

PREVENTIVE MAINTENANCE MANAGEMENT: AN APPROACH TOWARDS A SUSTAINABILITY OF ADAPTIVE RE-USE HISTORICAL BUILDINGS IN KUALA LUMPUR, MALAYSIA

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ABSTRACT

The change to re-use and adaptation of buildings is a trend that has been clearly chartered in Malaysia. The importance of this trend is to extending the useful life of existing buildings supports the key concepts of sustainability. One of the reasons for the interest in adaptation is the growing perception that old buildings are often cheaper to convert to a new uses than to demolish and rebuild. It has been identified as having an important impact on sustainability of the built environment. The main purpose of this paper is to study and identify issues and problems in managing maintenance of adaptive re-use buildings. Perception on viability of adaptive re-use concept and the impact it has on the sustainability of existing built environment in Kuala Lumpur also will be addressed. The research was conducted based on responses from the case studies and structured questionnaire from a number of maintenance managers all of whom are responsible for significant of historic buildings within their portfolios. The finding revealed that adaptive re-use building's maintenance management is carried out without referring to any proper conservation standard guidelines and neither properly planned. The related problems and ficient amount of financial support, inconsistent co-operation by the related parties who are unable to carry out the buildings control works. Recommendations are highlighted in solving identified issues and problems such aissues faced by building management teams on adaptive re-use buildings are enforcement of legal aspect, insufs strengthening the enforcement of conservation legislations and guidelines, systematic planned maintenance management, promote public awareness and enhance research and development related to adaptive re-use of historical buildings.

Keywords: Sustainability, Historical Building, Preventive Maintenance, Adaptive Re-use, Conservation Legislation.

INTRODUCTION

The rapid economic growth of Malaysia saw the accelerated development of infrastructures, transportation networks and buildings to meet the new social, economic and politic demands. The owners or developers views that old buildings with historical and architectural merits were no longer suitable in the city, and should be demolished to give way for new development which can make profit to them. This perception has to be changed!

Not every old buildings is unsuitable to sustain, some are still structurally sound and are considerable as valuable assets to the nation, especially for their historical significances, aesthetic, social, economic values, and symbolic heritage links that give benefit and enjoyment to the society. They provide the society with an images and pleasant atmosphere which cannot be re-created in the new one. In order to maintain these historic buildings to meet present day needs, it is necessary to adapt the building for new uses and rehabilitate or up grade the building to satisfy new end-user (Wagner, 1996).

In Kuala Lumpur many of the old buildings have been conserved and converted into adaptive re-used. It shows that the degrees concerning on the conservation of cultural heritage are increasing important consideration in the context of new developments. Despite increasing governmental and public concern, the absence of effective legal protection, these buildings are been badly treated through its new uncontrolled renovation works, alterations and extensions. It is believed that the owners of the building are less concern related to the important of the maintenance works rather than more profitable activities. This creates aesthetic distortion appearance thus decreasing the significances value of our heritage buildings, and furthermore cause our cultural heritage

continues to disappear at an alarming rate. Insall, (1972); Mills, (1994), highlighted that by nature, building conservation is a sustainable form of property development. Improving existing buildings and sustaining the historic environment has become a critical policy for many cities and countries in the world.

Although the many old buildings had been gazetted, the aspect of maintenance works, priority are not been stressed. According to Gaffar (1998), owner of the building should be aware that maintenance works will take place when the construction of new or old buildings completed. The aspect of design, materials, works qualities, functions and the usage of buildings will cause numbers of maintenance to be done throughout the life span of the buildings. Maintaining historic buildings in whatever form is an expensive task, and one of the most profound difficulties facing heritage managers in most of the world (Timothy and Boyd 2003). As suggested by English Heritage (Bereton, 1991), the best means of ensuring the continued preservation of a building is to carry out regular maintenance. Such work is part of the day to day responsibility of all owners and occupier. Regular systematic condition surveys and maintenances are essential if the money spent on major repairs is not being wasted.

This paper reports a study on the related problems and issues faced by the building management teams on adaptive re-use buildings. The lack of control within the local governments and lack of awareness on the important of preventive maintenance related to the values of heritage buildings are the factors that make many of these historical buildings have been neglected and need to be discussed.

MATERIALS AND METHODS

This study will focus on the conservation perspective and the importance of maintenance management in conserving adaptive re-use building in Malaysia. The scope of this research is to study the adaptive re-use of historical buildings that have been modified to suit with modern standards and end user requirements. Buildings such as institutions and commercials which undergo successful adaptive re-use scheme have been selected as the case studies (i.e. Central Market Building and PAM Centre Building).

Besides case studies, a structured questionnaire survey was designed and conducted to the respondent from building's owner (administrative department and technical personnel on maintenance works), professionals (person in the profession of building maintenance and conservation) and to public at random. Level of involvement by buildings maintenance and management staff in building maintenance practice is crucial for overall conservation efforts. In addition to that, staff specialize background, roles and responsibilities as well as numbers of staff in the management team need to be analyzed.

CASE STUDY

Example: Case study 1- Central Market Building (HB 1)



Fig. 1.0: Case Study 1-Central Market Building

Building Information

The Central Market was built in 1936 by the Kuala Lumpur Sanitary Board as the main fresh produce market for the residents of Kuala Lumpur and the outlying areas. In late 1983, The Central Market together with the old shop houses north and south of it acquired by the Urban Development Authority or UDA was to be demolished for a multi-million dollar development of high-rise offices, hotels and shops.

Concerned citizens' group like Badan Warisan Malaysia / Heritage of Malaysia Trust campaigned without success for its conservations and possible re-use as the home of Malaysia's National Art Gallery. However in 1985, with the economic downturn coupled with the surplus of office and commercial space on the property market, the Government agreed to save the Central Market and turn it into a "Cultural Market" (Majalah Arkitek, 1986).

When the Central Market re-opened its doors for business on 15th April 1986 on its 50th anniversary, Kuala Lumpur could indeed boast that it had its own Covent Garden like other world models; Boston's Fanueil Hall Market Place, San Francisco's Ghiradelli Square & Fisherman's Wharf, and the New York City's South Street Seaport. The Central Market is the first case of a private developer's adaptive re-use building, leased for commercial development on such a scale.

Adaptive Re-use Work

The restoration and renovation work for adaptive re-use included the new mezzanine floor, open plan shops, stalls utilizing the old Market slabs, central air-conditioning and a coat of apricot and baby blue for the exterior. Addition was being made to the existing structure and had to be free of the envelope such as the peripheral walls and the roof. The aim of design concept is to maintaining the senses of openness with lots of movement, intimacy and colour. The provision of 120 shops, none bigger than 60 square meters, was done purposely to achieve the Central Market philosophy of having interesting mixed clients with the emphasis on living traditional crafts. These kiosks have become a focal point of the new Market.

Example: Case Study 2- PAM Centre Building (HB 2)



Fig. 2.0: Case Study 2- PAM Centre Building

Building Information

In 1903, Loke Chow Kit built this townhouse and suite of offices then known as Loke Hall. It was believed that AK Moosdeen was the architect. In 1908, a group of Europeans converted the mansion into a Hotel known as the Peninsula Hotel. The hotel was a favorite meeting place with planters, industrialists and local members of the great trading houses. Thereafter, the building was left unoccupied until 1973, when Pertubuhan Akitek Malaysia (Malaysian Institute of Architects) became the tenant. PAM renovated and restored the building for use as a Building Centre and Secretariat.

The building consists of a main house and an annex. The mansion is reminiscent of a European-style villa which the European-style was shown on building facade. Especially with the elaborate artwork on the Dutch gable ends and on the front facade Symmetrical in design, it has a central entrance portico leading to an inner two-storey courtyard. The annex, which was one of five units of townhouses designed as a block, has a matching style (Badan Warisan Malaysia, 2005).

Adaptive Re-use Work

In 1973, Persatuan Arkitek Malaysia (PAM) occupied Loke Hall building (original's name) as PAM centre on a rental basis. However in 1981 the owner's of Loke Hall and the adjoining properties were sold to Intan Development Sdn. Bhd for new development drew public concern. In 1983 DBKL decided to surrender the

building to PAM as a “tenant Architect” and a “custodian” of a building gazette under Antiques’ Act. Since then PAM had fulfill its obligations and the building were well maintain in a good state of repair and restored. From the statements, not much alteration had been made to the building until now. Even though the existing functional spaces had been changed but its original spaces are still exists. The process of adaptation this building and minimum intervention to current activities or functions of this building are concurrent with the conservation principles practice.

RESULTS AND DISCUSSIONS

A questionnaire survey was conducted on the historical buildings to gather information concerning the viability of the perception of adaptive re-use. The survey was taken at random from the public visiting the adaptive re-use buildings of the case study. The survey also includes interview from selected management level of the case study buildings.

Quantities of 100 questionnaire survey forms being issued and only 67 respondents returned. The respondents from case study – Historical Building 1(HB 1) are from several of professions such as artists, students, sale person and personnel from government’s staff, in which they are mostly regular visitors and tenants. While respondents of case study-Historical Building 2 (HB 2) are from professional background which majority involved with building industry.

Towards a sustainability of adaptive re-use historical building, the analysis below will look into the important of preventive maintenance which focus on three main aspects, such as:

- a) Awareness and perception on viability of adaptive re-use concept on historical buildings
- b) The importance of maintenance management of historical building
- c) Application of conservation legislations and guidelines

Analysis on the Awareness on the Existing Historical Buildings

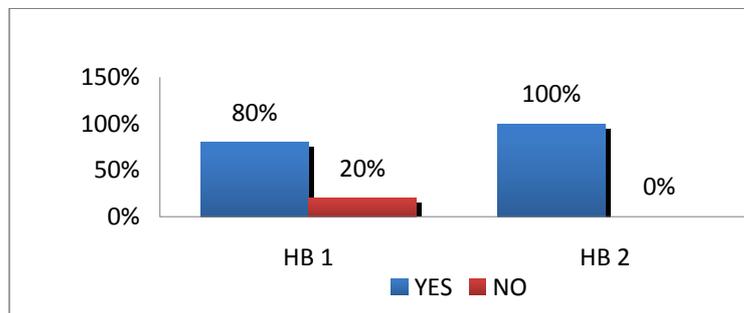


Fig. 3.0: Awareness of Historical Buildings

Fig. 3.0 shows that majority of the respondent from both case studies were aware on the existing of historical buildings which they regularly visited. In addition, the respondentS managed to list out other historical buildings that can be found in Kuala Lumpur such as Bangunan Sultan Abdul Samad, Bangunan KTMB , Odean Theater and shop houses at Jalan Doraisamy, Jalan Masjid India and Petaling Street.

Analysis on the Perception towards Historical Buildings

Fig.4.0 shows that majority of the respondents from both case studies indicated that historical buildings should be conserved. This can be seen in case study HB 1 where 65% of the respondents from public background preferred the buildings to be redeveloped for adaptive re-use purpose. While 40% of the respondent from professional background in case study HB 2 preferred to maintain the building as it is. Only few of the respondents want it to be demolished.

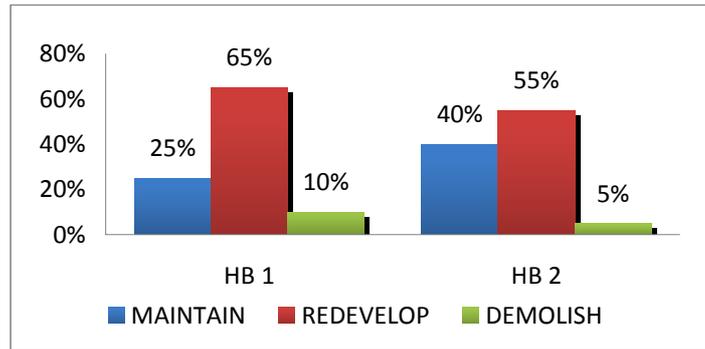


Fig. 4.0: Expectation towards Historical Buildings

Analysis on the Importance of Preventive Maintenance

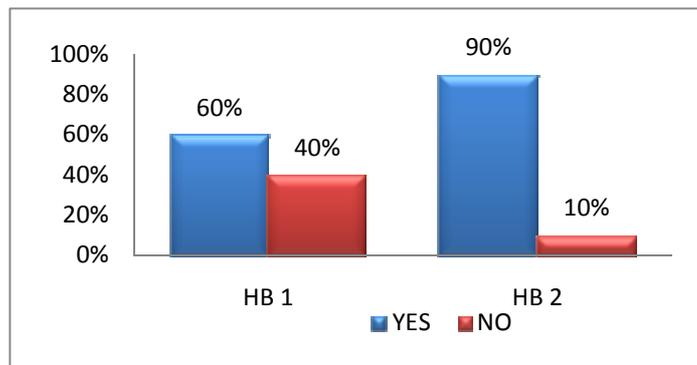


Fig. 5.0: Importance of Preventive Maintenance to Historical Buildings

Fig 5.0 shows an analysis on the importance of preventive maintenance of historical buildings. Both respondents from case studies HB 1(60%) and HB 2(90%) stressed that preventive maintenance is very important and should be given priority in order to preserve and conserve the historical buildings. While 40% of respondents indicated that regular maintenance to the buildings is sufficiently enough.

Analysis on the Needs of Planned Maintenance at Early Stage

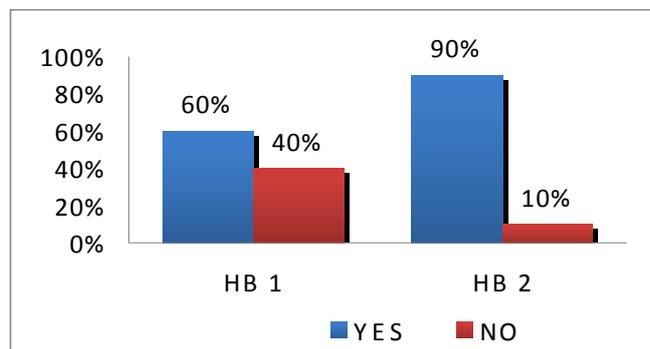


Fig. 6.0: The Needs of Planned Maintenance

From the Fig. 6.0 above, case study HB 1 shows that 60% of the respondents preferred the building to be maintained at the early stage by the maintenance team. 40% of the respondents indicated that the frequency of maintenance works to be as and when necessary. Case study HB 2 shows that 90% of the respondents emphasize that well planned and scheduled maintenance works is the best practice in order to maintain the performance of the historical building.

Analysis on Awareness of Conservation Legislation

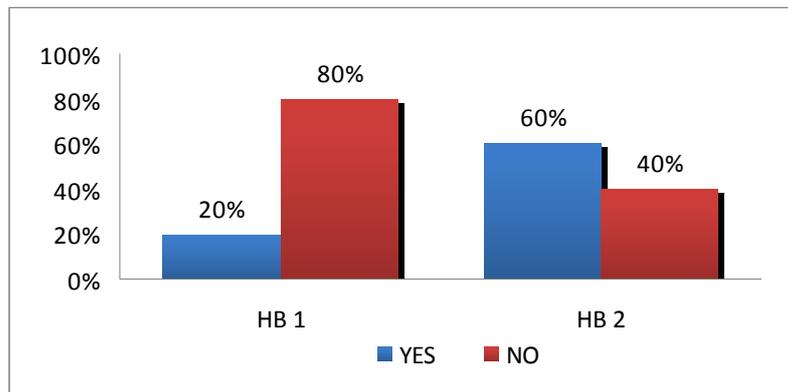


Fig. 7.0: Awareness of Related Conservation Legislation

Fig. 7.0 indicated that 80% of the respondents from case study HB 1 are not aware of the existence of the related conservation legislation on historical building. While in case study HB 2 shows that 60% of the respondents from the professional are aware about the existence of conservation legislation. In addition, the respondents stated that there are no specific standards related to building conservation and maintenance work. However, the present legislation on historical buildings is not sufficient and suitable to protect such buildings from being demolished and destroyed.

DISCUSSIONS

From the observation, this study has identified problems and issues that lead to ineffective and inefficient or has a great effect to the quality of conservation work toward preventive maintenance of adaptive re-use historical building. The problems are associated with:

- i. Lack of intellectual knowledge and commitment
- ii. Lack of competency officers in charge
- iii. Lack of proper Documentation
- iv. Lack of financial Support
- v. Lack of public awareness

Lack of Intellectual Knowledge and Commitment

From the building observation, the level of building performance of the historical building in related to the application of conservation laws and guidelines was not truly practiced. By analyzing the questionnaire survey, the level of building performance was not at satisfactory level due to the lack of intellectual knowledge on conservation legislation and guidelines and commitment by the management teams. In the current maintenance practice, Uniform Building By Law (UBBL) 1986 and Town Planning Act 1976 were used as common reference to all the management teams in order to maintain and conserve their buildings. Even though there are others guideline drafted by related organization, such as National Heritage Act (NHA 645) and Antiquities Act 1976, Department of Safety and Health (DOSH) and Fire Department (BOMBA) that have certain sections outlining buildings conservation and protection guidelines. Building maintenance management teams seem to be neglected to enforce it in their building conservation programmed. With this practice it is worried that most of the adaptive re-use historical building will be managed without referring to the conservation principle as a guideline and slowly lost its significant value.

Therefore, the adaptation and application of conservation guidelines should be given priority by the maintenance management teams in maintaining adaptive re-use historic buildings. This is the only way to preserve and conserve the significant value of our historical buildings.

Lack of Competency Officers in Charge

From the study it is found that the level of maintenance managements on historical building is still not satisfied to the requirements standard of conservation process. Both management teams practice unplanned maintenance management. These will leads to the improper practice of conservation techniques. Due to inadequate funding and lack of effective training by the maintenance management team, most of the maintenance work made to heritage properties is purely cosmetic. By considering the relationship of these problems, sufficient staff training and information on conservation principles and guidelines need attention and exposure. Thus, the technical staffs with an experience particularly comprehend in conservation's principle and competency play an important role in in-house maintenance process.

Lack of Proper Documentation

From the case studies findings, both of the building maintenance management teams practiced unplanned maintenance. The results from the interview and questionnaire survey done had indicated that the maintenance works only apply when defects occurred or unserviceable. Overall, these management teams did record all the maintenance works and gather all the information of their building as a reference for the conservation and maintenance purposes in future.

Documentation process requires well trained, skill staff and special surveying equipment to make sure its implementation was in the correct procedures. Historical Architecture Building Survey (HABS) is commonly used for building documentation and recording techniques in conserving heritage buildings. However, through an interviewed with various related parties, most of the buildings maintenance management teams are not fully familiar with this documentation process. Building documentation and recording of maintenance work on historical buildings is very important aspect to the building maintenance managements. Insufficient building records and documentation of the works can create problems in determine the performance of the buildings, thus, difficulty in planning the routine of schedule maintenance.

Lack of Financial Support

From the study, majority of the respondents agreed that the problems faced by the maintenance management teams of adaptive re-use buildings are insufficient budget allocation to upgrade the performance of the building. Although they received some financial from the government and non-government organization, most of the financial support does not cover the overhead and contingencies cost for building maintenance.

Lack of Public Awareness

Adaptive re-use is the process of changing a building's function to accommodate the changing needs of its users. Very often, community members and government leaders view the protection of historic buildings as an obstruction to modern development.

From the case study and exploratory survey, perception from the public and professionals related to the value of adaptive re-use need to be considered. This is to satisfy the environmental, social, economic and institutional opinions of sustainable development rather than demolition. The majority of respondents were certain that adapted heritage buildings could be ideal of sustainable development, provided that they retained the dignity and character of the original building while at the same time providing modern facilities and ambience. It would appear that adaptive re-use of existing old buildings provide the opportunity to make them more aesthetically pleasing and productive, to which adaptive re-use of old buildings will raise public awareness of sustainability.

CONCLUSIONS

In general the concept of adaptive re-use is providing a new function into an historical building, the comfort and safety of the occupant or end user is of primary issue. The term adaptive re-use is relatively new but the concept is old. During the study, the level performance of the maintenance works toward the buildings is moderate. This is due to the lack of efficiencies by the maintenance team and mostly the management is practicing breakdown maintenance and not planned maintenance.

The importance of preventive maintenance to the adaptive re-use historical building need attention hence plays an important role to conserve adaptive re-use building. Therefore, a systematic maintenances approach could able to assist good management and hence upgrade the performance of the buildings significant. Responsibility of maintaining the historical buildings are not only lies to the buildings maintenance management team but also to be shared by the public. By introducing and understanding the concept of adaptive re-use and preventive maintenance management, it will help to rescue a threatened historical building. Sufficient disciplines and campaign should be launched as to aware the public towards the importance to preserve the historical buildings. Preservation of adaptive re-use historical building makes cities viable and makes cities equitable. We need to use our cities and our historic resources in such a way that they are available to meet the needs of future generations as well.

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