

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

**SUSTAINABLE BUILT  
ENVIRONMENT**

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# e-Proceeding

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# **BUILDING MAINTENANCE PRACTICES: ANALYSIS ON USER SATISFACTION OF PHYSICAL FACILITIES AT OLD RAILWAY STATION BUILDING**

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## **ABSTRACT**

*Historical building preservation is critical for protecting cultural heritage and providing an unequivocal user experience. This research focuses on examining user satisfaction with building maintenance practices at the old railway station building, a prominent heritage site with a rich architectural and historical background. The effectiveness of the maintenance procedures in the preservation and upkeep of the historic railway station structure leads to the degree of satisfaction of its users. A thorough review of pertinent literature was performed to comprehend the theoretical foundations of building maintenance practices, historic preservation, and user satisfaction. It also looks into how user perception, expectations, and preferences affect the extent of the maintenance practices. The findings provide useful direction for those involved in the preservation and upkeep of historic railway station buildings, empowering them to make wise choices that will increase user satisfaction and maintain the long-term viability of these architectural gems.*

**Keywords:** *building maintenance, railway station, user satisfaction*

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## **INTRODUCTION**

Malaysia boasts many public transportation systems, such as buses, taxis, trishaws, and trains, including the Keretapi Tanah Melayu (KTM) commuter operated by the Malaysian Railway (Khalid et al., 2014). Old railway station buildings hold significant historical and cultural values, serving as witnesses to pivotal events and milestones in their respective regions. Preserving these architectural landmarks is crucial not only for safeguarding the past but also for providing visitors with an immersive experience that resonates with their expectations and needs.

Therefore, understanding and evaluating user satisfaction regarding the maintenance practices of these buildings becomes a vital aspect of ensuring their continued preservation and revitalisation. User satisfaction is closely linked to the facilities and services provided by an organisation. When the facilities and services meet or exceed user expectations, it positively impacts user satisfaction (Griffin, 2013). Assessing user satisfaction not only provides valuable insights into the effectiveness of current building maintenance practices but also sheds light on the alignment between preservation efforts and the expectations and demands of visitors. Increased emphasis on the importance of preserving historical sites has been noted in recent years, with preservationists, policymakers, and the general public recognising their significance.

The application of a questionnaire survey and observation allows data acquisition on various aspects, such as maintenance quality, cleanliness, signage, amenities, and visitor experiences. The holistic assessment will provide a comprehensive understanding of the current state of building maintenance practices and identify areas for improvement. The findings of this study will not only contribute to the existing body of knowledge on historic preservation but also provide valuable insights for policymakers, heritage organisations, and building maintenance professionals. Ultimately, the goal is to ensure user satisfaction with an old railway station building.

### **Problem Statement**

Heritage or old railway station buildings in Malaysia are in a dire state, mainly due to the lack of proper maintenance management. These valuable architectural and cultural assets have suffered greatly as a result (Adegoriola et al., 2021). Unfavourable reviews of these buildings are largely due to poor maintenance planning and management, which not only affect their overall condition but also lead to discomfort and dissatisfaction among passengers and visitors. The trend of

inadequate maintenance is common in Malaysia, causing a decline in the performance of its old and heritage buildings.

Therefore, it is crucial to address these challenges and improve management and maintenance practices to preserve the historical value and enhance the user experience of these important landmarks. Heritage buildings are described as structures that not only capture the imagination but also reflect the culture from which they originated (Feilden, 2000). Malaysia is fortunate to possess a rich legacy that includes buildings of immense historic and architectural significance (Idrus et al., 2010).

## **LITERATURE REVIEW**

The literature review involves a complete examination of the from various sources, such as journals, websites, published books, and paperwork. It provides an overview of the current state of a topic, enabling the identification of relevant concepts, methodologies, and gaps in the literature, which may then be utilised to inform an article or research subject. The following is the study's goal, i.e., to analyse user satisfaction with the physical facilities of old railway station buildings.

### **Building Maintenance**

In Malaysia, the maintenance and management of railway station buildings are essential to make the most of investment in maintenance activities. However, a significant portion of maintenance procedures for railway station buildings in Malaysia follow a condition-based and reactive approach, leading to dire conditions, especially for heritage and old railway stations (Lateef, 2009). The lack of proper maintenance management caused these valuable architectural and cultural assets to decay and suffer neglect, affecting their overall performance and user satisfaction (Adegoriola et al., 2021).

Building maintenance and management contribute to various aspects of building performance, such as preventive maintenance, equipment and system performance, structural integrity, energy efficiency, safety compliance, and asset lifecycle (Mudarri, 2007). Amenity functionality in heritage railway stations is crucial for user satisfaction, ensuring facilities like ticket desks, waiting spaces, and bathrooms are operational and meet visitors' demands. Additionally, safety and security measures, comfortable indoor air quality, accessibility features, and sustainability practices play significant roles in enhancing user experience and preserving these unique historic assets.

## Building Maintenance at Railway Station

Building maintenance and management play a crucial role in offering the maximum benefit from the investments made in maintenance activities. However, it is noteworthy that a significant portion of maintenance procedures for railway station buildings in Malaysia follow a condition-based and reactive approach (Lateef, 2009). Moreover, heritage or old railway station buildings in Malaysia are in dire condition. These valuable architectural and cultural assets have suffered greatly due to the lack of proper maintenance management (Adegioriola et al., 2021). The lack of competent maintenance management for old railway station structures might affect their physical facilities.

## METHODOLOGY

The study commenced with a systematic literature review to determine the maintenance management of the heritage railway station. Then, a questionnaire survey was distributed to identify user satisfaction with the building maintenance management. The study implemented the quantitative method. The selection of the quantitative method was based on the objective of gathering statistical information for this research. The quantitative method allows facilitated data collection, and respondents can easily provide answers to the questions. Empirical data were analysed using Statistical Package for Social Sciences (SPSS) version 29.0 to measure the relationship of the variables.

The sampling size was 108 people, comprising 68 users of the Ipoh Railway Station (IRS) and 50 from the Kuala Lumpur Railway Station (KLRS).

## Case Study

**Table 4.1: Case study**

Case Study	Railway station A	Railway Station B
Address	Ipoh railway station	Kuala Lumpur railway station
Gazette date	05.07.2012	01.06.2006
Status	Local Planning Ipoh 2020	National Heritage Act 2005 (Act 645)



## ANALYSIS AND FINDINGS

The survey questionnaire was distributed at the railway station buildings and on online platforms, such as WhatsApp and Instagram. The total respondents for the survey were 108, who had experienced or visited old railway station buildings, such as the IRS and KLRS. The purpose of the survey is to analyse and study the maintenance practices of the buildings, as they have a direct impact on user satisfaction.

**Table 4.2: Demographic Information**

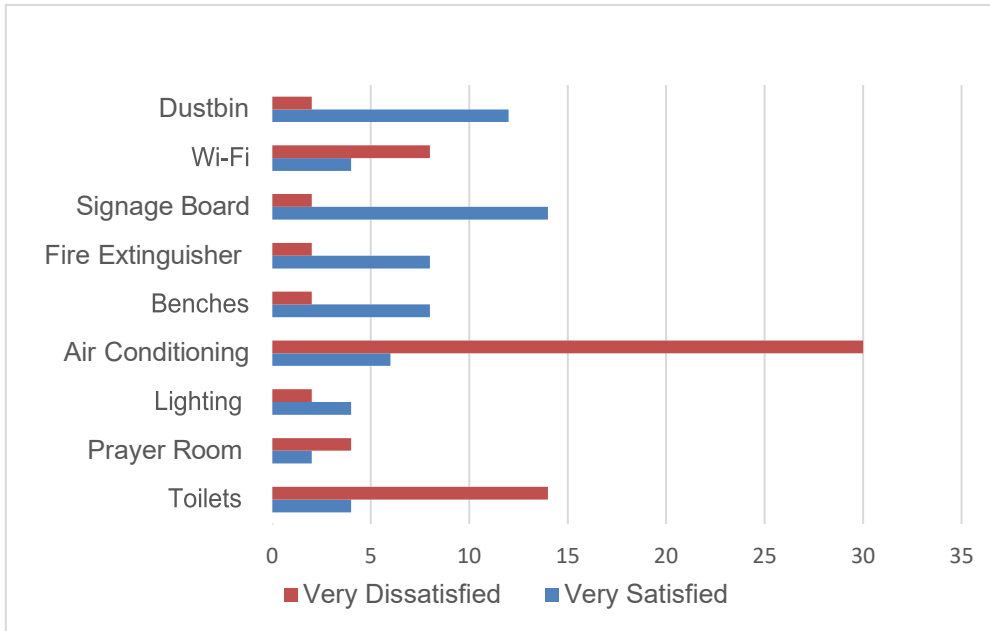
DEMOGRAPHIC VARIABLE		NUMBER OF PEOPLE	PERCENTAGE (%)
GENDER	Female	76	70.4
	Male	32	29.6
AGES	17-20	4	3.7
	21-30	87	80.6
	31-40	14	13.0
	40 and above	3	2.8
PROFESSION	Employee	30	27.8
	Self-employed	4	3.7
	Student	72	66.7
	Un-employee	2	1.9
FREQUENCY VISIT	Every month	9	8.3
	Every week	39	36.1
	Every day	6	5.6
	First time	54	50.0
CASE STUDY	Ipoh Railway Station (IRS)	68	63.0
	Kuala Lumpur Railway Station (KLRS)	40	37.0

Table 4.2 shows the demonstration variables, including gender, age, profession, the frequency of visited railway stations, and the case studies, i.e., the IRS and KLRS.

**Table 4.3: Level of User Satisfaction**

Facilities	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
Toilets	3.7%	22.2%	73.0%	24.1%	13.0%
Prayer room	1.9%	27.8%	42.6%	24.1%	3.7%
Lighting	3.7%	29.6%	44.4%	20.4%	1.9%
Air conditioning	5.6%	22.2%	35.2%	9.3%	27.8%
Benches	7.4%	31.5%	46.3%	13.0%	1.9%
Fire extinguisher	7.4%	25.9%	46.3%	18.5%	1.9%
Signage board	13.0%	24.1%	38.9%	22.2%	1.9%
Wi-Fi	3.7%	25.9%	46.3%	16.7%	7.4%
Housekeeping	1.9%	22.2%	50.0%	5.6%	20.4%
Crowd management	0%	20.4%	47.2%	9.3%	23.1%
Safety and security	1.9%	18.5%	38.0%	8.3%	33.3%
Comfortable indoor environment	9.3%	28.7%	40.7%	8.3%	13.0%
Dustbin	11.1%	37.0%	46.3%	3.7%	1.9%

From the distributed questionnaires, Table 4.3 shows the results reflecting the level of satisfaction at the old railway station building. The results provide valuable insights into the experiences and opinions of the visitors or users of the old railway station buildings. Analysis of these results can help identify areas that need improvement to enhance user satisfaction and preserve the station's cultural and historical significance. The highest percentage of respondents are very dissatisfied with the facilities and services provided at the old railway station concerning safety and security, crowd management, and air conditioning. In contrast, the respondents are most satisfied with the comfortable indoor environment, dustbin, and signage. Figure 4.1 presents the bar chart of the level of satisfaction that has been identified through the survey and the number of variables (14) identified as the facilities in this research.



**Figure 4.1: Chart Bar of Level Satisfaction**

The data analysis based on the distributed questionnaire, as presented in Table 4.1, provides crucial insights into the satisfaction and dissatisfaction levels of the facilities provided at the railway station buildings. The bar chart above shows that the variable with the highest dissatisfaction is air conditioning, and the second highest is the toilet at the railway station buildings. These results shed light on various aspects of facilities and services at the stations, which play a significant role in enhancing user experiences and preserving their cultural and historical significance.

## CONCLUSION

In conclusion, data analysis from the questionnaire underscores the significance of understanding user satisfaction to improve the old railway station building's overall appeal and experience. By addressing the areas of concern highlighted by the respondents and building upon the strengths recognised by users, efforts can be directed towards preserving the station's historical and cultural importance while offering visitors an enriched and gratifying visit. This research provides valuable insights for decision-makers, policymakers, and building managers to implement targeted improvements, ensuring that old railway stations remain a cherished and vibrant piece of our heritage for years to come. Although the findings from both case studies indicate that the overall old railway station building user satisfaction level is "neutral," the management should improve on certain facilities, such as air-conditioning and toilets.

## ACKNOWLEDGEMENT

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Tarikh : 20 Januari 2023

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