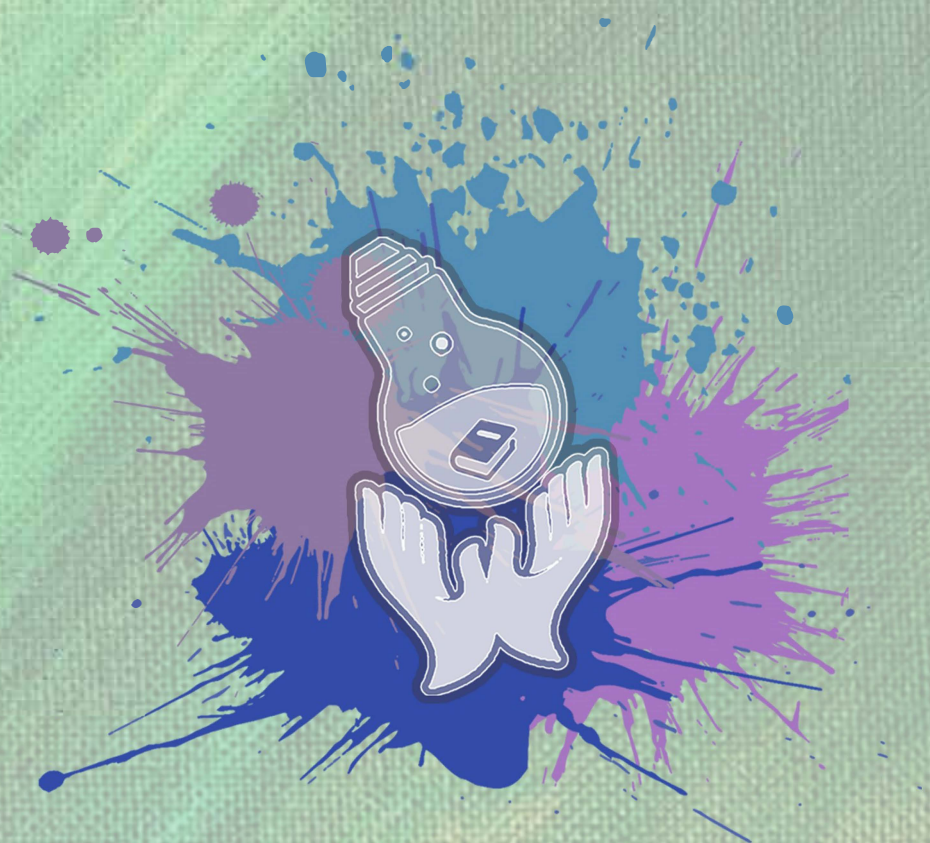




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RETROFITTING MODEL FOR OLD BUILDING TO IMPROVE SAFETY FACTORS IN BUILDING AND CONSTRUCTION

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Abstract:

The old building which 30 years or older qualifies as an older building. Some of the following problems may materialize. Continuous maintenance can greatly impact a building's life, as an original quality of construction, but the older building is more likely must find issues impacting and even safety and health. The main purpose of this study is to identify the safety factor of the old flat building environment in building design and construction, to analyse the safety factor model in building design and construction and to evaluate the safety model in building design and construction. In order to carry out this research, a comprehensive literature review was done to identify the safety factor in building and construction. Thus, the information from literature review was used to design a questionnaire for respondents which among them are safety personnel of the company.

Keywords:

Improve safety; old building; implement retrofitting; building construction

1.0 INTRODUCTION

In many countries in the world, the construction industry plays a big role for development process which contributes towards the economist growth that generating additional demands for construction activities. Despite its significant contribution, construction industry is known as one of the most hazardous sectors (Suazo and Jaselskis, 1993). Hazardous can be measured by high work-related injuries, worker's compensation and fatality rates. Despite the fact that several organizations recognize the importance of refining safety level to their worker, the occupational accidents in construction industry are still high, particularly in developing countries (Abozead *et al.*, 2014; McCaughey *et. al.*, 2016).

The major causes of accidents occurs in construction industry are related to unique nature of the industry, human behavior, improper site condition, unsafe work method, equipment and procedures which affected from poor safety management (Farooqi, 2008). These could result in accidents which further cause disruption of work and decrease the work rate (Enshassi *et al.*, 2007).

2.0 LITERATURE REVIEW

Generally, retrofitting old building is known as risky construction and it can involved many hazards which result in a lot of injuries, illness and death due to poor condition of safety at old building. According to Ratay (1997) and Haupt (2001), the construction industry within a lot of scholars and professionals reorganize that the legislation and regulations by themselves are not adequate to bring of the desire goal to reach zero accident and incident on the old building. This has made the retrofitting old building construction become more risky with increment of fatal accidents contribute to total accidents rate on old building and require a more comprehensive effective technique in the safety and health operation to assess the old building and improve the safety due to poor safety performance before.

2.1 Retrofitting

Retrofitting should be a holistic process and for this to happen. It's essential to know the eventual goal and have a plan. This will enable the most appropriate measure to be selected and their interrelationship with one another to be better understood, even if they're introduced over an inadequate, conflicts may occur and work might have to be undone to accommodate future phases of work or to rectify problems.

2.2 Building Maintenance in Old Building

According to the Department of Meseums and Antiquities (2001), the main problems occurring in the old building conservation are related to their maintenance management aspect. Most of the common problems are building dilapidation and ignorance (Harun, 2011), illegal renovations and not complying with the legal requirements either by the owner or user of the old building in order to apply the building conversation approach. Other problems are difficulties in conducting repairing works, building maintenance as well as lack of enforcement of building control aspect in the building conversation approach (Abd-Wahab, Sairi, Che-Ani, Tawil, & Johar, 2015)

2.3 Factor Affecting Building Maintenance

According to (Lateef, 2009) stressed maintenance is required because the building could not withstand the effects defects of the weather and age factors. Although the building is a capital asset of the organization, instead of building owners assume maintenance of the building as a value liability and not a priority. In a particular occasion, the building owners often find themselves are no longer comfortable with building cracks on walls and floors, leaking water pipes and corrosion of steel structures. Maintenance made not only to maintain the building but also for sake of public safety, including safe consumer building occupants.

3.0 METHODOLOGY

The data for the research work was obtained through the use of structured questionnaire from the occupants in public buildings. Questionnaires survey was found effective because the relative ease of obtaining appropriate data for achieving the study objectives. The survey present 10 relevant factors affecting building maintenance generated on the basic of related research works together with revision and modification by experts. Questionnaire were distributed which comparised of two parts, parts A captures the demographic profile of the respondents and parts B consists ten of building maintenance factors and tenof building defects factors affecting public buildings to score on a Likert Scale of 1-5 based on their significance. Descriptive statistics was used to analyses the demographic data of respondents while it was used to analyze the respondents score of the basic maintenance and defets factors. In this study, an ordinal measurements scale 1 to 5 was used to determine the effect level. Respondents were 1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree.

4.0 ANALYSIS AND FINDINGS

The result of the position or profession of respondents revealed that majority (80%) are working as the others position ranges as semi-professional as technician, junior engineer, and supervisor while 8% are presenting with more professional positions i.e. the senior engineer post.

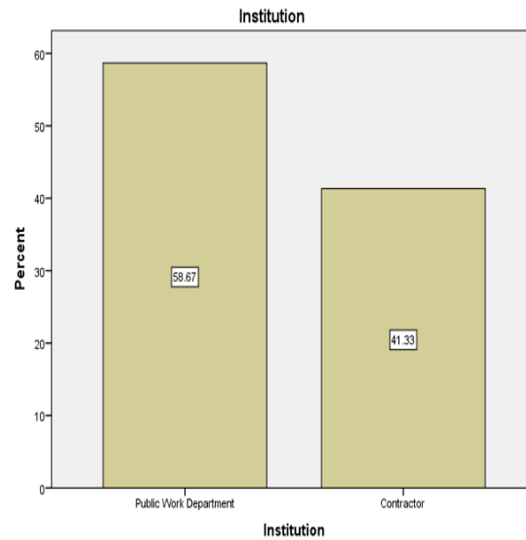


Figure 1: Institution on survey respondent's classification
 Assessment of Factor Affecting Building Maintenance and Defects of Public Building in Malaysia
 Source : Roslan Talib *et al.* (2012)

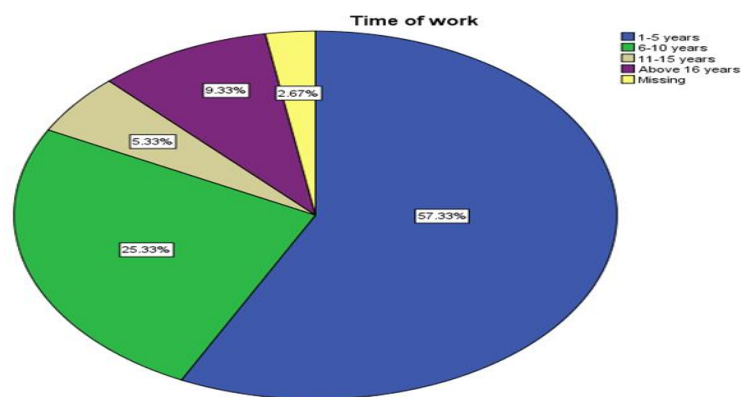


Figure 2. Depicting occupant's during on occupying the property

Table 1: The respondent response to the factor affecting building maintenance of public building

Factor affecting building maintenance	Rank
Lack of preventive maintenance method	1
Insufficient funds to maintain the buildings	2
Lack of building maintenance standard procedures	6
Poor work rectification done on buildings	7
Non response to maintenance request	4
Unavailability of skilled appointed maintenance personnel	5
Low concern of future maintenance of existing maintenance team (on behalf of building owner)	8
Lack of communication between maintenance contractor, clients (owners) and users	10
Non-availability to replacement, parts and components	9
Lack of understanding the importance of maintenance work.	3

5.0 CONCLUSION

At the end of this research study, hopefully retrofitting old flat building can improve safety factor level of Occupational Safety & Health (OSH) among old flat building and be developed for others in future. In order to maintain old flat building for safe working environment places, recommendations may be taken as the strategic initiatives to make the health facility forwards in achieving more productivity and healthy life style. This research output will contribute to the Malaysian community future, especially for public who stay at old flat building area.

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