

UNIVERSITI TEKNOLOGI MARA

**EVALUATION OF STRUCTURAL
INTEGRITY IN ABANDONED SCHOOL
BUILDING**

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ABSTRACT

The New Economic Policy (NEP) marked a notable surge in educational infrastructure development, prioritizing the enhancement of educational services. The student population continues to grow steadily, leading to a critical shortage of adequate classroom facilities. With the rollout of the Twelfth Malaysia Plan, the government has fully committed to enhancing the infrastructure in the educational sector. Therefore, it is imperative to take steps to utilise abandoned school buildings for reconstruction, which necessitates a structural integrity assessment by combining on-site testing and structural software analysis. This study investigated an abandoned school block to deduce on the structural integrity of the building before reurnish works could be carry out to resume the function of the building to its initial purpose. Both on-site test measurements and structural analysis and modelling were employed in this study. The purpose of this research is to analyse the structural integrity of abandoned school buildings in terms of existing structural strength by implementing the use of Non-destructive Test and Destructive Test techniques to form a consolidated dataset for structural modelling and analysis. Nine locations were tested for compressive strength using a rebound hammer, nineteen samples of concrete structure coring, and six samples of reinforcement steel were tested. The data obtained from the site measurements were utilised to remodel the structure in Prota Structure 2018. The findings showed severe structural issues in abandoned structure under study, with deterioration and deficiencies in strength and insufficient reinforcement areas, violating BS8110-1997 standards. Based on the findings, this research concludes that immediate repairs are essential for the building's stability and compliance with safety standards. This study recommended that a structural strengthening scope is compulsory if the reinstatement of the abandoned school block is necessary. Structural strengthening can be done such as adding additional reinforcement or using fibre-reinforced polymers to enhance load-bearing capacity and ensure safety. The research provides a comprehensive methodology for analysing the structural integrity of abandoned buildings. By following this methodology, one can effectively assess the structural soundness and identify any potential issues.

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TABLE OF CONTENTS

AUTHOR'S DECLARATION	II
ABSTRACT	III
ACKNOWLEDGEMENT	IV
TABLE OF CONTENTS	V
LIST OF TABLES	VII
LIST OF FIGURES	VIII
CHAPTER ONE	1
1.1 Background of Study	1
1.2 Problem Statement	3
1.3 Objective of Research	5
1.4 Scope and Limitation of Research	5
1.5 Significance of Research	6
CHAPTER TWO	8
2.1 Introduction	8
2.2 Basic Structural System	9
2.2.1 Slab Structure	9
2.2.2 Beam Structure	10
2.2.3 Column Structure	10
2.3 Structural Integrity Assessment	11
2.4 Visual Evaluation of Structure	12
2.5 Utilisation of Destructive Test	12
2.5.1 Concrete Coring Test	13
2.5.2 Verification of Steel	14
2.5.3 Steel Tensile Strength	15
2.5.3.1 Yield Strength	16
2.5.3.2 Tensile Strength	16
2.6 Utilisation of Non-Destructive Test	17

CHAPTER ONE

INTRODUCTION

1.1 Background of Study

During the 1980s, Malaysia's educational sector underwent a significant transformation, a vital component of the nation's overall development. Government policies, formally known as the New Economic Policy (NEP), signed a notable surge in educational infrastructure development, prioritising the enhancement of educational services (Aun, 2021). This expansion of educational infrastructure plays a pivotal role in making education not only more accessible but also more comprehensive and contemporary. With establishment of new schools and universities in both urban and rural areas, effectively bridging gaps in educational opportunities and reducing regional disparities. Additionally, the 1980s does not solely focus on educational facilities but also involve the development of amenities for educators, including dedicated quarters to support and attract skilled teaching staff. This multifaceted approach not only broadened educational accessibility but also modernised the learning environment, contributing to the cultivation of a well-educated and skilled workforce which contributes to Malaysia's ongoing economic growth and development.

Malaysia has experienced fast expansion in recent decades, which has made it necessary to put existing, vacant structures to good use. The Malaysia government has taken the initiative through the appropriate department such as the Department of Public Works (JKR) Malaysia, to restart the construction of the abandoned project. In addition, in recognising the importance of maintaining and make use these abandoned assets, the government of Malaysia has taken proactive measures to address the evaluation of the abandoned buildings whether repair and upgrading of existing government abandoned buildings as the natural deterioration has taken place over the years. This initiative reflects the government's commitment to ensuring that existing infrastructure remains functional, safe and align with contemporary needs. By investing in the evaluation of these buildings, the government not only extends the lifespan of these vital facilities but also enhances their functionality and efficiency to be continuously used. This undertaking is a testament to Malaysia's forward-looking approach to infrastructure