

**UNIVERSITI TEKNOLOGI MARA
PERAK BRANCH**

**AUTOCLAVED AERATED CONCRETE
WALL BY USING POLYCARBOXYLATE
SUPERPLASTICIZERS**

**NURUL FATINHAH BINTI
MOHAMMAD EFFENDY**

Innovation project report submitted in partial fulfilment
of the requirements for the degree of
Bachelor of Science (Hons.) Construction Technology

Department of Built Environment Studies and Technologies

August 2022

AUTHOR'S DECLARATION

I declare that the work in this innovation project report was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This topic has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

In the event that my innovation project report, be found to violate the conditions mentioned above, I voluntarily waive the right of conferment of my degree and agree be subjected to the disciplinary rules and regulations of Universiti Teknologi MARA.

Name of Student	:	Nurul Fatinhah Binti Mohammad Effendy
Student I.D. No	:	2020860004
Programme	:	Bachelor of Science (Hons.) Construction Technology
Faculty	:	Department of Built Environment Studies and Technologies
Innovation Title	:	Autoclaved Aerated Concrete Wall by Using Polycarboxylate Superplasticizers
Signature of Student	:
Date	:	August 2022

ACKNOWLEDGEMENT

Alhamudullilah, in the first place all praises to Allah S.W.T with his blessings, I was finally able to complete my initial report of my degree research which is BCT654.

First and foremost, I would like to express my deepest gratitude to my research supervisor which is Ts. Mohamad Hamdan Bin Othman for his guidance, patience, and tolerance throughout the process of completing this proposal research. Besides, I would like to extend my gratitude to my lecturer which is Dr Asmat Ismail that help me in giving suggestions and valuable comments during the consultation of proposal of this projects.

Last but not least, million thanks to my family also because they always give me support and keep motivated for finished this proposal research. However, they also shared their idea and valuable comment suggestions on this research which is give me inspiration to improve this proposal research about my topic. Finally, my gratitude also goes to all my fellow friends which are my classmates that from AP256 6A who are encouraged me and always keep sharing their positives vibes. I also appreciate their ideas and their comments. Hence, I thank all of you. Thank you so much for helping me.

TABLE OF CONTENTS

Author's Declaration	i
Acknowledgement	ii
List of Figures	v
List of Tables	vii
List of Abbreviations	viii
Abstract	ix

CHAPTER 1.0 INTRODUCTION

1.1	Background of research	1
1.2	Problem Statement	3
1.3	Research Questions	4
1.4	Aims and Objectives of study	4
1.5	Scope of Study	4
1.6	Limitation of Study	5
1.7	Significant of the Study	5
1.8	Outline of Report	6

CHAPTER 2.0 LITERATURE REVIEW

2.1	Introduction	7
2.2	Overview of wall issues	7
2.2.1	Quality	7
2.2.2	Strength	8
2.2.3	Cost of production	9
2.3	Previous Research Related to Wall	10
2.3.1	Precast Lightweight Wall Panel	10
2.3.2	Light – Transmitting Concrete Panels	11
2.3.3	Eco-Wall Modular	12
2.3.4	Eco-Sandwich (Structural Concrete Insulated Panel)	13
2.4	Problem Related to Existed Autoclaved Aerated Concrete Wall	15
2.5	Application of Polycarboxylate Superplasticizers	16

ABSTRACT

Nowadays, the construction industry contributes significantly to Malaysia's economic growth. Furthermore, the Malaysian construction industry is shifting away from traditional methods and toward a more systematic and mechanised method known as prefabrication. Prefabrication is also referred to as Industrialised Building Systems (IBS). Aerated Concrete (AAC) is a type of precast concrete made from natural raw materials. It is now gaining importance in the construction industry, outperforming all conventional methods. The purpose of this research is to identify the suitable materials that can be used in manufacturing walls, the second is to investigate the common problems that occurred and ways to improve the walls when using Industrialised Building System (IBS) and lastly is to analyse the marketing potential of the proposal innovation Autoclaved Aerated Concrete Wall by using Polycarboxylate Superplasticizers. As a result, the goal of this research is to create an innovative product that can solve problems that commonly occur in the construction industry.