Overview of Maintenance Approaches of Historical Buildings in Kuala Lumpur – A Current Practice

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Abstract

The conservation of historic buildings is an established method to preserve a heritage structure through restoration and maintenance works. Maintenance has been identified as a key intervention in protecting historic structure by prolonging a building lifespan. The importance of carrying out a systematic and routine maintenance works as part of the conservation programme is often neglected due to misunderstanding on the needs of the works subsequent to the conservation works carried out. Noted, without systematic and proper maintenance approach, historic buildings will deteriorate and will not be able to function as it is. In a way, this will be such a financial waste considering the higher cost involved in the conservation works. This paper intends to highlight the current practice of maintenance approaches that are being implemented in historic buildings in Kuala Lumpur. Kuala Lumpur as a capital city of Malaysia, has uniquely contains a vast number of historic buildings. Each building has its own unique character and significant be it cultural, historical or architectural. The findings for this research are summarized from the responses obtained directly from the respondents employed for the management of the historical buildings. Case studies involving 20 numbers of historical buildings, of which some are already categorized under national heritage, were carried out. The methodology for this research is based on personal interviews and distribution of self-developed questionnaire directing to the current scenario on the approach taken for the implementation of maintenance works on these buildings. The outcome of this paper later would be used as a basis for formation of the best maintenance programme for historical buildings in Malaysia

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Selection and/or peer-review under responsibility of Universiti Teknologi MARA Perak and Institution of Surveyors Malaysia (ISM)

Keywords: Conservation, maintenance, historical buildings, maintenance approach

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1. Introduction

The condition and the quality of a building are two main principles of having a quality life. This associated with the fact that 95% of our time is either spent inside a building or somewhere closer to a building These two principles also portrays the image of the community, living standard and behavioral factors, be it in the past or at present, of which the possibility of integration may formed a distinguish unique character of the community [1]. During the formation of Society of Protected Ancient Buildings (SPAB), Morris [2] had highlighted the importance of the maintenance plays in protecting historic buildings.

Given that the nature of historical buildings, which are in some avoidable degree of degradation and decay, maintenance is the single most significant approach that can ensure the prolongation of the building’s lifespan. Hamilton & Wan Salleh [3] stated that systematic management and continuous maintenance works are necessary for mitigating the decaying process that will lead to unsafe condition. Besides the benefit to the building’s lifespan, the execution of the maintenance works on a building and its services system when continuously and progressively undertaken, in a long run will be profitable to the organization.

Referring to Malaysia’s Prime Minister, Datuk Seri Abdullah Ahmad Badawi, billion of ringgit has been spent and wasted in repairing public buildings due to Malaysia’s poor maintenance culture [4]. This is such a waste because if the defects were spotted earlier and rectified, it will not develop into big problems and cost more money.

Based on the List of Heritage Sites to be Gazetted Under National Heritage Act 2005 (Act 645) as compiled by the [5]; it was recorded that there were about 181 numbers of heritage sites in total, which consists of building, fort, stone, cave, well, cemetery and other pre-war structures sporadically located within 13 states in Malaysia. Out of this, only 91 is a buildings. Undoubtedly, these buildings are important in portraying the historical past of the nation but given the age of the buildings at present, these structures will not be standing for too long unless proper maintenance works are carried out. The lack of proper maintenance works and identification of historical buildings may contribute to decaying of buildings thus resulting to decrement in the number of historical buildings. Rapid urbanization process is the main threat for historical buildings (e.g.) Bok House which was demolished in 14th December 2006 [6].

Acknowledging the need of a systematic maintenance for historical buildings, this research therefore is seen as the vital approach to highlight and to assist the improvement on the maintenance for historical buildings within the local context. This research intents to integrate two key elements, namely, the importance and the needs of the maintenance, with the main purpose of developing a framework for a systematic maintenance programme for historical buildings in Malaysia. The main focus of this research will be concentrated on the historical buildings which have undergone the conservation works be it major or minor.

2. Literature Review

Fielden [7] stated that historical buildings are indeed valuable and should be appreciated for its cultural significance. The significance of these buildings presents in the forms of their aesthetical characteristics, historical value, social value, spiritual value and symbolical value. For their significances, these historical buildings should be preserved; purposely to be shared and cherished by all.
Dunn [8], highlighted that maintenance is one of the primary principles for conservation of historical buildings. It is a method or an approach to preserve the existing fabric of the historical buildings. He also expressed that proper maintenance will upgrade the status and value of the historical buildings. In addition, systematic implementation of the maintenance works will raise the interests amongst the public and becomes political issue. Up to present date, there is a positive change in the public’s perspectives on the issue of maintenance. Maintenance is now being largely accepted and recognized as the best approach in ensuring the prolongation of the buildings’ lifespans, a strategy for slow renewal and decay prevention; and, maintaining utility and economic return [8].

For some of the buildings, the main purpose of executing the maintenance works is to protect the function, the asset’s value and the appearance. The differences on the types of maintenance for historical buildings are due to the value of the buildings themselves which often have their own cultural importance value. Hills & Worthing [9] also elaborated that historical buildings are invaluable artefacts of which the buildings’ fabrics possessed their own archaeological value and definite functions.

ICOMOS [10]stated that maintenance is defined as the continuous caring performed to prevent the structure, fabric and the positioning of the building, of which these differ from the concept of repair works which include the restoration works or reconstruction works and these require comprehensive planning.

Fielden & Jokilehto [11] described that maintenance includes all practical and technical approaches which are deemed necessary to ensure that the condition of the building or the site of where it is located is maintained true to its original and that the works undertaken will not degrade the building’s value and significance. This process should be progressive and continually undertaken to ensure that the lifespan of the building can be prolonged.

The differences in approaches and opinions on the aspect of maintenance for historical buildings are due to the continuous debate on the exacting nature and the value of these heritages. In general, the expression on the value of the historical buildings is clearly stated in Article 1 of the Burra Charter [10]. The content stated that the fabric of some historical buildings may contain the cultural importance of which the buildings itself should be viewed as valuable artefacts. Based on this statement, the main purpose of the conservation is to maximize the conservation of the cultural importance by performing one of its key principles, namely, the continual improvement. Article 1 of the Burra Charter ICOMOS [10] also stated that if buildings are evidently found to possess the cultural importance, maintenance works therefore should be performed to retain the buildings.

Kerr Semple [12] expressed his opinion that maintenance is part of the conservation process. He further elaborated that maintenance is an important conservation process, citing that prevention is better than cure. Dann, Worthing, & Bon [13] highlighted in their research that somewhere along the line, there is a bond between conservation and maintenance works as the latter is an approach to prolong the lifespan of the building whilst at the same time if works undertaken are poorly performed, it may contribute to the loss of the original building fabric. This statement is strongly supported by Brereton [14], stating that the replacement on the historical building’s fabric, if not being properly detailed out or cared for will give a certain negative impact to the building’s fabric and value.

2.1 The importance of maintenance within the conservation context

Ahmad [15] stated that one of the reason on the importance of carrying out the maintenance works relate to the existing nature of the building as national heritage. He further addressed the positive level of interests amongst the public, in macro context and the government, in micro context on the need to preserve the national heritage.
Conservation is not only required records and documentations to be undertaken, as at the same time, planning process and maintenance works are also part of the requirements (A.Ghafar, 1994a). (A.Ghafar, 1994b) also highlighted that in general, the elements and the building materials of the historical buildings will become decay over time. Other than this, the functions and the locations of the buildings are also two external factors contributing to the decaying state of the buildings and occurrence of defects.

Paiman [18] stated that the maintenance of the historical buildings is often neglected and this results to an increased decaying rate on the buildings. In a way this may contribute to unsafe and unfit condition of the buildings to their occupants and users. Abdul Hakim [19] agreed that the importance and the value of the historical buildings will be loss if the structure is not conserved and properly maintained.

Further statement by A.Ghafar [16], the importance of maintenance to a historical building is closely related to the value and the importance of the buildings themselves as heritage evidences. Marks [20] and Pickard [21] strongly expressed their opinions by stating that the rational of maintaining the historical buildings relates to their historical development and value, authenticity of their architectural styles, age, functions and the importance of the buildings as source of income.

2.2 The need of maintenance within the conservation context

Abdul Hakim [19] stated that it is impossible for historical buildings to be free from maintenance. This relates to the decaying state of the buildings. In general, the building materials of the historical buildings are prone to decay and defect but these however can be prevented if maintenance works are performed. This statement is also supported by Kindred [22] stating that maintenance is the best strategy to prevent the loss of the historical building’s fabric.

From historical perspectives, the historical buildings in Malaysia should be conserved, preserved and maintained true to their original forms and structures. Noted, maintenance is seen as the best approach in ensuring the prolongation of the building lifespan. Historical buildings are different from modern buildings due to their authenticity, originality of the fabric and the condition of the buildings which are categorized as artefacts [8][7].

Taylor [23] stated that the degradation of the historical structure is different compared to new modern buildings. He also highlighted that all repair works should be undertaken by a skilled workers who are knowledgeable in the aspect of conservation and maintenance.

Robiah & Amir Fasha [24] concluded that the key elements to be considered in the maintenance management of the historical buildings consist:

- Documentation and exacting record prior to the conservation and maintenance works undertaken;
- Respect on the exacting originality of the building fabric during the maintenance works;
- Optimum renewal on the building fabric;
- The maintenance frequency and cycle.

Ahmad [15] then highlighted that maintenance is often not being prioritized by the owner of the historical buildings, resulting to the badly decaying state of the buildings. The lack of understanding and appreciation on the historical value of the buildings is the main factor on why the owners neglect the need of carrying out a proper and systematic maintenance works on their properties.

Queensland Government [25] stated that no buildings are free from the need of maintenance and critical issues may arise when maintenance is neglected. There is a need to allocate some money for the conducting the inspections works and routine repair works. The rationale of this is to mitigate the
possibility of spending a huge amount of money to carry out major defects occurred on the building due to the failure of conducting periodic maintenance works.

3. Research methodology

A total of 20 historical buildings located within the Kuala Lumpur area were selected from the list of historical buildings obtained from Malaysia Heritage Department, and also other buildings which can be considered as historical depending on their historical, architectural and aesthetical value. The methodology comprises of the following stages and this also can be referred to Figure 1.

3.1 Research instrument

The first method for this research involves compilation of data from published and unpublished information obtained from books, journals, articles, reports, thesis and websites. In addition, a set of self-developed structured questionnaire consisting of 9 numbers of questions is prepared to assist for interview sessions with the maintenance management of historical buildings, authorities and other responsible parties is also prepared and used as part of primary data sources. The purpose of this instrument is to obtain information from primary sources, directly from the respondents. Accuracy of information and findings is what expected from this instrument. Other than this, visual observation is also undertaken as secondary sources. Information such as external factors can be identified from visual observation.

3.2 Research Samples

The selection of the research samples is based on the information obtained from related organizations involving with the maintenance management of historical buildings in Malaysia. Each sample is selected based on the status of the building itself which is categorized as historical building and have undergone the conservation and preservation works.

3.3 Criteria for the selection of respondents

The main criteria for the selection of respondents are the respondents must be directly involved with the maintenance works or responsible for overseeing the execution of maintenance works. The respondents are classified into two categories, namely, the management level and the technical staffs.

Figure 1: Research Framework for the study of Maintenance of Historical Buildings in Malaysia

Source: Author’s Research, 2008.
4. Findings and discussions

Maintenance Approach – Current

4.1 Types of maintenance programme

50% of respondents claimed that they adopted Planned Maintenance Programme for their buildings, while another 50% confirmed that Unplanned Maintenance Programme is practiced by their organization compared to Planned Maintenance Programme. This confirmed that there is still lack of expertise in establishing a systematic and standardized maintenance programme.

4.2 Basis for planned maintenance approach adopted by organization

65% of the respondents confirmed that the current maintenance approach being put into used is self-developed by their maintenance unit and/or personnel. 20% of the respondents clarified that their maintenance approach is modelled based on the maintenance programme of other building. Only 15% of the respondents had confirmed that the current maintenance approach established is both referred to the maintenance programme as established by other organizations as well as self-developed, to suit the building functions, characters, styles, elements, etc.

4.3 Intricacy of maintenance programme for historical buildings

Generally, all of the respondents agreed that undertaking a maintenance programme for historical buildings are more complex compared to carrying out maintenance works for a new building. The subject of authenticity, the need to retain the architectural, historical, heritage and cultural values, the difference of the original built materials and technology are some of the intricacy that should be handled properly by the maintenance department and the technical skills appointed when undertaken the maintenance works.

4.4 Preparation of maintenance plan

50% of the respondents claimed that their organizations have established their own maintenance plan specifically for assisting the maintenance works to be carried out. The remaining 50% of the respondents claimed that no such plan is being established by their organizations. The 50% number of respondents who confirmed the establishment of the maintenance plan are working under the organizations of historical buildings which are owned by the federal government and listed under the 50 National Heritage List. This indicates that a certain organizations did have their own maintenance plan. However, the contents and structure of the plan are still at infancy stage and need to be improved for a betterment of the organizations.

4.5 Approach for the preparation of maintenance plan

The results below is based on the 50% of the respondents who claimed that their organizations have established their own maintenance plan. Figure 2 as below depicts the approaches undertaken by the organizations in establishing the maintenance programme.

![Legend]

A | Reference-based maintenance plan
B | Based on organization’s needs
C | Based on available technical skills and expertise

![Diagram]
Comparatively, most of the respondents, approximately 80% from the total number of respondents confirmed that the main approach to the establishment of the maintenance programme is based on the organization needs. The maintenance programme is self-designed to fulfil the scope of works of the organization itself. 50% responses received from the respondents who clarified that their current maintenance programme is referred to the one prepared and used in other buildings. Similar 50% responses also received from the respondents on the establishment of the maintenance programme, based on the availability of the technical skills and expertise. In other word, the approach for the maintenance programme is designed to fit the size of the maintenance organization, depending on the number of technical staffs and management officers within the maintenance department.

4.6 Elemental scope of maintenance works

Figure 3 as follow depicts the results obtained from the respondents carrying out the maintenance works based on the building elements and the scope of maintenance works itself. Figure 3 should be read in conjunction with the given legend. Items 4 to 10 and 12 are considered as important and regarded as the main components that required to be maintained. Noted, these are more related to the building function as the services systems are deemed necessary for the functionality of the buildings. Other than this, the urgency of repair works to be carried out on the roof system is due to prevention of future decay of the roofing components. The maintenance works carried out on the external wall is more on the need to ensure that the physical outlook is maintained to an acceptable standard value. Item 13 describes the maintenance works carried out on the landscape elements for instance, grass-cutting, tree trimming, etc.

![Elemental Maintenance Works](image)

Legend:

| No. | Description                                      |
|-----|--------------------------------------------------|
| 1   | Site Condition (Soil stabilization, compaction, etc.) |
| 2   | Building Foundation                              |
| 3   | Structural System                                |
| 4   | External Wall                                    |
| 5   | Roofing System                                   |
| 6   | Windows and Doors (Opening)                      |
| 7   | Finishing Materials                              |
| 8   | Sanitary and Water Plumbing System               |
| 9   | Mechanical System                                |
| 10  | Electrical System                                |
| 11  | Decorative & Ornamental Elements                 |
| 12  | Cleaning Works                                   |
| 13  | Others (if any)                                  |

Figure 3: Elemental maintenance works
4.7 Frequency of maintenance works on annual basis

Variable answers are obtained on the frequency of maintenance works carried out on the building elements and the scope of maintenance works. In general summary, the frequency of maintenance works undertaken on an annual basis can be described as follow:

a) Site condition and building foundation normally is inspected only one time on annual basis, depending on the incurrence of defects that can be associated with the soil stabilization or other issues concerning it.

b) An average of 2-3 frequency of maintenance works are carried out on the external wall and roofing system and these are more related to the repair works on the falling concrete surface or finishes, painting works and leaking or replacement of decayed roofing structural system.

c) Services systems comprises of sanitary and water plumbing system, mechanical system and electrical system are the main components that received continuing maintenance works. The maintenance works carried out are more of repair and replacement of defect mechanical components. This hinted that services systems are regarded as most important compared to other building elements. The reason behind this relates to the functionality of the building more than the physical appearance.

d) Cleaning work is the most common type of maintenance works that is undertaken on a daily basis. Further interviewed with the respondents confirmed that the cleaning work comprises of cleaning the internal and external areas of the buildings (e.g. sweeping, clearing off drained from clogging off, etc.)

e) For openings and finishing materials, the repair works and replacement of falling finishing materials are the types of maintenance undertaken on the historical buildings. The frequency of the maintenance works carried out for these elements is variable, depending on the budget allowance or urgency of such works to be undertaken.

4.8 Current achievement status on the maintenance works implemented

With reference to 3 scales marked as “poor”, “average” and “good”, purposely to symbolize the current status of the maintenance works implemented on the historical buildings, the overall results is shown on the following Figure 4. 55% of the respondents which is equivalent to 11 numbers of historical buildings claimed that they viewed the current status of maintenance works at an average and acceptable level. Respondents from 7 number of historical buildings claimed that the current maintenance works status are deemed as good enough. Their basis for this status level achievement is based on the current condition of the buildings of which the buildings are functional and not much defects occurred on the buildings and the services systems. 9% of the respondents which is equivalent to 2 number of historical buildings viewed that the current maintenance works implemented are considered as poor.
4.9 Supervision of maintenance works

85% of the respondents equalling to 17 numbers of historical buildings confirmed that in the execution of maintenance works either by the in-house staffs or external appointed contractors, these works are normally being supervised by their maintenance officer or building management officer. Only 3 numbers of historical buildings confirmed the otherwise. Out of the 3 numbers of the historical buildings, 2 numbers turned out that no specific maintenance unit established while another 1 confirmed that only 1 building management officer appointed for the so-called maintenance unit and since the building belongs to the government, all maintenance works and supervision are undertaken by the Maintenance Unit of the Public Work Department.

5. Conclusions and Recommendations

3. As a summary, this paper summarizes the findings on the current maintenance approach undertaken for historical buildings in Kuala Lumpur. The case study result indicated that maintenance approach undertaken for historical building in Malaysia is still on a loose based. It can be summarized that major issues contributing to the lagging of a proper maintenance programme are as follow:

a) The absence of the enforcement of a scheduled or periodic inspection by the authorities on historical buildings is the main issue associated with the decaying condition of the historical buildings. It was found that the main maintenance works carried out on these buildings are mainly repair or replacement works. In fact, the works normally concerns the services systems, not the building fabric or the structural or non-structural elements.

b) Some of the organizations of historical buildings do not include a proper set-up of maintenance department or unit to carry out this specific work. Most of the organizations preferred to outsource the maintenance works to external contractors. This results to another issue on the quality level of the maintenance works, whether the works undertaken are true to their originality or not. As earlier explained, conservation is a new industry and not all contractors are knowledgeable and skillfull enough in understanding the intricacy of the maintenance works to be carried out on the historical buildings. The lack of understanding may result to loss of building value.

c) Financial factor or in other name the cost to be allocated to carry out the maintenance works is one of the major issues. Based on preliminary study conducted, it was found that incentives given to the owners of historical buildings are not compelling enough and very limited. In addition, the financial allocation for conservation and maintenance works provided by the government is only provided for selected buildings only.
d) The lack of technical skills and expertise to carry out the maintenance works is another issue faced in Malaysia. Undoubtedly, the numbers of competent technical staffs in Malaysia contribute to the questionable level of maintenance works carried out. Maintenance is a new industry in Malaysia and majority of those involved in the maintenance management organization of historical buildings are lacking in technical knowledge and skills. It is noted that historical buildings are more intricate and delicate compared to contemporary, modern buildings and therefore there is a need to understand the importance of preserving the significance of the buildings with regards to its architectural, cultural, heritage and aesthetical values as well as to fully understand the conventional or traditional materials and technologies used for the construction of the buildings. In short, the execution of the maintenance works on the historical buildings should not be taken lightly and indeed the works require involvement of experts in order to ensure that certain quality standard is achieved and to prevent the loss of heritage value.

f) The non-existence of specific guidelines and an example of an established maintenance plan as a standard guideline that can assist the maintenance department or unit is another issue that is overlooked in Malaysia.

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