

**ASSESSMENT ON THE OPTIMIZATION OF
RESOURCES WITH PRECAST WALLING
TECHNOLOGY IN BUILDING CONSTRUCTION**

**MASTER OF SCIENCE
IN
CONSTRUCTION PROJECT MANAGEMENT**

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ASSESSMENT ON THE OPTIMIZATION OF RESOURCES WITH PRECAST WALLING TECHNOLOGY IN BUILDING CONSTRUCTION

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Declaration

To the best of my knowledge, this thesis "**Assessment On The Optimization Of Resources With Precast Walling Technology In Building Construction**" does not contain any material previously published, written, or orally communicated by another person or myself, except where due reference is made in the text. This is to in partial fulfillment of the requirement for the award of the degree of Master of Science under the guidance of Prof. Mrs. Chintha Jayasinghe is my original work and the conclusions drawn therein are based on the material collected.

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Abstract

Having a dream dwelling is one of the lifetime goals of the majority in our society. In most urban settings, dwellings are in apartment complexes due to space restrictions. Construction of such apartments at a reasonable price, acceptable quality & within an expected time has become challenging due to the scarcity of resources, especially skilled/ unskilled workers & materials. This challenge is particularly seen in Sri Lanka due to the lower rate of adoption of new technologies such as precast construction, which can reduce cost, increase efficiency and quality. Offsite manufacturing and pre-casting of building elements are becoming popular all over the world in the modern context. Compared to other countries it seems that managers and other decision-makers in Sri Lanka are reluctant to adopt precast construction due to the lack of clear evidence on their optimization of resources. This research carried out a comparison on cost, quality, and time optimization that can be achieved with precast walling construction in apartment buildings. The scope of this study has been limited to a study of non-load-bearing walls in the structure of apartment buildings. Relevant data has been collected from experts in the field both partition walls manufacture and the installers in construction sites. The research is handled as a comparative study between traditional walling systems (cement sand blocks) and precast panel systems (hollow core concrete precast panels). The findings of this research would provide evidence on the optimization of resources of precast construction and encourage their use to build apartment complexes.

Keywords: precast; hollow core panels; concrete wall panels; cement sand blocks

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Contents

Abstract	iv
List of Abbreviations	ix
CHAPTER-01-INTRODUCTION	1
1.1 Background	1
1.2 Research Objectives	5
1.3 Scope Limitations	5
1.4 Structure of the report	6
2: LITERATURE REVIEW	7
2.1 Major Types of precast elements in building construction in Sri Lanka	8
2.1.1 Pre-stressed Concrete	8
2.1.2 Pre-stressed Concrete Composite Slabs	9
2.1.3 NERD Precast Systems	10
2.1.4 Expanded Polystyrene Sandwich Panels	12
2.1.5 Hollow Core Concrete Precast Panels (HCCPP)	14
2.2 Properties of the Precast Elements	16
2.3 Construction methods affected the Environment	20
2.4 Construction waste	20
2.4.1 Sources of construction waste	20
2.5 Advantages of Using Precast Elements	22
3. FIELD STUDY	24
3.1 General	24
3.2.3 Questionnaire survey	25
3.2.3 Sample selection and Target group	25
4. ANALYSIS OF FIELD STUDY RESULTS	27
4.1 General	27
4.2 Data Collection & Analysis- Qualitative	27
4.3 Data Collection & Analysis- Quantitative	32
5. CONCLUSIONS & RECOMMENDATIONS	37
5.1 Conclusions	37
5.2 Recommended Future Researches	37
References	38

List of Tables

Table 1: Distribution of the research respondents	28
Table 2: Cost of Partition walls for one entire floor with cement blocks	32
Table 3: Cost of Partition walls for one entire floor with HCCPP	33
Table 4: Summary of the comparison between Cement Blocks and the HCCPP	34
Table 5: Cost Comparison between Cement Blocks and HCCPP	35

List of Figures

Figure 1: Employed population by industry group 2014-2020 [DCS 2020].....	2
Figure 2: Employed population by employment status [DCS 4 th Quarter 2018]	2
Figure 3: Currently Employed Person by Industry Group [DCS 4 th Quarter 2018].....	3
Figure 4: Traditional Partition Walling Using Materials	4
Figure 5: Bird's Eye View of a Few High Rise Buildings in Colombo	7
Figure 6: Pre-Tension and Post-Tension.....	9
Figure 7: Pre-stressed Concrete Composite slabs	10
Figure 8: NERD Slab System.....	11
Figure 9: EPS Walling System	13
Figure 10: HCCPP Factory in India.....	14
Figure 11: HCCPP Factory Visit to ICC Pvt Ltd	15
Figure 12: Standard temperature-time curve.....	17
Figure 13: Three-point bending experiment.....	18
Figure 14: Three-point bending experiments and load-displacement	19
Figure 15: Procedure adopted in the field study.....	24
Figure 16: Partition wall material uses in current projects	29
Figure 17: Partition wall material used in the past 5 years in projects	29
Figure 18: Experience in lack of labor in construction projects.....	30
Figure 20: Work study carried out to compare the partition walling materials & methods	31

List of Abbreviations

HCCPP	- Hollow Core Concrete Precast Panels
TWHCPP	- Two-Way Hollow Core Precast Panels
EPS	- Expanded Polystyrene Sandwich
GFRP	- Glass Fiber Reinforced Plastic
CMC	- Colombo Municipal Council
NWSDB	- National Water Supply & Drainage Board
CECB	- Central Engineering Consultancy Bureau
NHDA	- National Housing Development Authority
NERD	- National Engineering Research and Development Center
ICC	- International Construction Consortium
CIDA	- Construction Industry Development Authority
DCS	- Department of Census and Statistics
GM	- General Manager
DGM	- Deputy General Manager
ICB	- International competitive bidding
EOT	- Extension of Time
WSP	- Welded Stitch Plate
QS	- Questionnaire Survey

List of Appendices

Appendix	Description	Page
<u>Appendix I</u>	<u>Questions for the Survey</u>	<u>39</u>
<u>Appendix II</u>	<u>Responses for the Questionnaire Survey</u>	<u>49</u>
<u>Appendix III</u>	<u>List of Projects Used HCCPP</u>	<u>73</u>