

**UNIVERSITI TEKNOLOGI MARA**

**ENHANCING FIRE SAFETY  
REGULATIONS FOR MALAYSIAN  
STUDENT HOSTELS; EFFECTIVE  
MEANS OF ESCAPE**

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## ABSTRACT

Higher education institutions (HEIs) play a vital role in developing a country's human capital and workforce. The facilities provided by HEIs can create a conducive environment and promote positive teaching and learning experiences for students and staff members. One such facility is student hostels, which are crucial in providing an attractive learning environment, promoting unity, and fostering a vibrant student culture. There is a need to ensure that student hostels comply with building standards and have functionalities that guarantee the safety of the occupants. Due to the presence of large amounts of combustible materials in student hostels, proper evacuation measures must be in place for a safe evacuation to designated areas. In addition, student hostel buildings constructed based on outdated prescriptive building standards may not meet the requirements of current standards. Furthermore, there are significant differences in codes and regulations between countries. Therefore, this research aims to establish effective means of escape requirements for student hostels. This research has four objectives: first, to compare the means of escape requirements prescribed in the UBBL 1984 Amendment 2015 and the UBBL 1984 Amendment 2022 for student hostel; second, to distinguish the means of escape requirements outlined in the building standards of Malaysia, the United Kingdom, and the United States for student hostels; third, to assess the compliance of existing means of escape in student hostel based on the UBBL 1984 Amendment 2015; and fourth, to propose recommendations for enhancing the means of escape requirements in student hostels. A comprehensive literature review of the design requirements of means of escape is carried out throughout the research process. A qualitative method approach is used for data collection. The data collection is conducted in four phases. The data is collected using several methods, which include evaluation archival documents, walkthrough audits, and expert validation. The building standards used for comparison are UBBL 1984 (Malaysia), National Fire Protection Act 101 (the United States), National Fire Protection Act 1 (the United States), The Fire Safety (England) Regulations 2022: Approved Document B – Fire Safety (the United Kingdom), and British Standard. Two student hostels buildings in Malaysia are chosen as case studies and anonymously labelled due to privacy and confidentiality. The data collected is analysed using content analysis, walkthrough journey experience, and document analysis. The findings from this study suggest that there are eight design criteria for establishing safe means of escape, namely, travel distance, door, exit, staircase, emergency lighting, communication and power system, signage, fire-fighting requirement, and refuge area. Each design criteria consists of several prescribed requirements. Based on walkthrough audit, Student Hostel A complied with only 16 out of 33 attributes in the audit checklist. While Student Hostel B complied with only 14 out of 33 attributes. There is a need for improvement to enhance the effectiveness of the means of escape at both student hostel. There are five main components for enhancement, which are exit access, exit, emergency lighting, communication, and power system, firefighting requirements, and signage. Based on the walkthrough audit, recommendations are provided to improve the means of escape routes used during fire evacuations to ensure the safety of occupants. Implementing these recommendations would be beneficial for both the occupants and the management of the student hostels, as it can reduce the likelihood of casualties and minimise losses. Besides, this research found that it is important to ensure compliance with means of escape requirements in student hostel buildings for a safe evacuation in case of fire.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Research Background

Higher Education Institutions (HEIs) play a vital role in developing a country's human capital and workforce. These organizations rely on human capital, funding, and infrastructure as key resources to function properly (Simpeh and Adisa, 2021).

HEI facilities create a conducive environment and promote positive teaching and learning experiences for students and staff members (Simpeh and Akinlolu, 2021). A student hostel is an essential facility and is expected to provide an attractive learning environment, promote unity, and help students develop and maintain a vibrant student culture (Hassanain, 2008; Simpeh and Akinlolu, 2021). Sanni-Anibire and Hassanain, (2015) suggested that a student hostel is crucial in helping students attain intellectual competence and develop personal character, enhancing their overall living experiences.

In addition to the above features, a student hostel must comply with building standards and have functionalities that ensure safety (Mahmoud et al., 2017; Sanni-Anibire and Hassanain, 2015; Simpeh and Adisa, 2021). Kofi et al., (2016) claimed that a fire incident in a student hostel can jeopardize students' futures and leave lifelong scars. Hassanain et al., (2018) added that student hostels contain large amounts of combustible materials that can ignite and fuel a fire. Therefore, it is crucial to have proper evacuation measures in place to ensure occupants can safely evacuate to designated areas in case of a fire.

The evacuation process involves several complex and interrelated steps influenced by various factors. However, due to the large number of occupants, their physical abilities, familiarity with the student hostel building, and the condition and accessibility of the building, evacuation becomes a significant challenge in the event of a fire (Omidvari et al., 2015; Ronchi and Nilsson, 2013). This can lead to a high number of casualties and significant impacts. Therefore, it is crucial to thoroughly evaluate the means of escape routes in student hostel building. Since no building is immune to fires, it is essential to explore methods of ensuring the safety of both the buildings and their occupants from fire disasters.