

A Study on Common Facilities Management in Pagoh Campus Residential College, Universiti Tun Hussein Onn Malaysia

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Abstract

This study assessed facilities management at Pagoh Campus Residential College, UTHM, through feedback from 290 residents collected via structured questionnaires. Demographic data indicated that the majority of respondents were female (61.7%), with 52.1% having resided at the residential college for 2 to 4 years. The study identified key issues, including a non-functional water machine in Block A15, delays in laundry service repairs, and communication problems between residents and the maintenance team. A total of 55.5% of residents reported facility damages, with 44.8% of repairs completed within 1-2 weeks, while a small percentage (1.1%) experienced repairs taking more than four weeks. Residents were generally satisfied with the facilities provided, particularly the ventilation system, electrical appliances, and furniture adequacy. However, they also suggested improvements, such as upgrading the audio system in the Multipurpose Hall, adding more power outlets, and improving Wi-Fi connectivity in learning rooms, as well as improving the layout and furniture in the Student Mart. Maintenance response times were also a concern, with 45% of respondents expressing satisfaction with repair times. This study recommends improving communication channels, implementing a resident feedback system, encouraging responsible facility usage, and ensuring timely maintenance. These improvements aim to enhance resident satisfaction and the effectiveness of facilities management, addressing current issues and future needs to ensure better living conditions at the residential college.

1. Introduction

According to [1], facility management involved all service management that supported the core business of an organization. It included the coordination of physical workplaces, learning spaces, and users. Examples of facility management included commercial and institutional buildings, university and student buildings, technicians, and lecturers. The importance of facility management was emphasized as efficient facility maintenance played a crucial role in business success. Well-maintained facilities significantly contributed to increased productivity, profitability, and service quality within an organization. Key challenges in facility management within Malaysian higher education institutions, including budget constraints, repair delays, and poor communication [2]. The main objective of maintenance was to ensure the optimal implementation of the building throughout its long life and design. Additionally, it also contributed to the profit-generating function of the organization. Maintenance

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was a process. Maintenance practices, including standard operating procedures (SOPs), were important to ensure consistency and effectiveness in facility maintenance operations [3]. The problem statement highlighted the factors that influenced the effectiveness of common facilities management at Pagoh Campus Residential College, including communication issues between residents and the maintenance team, user-related issues, and the time taken to resolve maintenance problems.

This study provides a crucial background on issues affecting the effectiveness of facility management at Pagoh Campus Residential College, such as delays in repair processes and problems with malfunctioning water machines. The objectives of the study were to identify the factors that influenced the effectiveness of common facilities management and to measure the satisfaction level of the occupants in Pagoh Campus Residential College at UTHM regarding the remedial actions carried out by the maintenance management [4].

However, maintenance requirements continued to grow while maintenance resources did not grow at the same rate. Therefore, all stakeholders had the right to change the way maintenance was managed. It was argued that information on the criteria that influenced maintenance practices, defect characteristics, and criteria in the user value system would help facilitate effectiveness and efficiency in the maintenance management system. Finding alternative plans was seen as the way forward. This article was part of ongoing research on the maintenance management system of university institutions in Malaysia. According to [5], facility management involved the integration of people, place, process, and technology. It included maintenance, space management, safety and security, and environmental management.

The main research aimed to develop a systemic management approach for the maintenance of university buildings in Malaysia. Primary data was collected through interviews and a questionnaire survey. The study also aimed to identify, evaluate, and analyze defects in university buildings that contributed to poor user satisfaction, maintenance arrears, and unnecessary increases in maintenance costs. The data obtained was analyzed using Microsoft Excel to produce descriptive statistics. The main conclusion from the survey indicated that although there were various types of defects, some required more immediate attention than others. Overall, the research aimed to facilitate a more efficient and effective maintenance management system by considering the nature of building defects that required immediate attention to achieve user satisfaction [6].

2. Method

This study adopted an observational and analytical approach to address the issues faced at Pagoh Campus Residential College [7]. The methodology process began with identifying the problem and verifying the issue. Once the problem was confirmed, qualitative data was collected through interviews to identify the factors that influenced the effectiveness of common facilities management at Pagoh Campus Residential College, addressing Objective one (1). A literature review was conducted using books, articles, and journals to support the study. Data collection was divided into primary and secondary data. Primary data was obtained using quantitative methods through questionnaires to measure the satisfaction levels of occupants with the maintenance management, fulfilling Objective (two) 2. The questionnaire underwent a pilot test and validity test before the results were analyzed. Once the results were validated, the data was analyzed using Microsoft Excel. The study concluded with recommendations and a final conclusion.

2.1 Interviews

To achieve the first aim of the study, semi-structured interviews were conducted with randomly selected residents of Pagoh Campus Residential College. The interview questions were designed to address various aspects of the maintenance management system, with a focus on understanding residents' experiences and perspectives regarding the maintenance services provided. The development of the interview questions was based on insights drawn from a literature review to ensure the questions were relevant to the study's objectives. The researcher could also highlight specific issues that may occur in certain areas of the facilities, providing deeper insights into previously unnoticed needs [8].

The interview questions were divided into two main categories. Refer to Table 1, the first category focused on gathering general information about the residents' experiences with the facilities and maintenance services, such as their awareness of the maintenance process and communication with the management. The second category explored more specific issues related to the maintenance system, including the frequency and types of facility damages, the response time to complaints, and residents' satisfaction levels with the actions taken by the maintenance team.

This structure allowed the study to gather both broad and specific data, offering a comprehensive understanding of the challenges faced by residents and the effectiveness of the maintenance management system in place.

Table 1: Two sections of the question Interviews

Part	Items
Part A	General information
Part B	Issues related to the maintenance system

2.2 Questionnaires

For this research, the questionnaire was executed to collect representative data from the residential college occupants to measure their satisfaction level towards the remedial damage carried out by the maintenance management at Pagoh Campus Residential College at UTHM. To achieve the answers to the study questions, the questionnaires were designed meticulously to ensure relevance in achieving the objectives of the study. In this study, the questionnaire was designed into four (4) sections as follows:

- i. Section A, respondent information. This section consisted of background information about the respondents. The questions included in this part were related to gender and the duration of stay in Pagoh Campus Residential College, UTHM.
- ii. Section B, general knowledge about facilities management at Pagoh Campus Residential College. This part focused on the respondents knowledge about the facilities. Additionally, the questions included inquiries to gather opinions on the effectiveness of the facilities. Refer to Table 1, the Likert scale was used to capture the respondents' opinions on the factors that affected the effectiveness of the facility management maintenance work provided in the buildings at Pagoh Campus Residential College.

Table 2: Likert Scale Respondent Opinion of The Factors That Affect The Effectiveness

Scale	1	2	3	4	5
Description	Strongly disagree	Disagree	Moderately	Agree	Strongly Agree

- iii. Section C, level of user satisfaction regarding the maintenance of facilities management in Pagoh Campus Residential College. This section captured user satisfaction regarding the maintenance of facilities management in Pagoh Campus Residential College. Five (5) facilities were provided in this section, and the 2 scale were used. Table 2 show Likert Scale respondent opinion of the the most satisfactory facility management maintenance work and Table 3 shows Likert Scale respondent overall level of satisfaction. According [9], explored the role of maintenance management in ensuring the quality of student housing. They emphasized that occupant feedback systems and efficient communication were critical elements in facility management. This study was relevant as it reinforced the recommendations to improve communication between residents and the maintenance team at Pagoh Campus Residential College.

Table 3: Likert Scale Respondent Overall Level of Satisfaction

Scale	1	2	3	4	5
Description	Very unsatisfactory	Unsatisfactory	Moderate	Satisfactory	Very satisfactory

- iv. Section D, proposals for improvement and other issues regarding the maintenance of facilities management at Pagoh Campus Residential College. This section focused on proposals for improvement and other issues related to the maintenance of facilities management at Pagoh Campus Residential College. However, discussed best practices in university facility management, focusing on infrastructure that is responsive to user needs. Their findings support the need for facility upgrades, such as improved Wi-Fi connectivity and additional power outlets in learning spaces, which were identified in this study [10].

3. Result and Discussion

The results section in research tells the reader what has been found, while the discussion section explains the findings from the results and what is discussed. The results section should present the facts in findings from the

questionnaire for respondents. The research conducted by [11], entitled Sustainable Facility Management Practices and Their Impact on University Residential Colleges, explores the implementation of sustainable facility management practices and their implications for university residential colleges. This study highlights various practices aimed at enhancing operational efficiency, including the utilization of environmentally friendly materials, ongoing resource conservation efforts, and improvements in service quality for residents. The study underscores the critical role of adopting green technologies and proactive maintenance strategies in minimizing costs and reducing environmental impact.

The findings demonstrate that the adoption of sustainable facility management practices not only elevates the living standards of residents but also contributes positively to cost optimization and resource efficiency within university campuses. This research provides practical insights for higher education institutions in designing and implementing more sustainable and responsible approaches to facility management.

3.1 Result

The results section presents the data or findings of the study, answering the question of what was found in the study. It contains facts, figures, and observations without any interpretation.

3.1.1 Section A: Respondent Information

This section was used to check the respondent information of respondents, including factors such as gender, period spent, and which block respondents stay, in order to establish respondents' legitimacy and elicit convenient responses according to Figure 1.

			Frequency (f)	Percentage (%)
1	Gender	Male	111	38.3
		Female	179	61.7
2	Period Spent at Pagoh Campus Residential College, UTHM?	Less than 1 year	58	20
		1 to 2 years	73	25.2
		2 to 4 years	151	52.1
		More than 4 years	8	2.8
3	You live in Pagoh Campus Residential College, which block do you stay in?	Block A1	22	7.6
		Block A5	15	5.2
		Block A6	41	14.1
		Block A10	9	3.1
		Block A11	6	2.1
		Block A12	19	6.6
		Block A13	8	2.8
		Block A14	28	9.7
		Block A15	109	37.6
		Block A16	9	3.1
		Block A17	11	3.8
Block A18	13	4.5		

Fig. 1: Summary of Respondent Information

The analysis of respondents at Pagoh Campus Residential College revealed that the majority were female, accounting for 61.7% (179 respondents), while males comprised 38.3% (111 respondents), as shown in Figure 1 above.

Additionally, in terms of duration spent at the college, most respondents had stayed for 2 to 4 years, representing 52.1% (151 respondents), followed by those who had stayed for 1 to 2 years (25.2%, 73 respondents), less than 1 year (20%, 58 respondents), and more than 4 years (2.8%, 8 respondents). Regarding residential blocks, Block A15 housed the highest number of residents with 109 individuals (37.6%), followed by Block A6 with 41 residents (14.1%) and Block A14 with 28 residents (9.7%).

Lastly, the remaining blocks had smaller populations, ranging between 2.1% and 7.6%. This demographic overview highlights the significant presence of long-term residents and the concentration of occupancy in specific blocks, particularly Block A15.

3.1.2 Section B: General Knowledge About Facilities Management at Pagoh Campus Residential College

This part focused on the respondents knowledge about the facilities. Additionally, the questions included inquiries to gather opinions on the effectiveness of the facilities. Table 2 shows the Likert scale was used to

capture the respondents' opinions on the factors that affected the effectiveness of the facility management maintenance work provided in the buildings at Pagoh Campus Residential College.

Table 4: Respondent Usually Most Use at Pagoh Campus Residential College, UTHM

Items	Frequency	Percentages (%)
Laundry facilities	30	10.3
Water machine facilities		

Table 4 shows respondent usually most use at Pagoh Campus Residential College, UTHM. The analysis of respondents' most-used facilities at Pagoh Campus Residential College, revealed that laundry facilities and water machine facilities were used by 30 respondents (10.3%). This indicates that both facilities are equally important for the residents and play a significant role in their daily activities.

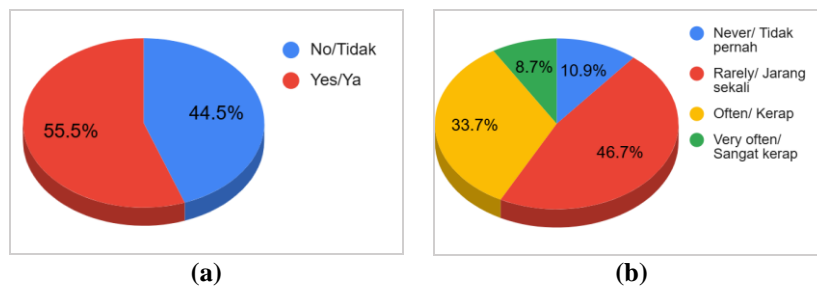


Fig. 2: Figure description (a) Respondent Made A Complaint About Damage to Facilities; (b) Respondent Experiences With Problems Related to The Maintenance of Facility Management

Figure 2 (a) respondents' actions regarding complaints about damaged facilities at Pagoh Campus Residential College, UTHM. The data reveals that 55.5% (161 respondents) reported making a complaint, while 44.5% (129 respondents) did not. This slight majority in favor of reporting indicates a positive inclination towards utilizing the complaint system but also highlights a significant portion of residents who refrained from reporting. Understanding the reasons behind this division was crucial for improving the communication and feedback mechanisms between residents and the maintenance department. Figure (b) respondents experiences with issues related to the maintenance of facility management at Pagoh Campus Residential College. The data indicate that 46.7% (129 respondents) rarely face problems, while 33.7% (93 respondents) experience issues often. A smaller proportion, 10.9% (30 respondents), report never encountering problems, and 8.7% (24 respondents) indicate very frequent occurrences. These findings highlight that while a majority of respondents rarely face maintenance issues, a significant portion experiences challenges often or very often.

Table 5: Respondent Opinion The Factors That Affect The Effectiveness of The Facility Management Maintenance Work Provided on Buildings

Factor	Frequency					Average Index	Rating Scale	Attributes of Indexs
	1	2	3	4	5			
User awareness of the importance of facility maintenance.	0	4	28	114	144	4.36	4	Satisfied

The Table 5 highlighted respondents' opinions on the factors that affected the effectiveness of facility management maintenance work provided on buildings, specifically focusing on user awareness of the importance of facility maintenance. The frequency distribution showed that the majority of respondents rated this factor highly, with 114 selecting a rating of 4 and 144 selecting a rating of 5. The calculated average index was 4.36, corresponding to a rating scale of 4, which indicated that respondents were generally satisfied with the level of user awareness regarding the importance of facility maintenance.

3.1.3 Section C: Level of User Satisfaction Regarding The Maintenance of Facilities Management in Pagoh Campus Residential College

This section analyzed the level of user satisfaction with facilities management maintenance in Pagoh Campus Residential College. The findings revealed that most users were satisfied, as indicated by the Table 6 summarized respondents' opinions on the functionality of the ventilation system in Multipurpose Hall A9. Most

respondents rated the ventilation system positively, with 145 selecting a rating of 4 and 107 selecting a rating of 5. The average index score was 4.22, which corresponded to a rating scale of 4, indicating that respondents were satisfied with the ventilation system, as it provided comfort during use.

Table 6: Respondent Multipurpose Hall Facilities (Dewan Serbaguna A9)

Factor	Frequency					Average Index	Rating Scale	Attributes of Indexs
	1	2	3	4	5			
Is the ventilation system in the Multipurpose Hall, A9 working properly? (example: comfortable during use)	0	0	38	145	107	4.22	4	Satisfied

However, Table 7 shows the Learning Room Block A5, A11 and A12. Learning room A5, electrical appliances (projectors) were also highly rated, with an average index of 4.22 and a satisfied attribute. In Learning Room Block A11, while both the ventilation system and electrical appliances received an average index of 3.86, reflecting satisfaction despite slightly lower scores compared to other facilities. Lastly, the Learning Room Block A12, the availability and condition of furniture (tables) achieved an average index of 4.00, indicating that respondents were satisfied with this aspect as well. Overall, the facilities were rated positively, showcasing effective maintenance and usability.

Table 7: Respondent Learning Room Block A5, A11 and A12

Factors	Frequency					Average Index	Rating Scale	Attributes of Indexs
	1	2	3	4	5			
Learning Room Block A5								
Are electrical appliances (projectors) working properly?	0	0	38	145	107	4.22	4	Satisfied
Learning Room Block A11								
Is the ventilation system in the Learning room working properly? (example: comfortable during use)	0	5	88	141	56	3.86	4	Satisfied
Are electrical appliances (projectors) working properly?	0	9	88	127	66	3.86	4	Satisfied
Learning Room Block A12								
Is the furniture (tables) in the learning room sufficient and in good condition?	0	4	121	36	129	4.00	4	Satisfied

Other than that, Table 8 shows the respondent of Student Business Space Facilities (Student Mart A12), the equipment of refrigerators in the student business space working properly were also highly rated, with an average index of 3.97 and a satisfied also attribute.

Table 8: Respondent of Student Business Space Facilities (Student Mart A12)

Factors	Frequency					Average Index	Rating Scale	Attributes of Indexs
	1	2	3	4	5			
Are the equipment (refrigerators) in the student business space working properly?	0	7	68	142	73	3.97	4	Satisfied

Next, Table 9 shows respondent of water machine, ever found a water machine not working for a long period of time received an average index of 3.63, reflecting satisfaction despite slightly higher scores compared to other facilities. Lastly, Table 10 shows the Laundry Facilities, the washing machine in their block working properly achieved an average index of 4.17, indicating that respondents were satisfied with this aspect as well in rating sacle was 4. Overall, the facilities were rated positively, showcasing effective maintenance and usability.

Table 9: Respondent of Water Machine (Block A1, A5, A6, A10, A11, A12, A13, A14, A15, A16, A17, and A18)

Factor	Frequency					Average Index	Rating Scale	Attributes of Index
	1	2	3	4	5			
Have you ever found a water machine not working for a long period of time?	16	32	81	69	91	3.63	4	Satisfied

Table 10: Respondent of Laundry Facilities (Block A1, A6, A10, A11, A12, A13, A14, A15, A16, A17, and A18)

Factors	Frequency					Average Index	Rating Scale	Attributes of Index
	1	2	3	4	5			
Is the washing machine in your block working properly?	5	3	52	104	125	4.17	4	Satisfied

This study analyzed, feedback from 290 residents collected through structured questionnaires. Table 11 shows the respondent suggestions for improving common facilities management at Pagoh Campus Residential College. In the Multipurpose Hall (A9), respondents suggested improvements to the audio system (27.2%). Next, in the learning rooms, Block A5, A11, and A12 with suggestions for more power outlets and better Wi-Fi connectivity (14.8%). In the Student Business Space (Student Mart A12), respondents suggested improvements in furniture and layout (17.6%). Water machines in some blocks were rated lower and respondent suggesting regular maintenance and the addition of more machines (32.4%). Laundry facilities received a high satisfaction rating for washing machines, but improvements such as regular cleaning schedules and increased machine availability during peak hours were suggested (26.2%).

Table 11: Respondent Suggestions for Improving Common Facilities Management

Items	Frequency	Percentages (%)
Multipurpose Hall Facilities (Dewan Serbaguna A9)		
Improved Sound System	79	27.2
Learning Room of Blocks A5, A11 and A12		
Additional Power Outlets		
Improved Wi-Fi Connectivity	43	14.8
Student Business Space Facilities (Student Mart A12)		
Upgrade and Arrange Furniture	51	17.6
Water Machine Facilities		
Regular Maintenance and Cleaning	94	32.4
Additional Water Machine		
Laundry Facilities (Block A1, A6, A10, A11, A12, A13, A14, A15, A16, A17, and A18)		
Regular Cleaning Schedule		
Increase Availability of Machines (Peak Usage Hours)	76	26.2
Comfortable Waiting Area		

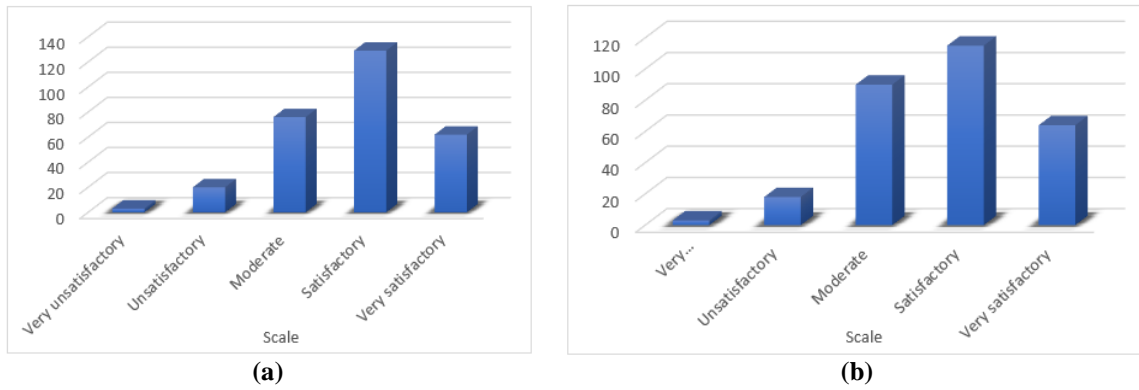


Fig. 3: Figure description (a) Respondent Satisfied With The Response and Cooperation Provided by The Maintenance Management; (b) Respondents Level of Satisfaction With The Service Provided by The Maintenance Management

Figure 3 (a) shows the data indicated that the highest level of satisfaction in terms of response and cooperation provided by maintenance management was rated as Satisfactory (45%), while Figure 2 (b) shows for overall service provided by maintenance management, the highest rating was also Satisfactory (40%). This showed that in both cases, the majority of respondents expressed satisfaction with the services received.

3.1.4 Section D: Proposals For Improvement and Other Issues Regarding The Maintenance of Facilities Management at Pagoh Campus Residential College

Respondent suggestions for improving the quality of facility maintenance and management at Pagoh Campus Residential College. Table 12 shows the most common suggestion, chosen by 115 respondents (39.7%), was to improve communication, introduce a resident feedback system, and encourage responsible usage. Overall, respondents want better communication, feedback, and responsible behavior to improve maintenance and management.

Table 12: Respondent Suggestions for Improving The Quality of Facility Maintenance and Management at Pagoh Campus Residential College

Items	Frequency	Percentages (%)
Improve Communication Channels		
Resident Feedback System	115	39.7
Encourage Responsible Usage by Residents		

3.2 Discussion

The study by [12] on building maintenance in Tun Fatimah Residential College, Universiti Tun Hussein Onn Malaysia (UTHM), was relevant as a reference because it provided a comprehensive overview of facility maintenance in higher education institutions. This study helped in understanding the effectiveness of the maintenance system, the challenges faced by management, and the level of resident satisfaction with the maintenance work carried out. Additionally, the study served as a basis for comparing and evaluating the effectiveness of communication between residents and the maintenance department in reporting issues and receiving feedback, aligning with the objectives of the ongoing research on maintenance management effectiveness in Pagoh Campus Residential College, UTHM. Therefore, this study not only provided supporting data but also contributed to formulating systematic improvement proposals to enhance efficiency and resident satisfaction with maintenance services.

This study analyzed the facilities management at Pagoh Campus Residential College, UTHM, based on feedback collected through structured questionnaires. Demographic data showed that 61.7% of respondents were female, while 38.3% were male, with the majority (52.1%) having stayed in the residential college for 2 to 4 years. The study found that Block A15 had the highest number of occupants (109 residents, 37.6%), and it reported a critical issue with a water machine that had been non-functional for an extended period, causing significant inconvenience. Overall, residents showed high satisfaction with the provided facilities which is however, certain issues, such as the non-functioning water machine in Block A15 and the laundry service, which experienced a repair delay of one week, required immediate attention.

In the Multipurpose Hall (A9), the ventilation system was rated at 4.22, but 27.2% of respondents suggested improvements to the audio system. In the learning rooms, Block A5 received an average score of 3.91 for electrical appliances like projectors, while Block A11 scored 3.86 for both the ventilation system and electrical appliances. Block A12 received a rating of 4.00 for furniture adequacy (tables), with suggestions for more power outlets and better Wi-Fi connectivity (14.8%). In the Student Business Space (Student Mart A12), refrigerators were rated at 3.97, and 17.6% of respondents suggested improvements in furniture and layout. Water machines in some blocks were rated lower (3.63), with 32.4% suggesting regular maintenance and the addition of more machines. Laundry facilities received a high satisfaction rating of 4.17 for washing machines, but improvements such as regular cleaning schedules and increased machine availability during peak hours were suggested (26.2%). Regarding maintenance, 44.8% of respondents reported repair times of 1 to 2 weeks, with 45% expressing satisfaction with the maintenance team's response. For overall facility management improvements, common suggestions included better communication channels, the introduction of a resident feedback system, and promoting responsible facility usage (39.7%).

These findings indicate the need for improvements in communication, maintenance timelines, and facility-specific upgrades to enhance user satisfaction and functionality across the campus.

4. Conclusion

In conclusion, this study assessed the facilities management at Pagoh Campus Residential College, UTHM, based on feedback from 290 residents. The results highlighted several challenges, including a non-functional water machine, delays in repairs, and communication issues between residents and the maintenance team. More than half (55.5%) of the residents reported facility damages, with 44.8% of repairs completed within 1-2 weeks, while a small percentage (1.1%) experienced repairs taking more than four weeks. Residents were generally satisfied with the facilities provided, including the ventilation system, electrical appliances, and furniture adequacy. However, concerns about maintenance delays, limited facilities, and the need for improvements in areas such as Wi-Fi connectivity and power outlets were raised.

The study emphasized the need for improvements in communication between residents and maintenance staff, faster response times for repairs, and more comprehensive facility upgrades to meet residents' needs. Recommendations for improving overall facilities management included enhancing communication channels, encouraging responsible facility use, and ensuring timely maintenance. In addition, incorporating the perspectives of the maintenance team was crucial to gaining a comprehensive understanding of the challenges they faced, such as operational constraints, workload, and resource limitations. Conducting interviews or surveys with maintenance staff would have provided valuable insights, alongside comparing resident complaints with internal maintenance records to identify discrepancies or systemic issues.

A deeper analysis of systemic challenges, such as recurring repair delays and inefficient workflows, needed to be conducted to identify root causes and propose process improvements. Addressing communication gaps, including the effectiveness of reporting systems and response times, was also essential for ensuring smoother operations and quicker issue resolution. Finally, adopting a mixed-methods approach, combining both qualitative and quantitative methods, would have allowed for a more thorough assessment of maintenance practices.

By implementing these improvements, the study suggested that the quality of life for residents could be improved, leading to a more efficient and effective facilities management system that meets both current and future needs. Future studies could have provided a more holistic understanding of maintenance management, benefiting both residents and facility managers by enhancing the efficiency and quality of services provided.

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