STUDY ON T ...TENANCE MANAGEMENT IN UNIVERSITI MALAYSIA PAHANG (UMP)'S BUILDING CAMPUS

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ABSTRACT

Maintenance of building is a process of reservation and restoration activity of the structure and components of the buildings itself. They have to maintain the workability of the building for stand long and it can be function in long term period as well. The ignorance of maintenance of the building are become serious problem and it must be prevent at the early stage but if the management failed to do so, the high cost of maintenance and repairing in the future. On 19 July 2013, Kuala Lumpur, News Straits Times, quotes from the article says, "11 years old child was killed in People's Housing Project (PPR) lift resulting by the building poor lift maintenance. The damaged is caused by the weakness of the building management. The scope of this study will concentrate on the effectiveness of building maintenance management. UMP campus is been selected as a study site. From the study been conducted, what types of defect occur in UMP building can be identify and examine the building occupant responses and the level of awareness towards the defects or damages of the building when occurred. So that the improvement should be done by the management itself. Data have been collected by the distribution of the questionnaire survey and been analysed. The information related obtained from interview of the UMP management (Department of Development & Asset Management (JPPH) and Residential College 1 (KK1). The most frequent defect occured in residential college is toilet damage. Most of the respondent is quite satisfied with the quality of repairing and maintenance work, the completion time of maintenance and the maintenance management system. The maintenance management have to be improved in term of the time completion of the maintenance work and the management should create the schedule planning system for detect any failure system occur frequently in building.

ABSTRAK

Penyelenggaraan bangunan adalah satu proses pemeliharaan dan aktiviti pemulihan struktur komponen bangunan. Pengurusan penyelenggaraan perlu untuk mengekalkan kebolehkerjaan dan juga fungsi bangunan dalam jangka hayat panjang. Pengabaian penyelenggaraan bangunan akan menjadi masalah yang serius dan perlu dielakkan di peringkat awal. Jika pihak pengurusan penyelenggaraan gagal berbuat demikian, kos penyelenggaraan dan pembaikan akan meningkat di masa akan datang. Pada 19 Julai 2013, Kuala Lumpur, News Straits Times , petikan daripada artikel itu, "seorang kanak-kanak berumur 11 tahun terbunuh di dalam lif Projek Perumahan Rakyat (PPR) disebabkan oleh penyelenggaraan bangunan lif yang teruk. Kerosakan tersebut juga disebabkan oleh kelemahan dari pihak pengurusan bangunan. Skop kajian ini tertumpu kepada keberkesanan pengurusan penyelenggaraan bangunan. Kampus UMP adalah dipilih sebagai tapak kajian. Daripada kajian yang dijalankan, jenis kecacatan berlaku dalam bangunan UMP dapat dikenalpasti dan juga kajian terhadap respon dan tahap kesedaran penghuni jika kecacatan atau kerosakan bangunan berlaku. Jadi, peningkatan perlu dilakukan oleh pihak pengurusan itu sendiri. Data telah dikumpul daripada pengedaran borang soal selidik dan dianalisis. Maklumat yang berkaitan juga diperoleh daripada temu bual terhadap pengurusan UMP (Jabatan Pembangunan & Pengurusan Aset (JPPH) dan Kolej Kediaman 1 (KK1). Kecacatan yang paling kerap berlaku di kolej kediaman adalah kerosakan tandas. Kebanyakan responden agak berpuas hati dengan kualiti pembaikan dan kerja penyelenggaraan, masa siap dan sistem pengurusan penyelenggaraan. Pihak pengurusan perlu meningkatkan jangka masa siap (jangka masa yang segera) bagi kerja-kerja penyelenggaraan dan pihak pengurusan perlu mewujudkan sistem jadual terancang untuk mengesan apa-apa kegagalan sistem yang berlaku di bangunan.

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JPPH	Jabatan Pembangunan & Pengurusan Harta
KK1	Kolej Kediaman 1
KK2	Kolej Kediaman 2
KK3	Kolej Kediaman 3
KK4	Kolej Kediaman 4
KK5	Kolej Kediaman 5
NIOSH	National Institute of Occupational Safety & Health
PPR	Projek Perumahan Rakyat
QC	Quality Assurance
QC	Quality Control
SPSS	Statistical Package for Social Sciences
UMP	Universiti Malaysia Pahang
UTM	Universiti Teknologi Malaysia

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDY

In Malaysia, the construction of the building such as house, office, shopping complex, schools and the others were tremendously high as part of the government efforts to increase the number of building to cater the population needs. The construction industry is one of the most important industries for support the rapid growth of the country. Maintenance involving the inspection towards the building, repairing, replacing the old to new one, adjusting and others. For the construction have been done, it will required a regular maintenance to keep all the equipment and all parts of building can be function well and reliable.

Maintenance of the building usually will carried out when there have some budget on it, even the building needs to do some maintenance until it become unattractive and not safe for the occupants to stay in. Maintenance of the building is not regarded as a part of the production process, as such, most of the organizer ignore it. There is no doubt that the government tried to improved the allocation on maintenance of building, but the allocation still can not fullfil the increasing demand for the maintenance backlog. There is a need for broad and systematic procedure related to the maintenance of building that placed the residents at the center of maintenance planning, controlling and implementation.

Maintenance increased regardless of the types and size of building, ownership and the location of the building. Eventhough the building is small and may be the location is strategic, we can not say that the building do not need to go through the maintenance process. It can be state that all building need to be maintained for a longer shelf life to reduce the cost of repairing of the building.

Focus on university buildings, it is a significant part of university assets and considerable resources are committed to their design, construction and management. The main point of the maintenance is to optimize the productivity and user satisfaction and with optimum resources. The aim of building maintenance is to enhance the productivity of the activities taking place in around the building. Besides, it is to achieve the efficiency maintenance activities in the building. But the failure of maintaining the building will resulting poor performance of the building itself. Most important thing, the effectiveness depends on how the management of maintenance.

1.2 PROBLEM STATEMENT

Maintenance of building is a process of reservation and restoration activity of the structure and components of the building. Maintenance management involves obtaining maximum benefit from the investment made on the maintenance activities. Few years ago, a rapid growth building construction clearly appears as a part of country development. As a result, more maintenance work is needed in order to make the building stand long and been function as well. The ignorance of maintenance of building is seriously intervention at national level must be done. If the buildings have been damaged, or having defects, it will embarrassing and demeaning the building and the results it may lead to accidents and diseases to the residents of the building itself.

There are some of the problems lead to the causes the damaged of the building. Main problem associated to the management, planning, organization, performance and execution of the maintenance task. Lack of tools and spare part required for the maintenance works also can be contribute to the problems on maintenance. Each of the management have always to be prepared all the tools for maintenance and to be ensure it can be function well and can be used. Problems also associated with the technical aspects of the conservation from the beginning to the end of the building life.

To support this research, some articles have been found out to emphasize that the maintenance of the building is very important. On 19 July 2013, Kuala Lumpur, News Straits Times, quotes from the article says, "11 years old was killed in People's Housing Project (PPR) lift resulting by the building poor lift maintenance. Several of the residents who took the lift endure several terrifying when it descended quickly, before crashing to the ground floor. It caused the victim trapped in it but no one get injured."

The second article from News Straits Times, On 6 June 2013, Tan Sri Datuk Lee Lam Thye, the chairman of National Institute of Occupational Safety and Health (NIOSH) said Malaysia is known as a country which prides itself in the provision of First-World infrastructure but not in term of maintenance of these infrastructure. Incidences of defects and accidents in new government buildings, hospitals, staduim, mosque and other infrastructure will give harm to the people surrounding.

Based on these two article proved that the issues of maintenance of building can not be underestimate and consider it as a minor problem. If this matter is left unattended, it will become worse and the effect from it, not only will be borne by the people, it will also give bad effect to the environment.

1.3 OBJECTIVES OF THE STUDY

The main purpose of this research is to improve the building maintenance management practise in university. To achieve the goal, the following objectives of the study are structured as follows;

i. To study the way of implementation of the maintenance of building,

ii. To identify the types of damage occur in UMP's building,

iii. Examine the building residents responses and awareness of the defects or damages of the building occurred.

1.4 SCOPE OF THE STUDY

The scope of this research will focus on the building maintenance management system in the public sector in the building. So, UMP Gambang campus has been selected as study site by referring Jabatan Pembangunan & Pengurusan Harta (JPPH), UMP. The research is focus on what types of the defect occur in the buildings, the how the maintenance occur, and the system they been used to solved the damage problem occur in the building.

1.5 RATIONALE AND SIGNIFICANCE OF THE STUDY

This topic has been selected because the maintenance of the building sometimes is ignorance to the certain management. These people have to aware of importance of preventative maintenance cannot be over-emphasised. There are many good reasons for maintaining the building. Preventative maintenance keeps up a building's appearance and extends its life.

So, we can reduce the cost of repairing. Maintenance makes economic sense as it may reduce or potentially eliminate the unneeded for, and the extent of the major repair projects. Repairs can be disruptive and costly in terms of finances, so extending the period between repair campaigns by carrying out maintenance places less of a burden on community resources.

Maintenance is also can preserve the resources that have been exists. Preventative maintenance is an inherently sustainable activity. Do not let old buildings to deteriorate. If not, all this energy will go to waste and the buildings cannot be used. It is therefore far better to keep our existing buildings in use and in a good state of repair. This will reduce our need for new materials, which will in turn reduce processing and transport requirements as well as reducing waste and energy use. It may also reduce the demand for new Greenfield development.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Nowadays, the maintainance of building become more important. It is because, there are lots of building developed in the country. So, they have to maintain the workability of the building for stand long and it can be used in long term period. The facilities of the building and the equipment itself must be provided for the comfort of the residents. If all of them are not provided, the building are failed to do so, then it will not give any benefit for the residents. The results, it will give them difficulties, because they have to repaired with the high cost of maintenance.

Referring David Arditi et al, 1999, they said "The issue of building maintenance is a universal issue and is highly considered in the early process of the construction (design) to assure the quality of the bulding. So, it means that from the beginning, the construction of the building must followed the specification for example, British Standard (BS 8110), Malaysian Standard (MS EN 1992-1-1:2010) and the others. If they precisely follow it, the defect or decay can be decreased and the lowest maintenance have to be provided.

2.2 DEFINITION OF THE MAINTENANCE MANAGEMENT

From "Oxford English Dictionary" it can be defined as keeping something in the good condition while from the BS 3811, it said that the work undertaken in order to restore and improving every facility (i.e. the site building and its content) to a current standard and sustain the utility and value of the facilities of the building.

S.H. Zulkarnain et al, 2011 defined that the maintenance is a mean processes, activities, procedures and services applied to the building. It is undertaken to care and enhance the building's property and facilities. On the other hand, by doing the maintenance, it can reduce building depreciation as well as extend the function and useful life of the buildings.

Lateef O.A, Khamidi M.F, and Idrus A, 2010 state that maintenance can be defied as the required processes and services undertaken to preserve, protect, enchance and care for the university's fabrics and services after completion, in accordance with the prevailing standards so that the building can serve their intended function throughout their entire life span without drastically upsetting their basic features and uses.

Maintenance works just not only considered infront of the building but it is including all part of the building. Maintenance of the building is a process of the reservation and the restoration activity of the structure and components of a building. It is cover up the whole building included walls, slabs, roofs, rooms, toilets, drains, windows, floors and also fixed furniture. (Zainal Abidin, 2007).

So, overall from the statement, maintenance can be conclude as;

i. The work undertaken in order to restore and improve every facilities of the building;
ii. The service applied to enhance the building property;
iii. Reducing the cost of the building for rebuilt or repairing on future to extend the useful life of it.

2.3 REASON OF THE MAINTENANCE MANAGEMENT

There are many reasons why maintenance is become more important. In developing countries, where many old buildings are been used, and the spare parts problem for change the defects are arising. By having an excellent practise of maintenance management is greatly needed to increase the life time of the property and to minimize unexpected breakdowns or deterioration effects. (S.H. Zulkarnain et al, 2011).

Rapid growth of the building construction clearly exists as a part of the county development. As a result, more maintenance work is required in order to cope with this type of construction. The possibility of decreasing the demand for maintenance by addressing the actual cause of failure and identifying its consequences. (Siti Nur Fatimah et al, 2011).

2.4 MAINTENANCE REQUIREMENT

It is highly desirable but hardly feasible to produce buildings that are maintenance-free, although much can be done at the design stage to reduce the amount of subsequent maintenance work. (S.H. Zulkarnain et al, 2011).All elements of buildings deteriorate at a greater or lesser rate depending on material and methods of construction, environmental conditions and the use of the building.

The main point of maintenance is to keep the building maintained in its original condition, as far as practise, so that it effectively serves it purpose. The purpose of maintaining buildings are:

i. Retaining value of investment
ii. Maintaining the building in a condition in which it continuous to fulfil its function
iii. Presenting a good appearance
iv. Keep the building clean and safe in environment

Maintenance work can be divided into two categories, which are predictable and avoidable. Predictable maintenance is regularly periodic work that may be necessary to retain the performance characteristic of a product, as well as that required to replace or repair the product after it has achieved a useful life span.

Avoidable maintenance is the work required to rectify failures caused by poor design, incorrect installation or the use of unsuitable materials. The function of maintenance can be divided into three groups;

i. Cleaning and servicing
ii. Rectification and repairing
iii. Replacement

Timely expenditure on the first two can postpone the need to replace materials and components, a very expensive business. Cleaning and servicing should be carried out regularly and may be combined with the system of reporting faults when become apparent, thereby avoiding the need for more expensive repair or replacing the components of the building later.

2.5 BUILDING MAINTENANCE MANAGEMENT SYSTEM

Building maintenance management system is divided into three form adopted from the organization which are planned, unplanned and combination of both planned and unplanned maintenance management.

2.5.1 Planned Maintenance Management

This maintenance system organized and carried out with forethought, control and the use of records to a predetermined plan (S.H. Zulkarnain et al, 2011). By the planned maintenance, prevent from occuring any defect than repairing them. The system aspect is being carried out at all times according to the prepared schedule without waiting the damage occured.

2.5.2 Unplanned Maintenance Management

Ad hoc maintenance carried out to no predetermined plan. Unplanned maintenance management is the activity done due to damage failure that cannot be determined due to unpredictable circumstance and natural disaster. This sistem cannot be determined when it is needed. To avoid this matter become worst, urgent action have to be taken such as broken pipes, roof leakes and the others (Mohamad Syazwan, 2012).

2.6 DEFECT OF THE BUILDING

Defect of damage are caused by the error problems occur in the building which is neglected by the contractors while it is under construction. According Siti Nur Fatimah et al, 2011, a building can be defective through the age and lack of maintenance work. A professsional advice should be grabbed to make sure the replacement or works undertaken are using materials and the latest system of application that are suitable to the building.

Defect of buildings or structure are common that Malaysian do not bat on eye anymore, or they have immune of these defect when it been highlighted. The conundrums are firstly the construction integrity of the structure, shoody quality of workmanship and supervision, secondly, the maintenance of the structure (Hamisah, 2007).

2.7 CAUSES OF DEFECT

Some of the defects are naturally occur consequence of ageing and normal use but many premature failings can be traced to a lack of proper skill and care for the maintenance of building. Over 90 percent of building defects could be explained partly or wholly as the result of readily in identifiable faults in design or construction which could have been foreseen and prevented.

2.7.1 Faulty of Design Decision

Faults in building design place a heavy burden on the building for a long term and there is no compensation for it. As a designer, they must think carefully and make a final desicion considering all factors of the design project.

There are common failure on design which are the ignorance of basic physical properties of materials, use of new materials or innovative forms of construction which have not been propoerly tested in use, poor communications between different members of the design and construction teams and others.

The faulty can may be traced to the component manufacturers, specialist sub-contractors and consultants as well as the main designer. A less obvious design fault by considering the case which one of the components of the building have to be maintained and which one can be replaced.

2.7.2 Faulty of Construction Method

This faulty is one of the common causes of early deterioration. Under almost any exposure conditions these failure will eventually reduce the service life of the structure of buildings and the function itself. For example, the building have to follow one of the system to be build, but the the contractor or the builder have no experience of this system, then it may be build incorrectly. Sometimes lack of suitability qualification of the supervisor can lead to this problem, as the lack of testing that have to be carried out during construction works such as concrete tests.

This faulty can be avoided by ensuring the supervisor and the workers on site have an experience and expert on the work. They have to make sure all stages in the process done properly, especially during the installation of the

components. To tackle this construction industry is begining to introduce the quality assurance technique development in other industries such as Quality Assurance (QA) groups and Quality Control (QC). These techniques involving th setting down appropriate inspection procedures and specify the levels of acceptance and rejection of any method testing.

2.7.3 Faulty of Maintenance

Faulty by the maintenance because of the incorrectly of maintenance work been carried out in the building or may be the maintenance work are not been done once during the life of the building. However, maintenance of building will costs money, and although building maintenance can be planned and specified correctly. The life of building elements and the components can be extended by adopting a planned maintenance approach so that the problem can be identified in early stage and the preventive maintenance carried out to avoid early failure to be occur.

2.7.4 Faulty of Materials

The usage of the low quality of materials will resulting defect. We cannot test the materials for 60 years before it been used for the construction and we cannot test the materials in the conjunction with all of the materials that they may potentially contribute to failure. As generally, the materials that manufactured in the factories will be of better quality than materials manufactured on site. Ahmad, 2006 state that the pre-fabrication reduces design flair and flexibility.

Figure 2.1: Faulty material by using the material that already have a defect

Figure 2.2 : Cracking of the floor because the low quality of material

Figure 2.3 : Rusted rainforcement and corrosion of the concrete