



**6th UNDERGRADUATE  
SEMINAR ON BUILT  
ENVIRONMENT  
AND TECHNOLOGY  
(USBET) 2023**

**SUSTAINABLE BUILT  
ENVIRONMENT**

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# e-Proceeding

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ENVIRONMENT**

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# THE FIRE SAFETY AWARENESS IN RESIDENTIAL VILLAGE HOUSE

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## ABSTRACT

*In residential, fire safety is a major problem, especially in village dwellings where fire events can have disastrous results owing to restricted access to emergency services and resource limitations. This study intends to evaluate the degree of fire safety knowledge among village home occupants and to pinpoint any possible areas for development. To collect information on residents' awareness of fire safety measures, current safety practices, and perceptions of fire hazards, the study used a mixed-methods approach that combines surveys and interviews. The study also examines the success of community-wide fire safety education initiatives currently in place and how they affect local people' readiness. The findings emphasize both the positive and negative aspects of village house dwellers' fire safety awareness, including knowledge gaps. Fire safety education is critical for all levels of society, particularly those who live in residential settings such as village cottages. The majority of village house dwellers are unconcerned about the safety of their dwellings and rely entirely on the fire department if their homes catch fire. First and first, in order to raise public awareness, the definition of the term "fire safety" must be defined. Fire safety is the planning or construction of infrastructure to lessen the danger of fire or to prevent the spread of a larger fire.*

**Keywords:** *fire, safety, awareness, residential, housing.*

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## **INTRODUCTION**

Fire is a chemical process that happens when fuel, heat, and oxygen combine. This chain reaction finally results in a fire that can destroy almost everything. Large and unmanaged fires can ultimately generate fires that harm and destroy adjacent items, and fires can occur anywhere, even on private land, in open areas such as woods, and even in buildings and residences. Residential home fires are a common occurrence, and each year, innocent individuals are killed in house fires. Many causes contribute to residential house fires, including homeowner irresponsibility, short circuits, gas leaks, harsh weather conditions, and electrical issues. As a preventative precaution and for safety, fire-fighting systems have been developed as the first line of defence in controlling and halting fires that may break out in residential buildings. (Toups, Z. O., & Kerne, A. 2007).

Fire safety education is critical for all levels of society, particularly those who live in residential settings such as village cottages. The majority of village house dwellers are unconcerned about the safety of their dwellings and rely entirely on the fire department if their homes catch fire. First and first, in order to raise public awareness, the definition of the term "fire safety" must be defined. Fire safety is the planning or construction of infrastructure to lessen the danger of fire or to prevent the spread of a larger fire.

The purpose of this research is to learn about fire-fighting systems capable of making a substantial influence on the early action to control or extinguish flames that occur in residential houses, as well as their significance to Malaysian residential houses.

To identify fire safety criteria for village house.

## **LITERATURE REVIEW**

### **Definition of Fire Safety Measure**

Fire safety refers to measures taken to prevent fires and minimize harm in the event of a fire. This includes education on fire prevention, proper installation and maintenance of fire safety equipment, planning and practicing fire evacuation procedures, and ensuring buildings comply with fire safety codes and regulations. The goal of fire safety is to reduce the risk of fires and protect people, property, and the environment. A system of rules, procedures, and practises aimed at preventing fires and decreasing injury in the case of a fire is referred to as fire safety. Fire safety aims to reduce the danger of fires while also protecting people, property, and the environment. Effective fire safety techniques combine teaching and training with engineering and design, as well as equipment and technology. (Subramaniam, 2004)

Fire safety relies heavily on education and training. This involves educating individuals about fire safety and urging them to take preventative measures to lessen the danger of a fire. This may include things like correctly storing combustible products, not overloading electrical outlets, and avoiding actions that might generate sparks or ignite a fire. Engineering and design are also critical components of fire safety. (Chow,2012) This involves designing buildings and structures to reduce fire hazards and offer safe escape routes in the case of a fire. Installing sprinkler systems, fire alarms, and fire doors may be part of this. Finally, fire safety equipment and technology are critical. This includes having fire extinguishers easily available, installing smoke detectors in each room, and using fire-resistant materials in construction. Furthermore, fire safety equipment must be tested and maintained on a regular basis to ensure that it is in excellent working condition.

Finally, fire safety may be linked to fire prevention technologies, the nature of human understanding of the dangers of fire, regulations utilized in the design of residential structures, and the procedures employed in dealing with fire. Fire safety is one of the most important things to consider when living in a residential house. Additionally, educating yourself and your family on fire prevention and regularly checking and maintaining fire safety equipment can help reduce the risk of fire and keep your home and loved ones safe. (Cvetković et al., 2022)

Modern building design and construction must include fire safety measures. They are intended to detect, control, and extinguish flames while also protecting life and property. There are several types of fire protection systems, each with its own design, components, and functions. Sprinkler systems, which transport water or fire-fighting substances through a network of pipes and nozzles, are an example of a fire protection system. Fire alarm systems detect the presence of smoke, heat, or flames and notify building occupants to escape. Fire suppression systems employ chemicals or gases to put out fires, whereas fire extinguishing systems use foam, dry chemicals, or wet agents. Fire barrier systems, such as fire doors, walls, and fire-resistant constructions, keep fires from spreading (Cote, 2003).

Fire suppression systems for specific hazards, such as kitchen hood suppression systems for restaurant kitchens and clean agent systems for computer rooms, are also available. It is important that fire protection systems are installed and maintained in accordance with local fire codes and standards to ensure their proper function and performance in the event of a fire. Fire protection systems play a crucial role in ensuring the safety of homes and their occupants. These systems are designed to detect, control, and extinguish fires before they can cause significant damage or harm to people and property. In other words, the fire prevention system serves as the first line of defence in stopping fires from spreading and allows the people of the house enough time to flee without being injured. (Cote, 2003)

The numerous parts and systems that work together to prevent fires, detect fires early, control flames efficiently, evacuate people safely, and investigate fires to discover their origin are referred to as fire safety components. Fire prevention,

detection, suppression, evacuation planning, emergency lighting, fireproofing, firefighting, and fire investigation are all important components of fire safety. These components are critical for assuring building occupant safety and property protection in the event of a fire. (Thomas, 2002)

- i. System of Fire Detection and Alarm - Early detection of a fire and alerting individuals in the building.
- ii. Fire Protection System - Fire sprinkler systems, extinguishers, and fire hose reels are all used to manage and extinguish a fire.
- iii. Plan for Evacuation in Case of Emergency - In the case of a fire, evacuate everyone safely and swiftly.
- iv. Construction that is resistant to fire - Fire-resistant walls and doors, smoke barriers, and fireproofing materials are used to inhibit the spread of fire and safeguard people and property.
- v. Employee Fire Safety Training - To train personnel on how to avoid and respond to fires.
- vi. Fire drills on a regular basis - To guarantee that everyone understands what to do in the event of a fire and is familiar with the evacuation strategy.
- vii. Fire Safety Equipment Maintenance - Regular maintenance and inspection of fire safety equipment is essential to ensure good operation in an emergency.

It is critical to include these elements when developing a thorough fire safety plan and to evaluate and update it on a regular basis to ensure the safety of everyone on the premises. The fire safety component is a collection of components that are united to ensure the safety of the residents while within the home because it includes building methods, understanding of managing dangers, and fire prevention measures. (Shields & Silcock, 1986)

## **METHODOLOGY**

A research methodology study can be carried out from start to finish using research methodology as a guide. This chapter examines the many research methodologies and approaches employed by researchers in the subject of information management. This study recognized and indicated that research methodology and technique were employed.

So, for the fire safety awareness study, quantitative, was used to collect research data. They integrate the advantages of quantitative methodologies, allowing for a more thorough knowledge of a study topic. Researchers can triangulate data, boost the validity of results, and solve the constraints of utilizing only one approach by combining them. Utilizing numerous approaches can also assist in overcoming any biases that may result from using only one method.



## DATA AND FINDINGS

### Question 1 : Do You Have Any Safety Measure in Your House?

Do you have any safety measure in your house?  
58 responses

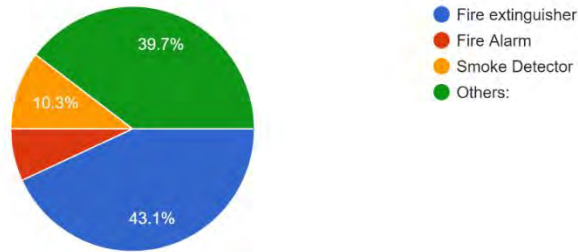


Figure 1: Bar Chat question number 11

Table 1 : Summary of Question 11 Party D

CATEGORY	NUMBER	PERCENTAGE
FIRE EXTINGUISHER	25	41.7
FIRE ALARM	5	8.3
SMOKE DETECTOR	7	11.7
OTHERS	23	38.3

In order to maintain a safe and protected living environment, fire safety is essential. For reducing the danger of fire-related incidents and assuring the safety of residents, residential homes must implement the proper safety measures. This pie chart attempts to show how homeowners use various safety precautions to raise awareness of fire safety in their homes. This question contains multiple answer which is fire extinguisher, fire alarm, smoke detector and others representing other fire safety measure options.

The respondents' most popular response was portable fire extinguishers. Because they are easy for anybody to use, fire extinguishers are a common fire protection precaution. Because they have a fire extinguisher in their house as a fire safety precaution, 41.7% of respondents selected this option as their response. In the case of a minor fire, homeowners who have access to a fire extinguisher can act quickly and perhaps stop it from spreading and causing significant damage.

Fire alarms and smoke detector are essential for warning inhabitants of a fire and aiding a prompt escape. Even while the percentage of homes with fire alarms (8.3%) and smoke detector (11.7%) is smaller than the percentage of homes with fire extinguishers, it still shows that some locals understand the value of early warning systems. There aren't many smoke detectors and fire alarm in residential dwellings since the installation process is thought to be rather time-consuming and expensive. Especially if the installation procedure is rather complex in the case study location where most homes are made of wood.

The "Others" category refers to security measures that are not listed in the chart directly, such as extra security measures taken by locals. This group includes a sizable proportion of households (38.3%). Safety precautions that fall under the category of "others" include having a well-maintained electrical wiring system, being careful while using hazardous items, having a safe location to store them, and having passive fire protection put on the home.

The distribution of safety precautions taken by occupants in residential buildings to raise awareness of fire safety is shown in the pie chart. Fire extinguishers are present in 43.1% of homes, indicating a proactive attitude to putting out minor fires. Additionally, fewer residences (6.9%) and smoke detectors (10.3%) have been installed, demonstrating differing methods of fire safety awareness among residents. The remaining 39.7% falls under the "Others" category, recommending that locals take additional safety precautions not listed above.

## Question 2 : What Is the Best Fire Safety Measure Based On Your Opinion To Add In Your House?

What is the best fire safety measure based on your opinion to add in your house?  
60 responses

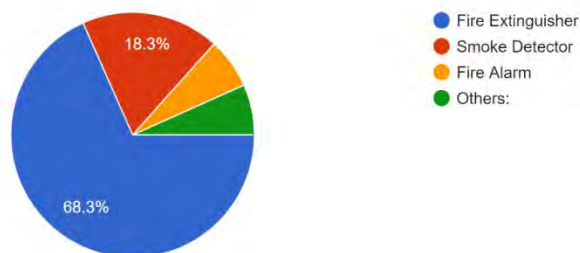


Figure 2 : Bar Chart question number 12

**Table 2 : Summary of Question 12 Part D**

CATEGORY	NUMBER	PERCENTAGE
FIRE EXTINGUISHER	41	68.3
SMOKE DETECTOR	11	18.3
FIRE ALARM	4	6.7
OTHERS	4	6.7

The protection and well-being of people and their properties depend heavily on fire safety. To prevent fires, reduce property damage, and save lives, adequate fire safety precautions must be taken in residential buildings. Based on a poll on fire safety awareness in residential homes, this pie chart shows thoughts on the best fire safety precaution to have in a home.

The distribution of views on the best fire safety precaution to include in a residential building is shown in the pie chart. According to the research, 68.3% of respondents believe a "Fire extinguisher" to be the most crucial fire safety precaution. This significant number indicates that individuals understand the value of having a fire extinguisher close at hand in the event of a fire emergency.

A "Smoke Detector" is the finest fire safety addition to a home, according to 18.3% of respondents. Smoke detectors are essential appliances that identify the presence of smoke and provide a quick warning, enabling people to flee and seek help. This proportion demonstrates how important early fire detection is for prompt evacuation.

A "Fire Alarm" is seen as the best fire protection precaution by 6.7% of respondents. When residents are not immediately near the source of the fire, fire alarms are very important for warning them when a fire is there. This statistic indicates that although fire alarms are crucial, they might not receive the same level of attention as smoke detectors or fire extinguishers.

Last but not least, 6.7% of the replies fell under the category "others". This category includes a variety of potential fire safety precautions that respondents may have thought about, but it does not offer any information on these methods specifically. It suggests that a tiny percentage of respondents could have other ideas or might have given various fire safety measures that were not featured in the alternatives a higher priority. This small scope of respondent might think that prevention fire outbreak such as installing passive fire protection is the best way.

The poll on fire safety knowledge in residential homes concludes by emphasizing the necessity of fire extinguishers, smoke detectors, and fire alarms as crucial fire protection measures. The installation of smoke detectors is seen by the majority of respondents as the second-best step to include in a house after having a

fire extinguisher. These findings highlight the value of early detection, fire prevention, and quick action to protect the safety of people and their property in the case of a fire.

## **CONCLUSION AND RECOMMENDATION**

In conclusion, the study's goals of determining fire safety standards for village homes and assessing homeowners' knowledge of fire safety precautions in residential buildings were both effectively attained. The study's conclusions shed light on the fire safety precautions now taken by homeowners and their degree of knowledge in this area. It was discovered via the research that a sizable proportion of homeowners in residential homes had taken proactive measures to guarantee fire safety. Smoke detectors, fire extinguishers, fire alarms, and the use of fire-resistant materials are just a few of the fire safety precautions they have put in place. This suggests that people are cognizant of and comprehend the value of fire safety in household settings.

However, according to the data acquired through study, more than half of the respondents felt that a portable fire extinguisher was the best fire safety precaution to be implemented to village dwellings. This is due to the fact that it is portable, useful, and reasonably priced, allowing people to select it as their top option.

Overall, the study helps raise awareness of fire safety in residential buildings, especially in rural areas. It highlights the value of ongoing education and readiness in reducing the risks and effects of fire events and offers insightful information about the current fire safety measures put in place by homeowners. This research seeks to contribute to safer home settings and the preservation of lives and property by establishing and advocating fire safety requirements.

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Tarikh : 20 Januari 2023

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Timbalan Ketua Pustakawan

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*Setuju.*

*27.1.2023*

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