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**SUSTAINABLE BUILT
ENVIRONMENT**

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ENVIRONMENT**

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usbet.fspuperak@gmail.com

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FIRE SAFETY AWARENESS: A COMPARISON OF SHOPPING MALLS IN MANJUNG, PERAK

Nur Adila Balqis Ahmad Sabri¹, Mohd Khairul Amri Ramly^{1*}

¹Department of Built Environment Studies and Technology, College of Built Environment, Universiti Teknologi MARA, Perak Branch, 32610, Seri Iskandar, Perak, Malaysia

2020453172@gmail.com

ABSTRACT

Fire accident can appear in a building at any cost and any time, which cause by many reasons and sources. Shopping malls are frequented and accessed by lots of people at once, thus providing proper fire protection precautions is essential and important in order to prevent any accident or prevent them from happening. This academic project aims to understand and analyse the awareness of fire safety measures for users of shopping malls involving two case study building in Manjung Perak. This study was conducted through questionnaire, survey study with a description statical analysis using median, mean, mode approach. A total of 224 respondent was captured for this survey and the researcher found that the majority of respondents chose responses indicating moderate awareness and understanding on fire safety measures. According to the survey results, it concludes that the lesser building users spent their time inside the building, there will be tendency that they have lesser awareness on fire safety measures in a building.

Keywords: *Fire safety measure, awareness, shopping malls*

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INTRODUCTION

Fire is widely considered as one of the most serious risks to a building's residents, as well as its fabric and contents (Othuman Mydin, Othuman Mydin, et al., 2014). In theory, proper fire safety management ensures that fires are unlikely to occur, that if they do, they are likely to be controlled or contained promptly, effectively, and safely. Unfortunately, fire safety is sometimes not given the attention it deserves. It appears to have been given merely a secondary thought in a number of buildings, which should not be the case (Rubaratuka, October 2013).

Shopping malls are frequented and accessed by lots of people at once, thus providing proper fire protection precautions is essential and important in order to prevent any accident or prevent them from happening (Geraldine, 2015). Furthermore, shopping mall building is essentially at higher risk because it is also used as administrative center for government offices. Despite that, fire safety in shopping mall were rarely exposed to the public which cause this problem to arise(Othuman Mydin, Abdul Rahim, et al., 2014).

This study will focused on the awareness of fire safety measures in shopping mall in Manjung Perak. In order to achieve this aim, a survey will be taken out and will be analyse whether the users of the shopping malls have the basic knowledge on firefighting equipment and how to use them when needed.

Background of Study

The purpose of this research is to assess the awareness of fire safety measures for users of shopping malls in Manjung Perak. The study will be focusing only in the selected buildings and the respondents who access the building. It is important to be aware of the fire safety measures in a certain building so that we can be prepared if anything happens.

Fire hazard can also occur in shopping malls and shopping centers. In 2017, a fire strikes at the ground floor in GV Mall of Boring Road, Patna India. The fire occurs due to the insufficient fire safety equipment that were installed in the building. Based on this incident, we can clearly see that fire safety measures in shopping malls is very important in a critical accident involving fire (Jha, AUG 26, 2019).

But unfortunately, most of the studies revealed that some of the buildings especially shopping malls lack in the provision of fire safe measures and some of them were not fully provided. From the studies from Rubaratuka in her journal "Investigation of Provisions of Fire Safety Measures in Buildings in Dar Es Salaam" shows that fire safety measures in Dar es Salaam's building were not provided(Rubaratuka, October 2013).

METHODOLOGY

For this research, quantitative method was chosen by using questionnaire survey as research design. The data then will be analysed by using mean statistical analysis. There are two steps to this study process. The selected respondent consists of users and customers in the shopping malls. The first stage was creating the questionnaire under the direction of an expert, such a supervising professor. The distribution of the questionnaire was another step that was proceeding.

Quantitative Data

Building A (Aeon Manjung) and Building B (TF Value Mart) were selected for this research. All findings for this chapter were gain by the researcher during a period. The questionnaire was distributed through QR code that were made and the respondents for this case study are among customers and users of the building. There are 4 sections with 16 questions in the questionnaire that need to be answered by the respondents. Nonetheless, due to specific constraints during the data collecting, data saturation by phases may be used for this research's sample. In the first phase of the survey, 102 respondent were collected while 122 respondents were gain from Phase II of the survey and each phases takes around 3 weeks of data collecting.



Figure 1: Building A (Aeon Seri Manjung)



Figure 2: Building B (TF Value Mart)

Question 1: Participation of Respondent

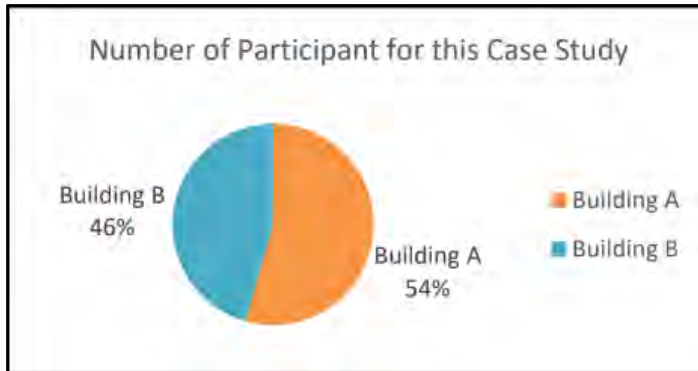


Figure 3: Number of Participation

Figures shows the percentage of respondents that participate in this survey for both building, Building A (Aeon Manjung) and Building B (TF Value Mart). Building A received 54% from the overall percentage while for the remaining percentage of respondent are form Building B with 46%. Building A gain more respondent than Building B because Building A is more likely to have lots of visitors then Building B.

Question 2: Frequency of Visit in a Week

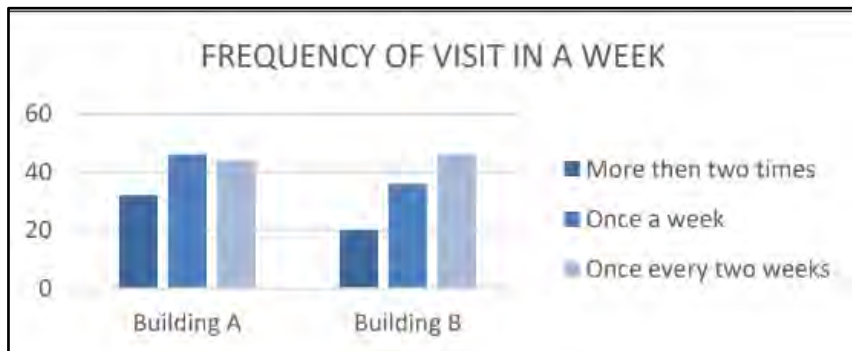


Figure 4: Frequency Of Visit In A Week

This survey aimed to assess respondents' frequency of visits to two buildings and their awareness of fire safety equipment. Building A (Aeon Manjung) had 46 respondents visiting once a week, 44 respondents visiting once every two weeks, and 32 respondents visiting more than twice a week. Building B (TF Value Mart) had 46 respondents visiting once every two weeks, 36 respondents visiting once a week, and 20 respondents visiting more than twice a week. Respondents visiting once

every two weeks were mostly aged 30 and above, often coming for groceries or shopping with family. On the other hand, those visiting more than twice a week were mostly aged 20 and below, spending leisure time at the building.

Question 3: Knowledge on Fire Safety Measures in a Building

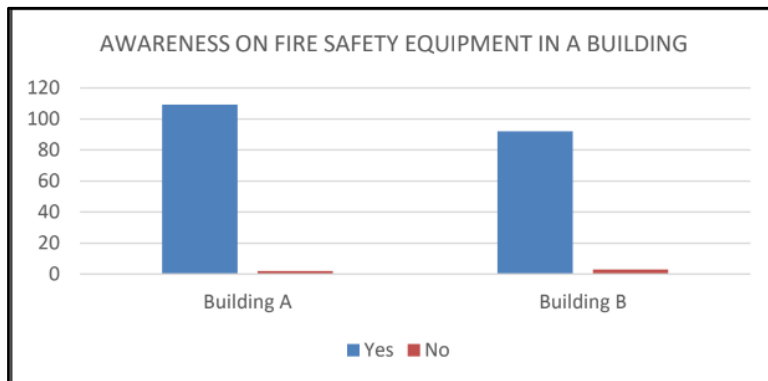


Figure 5: Knowledge On Fire Safety Measures In A Building

In Figure 5, respondents were asked if they were aware of the fire safety equipment in the buildings they visited. For Building A (Aeon Manjung), 98% of respondents (120) answered Yes, while 2% (2) answered No. For Building B (TF Value Mart), 97% of respondents (99) answered Yes, and 3% (3) answered No. Overall, both buildings received a majority of "Yes" responses with 98% (219 respondents), and only 2% (5 respondents) answered "No" collectively.

Question 5: Level Of Awareness On Fire Safety Measure



Figure 6: Data Analysis

Table 1: Total Analysis

Case Study Building	Frequencies for Likert's Scale					Total	Mean Score
	1	2	3	4	5		
Building A	2	17	41	46	16	122	3.5
	1%	14%	34%	38%	13%		
Building B	2	19	24	47	10	102	3.4
	2%	19%	23%	46%	10%		

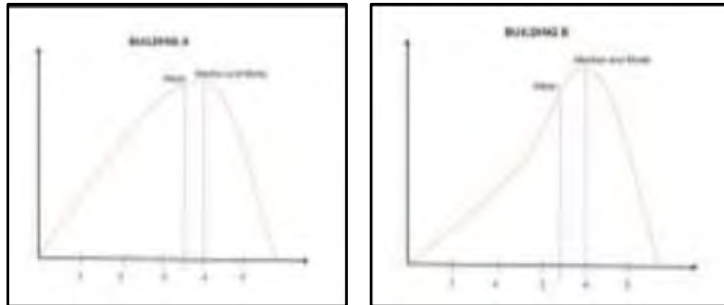


Figure 7: Median, Mean and Mode Analysis

The aim of this question was to assess the level of awareness among users and customers regarding fire safety measures in the selected buildings. Both buildings have rated their awareness as good (4 out of 5) with mean analysis resulting in an average response of 3.5 for Building A and 3.4 for Building B, indicating a moderate level of awareness overall. In summary, both buildings showed similar results, with respondents leaning towards a moderate level of awareness of fire safety measures in a building.

Question 6: Level of Awareness On Fire Safety Measure



Figure 8: Data Analysis

Table 2: Total Analysis

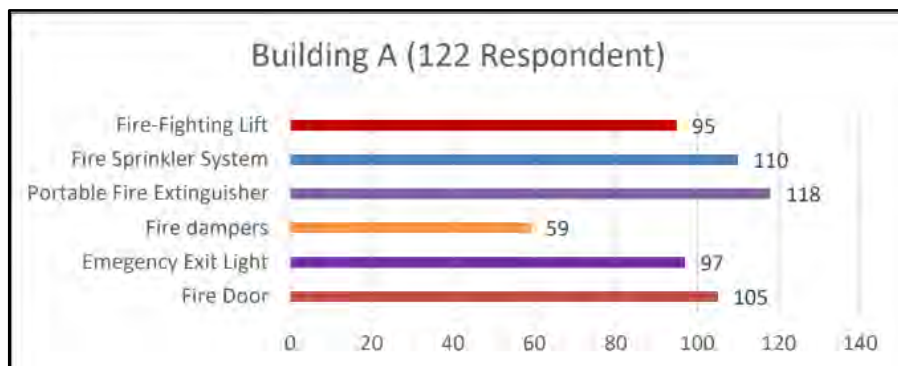
Case Study Building	Frequencies for Likert's Scale					Total	Mean Score
	1	2	3	4	5		
Building A	1	22	36	43	20	122	3.5
	1%	18%	30%	35%	16%		
Building B	2	28	39	27	6	102	3.1
	2%	27%	38%	27%	6%		



Figure 9: Median, Mean and Mode Analysis

The aim of this question was to assess the level of awareness among users and customers regarding the fire safety measures in the selected buildings. Both building has rated their awareness as good (4 out of 5) with mean analysis resulted in an average response of 3.5 for Building A and 3.4 for Building B, indicating a moderate level of awareness overall. In summary, both buildings showed similar results, with respondents providing fairly evenly distributed responses across the likert scale options, indicating a mix of awareness and unawareness regarding fire safety measures in the buildings.

Question 7: Level Of Awareness On Fire Safety Measure



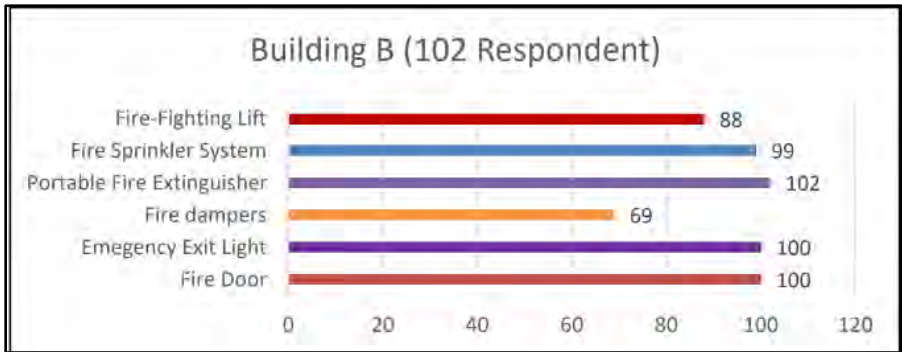


Figure 10: Data Analysis

In Figure 10, respondents were asked to select fire safety equipment they could find in the selected buildings, indicating their awareness of fire safety measures. Both buildings have the same pattern of responses for this question. For Building A, the most selected equipment were fire doors and portable fire extinguishers, chosen by 77% of respondents (95 respondents each). The least picked equipment in Building A was the fire damper, chosen by only 17% of respondents (21 respondents).

Same goes for Building B, the portable fire extinguisher was the most selected equipment, chosen by 100% of respondents (all respondents for Building B). The least picked equipment for Building B was the fire damper, chosen by only 4.7% of respondents (46 respondents). In summary, both buildings showed a high level of awareness regarding the presence of portable fire extinguishers, while other fire safety equipment had varying levels of awareness among respondents.

Question 8: Level Of Awareness On Fire Safety Measure

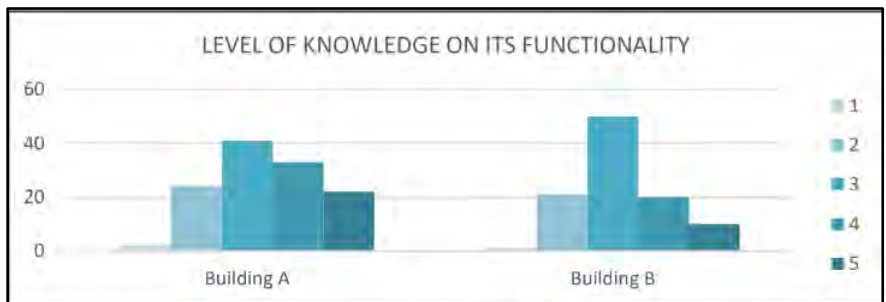


Figure 11: Data Analysis

Table 3: Total Analysis

Case Study Building	Frequencies for Likert's Scale					Total	Mean Score
	1	2	3	4	5		
Building A	2	24	41	33	22	122	3.4
	1%	20%	34%	27%	18%		
Building B	1	21	50	20	10	102	3.2
	1%	21%	49%	19%	10%		

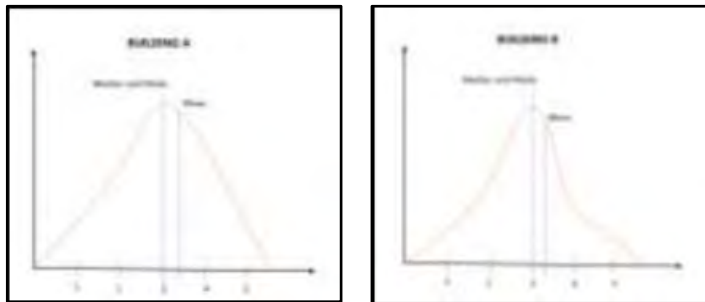


Figure 12: Median, Mean and Mode Analysis

Respondents were asked to rate their level of understanding on how to use the fire safety equipment. Both building has rated their understanding as good (4 out of 5) with mean analysis resulted in an average response of 3.4 for Building A and 3.2 for Building B, indicating a moderate level of awareness overall. In summary, both buildings exhibited a moderate level of understanding and awareness regarding the functionality of the fire safety equipment. This suggests that while respondents have a basic grasp of how to use the equipment, there is room for improvement in enhancing their knowledge and familiarity with these measures.

DISCUSSION AND ANALYSIS

Based on analysis of this study and information gathered from the questionnaire survey, the awareness on fire safety measure in a commercial building can be determine and compared. From the analysis, Building A received the greatest number of respondents participating in the survey than Building B. This discrepancy can be attributed to the fact that Building A is more likely to attract a larger number of visitors compared to Building B. It is reasonable to assume that the analysis may indicate that the frequency of visit and the average spending hours inside the building may influence respondents' awareness of the surrounding fire safety measures. The continuous of this finding were engrossed to evaluate the awareness on fire safety measures among the users. The majority of respondents chose responses indicating moderate awareness and understanding for every question, leaning towards a positive perception of their own knowledge and awareness.

CONCLUSION

In conclusion, analysis on the awareness of fire safety measures in a building has shed light on the crucial importance of promoting safety consciousness among users and customers. . Even if the fire prevention system is in good working order, fires can still occur and be difficult to deal with, especially when they include public visitors who are unfamiliar with the building's atmosphere and layout (Othuman Mydin, Othuman Mydin, et al., 2014). Through careful analysis and data collection, we have gained valuable insights into the level of awareness among respondents in two case study buildings. This study helps to identify the awareness of users in commercial building on fire safety measure.

Base on this study, the analysis shows that the lesser building users spent their time inside the building, there will be tendency that they have lesser awareness on fire safety that surrounds them. So, from the overall analysis, it shows that both building have moderate level of awareness on fire safety measure in a building among the users and customers in Manjung, Perak.

RECOMMENDATION

From this study, the researcher should provide a proposal for an improvement in this subchapter, which summarizes the research's recommendations. These are some of the recommendations that can improve the findings and data analysis for this research.

Do Proper Inspection On Fire Safety Measures In Shopping Mall

Based on the research findings, it is strongly recommended to conduct a more intensive and proper inspection on fire safety measures to ensure their effectiveness and compliance with regulations. Proper inspection plays a critical role in maintaining a safe environment and preventing potential fire hazards. It also helps to gain more data on fire safety measures in a shopping mall which can improve the data collection for data analysis on the awareness of fire safety measures for users. This will also help to achieved more on the objective.

Approach The Owner Of The Building To Gain More Data On Fire Safety Measure

This research may have flaws in data collection of the case study building due to the limitation of approaching the owners of the

buildings. So, with more effort on approach the owner of the building, and more time given for this research, will help to gain more data on fire safety measure in the building and at the same time will help in data analysis for the survey works.

Involvement Of Bomba For Inspection Works

The involvement of BOMBA for inspection works will help to gain more accurate data for the research.

While this study has shed light on the awareness of fire safety measures among users in commercial buildings, there are several avenues for future research that can further enhance our understanding and contribute to the field.

Comparative Analysis For Other Types Of Building

Conduct a comparative analysis of fire safety awareness among users in different types of buildings, such as high-rise office buildings, government building, Schools, or hotels. This would allow for a comprehensive understanding of the variations in awareness levels and identify specific areas that require more attention

Focused Topic On Fire Safety Measures

Research topic that focused on specific fire safety measures in a building can help the researcher to evaluate more detail on the fire safety measures. For example, Importance of Evacuation plan for commercial building.

Users Behaviour

There was many past research that involve with the user's behaviours when it comes to this scope of study, for example, Examine user behaviour during fire emergencies in commercial buildings. The topic helps to analyse how individuals react to fire alarms, evacuation procedures, and emergency exits, and identify factors that may hinder or facilitate safe evacuation.

By addressing these areas of future research, we can further advance our knowledge of fire safety awareness among users in commercial buildings and contribute to the development of more effective strategies to prevent fire incidents and protect lives.

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REFERENCES

- Geraldine, J. K. (2015). A Study on the Awareness of Fire Safety Measures for Users and Staff of Shopping Malls: The Case of Mlimani City and Quality Centre in Dar es Salaam. *Journal of Civil Engineering and Architecture*, 9(12). <https://doi.org/10.17265/1934-7359/2015.12.003>
- Jha, A. S. (AUG 26, 2019). *Dissertation On Fire Protection System In Shopping Mall*. https://issuu.com/ar_sumitjha/docs/disseratation.pptx
- Othuman Mydin, M. A., Abdul Rahim, N., Taib, M., & Othuman Mydin, M. A. (2014). Investigation of Fire Safety Awareness and Management in Mall. *MATEC Web of Conferences*, 10. <https://doi.org/10.1051/matecconf/20141006004>
- Othuman Mydin, M. A., Othuman Mydin, M. A., Sani, N. M., Abas, N. F., & Khaw, Y. Y. (2014). Evaluation of Fire Hazard and Safety Management of Heritage Buildings in Georgetown, Penang. *MATEC Web of Conferences*, 10. <https://doi.org/10.1051/matecconf/20141006003>
- Rubaratuka, I. A. (October 2013). Investigation of Provisions of Fire Safety Measures in Buildings in Dar Es Salaam. *International Journal of Engineering and Applied Science*, 4.

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