

A STUDY ON THE BUILDING MAINTENANCE PRACTICES IN STUDENTS' HOSTELS AT PUBLIC UNIVERSITIES

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ABSTRACT

Building maintenance practices in students' hostels at the universities are very important to enhance students' performance. The scope of the research is limited to three universities which are Universiti Malaya (UM), Universiti Putra Malaysia (UPM) and Universiti Teknologi MARA (UiTM). The findings of the research revealed corrective maintenance is the most practices of building maintenance that carried out in students' hostels. From the findings, criteria of maintenance management such as "effective plan and policy of hostels maintenance management" and "method of maintenance management that undertaken is constantly reviewed" are the typical weaknesses. Moreover, criteria of employees' expertise such as "employee is competent to perform building maintenance work" and "adequate training programmes to employees" are the common weaknesses occur in most universities. Lastly, criteria of materials such as "high quality and durable materials are used" and "materials are available and hardly out of stock" are the common weaknesses arise in the universities. For the improvement strategy of a better plan and policy of maintenance management in hostels, employees in organisation who handles the procedures must be competent. Supervisor has to handle the maintenance schedule to assure the method of maintenance management undertaken is constantly reviewed. Providing sufficient training to employees can enhance employees' expertise. Supervisor has to be appointed to assure there are adequate training programmes to the employees. The improvement of the criteria of high quality and durable materials is materials need to follow the standards as specified. Supervisor should also monitor and ensure that the materials are always available.

Keywords: Employees' Expertise, Hostels, Maintenance Management, Materials, Universities

INTRODUCTION

Maintenance is the procedures to watch over the buildings after completion in order to run and function as expected (Abdul Lateef et al., 2010). Maintenance involves technical and administrative activities in order to fulfill their occupants' needs (Wahab & Basari, 2013). Maintenance encompasses three groups which are servicing, rectification and replacement (Seeley, 1987). Maintenance is involved to the effective use of the buildings with a proper safety and security system for the consumers (Cobbinah, 2010). Khozaei et. al (2010) stated that, university students tends to look for accommodation that provide security, privacy and space which can satisfy their needs.

An institution's policy tolerate with the development of students' hostels and aims at enhancing the students' well-being (Pat-Mbano et al., 2012). According to the Abdul Lateef (2011), the main problem of insufficient funds in maintenance is due to the bad management plan and policy. Maintenance management can determine the performance of the building (Abdul Lateef et al., 2010). Therefore, the technique of maintenance management that is carried out must continuously be revised to encourage the high quality of services (Zulkarnain et al., 2011). Besides that, the author further stated that, maintenance work was not only necessary to correct any defects but also to be recorded.

Many security problems can occur to the occupants if the maintenance works by maintenance organization is not completed or takes a long time to respond (Cobbinah, 2010). Hence, employees have to complete the maintenance works timely. Public institution like the universities must to ensure that their organization is adequately staffed with providing comprehensive training programmes to the employees (Cobbinah, 2010).

Cobbinah (2010) pointed out that technology is involved with all possible factors that may contribute to maintenance works. Still, just having latest technology does not prove maintenance works can be performed correctly. It still requires expert skills to ensure it works (Zulkarnain et al., 2011). This situation shows that there is incompetency of skills and insufficient of abilities in preserving the buildings (Rahman, 2007). Thus, the employees need to update their expertise by acquiring some new skills to keep up with changing technologies.

Standards and specifications documents are very crucial as it provides a schedule of instructions to the contractor regarding materials and workmanship requirements (Al-Khatam, 2003). Poor maintenance work is due to insufficient of supervision by the maintenance organization (Cobbinah, 2010). Cobinnah (2010) pointed out that the inadequate of training to the employees can leads to poor building maintenance. In addition, researcher also elucidate that training for employees is important in order to deal professionally in ongoing buildings.

Specification of unsuitable materials is always a problem in maintenance works (Cobbinah, 2010). The quality of the buildings depends on available resources that relevant with user's requirements (Idrus et al., 2009). Even though, appropriate material is available but not in sufficient quantities, it still can prevent employees from doing maintenance works (Cobbinah, 2010).

Moreover, poor maintenance leads hostels to keep exposing signs of decay and deterioration (Pat-Mbano et al., 2012). Poor maintenance performance in hostels is one of the reasons of decreasing students' productivity in their studies. This research is carried out to find out the best way to improve building maintenance practice in universities students' hostels as well as to achieve the students' satisfaction.

REVIEW OF LITERATURE

Maintenance Management

Maintenance management is connected with the condition of the buildings and services so that it meets the standards required to be performed as desired (Zulkarnain et al., 2011). According to researchers, maintenance management covers many functions that can be considered as an

efficient use of resources to allow the techniques and facilities to operate as the consumer expectations. Maintenance management objective is to discover the correct combination of building maintenance methods by choosing the excellent maintenance technique for every element in the building (Al-Khatam, 2003). Method of maintenance management undertaken should be constantly reviewed to ensure high quality services (Zulkarnain et al., 2011). Many negative comments in public exposed that university buildings in Malaysia are not performing well (Abdul Lateef et al., 2011). Thus, maintenance management in the university depends on the methods carried out as well as supervision by the university sector to achieve better outcomes.

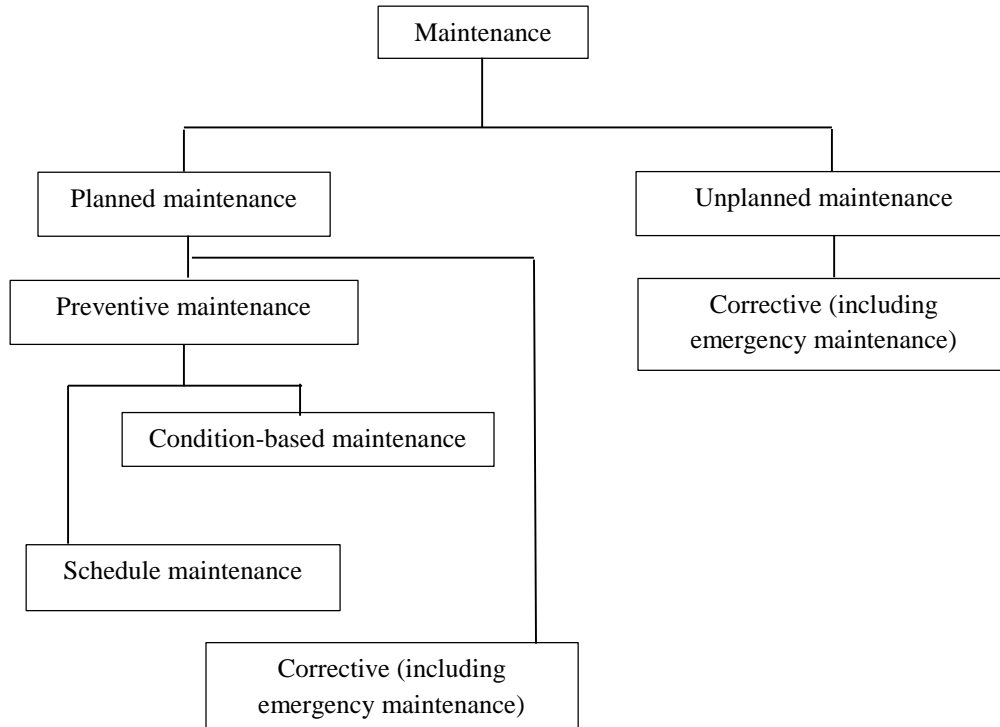
Types of Maintenance

There are several maintenance methods in existence for practice in many fields around the globe. There are two main types of maintenance which are planned maintenance and unplanned maintenance (Seeley, 1987).

In planned maintenance, maintenance work is conducted according to the organisation's recommended maintenance procedure. It does not require the consumer's request to preserve and maintain the facilities. Planned maintenance is when the maintenance on the building and facilities can be scheduled in advance. Preventive maintenance is conducted to avoid the element from damage and failure (Onawoga, & Akinyemi, 2010).

Unplanned maintenance is conducted when the element is already damaged and broken down (Onawoga, & Akinyemi, 2010). This maintenance work is conducted based on user request and not to be scheduled in advance (Rahman, 2007). Figure 1 shows types of maintenance by Seeley (1987) as cited in Cobbinah (2010) which is generally used by many maintenance organizations.

Figure 1: Types of Maintenance



Source: Seeley (1987), as cited in Cobbinah (2010)

According to Seeley (1987), as cited in Cobbinah (2010), below are the definitions of types of maintenance:

- i) **Planned maintenance:**
The maintenance planned and carried out with consideration, control, and use of records with a systematized plan.
- ii) **Unplanned maintenance:**
The maintenance carried out with no structured and arranged plan.
- iii) **Preventive maintenance:**
The maintenance is performed at scheduled intervals or corresponding to particular standards aimed at reducing the probability of failure or the performance of a deteriorating item.
- iv) **Corrective maintenance:**
The maintenance conducted once a failure has arisen and after that repair the item so that it can perform as original function and as required.

- v) **Emergency maintenance:**
Maintenance must be carried out immediately to avoid severe consequences.

- vi) **Condition-based maintenance:**
The preventive maintenance can be done through the result of knowledge of an item from continuous checking.

- vii) **Scheduled maintenance:**
The preventive maintenance conducted according to a programmed or scheduled interval of time and operations.

Effectiveness and Weaknesses of Building Maintenance Practices

According to Abdul Lateef et al. (2010), university can create a conducive environment that can encourage learning and teaching activities. The researchers clarified that even though a new building provides better to the residents, it cannot become new throughout its whole life. Therefore, in order to improve the outcomes of service delivery and increase occupants satisfaction, maintenance needs to be managed professionally (Abdul Lateef et al., 2010).

Abdul Lateef et al. (2010) trusted that the university sector does not have to concern with the maintenance because it is not their responsibility to handle it. They need to outsource the maintenance services from outside companies. The weaknesses of outsourcing include loss of expertise, difficulty of supervising, and university sector is probably get threaten by maintenance service providers (Abdul Lateef et al., 2010). The authors also noted that, maintenance is not only required to make right defect but has also to be recorded appropriately (Zulkarnain et al., 2011). The inspection needs to be proper organized and scheduled to reduce maintenance cost. (Cobinnah, 2010). Maintenance team must take part in maintenance meeting regularly (Sidney Sussex College, 2014).

Response time is requested by the users for the maintenance team to respond to the call for maintenance (Abdul Lateef et al., 2010). There are a lot of security problems if the maintenance work cannot be done timely or require more time to respond to user' complaints (Cobbinah, 2010). Employees must complete the maintenance works in accordance with the duration as estimated (Akinsola et al., 2012).

Cobbinah (2010) discovered that technology contributes in performing maintenance works. Adenuga (2012) stated that, technology constantly changes over time. It needs expert and trained skills to operate current technology in appropriate manner (Zulkarnain, et al., 2011). Without trained skill, it leads to incompetency of employees' performance in maintaining and preserving the buildings (Rahman, 2007).

Standards and specifications documents are crucial as it provide an instruction schedule to the contractor regarding materials and workmanship needs (Al-Khatam, 2003). Researcher noticed that maintenance management programme is set up to manage, monitor and test record in accordance with the contract document. Cobbinah (2010) pointed out that, maintenance work is poor due to the lack of supervision by the maintenance department. Systematic annual inspection is important in maintenance to prevent high maintenance cost later on (Al-Khatam, 2003).

Akinsola et al. (2012) stressed that trained employees must be provided to avoid delay in conducting the maintenance work. Ability of employees is one of the major problems that prevent good maintenance (Cobbinah, 2010). Maintenance management has been incompetently handled by the maintenance manager (Zulkarnain et al., 2011). Maintenance is performed in inappropriate and unsuitable ways by maintenance manager which leads to poor building maintenance practices (Zulkarnain et al., 2011). Cobinnah (2010) highlighted that inadequate of training among employees can cause poor maintenance work. Public institutions like universities must ensure that the organization had adequate staff to provide comprehensive training to employees (Cobbinah, 2010).

The implementation of maintenance must begin in the initial phase of the design stage until the final stage of the project (Al-Khatam, 2003). Cobbinah (2010) stressed that, because of incorrect design in the initial stage, some buildings are costly to be maintained. Al-Khatam (2003) stated that, provide tools and equipment is important in building maintenance practices. However, good maintenance practices not exactly depend on the equipment (Al-Khatam, 2003). The researcher revealed that the availability of skill is also important for effective maintenance works.

The main purpose of maintenance management is effective resource allocation based on maintenance requirements (Idrus et al., 2009). Poor construction work seems to begin from the poor quality of materials used (Cobbinah, 2010). A well organized and constructed building with high quality materials and correct techniques of construction has high possibility to not involve with heavy maintenance work in the future (Abdul Lateef et al., 2010).

Specifications of unsuitable materials are always a problem (Cobbinah, 2010). The specifications and standards can assist ongoing maintenance work (Al-Khatam, 2003). It is significant for employees to know the performance and function of materials in order to reduce the costs. Employees have to follow the materials schedule as required. A building quality is depends on the resources available that meet the consumer requirements (Idrus et al., 2009).

Maintenance management of certain projects differ because inadequate of resources (Cobbinah, 2010). Good quality and durable materials are used to prolong its life span as well as reduce the rate of deterioration (Cobinnah, 2010). Good maintenance will occur when the workmanship is high and the components selected are excellent quality (Idrus et al., 2009). Maintenance management has to reduce building defects by improving maintenance procedure and using proper equipment at the right time (Al-Khatam, 2003). If appropriate material is sufficient but not in adequate quantities, it will prevent employees from performing maintenance works and the delay can happen (Cobbinah, 2010).

RESEARCH METHODOLOGY

This study used quantitative approach. Sukamolson (1998) clearly stated that quantitative technique is a study of collecting numerical data that was analysed by mathematical method. The research is to examine how the building maintenance practices implemented in students' hostels. Data collection that used in this research is primary data collection. Primary data collection is acquired through the questionnaire survey method. The researcher used this technique to collect

data and information. The researcher used one method in distributing the questionnaire which is by hand.

A set of questionnaire is distributed by hand among officers at Residential Unit in every university which are Department of Development and Estate Management (UM) Development Office and Asset Management (UPM) and Facilities Management Department (UiTM). Data gathered are analysed using SPSS (Statistical Package for the Social Sciences) and Microsoft Excel.

A set of questions is prepared for the questionnaire consisting of four sections with an overall of thirty five questions. The target of these data collections is to achieve all the objectives of the research. The questionnaire concerned on to recognise the most maintenance practices of building maintenance, weaknesses of the practices of the building maintenance that have been carried out as well as improvement strategy for a better practice of building maintenance in students' hostels.

The questionnaire survey for this research consists of the combination of close ended questions and open ended questions. Majority questions in the questionnaire survey are close ended questions. Close ended questions are the questions that require respondents to choose the given answers. There are part open ended questions where respondents have to state their opinions and views. It allows respondents to give their suggestion regarding weaknesses and improvement of the building maintenance practices. In addition, some questions are present in a Likert Scale Technique. The score range from 1 to 5 (1= Strongly disagree, 2= Disagree, 3= Neutral, 4 = Agree, 5= Strongly agree). The criteria comprise more than 3.0 mean score will indicate that respondents tends to agree on the criteria stated. On the other hand, if there is lower than 3.0 mean score, it shows that respondents are tends to disagree with the criteria. The last section is Section 4 which consists of opened ended questions.

FINDINGS

Types of Maintenance Practices

According to Seeley (1987) as cited in Cobbinah (2010) that maintenance types are corrective maintenance (unplanned and planned maintenance), emergency maintenance (unplanned and planned maintenance), conditioned based-maintenance (preventive maintenance) and scheduled maintenance (preventive maintenance). There are four questions in this section with multiples respond method. This section is to identify the most practices used in the building maintenance in students' hostels.

Table 1: Types of Maintenance in Universities' Hostels

	University A		University B		University C	
	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)
Corrective maintenance	18	32.1	20	37.7	17	29.8
Emergency maintenance	18	32.1	7	13.2	15	26.3
Condition-based maintenance	10	17.9	9	17.0	12	21.1
Schedule maintenance	10	17.9	17	32.1	13	22.8

Table 1 shows types of maintenance at the universities hostels. According to the table, University B has the highest frequency of corrective maintenance (20) compared to others universities. Besides that, University C also has the highest frequency of corrective maintenance (17). On the other hand, highest frequency in University A can be comprised into two which are corrective maintenance (32.1%) and emergency maintenance (32.1%). From the result, it revealed that corrective maintenance is the most building maintenance practice that have been carried out in students' hostels at 3 universities.

Activities of Building Maintenance Practices

The section is divided into three parts which are maintenance management, employee's expertise and materials. There are seven questions for maintenance management part and employee's expertise part whereas six questions for materials part.

In addition, questions are presented in a Likert scale format whereby respondents can express their opinions and views within the score range from 1 to 5. (1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree). These questions are designed to achieve objective two and three. The weaknesses can be identified when a mean score is lower than 3.00.

i) Maintenance Management

Table 2: Criteria of Maintenance Management at the Universities

		Name of the Universities					
		University A		University B		University C	
		Mean	Rank	Mean	Rank	Mean	Rank
Maintenance Management	There is an effective plan and policy of maintenance management	3.20	6	2.90	5	2.95	6
	There is a proper maintenance schedule plan	3.55	4	3.40	4	3.60	3
	Schedule plan are reviewed regularly	3.40	5	2.85	7	3.50	4
	Method of maintenance management undertaken is constantly reviewed	2.70	7	2.85	6	3.45	5
	Maintenance works are properly recorded and monitored	3.65	2	3.65	2	3.70	1
	Using latest technologies and techniques	3.60	3	3.50	3	2.75	7
	Maintenance team always participate in meeting regularly	3.70	1	3.70	1	3.60	2

Table 2 indicates the criteria of maintenance management in students’ hostels at three public universities (University A, University B and University C). From the findings, we can see that criteria of maintenance management such as “effective plan and policy of maintenance management” and “method of maintenance management undertaken is constantly reviewed” are the common weaknesses occur in most universities. This is because the mean score for these two criteria are lower than 3.00. Respondents disagreed with the criteria of the effectiveness of plan and policy of hostels maintenance management at the University B (2.90) and University C (2.95). On the other hand, respondents also disagreed and doubted with the criteria stated that the method of maintenance management are constantly reviewed at the University A (2.70) and University B (2.85).

ii) Employees' Expertise

Table 3: Criteria of Employees' Expertise at the Universities

		Name of the Universities					
		University A		University B		University C	
		Mean	Rank	Mean	Rank	Mean	Rank
Employees' Expertise	Adequate employees in performing maintenance works	3.95	1	2.90	7	3.20	5
	Workmanship carried out in accordance with the standards and specification requirements	3.65	2	3.65	2	3.45	3
	Employee is competent to perform building maintenance work	3.30	5	2.95	6	2.90	6
	Skilled employee is available to operate and monitor technologies	3.25	6	3.25	5	3.25	4
	There are adequate training programmes to employees	2.70	7	3.35	4	2.70	7
	Supervision and inspection are carried out to detect defects	3.55	3	3.50	3	3.65	1
	Regular maintenance inspections are conducted	3.40	4	3.80	1	3.60	2

Table 3 shows the criteria of employees' expertise in students' hostels at three public universities (University A, University B and University C). We can conclude that criteria of employees' expertise such as "employee is competent to perform building maintenance work" and "adequate training programmes to employees" are the common weaknesses occur in most universities. This is because the mean score for these two criteria are lower than 3.00. Respondents disagreed with the criteria of employee is competent to perform building maintenance work at the University B (2.95) and University C (2.90). On the other hand, respondents also disagreed and doubted with the criteria stated that there is adequate training programmes to employees at the University A (2.70) and University C (2.70).

iii) Materials

Table 4: Criteria of Materials at the Universities

		Name of the Universities					
		University A		University B		University C	
		Mean	Rank	Mean	Rank	Mean	Rank
Employees' Expertise	Materials used are in accordance with the standard and specification	3.60	1	3.35	4	3.55	1
	High quality and durable materials are used	3.40	4	2.95	5	2.95	4
	Employees optimize the usage of materials	3.30	5	3.75	2	2.90	6
	Materials are available and hardly out of stock	2.90	6	2.90	6	2.95	5
	There are sufficient and appropriate tools and equipment	3.55	2	3.80	1	3.30	3
	Employees follow the materials schedule as specified	3.45	3	3.50	3	3.40	2

Table 4 shows that criteria of employees' expertise in students' hostels at three public universities (University A, University B and University C). From the table above, we can see that criteria of materials such as "high quality and durable materials are used" and "materials are available and hardly out of stock" are the common weaknesses of materials occur in the most universities. This is because the mean score for these criteria are lower than 3.00. Respondents disagreed with the criteria stated that high quality and durable materials are used at the University B (2.95) and University C (2.95). On the other hand, respondents also disagreed and doubted on the criteria stated that materials are available and hardly out of stock at the University A (2.90), University B (2.90) and University C (2.95).

DISCUSSION

Discussion on the Most Practices of Building Maintenance

From the finding, corrective maintenance is the most practice in building maintenance that have been carried out in students' hostels at UM, UPM and UiTM. According to the Idrus et al. (2009), they revealed that corrective maintenance is the most common approach to be carried out

when a building has failed to function as expected way. Students went to the hostels office to complain on the defects occurred in the hostels buildings.

Discussion on Weaknesses and Improvement of Building Maintenance Practices

i) Maintenance Management

From the findings, there are two criteria of maintenance management which are “effective plan and policy of maintenance management” and “method of maintenance management undertaken is constantly reviewed” are the common weaknesses occur in most universities.

a) Weaknesses: Criteria of the “Effective Plan and Policy of Maintenance Management”

Plan and policy of hostels maintenance management is the weakness of maintenance management occur in students’ hostels at the universities. According to the respondents stated in open ended question that there is an inappropriate plan and policy of maintenance management in universities lead to the poor maintenance management. This situation happens because of lack of knowledge among employees who responsible for handling the maintenance management. This can be seen as according to Ismail and Kasim (2013) specified that insufficient of comprehensive maintenance management is due to incompetency of employees in making decision procedure to solve defects problems.

b) Improvements: criteria of the “Effective Plan and Policy of Maintenance Management”

In order to provide a better plan and policy of maintenance management, employees in organisation who manages and creates hostels’ procedures must be competent. According to the respondents, employees have to be competent and skillful to create a good plan and policy of maintenance management. According to Ismail and Kasim (2013), employees’ competencies will ensure the quality and value of maintenance management.

c) Weaknesses: Criteria of the “Method of Maintenance Management Undertaken is Constantly Reviewed”

Method of maintenance management that undertaken is not regularly reviewed is the weakness of maintenance management in students’ hostels. According to the respondents stated in open ended questions that employees who handle the maintenance management are not capable and competent. Without expertise, it leads to ineffectiveness and incompetency of employees’ workmanship in maintaining the buildings (Rahman, 2007). Moreover, according to Cobbinah (2010), one of the complications in maintaining the building is funding.

d) Improvement: Criteria of the “Method of Maintenance Management Undertaken is Constantly Reviewed”

Providing training can improve employees’ skill in managing the maintenance works in hostels. According to the respondents in open ended questions suggested that providing adequate training to employees can enhance employees’ performance and productivity. The maintenance works that has been conducted need to be revised constantly (NSW Heritage Office, 2004). Supervisor also has to manage the maintenance schedule to ensure the method of maintenance management undertaken is constantly revised. According to Ahmad (1994), long term maintenance plan need to be reviewed and revised after every inspection.

ii) Employees’ Expertise

From the findings, there are two criteria of employees’ expertise which are “employee is competent to perform building maintenance work” and “adequate training programmes to employees” are the common weaknesses occur in most public universities.

a) Weaknesses: Criteria of “Employee is Competent to Perform Building Maintenance Work”

Incompetency of employees’ performance is the weakness of employees’ expertise in students’ hostels. Without expertise, it leads to ineffectiveness of employees’ performance in maintenance works (Rahman, 2007). According to the respondents stated in open ended question that, employees at the universities are specialized in certain skills and not experts in all areas. Lack of training among employees also lead to poor maintenance in hostels. Cobinnah (2010) pointed out that inadequate training to the employees contributes to the poor maintenance practices.

b) Improvements: Criteria of “Employee is Competent to Perform Building Maintenance Work

According to the respondents, providing adequate training and maintenance courses to employees can improve employees’ expertise. They also stated that, employees need to participate in the training programmes regularly. Providing training is significant for better building maintenance (Cobbinah, 2010). On the other hand, supervisors must be employed to monitor the employees’ works and their training schedule. Supervisor has to ensure that the employees participate in training programmes regularly.

c) Weaknesses: Criteria of “There are adequate training programmes to employees”.

From the findings, there are inadequate training programmes to employees is the weakness of employees’ expertise in students’ hostels. According to the respondents, there is lack of proper training programmes to employees at the university. Cobinnah (2010) pointed out that inadequate training to employees contributes to the poor maintenance practices. They said that

there are insufficient supervisors who responsible to manage the training schedule and maintenance course to the employees.

d) Improvements: Criteria of “There are adequate training programmes to employees”.

According to the respondents, hiring supervisor who have knowledge and experience in maintenance management of hostels is important. Supervisors are responsible to monitor the employees training schedule. The organisation must ensure that their organization had sufficient staff to deliver comprehensive training to employees (Cobbinah, 2010; Adenuga, 2012). Universities should invest some money on training their employees (Lateef et al., 2010).

iii) Materials

From the results, there are two criteria of materials such as “high quality and durable materials are used” and “materials are available and hardly out of stock” are the common weaknesses of materials occur in most of the universities.

a) Weaknesses: Criteria of “High Quality and Durable Materials”

From the findings, there is poor quality and not durable materials are used to maintain the hostels’ buildings. This shows that materials used are not accordance with the specification and standard. According to the respondents stated in open ended question that there are low and medium qualities of materials used in students’ building hostels. Based on Cobbinah (2010) study, poor construction work seems to begin with the bad quality of materials.

b) Improvements: Criteria of “High Quality and Durable Materials”

According to the respondents stated in open ended questions, high quality and durable materials are very important to be used in carrying out building maintenance in hostels. Good quality and durable materials are used to prolong its life span as well as to reduce the rate of deterioration (Cobinnah, 2010). For improvements, materials should follow the standards and specifications. This shows that, employees must follow the materials schedule as specified for better understanding of materials as well as estimate their cost (Zulkarnain et al., 2011).

c) Weaknesses: Criteria of “Materials are Available and Hardly out of Stock”

From the findings, materials are not sufficient and always out of stock is the weakness of materials in hostels. According to the respondents, required materials are always out of stock and some materials are difficult to get in a short period of time. Maintenance organisations with insufficient materials face difficulties for managing a facility to original function (Lee & Scott, 2008).

d) Improvements: Criteria of “Materials are Available and Hardly out of Stock”

For improvements, supervisors should monitor and ensure the necessary materials are always available. According to the respondents stated in open ended questions that, supervisor has to be available to monitor the materials. There has to be guidelines for the allocation of maintenance resources (Lee & Scott, 2008). According to the respondents, there should be a specific place to keep and store materials. Schedule of materials is important to keep track of which materials are out of stock. The schedule provides a normal life expectancy for materials available (NSW Office, 2004).

CONCLUSION

From the result of the findings, it can be seen that corrective maintenance has been chose by the majority of respondents as the most type of practice in building maintenance that have been carried out in students' hostels at UM, UPM and UiTM. According to the Idrus et al. (2009), they revealed that corrective maintenance is the most common technique to be carried out when a building has failed to perform and needs to be restored to its original function.

From the findings, criteria of maintenance management such as “effective plan and policy of hostels maintenance management” and “method of maintenance management that undertaken is constantly reviewed” are the typical weaknesses. Moreover, criteria of employees' expertise such as “employee is competent to perform building maintenance work” and “adequate training programmes to employees” are the common weaknesses happen. Lastly, criteria of materials such as “high quality and durable materials are used” and “materials are available and hardly out of stock” are the typical weaknesses occur in the universities.

For the improvement strategy of a better plan and policy of maintenance management in hostels, employees in company who handles the procedures need to be skillful. Supervisor also has to manage the maintenance schedule to assure the method of maintenance management undertaken is constantly reviewed. Providing enough training to employees can improve employees' expertise. Supervisor must to be hired to assure there are adequate training programmes to the employees. The improvement of the criteria of high quality and durable materials is materials need to follow the standards and specifications as stated. On the other hand, supervisor ought to observe that the materials are always available.

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