recommendation	63
LITERATURE CITED	64
APPENDICES	65