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**SUSTAINABLE BUILT
ENVIRONMENT**

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ACTIVE FIRE FIGHTING SYSTEM IN THE DORMITORY BUILDING AT UITM PERAK

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ABSTRACT

Fires have burnt on Earth since terrestrial plants arose, providing a supply of fuel and oxygen, with major consequences for the Earth's system. The very major problem that is occurring in the current firefighting management is inadequate and unusable firefighting equipment in the building and low fire safety awareness among dormitory occupants due to dormitory management ineffectively executing their responsibility in fire safety management. This study aim of this research is to seek and demonstrate the level of awareness by the dormitory occupants regarding the usage of active firefighting equipment in the dormitory building. The study and findings of this research will help in giving suggestions for improving the firefighting system in the dormitory building and increasing the awareness level of the building occupants.

Keywords: *Fire, firefighting, fire safety, awareness, dormitory*

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INTRODUCTION

Fires also have an influence on Earth system processes by modifying the structure and composition of ecosystems and affecting the distribution and variety of biomes. Meanwhile, a firefighting system can be defined as the act of attempting to prevent the spread of and extinguish major undesired flames in structures, vehicles, woods, and so on (Eltom, 2018). According to Cambridge University Press, a dormitory can be defined as a large building at a college or university where students live (Cambridge University Press, n.d.). Some of the problems related to fire protection in buildings are problems in law enforcement, lack of automatic systems, poor planning, maintenance, and management of fire safety issues (Rahardjo, 2020). Another problem is inadequate firefighting equipment as the majority of the respondents were of the opinion that firefighting equipment was either unavailable or they could not confirm their existence in their respective dormitories (Agyekum, 2016). This study's aim is to seek and demonstrate the level of awareness by the dormitory occupants regarding the usage of active firefighting equipment in the dormitory building.

LITERATURE REVIEW

A fire extinguisher is a portable active fire protection tool used to put out or control small fires, frequently in emergencies. It is typically filled with a dry or wet chemical. A sprinkler system consists of pipes running the length of the ceiling that hold water under pressure and another water source for a steady flow. Automatic sprinklers are positioned at specific locations and attached to the pipes (Purpura, 2013). There are three types of fire hose reel which are fixed type hose reel, swinging arm type hose reel and swinging pipe type hose reel (Fire and Building Monaghan County Council, n.d). A bell, horn, speaker, light, or text display that produces audible, tactile, or visible outputs, alone or in combination, are examples of components in a fire alarm system. There will be a signal indicating an emergency that needs to be dealt with right away, like a fire signal. A fire alarm system has initiation devices that utilize smoke detectors to protect a room or other space with detectors that can detect a fire before it spreads. This feature of automatic fire detection and alarm systems helps to reduce false alarms (Crimmins, 2019). Currently, smoke detectors have two main operating systems: ionization and photoelectric. The detector sounds an alarm when the current flow is below a certain threshold (Hanacek, 2021). Heat detectors can also spot fires in places where smoke detectors are ineffective due to environmental conditions like mist, smoke from nearby fires, and high humidity (Da Ponte Jr, 2021).

METHODOLOGY

This research will be using the quantitative method such as questionnaires for the research strategy. This is because the aim of this research is to seek and demonstrate the level of awareness by the dormitory occupants regarding the usage of active firefighting equipment in the dormitory building and the quantitative method seems to be the most suitable one for the data collection.

SAMPLING AND CASE STUDY

The sampling for this research will be limited to up to 200 respondents altogether and the target respondent will be focusing on UiTM students, both males and females that currently live in the UiTM dormitory. The limited sampling is to ensure that the data collection becomes more manageable. The target location where the sample will be collected is the dormitory building located in UiTM Seri Iskandar, Perak. There are about ten (10) dormitory buildings in UiTM Seri Iskandar, Perak which is divided for male and female students. There are three (3) dormitory buildings for male students and seven (7) dormitory buildings for female students and all of the dormitory buildings are three (3) storeys building.

STAGE OF RESEARCH

The stage of this research will be divided into three (3) stages which are issue identification, collecting data and result and analysis.

- Issue identification

The very major problem that is occurring in the current firefighting management is inadequate and unusable firefighting equipment in the building. Despite the dangers of these potential fire threats, active enforcement of firefighting measures may be insufficient in many dormitory buildings in Malaysia.

- Collecting data

The collection of data will be focussing on the UiTM Seri Iskandar, Perak students that are currently living in the UiTM dormitory building and the total of the respondent that will be needed to fill up the questionnaires are up to 200 respondents.

- Results and analysis

The data that is collected through the Google Form questionnaire in this research will be analysed using descriptive analysis. Using Google Forms applications, the analysed data will be converted from frequency count to percentage, and it will be shown in charts for a better understanding.

FINDINGS

The findings of this research are shown in Table 1, Table 2 and Table 3.

Table 1: Respondent Profile

Gender	Frequency	Percentage (%)
Male	62	31
Female	138	69
Education Level	Frequency	Percentage (%)
Diploma	134	67%
Degree	66	33%
Have you experienced a fire outbreak	Frequency	Percentage (%)
Yes	18	9
No	182	91
Have you experienced a fire drill at the dorm	Frequency	Percentage (%)
Yes	34	17
No	166	83

Table 2: Awareness of The Active Firefighting Equipment

Have you seen the firefighting equipment in your college	Frequency	Percentage (%)
Fire extinguisher	190	95
Hose reel	162	81
Fire alarm	196	98
Heat detector	172	86
Do you know how to use or function of the firefighting equipment	Frequency	Percentage (%)
Fire extinguisher	96	48
Hose reel	36	18
Fire alarm	190	95
Heat detector	176	88
Do you aware of the location of the firefighting equipment in your college	Frequency	Percentage (%)
Fire extinguisher	150	75
Hose reel	126	63
Fire alarm	170	85

Heat detector	142	71
Do you aware if the firefighting equipment is functioning	Frequency	Percentage (%)
Fire extinguisher	38	19
Hose reel	20	10
Fire alarm	40	20
Heat detector	38	19
Do you aware the last time they do maintenance for the firefighting equipment	Frequency	Percentage (%)
Fire extinguisher	24	12
Hose reel	12	6
Fire alarm	26	13
Heat detector	14	7
Are you satisfied with the firefighting equipment provided in your college	Frequency	Percentage (%)
Yes	86	172
No	14	28

Table 3: Satisfaction of The Active Firefighting Equipment

How satisfied are you with the number of fire extinguisher provided in your college	Frequency	Percentage (%)
Very dissatisfied	0	0
Dissatisfied	8	4
Neutral	52	26
Satisfied	120	60
Very satisfied	22	11

How satisfied are you with the number of hose reels provided in your college	Frequency	Percentage (%)
Very dissatisfied	0	0
Dissatisfied	6	3
Neutral	64	32
Satisfied	114	57
Very satisfied	16	8
How satisfied are you with the number of fire alarms provided in your college	Frequency	Percentage (%)
Very dissatisfied	0	0
Dissatisfied	6	3

Neutral	56	28
Satisfied	116	58
Very satisfied	22	11
How satisfied are you with the number of heat detectors provided in your college	Frequency	Percentage (%)
Very dissatisfied	4	2
Dissatisfied	10	5
Neutral	54	27
Satisfied	114	57
Very satisfied	18	9
Do you think fire drill is important for college students	Frequency	Percentage (%)
Strong disagree	0	0
Disagree	0	0
Neutral	16	8
Agree	82	41
Strongly agree	102	51
Do you think active firefighting equipment is important in college	Frequency	Percentage (%)
Strong disagree	0	0
Disagree	0	0
Neutral	16	8
Agree	58	29
Strongly agree	126	63

DISCUSSION AND ANALYSIS

The results indicate that the awareness level of the respondents regarding firefighting equipment is low. While many respondents have seen and are aware of the location of firefighting equipment, they lack knowledge on how to use it. However, they generally understand the function of each firefighting equipment provided. Despite the low awareness level, the respondents' satisfaction with the firefighting equipment in the dormitory is high. Most of them are satisfied with the number of firefighting equipment available. The data shows that the firefighting equipment at the dormitory is deemed to be sufficient and the occupants are aware of the equipment's existence. Additionally, the majority strongly agree that fire drills and active firefighting equipment are essential for college students.

CONCLUSION & RECOMMENDATION

The study revealed that the awareness level of dormitory occupants regarding active firefighting equipment is relatively low. Respondents showed limited knowledge on how to use the firefighting equipment, and many were unaware of its functioning and maintenance. However, despite this low awareness level, the investigation found that the satisfaction level of the respondents regarding the provided firefighting equipment was remarkably high. It is recommended that the dormitory management organize a comprehensive fire safety awareness campaign in the dormitory building. This campaign should target all students, staff, and visitors. Use posters, pamphlets, and digital screens to display essential information about fire safety, common causes of fires, and the location of firefighting equipment. Overall, maintaining a safe living environment in the dormitory requires consistent efforts to raise awareness, provide training, and conduct regular fire drills.

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Sekian, terima kasih.

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