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# **CONFERENCE PROCEEDING**

## **ICITSBE 2012**

**1<sup>ST</sup> INTERNATIONAL CONFERENCE ON INNOVATION  
AND TECHNOLOGY FOR  
SUSTAINABLE BUILT ENVIRONMENT**

**16 -17 April 2012**



Organized by:  
Office of Research and Industrial  
Community And Alumni Networking  
Universiti Teknologi MARA (Perak) Malaysia  
[www.perak.uitm.edu.my](http://www.perak.uitm.edu.my)

PAPER CODE: FM 16

## EXPLORING FIRE SAFETY AWARENESS AMONG THE MALAYSIAN PUBLIC

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### **Abstract**

*As a global issue, fire incidents would cause severe implication(s) to victims. Fire incidents in Malaysia have increased rapidly over the years. Most cases of property loss involved residential buildings, causing severe injuries to victims. This scenario is of concern in terms of national development, because the prime purpose of owning a house is to provide shelter and security to the residents. In response to growing concerns, surveys were conducted over recent years, as shown in the media which revealed that the main contribution towards the increase of fire cases in Malaysia is due to a low level of fire safety awareness among the public. Furthermore, there is still a lack of fire safety measures especially in regards to landed residential properties. The installation of smoke detectors and portable fire extinguishers in houses in Australia, the United Kingdom and New Zealand, in comparison significantly reduced the fire fatalities and losses. Over recent years, there have been campaigns, seminars and trainings on fire safety conducted by the National Fire and Rescue Department of Malaysia throughout the nation. However, these fire preventive measures failed to increase the level of fire safety awareness among the public. Perhaps we should keep in mind the significant importance promoting fire safety awareness among the public. Does this responsibility solely rest with regulating authorities or with each individual?*

**Keywords:** Fire Safety Awareness, Malaysian Public.

### **1. Introduction**

In the case of fire incidents, fatal and serious injuries are the worst thing that could happen to the occupants of buildings in addition to direct material damage to the buildings and household possessions. Nevertheless, according to Ramachandran in Subramaniam (2004), fire incidents may cause indirect consequential losses such as loss of production, unemployment and lowering of exports, although at the national level, these losses do not contribute significantly to the total fire loss. Generally speaking, any fire incidents would cause losses.

Landed residential properties are the most populated dwellings available in Malaysia as recorded by the Department of Statistics Malaysia (2000) and the relative numbers increased throughout subsequent years. Some research has been conducted in recent years regarding fire safety on landed residential. This study showed that there was minimal fire safety features found in landed residential in Malaysia. Furthermore, majority of the respondents are low in fire safety awareness. Today, the issue of low fire safety awareness among the public is still a major concern to the nation as mentioned by the director of National Fire and Rescue Department of Malaysia, Datuk Wan Mohd Nor Ibrahim (2010). Campaigns on awareness concerning fire safety were carried out for many years, but were unable to reduce fire related incidents to landed residential. In conjunction to the previous scenario, this exploratory study will identify the level of fire safety awareness among the Malaysian public. Additionally, this study will offer methods to be considered in reducing fire incidents in order to raise the level of fire safety awareness among the Malaysian public.

### **2. Fire Safety Awareness among Malaysian Public**

The term fire safety awareness may be considered cliché to the Malaysian public, but majority of the Malaysian public are able to understand what is meant by fire safety awareness. Theoretically, the author believes that the Malaysian public have the basic knowledge of fire prevention. However, based on previous study, the Malaysian public has a different understanding of fire safety awareness (Sulaiman, 2004). The understanding of fire safety awareness is measured via two factors: 1) Self-awareness, and 2) Occupation.

## 2.1 Self-Awareness

There is no fixed definition of fire safety awareness. However, it can be described as a combination of both *fire safety* and *awareness*. According to *Demand Media* (2011), fire safety can be defined as a group of equipment or behavior designed to both reduce the risk of starting a fire and reduce the risk of injury in the event of a fire. Additional fire safety measures are designed to protect private property and even structural integrity. The author strongly believes that the human factor is the dominant contributor to fire incidents. This is also proven by Canter's (1980) study on fire safety awareness. Canter concluded that:

... there had a close relationship between fire safety awareness and human behavior towards fires. He stated that people still have very little understanding of the psychological and social concomitants of fire, although knowledge of how to control the physical effects of fire had been provided for centuries.

It shows that there had been lack of awareness on fire safety among the people during the research being conducted. Furthermore, he also added that fire and its adverse effects cannot be mastered by engineering means (fire escape, smoke detectors, alarms, etc.) alone and many of the fatalities, and the damage caused by fires are more to human error than the engineering failure.

(Canter, D, 1980)

The present study seems to support Canter's findings regarding the relationship between fire safety and human behavior as depicted in Figures 1 and 2 below.

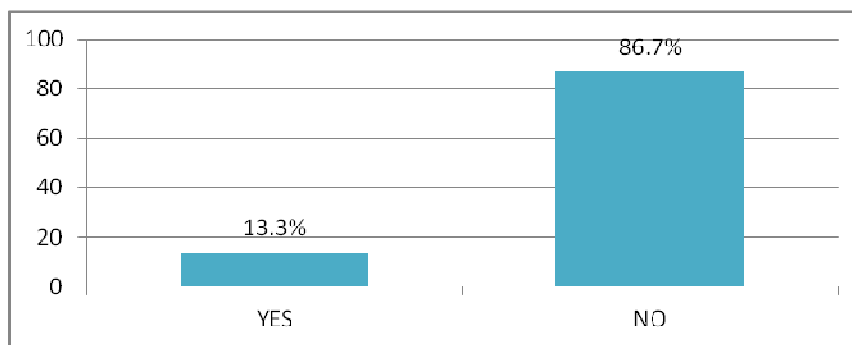


Figure 1: Possession of a Fire Safety Apparatus in the Home (%)

In Figure 1, from the total participating respondents of 286, it was found that a majority of the respondents did not possess any fire safety apparatuses such as 1) portable fire extinguisher, 2) smoke alarm or 3) fire blanket, in their respective homes. Only 13.3% of the total population of respondents had fire safety apparatuses in their homes. From the author's view, this situation can be regarded as critical since the gap between the respondents who possessed and did not possess fire safety apparatus at home is huge whereby the difference between them is 73.4%. From this figure, it can be assumed that most of the respondents may not be aware of the importance of having fire safety apparatuses at their homes. It is probable that respondents lack a pre-cautionary mindset regarding fire safety, despite the fact that fire incidents could happen at any time.

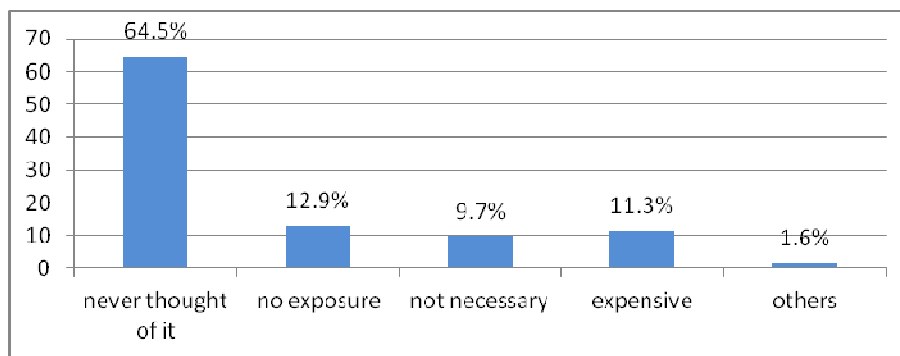


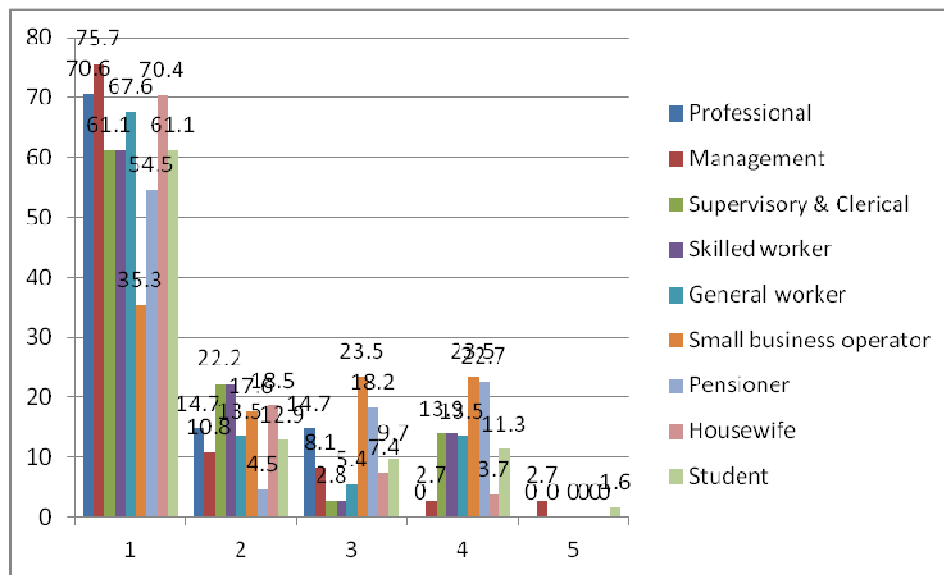
Figure 2: Reasons for not having a Fire Safety Apparatus in the Home (%)

Figure 2 shows that the self-awareness among respondent should be of concern because 64.5% of 248 participating respondents never considered having fire safety apparatuses installed in their homes. The high percentage of respondents may be due to the lack of awareness of the importance of fire safety among Malaysian public (Ong Ka Ting, 2004).

An Enforcement Officer of Fire and Rescue Department of Malaysia, Shazlean Mohd Hanafiah (2010), pointed out that campaigns on fire safety awareness have been implemented regularly throughout the years by the state branches. However, there are 12.9% respondents who claimed that they have never been exposed to any such fire safety awareness campaigns. This group of people was either ignored by the fire awareness campaigns or the campaigns was ineffective. Interestingly, 9.7% respondents also claimed that it is unnecessary to have fire safety apparatuses in the home. This finding had shown that some respondents were ignorant of fire safety measures while on the other hand the government encourages the public to equip their homes with necessary fire safety apparatus (Ong Ka Ting, 2004). Of the remaining respondents, 13.3% stated that the cost of a fire safety apparatus was beyond their financial ability and 1.6% gave other reasons. Based on the respondents' feedbacks, it can be assumed that the need for fire safety apparatuses in the home has been treated as less important.

## 2.2 Occupation

The study had shown that the levels of awareness vary with the respondents' occupation. This may depend on an individual's background, including their types of occupation or educational level. An individual's education level often correlates to their level of occupation. In this study, various occupations are categorized into nine groups which comprised of 1) Professional – Architect, Engineer, Actuary, Lecturer, Lawyer, Pilot, Quantity Surveyor, and Doctor 2) Management – Managing Director, Manager, and Executive, 3) Supervisory and Clerical – Supervisor and Clerk, 4) Skilled worker – Welder, Technician, Mechanic, and Wireman, 5) General worker – Factory Operator, Dispatch, Waiter, and Sales Assistant, 6) Small business operator – Merchant and Petty Trader, 7) Pensioner – not working, 8) Housewife – not working, and 9) Student – not working.



Never thought of it	1
No exposure	2
Not necessary	3
Expensive	4
Others	5

Figure 1: Reasons for not having a Fire Safety Apparatus in the Home by Occupation (%)

According to Figure 3, despite respondent occupation, the majority of respondents had never considered having a fire safety apparatus in the home. Surprisingly, of all occupations, the Management and Professional groups topped the chart for never thought of having fire safety apparatus at home with 75.7% and 70.6% respectively. Generally, it can be assumed that these two occupation groups have the highest level of education compared to

the other occupations. Across all categories of occupations there seems to be little difference in term of considering having fire safety apparatus at home (never thought of it). For example 75.7% of the professional never thought of it and 70.4% of housewives never thought of it. For example 75.7% of the professional never thought of it and 70.4% of housewives never thought of it. Perhaps this situation could support the fact that high level of education alone is not enough to make an individual aware on the importance of having fire safety apparatus at home. One of the effective fire safety apparatus is the smoke alarms whereby its installation at home had led to a 50% reduction in number of fire fatalities and losses involving residential buildings as mentioned by the New South Wales Fire Brigade (NSWFB) (2010). On top of that, Nor Azman Sukri in 2005, stated that most of fire incidents at residential happened during night time while the occupants are asleep. As a result, by installing a fire safety apparatus such as smoke alarm it can give early warning in the case of fire.

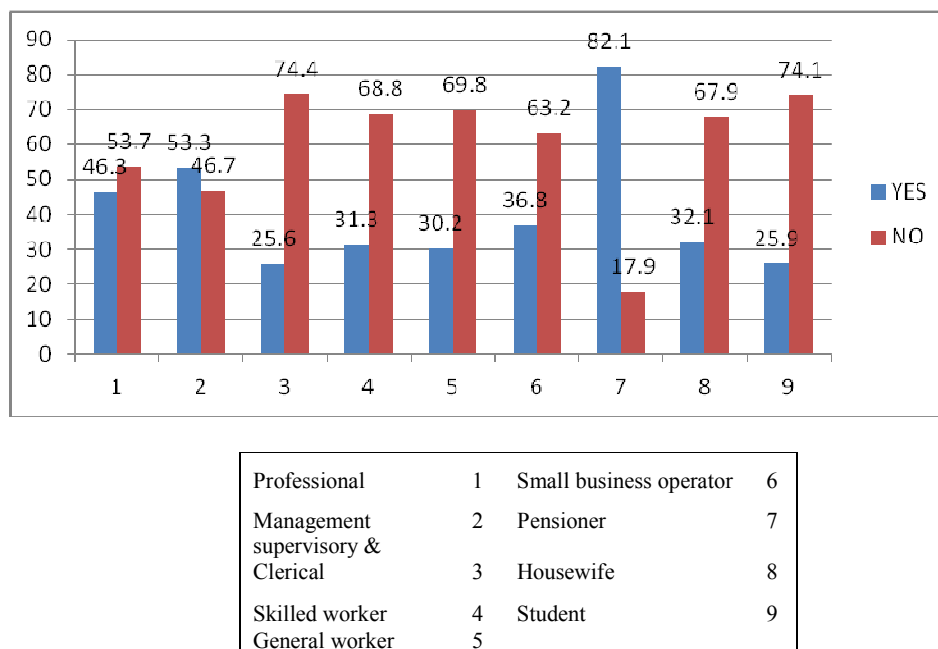


Figure 4: Discussion with Family/ House Members on Fire Safety Precaution in the Home (%)

The escalating number of fire cases involving residential buildings throughout the years brings into question the effectiveness of fire campaigns and the awareness of pre-cautionary measures taken by the occupants in deterring fire incidents in the home. Figure 4, shows that the majority of working occupants had never discussed fire safety precaution at home with family or household members. An escape plan is considered one of the fire safety measures that would help minimize the risk of fire related injury or death. Figure 4 also shows that Pensioners did discuss fire safety measures, include escape plans with the house members. From this scenario, it seems that age may relate to the level of fire safety awareness.

### 3. Uplifting Fire Safety Awareness

Generally, the findings of the study show that the overall level of awareness of the Malaysian public is still very low. Efforts have to be made to address the issue of low public fire safety awareness. Since the level of the awareness has been measured, it is wise to draw appropriate recommendations on educating the Malaysian public on the importance of fire safety especially at home in order to raise the level of awareness and with hope be able to reduce the number of fire cases over the years that had claimed loss in terms of property and human's life. In this study, recommendation are made on two important participating groups related to fire safety awareness; the general public and the governing authorities.

#### 3.1 General Public

According to the Fire and Rescue Department of Malaysia (2010), campaigns on fire safety were carried out throughout the years. However, the response and feedbacks given by the public was disappointing. There are six recommendations that may be used in educating the public on the significance of fire safety.

### 3.1.1 *Comprehensive Campaigns*

Comprehensive month to month fire safety campaigns should be conducted in order to maintain the level of awareness. Throughout the campaigns there should be posters, banners, stickers, and bunting for making the public aware of the campaign. It is also recommended that campaign participants answer questionnaires on fire safety awareness at the end of the campaign in order to measure their level of understanding on the subject matter.

### 3.1.2 *Appointment of Spokesperson*

The appointment of a panel of spokespersons or ambassador of the fire safety campaign is recommended. The ambassador should be a well-known figure who can 'persuade' the public to adopt fire safety measures.

### 3.1.3 *Media Advertisement*

Media can be regarded as the best medium for delivering information. Therefore, it is highly recommended that there should be a continuous advertisement of fire safety on television and radio as had been implemented here in Malaysia in the late 80s'. It is also recommended that the advertisements to be aired during primetime and on popular television channels.

### 3.1.4 *Information Sharing with Public*

The Fire and Rescue Department needs to work together with the Ministry of Housing and Local Government in distributing any reading materials (such as booklet, pamphlet, etc) published by them on fire safety to the public. The distribution may be done through direct contact to the public.

### 3.1.5 *Fire Safety Website*

In the era of science and technology, internet plays a significant role in providing information to the public. Therefore, it would be more beneficial for the public if the current *The Fire and Rescue Department of Malaysia* is more interactive and informative. More fire safety content should be added to the website. Perhaps there should be more attractive local website on fire safety like those from other countries such as Australia, United States, and United Kingdom.

### 3.1.6 *Education*

In order to raise the public awareness on fire safety, the fire safety awareness campaign needs to begin as early as possible. Currently, in the Malaysian education system fire safety is not addressed specifically or at length. The subject matter only appears once in a while through fire drills at schools. However, not all schools give priority to fire drill. It is recommended that fire safety needs to be addressed in the school syllabi and introduced as early as in preschool.

## 3.2 *Governing Authorities*

Recent studies show that fire incident at home has increased. It can be assumed that there are not enough fire safety measures taken at home. With the increase number of fire cases throughout the years which involved residential buildings, the government had suggested in 2004 that all new development of housing needs to be equipped with portable fire extinguishers and smoke alarms. Generally, the legislation regarding fire safety guidelines for residential building is focused more on passive fire protection rather than active fire protection. Generally, there are two recommendations can be imposed by the governing authorities in ensuring the safety at homes from fire hazard.

### 3.2.1 *Installation of Fire Safety Apparatus at Home*

The government's suggestion to install fire safety apparatuses in the home is a sensible suggestion considering there is installation enforcement in countries such as Australia, New Zealand, United States, and United Kingdom. As a result, this enforcement has significantly reduced fire cases which involve residential buildings. Specifically, in New South Wales (NSW) Australia, legislation requires that all NSW residents must have at least one working smoke alarm installed on each level of their home. This includes owner occupied, rental properties, relocatable homes or any other residential building where people sleep. In addition, according to

New South Wales Fire Brigade (NSWFB), a person who does not comply with the legislation is guilty of an offence with a maximum of penalty AUD\$550.00. The installation of smoke alarms in the home has led to a 50% reduction in the number of fire fatalities and losses involving residential buildings. However, the scenario in Malaysia is different. Although the suggestion of installing these apparatus has been proposed, until recently, the implementation has yet to be done. With regard to this situation, perhaps a question needs to be asked about whether the fire safety of a house lies with governing authorities or with individuals. Due to this scenario, it is recommended that the governing authorities will impose the same regulation in installing fire safety apparatuses at home like the one implemented in New South Wales (NSW) Australia. According to the fire safety handbook published by the Fire and Rescue Department of Malaysia (2004) the recommended places to install the detectors are on the ceiling, staircase enclosure, bedrooms and the living room.

### 3.2.2 Amendment of Legislation

In the context of Malaysia, all building works need comply to the guidelines stipulated in the Uniform Building By-Laws (UBBL) of Malaysia. In UBBL, there are procedures and guidelines to be complied with for initiating the construction. In general, fire safety regulations in UBBL that relate to residential buildings are more to passively approach as confirmed by Adli Hadi (personal communication, September 20, 2010). Therefore it is highly recommended to add clauses in the UBBL which is to include the installation of smoke alarms and portable fire extinguisher as pre-requisites before the building is approved to be occupied.

## 4. Conclusion

The main purpose of conducting this study is to explore the level of fire safety awareness among the Malaysian public. Fire incidents are being revealed in the media and articles throughout the nation while the main reason behind this scenario is due to the lack of awareness on fire safety among the public which had caused loss of property and life. In this study, the exploration of the fire safety awareness among the Malaysian public is measured through the self-awareness of the respondents concerning fire safety in relation to the types of occupation of the respondents.

From the findings, it can be inferred that the majority of respondents are not aware of the benefit of having fire safety apparatus installed in the home. Since fire incidents normally happen at night while the occupants are asleep, it is best to have smoke alarms installed on each floor level of the home.

Apart from smoke alarm, the installation of portable fire extinguisher at home may be useful since it can be used by the occupants to extinguish fires before they cause excess damage. It is also recommended by the Fire and Rescue Department of Malaysia that each home has at least one unit of portable fire extinguisher. However, based on the findings of this study the majority of respondent regardless, of their occupation and education level, have minimal fire safety awareness, consequently, most of them do not equipped their homes with fire safety apparatuses and there is lack of discussion among the household members concerning fire safety measures. Since the level of awareness among the Malaysian public is low, the recommendations mentioned earlier may help raise the level of fire safety awareness and reduce the incidence of fire damage and loss in our country. Remember, *a fire doesn't have to kill*.

## References

- Azim Sulaiman (2006). *Exploring fire safety awareness among the Malaysia public. Unpublished thesis*. USM: School of Housing, Building and Planning.
- Bangunan kediaman diwajibkan sedia alat cegah kebakaran. (2004, October 6). *Berita Harian*.
- Canter, D. (1980). *Fires and human behaviour*. New York: John Wiley & Sons. Home fire safety mooted. (2004, October). *The Star*. Kes kebakaran meningkat lebih 36 peratus : Bomba. (2010, December 2). *Sinar Harian*.
- NSW Fire Brigades. Smoke Alarms. Retrieved December 9, 2010, from the World Wide Web: <http://www.nswfb.nsw.gov.au/page.php?id=80>
- Shazlean Mohd Hanafiah. (2010, December 3). Enforcement Officer of Jabatan Bomba dan Penyelamat Malaysia. *Personal Interview*. Putrajaya.
- Subramaniam, C. (2004), Human factors influencing fire safety measures. Retrieved December 1, 2010, from the World Wide Web: <http://www.emeraldinsight.com/journals.htm?articleid=871043&show=html>
- Sukri, N.A. (2005). *Kesedaran elak kebakaran dan kehilangan nyawa*. Johor. Universiti Teknologi Malaysia