



UNIVERSITI TEKNOLOGI MARA

**THE EFFECT ON THE USAGE OF
MECHANICAL VENTILATION IN
HERITAGE BUILDING IN JOHOR
BAHRU**

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ABSTRACT

This research was carried out with the main purpose of finding out the conditional usage of mechanical ventilation system in repurposed heritage office buildings. The problem statement of the research point towards the usage hours of the mechanical ventilation system along with the temperature set and the capability for the system to adapt into the heritage building as a retrofitted system in order to provide comfort to the occupants. With those two (2) main points set as the objective of the research, two (2) case studies have been selected in Johor Bahru, Johor area to be conducted a survey process consisting a set of questionnaires that require the respondents to give their responses and feedbacks regarding the mechanical ventilation system in their respective repurposed heritage office buildings. There is a total of five (5) main chapters included in this research, in which the chapter one (1) is the Introduction along with the aim, objectives and problems, method and significance of the research, chapter two (2) on the Literature Review regarding on retrofitted mechanical ventilation system in repurposed heritage office buildings in Malaysia, chapter three (3) for the Research Methodology presenting the approach of the research, research design, sampling, data collection, elaboration on selected case studies, and method for data analysis, chapter four (4) of Results and Discussions of the analysis for the data that were obtained from the survey process with the respondents based on their respective buildings and background factors, and lastly chapter five (5) Conclusions and Recommendations on the data analysis that had been carried out thoroughly along with recommendations and suggestions made for both the research itself and for future research regarding on the scope of this study.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF STUDY

Heritage buildings are one of the few types of the most precious structures been built from many years back. They need to be preserved and well taken care of to avoid from being demolished or collapsed due to natural causes. One of the best ways to avoid these is to repurpose them by doing a refurbishment or renovation works onto the heritage buildings. A lot of heritage buildings have been repurposed or refurbished into new buildings. Most of the repurposed heritage building usually goes with a new building function, means that the structural characteristic that it was initially built for would need to be altered due to change from its initial or previous function. One of the matters or characteristic details that need to be taken seriously is the thermal comfort for the repurposed heritage building to suits its new function. Some of the most common new functions of heritage buildings are as commercial building such as museum, religious centre, community centres and on even some seldom cases are to be turned into a residential building such as houses or hotels. And one of the most common repurpose for the heritage buildings are that some of those buildings has been turned into an office building. This usually happens especially when the heritage buildings are in the centre or near to a town or city.

As we all know it, an office is generally a building or space that is where an organization's employees perform their work in order to support or work as a part of the said organization. This means that these employees would sit in the building that is called an office for at least half a day long. This requires them to have a calm and cooperative environment even on the interior of the building for them to work in a comfortable condition. Some of the heritage buildings that has been repurposed into office does not usually have the structural characteristic that matches to that of an office building. and because of that, most of the heritage building that will be refurbished or repurposed into new function would be required to install mechanical ventilation system inside the building to improve the air ventilation inside the building to support the new building functions.