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Heritage Building Conservation in Malaysia: Experience and Challenges

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Abstract

In Malaysia, conservation of heritage buildings is initiated by the government and private sector. The establishment of National Heritage Department of Malaysia in year 2006 has shown the government's effort to appreciate the existing of heritage buildings in Malaysia. The Department will ensure every requirement in National Heritage Act 2005 will be complied by respective Authorities. In addition the listing of George Town and Malacca as UNESCO Heritage site on 7 July 2008 has put Malaysia as of the country to promote heritage tourism. The listing under UNESCO heritage site to be supported by relevant stakeholders inclusive of building owner, professional and competent technical person to ensure the efforts of heritage conservation in Malaysia will be successful.

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1. Introduction

Many words may be used to describe the heritage buildings conservation. However what is conservation? Although Malaysia has lots of heritage buildings all over the country but the understanding on practice is vague or unclear. In general, conservation is a technical activity towards historical buildings. It involved physical action to preserve the fabric and material of the heritage buildings. It is a process to prevent decay and the action is aiming to prolong the life of the buildings. Although the meanings quiet easy to understand but in reality conservation always been though as renovation. Wrong

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perception on conservation makes the public attitude towards local heritage building conservation has remained rather dismal.

In 1986, the adaptive re-use of the Central Market building in Kuala Lumpur has opened the eye of all Malaysian on local heritage building conservation. In accordance with the basic conservation principles of minimum intervention, this wet market built in the 1930s Art-Deco style was successfully converted into a colourful handicraft and cultural centre. Central market now is a popular tourist destination in Kuala Lumpur. Since 1990's until 2000, the government, through the Department of National Heritage has taken several initiatives to protect and conserve the Malaysian heritage buildings. In ten years, more than 30 buildings and monuments has been conserved and restored by the Department of National Heritage. Conservation of Fort Cornwallis, Tengkerah Mosque, Kampung Hulu Mosque, Kapitan Kling Mosque, Stadhuis building and others heritage building become highly publicised conservation projects during that time.

In accordance with the conservation principle, the practice of building conservation should maintain as much as possible the original building structure and fabric. Base to this principle and aims to preserve our national heritage in 'true nature' or authentic value, it's become a major challenge and issue especially in judgment and decision in conservation. In 2000's, profession Building Conservator and Architect Conservator has been introduced in conservation projects. A Ghafar Ahmad, Siti Norlizaiha Harun, Lawrence Loh, Yahya Ahmad, Rosli Nor and Stephen Boon Thang was among professional that involved and practice actively in heritage building conservation projects in Malaysia. The corporations within professional and Department of National Heritage has flourished conservation field in Malaysia especially in local construction landscape. The experience and guidance from national and international standards such as ICOMOS (International Conservation of Monuments and Sites) in conservation practice also strengthen the procedure and practice of heritage building conservation in Malaysia.

In 7 July 2008, Malacca Historical City and Inner City of George Town has been declare and listed in UNESCO World Heritage List as World Heritage Sites. Since that, conservation of heritage buildings become a main agenda especially in tourism industry whilst in practice, it become a great demand. Publics, professional and scholars becomes more concern and aware to the cultural heritage. The concern is not only on monuments and buildings but also the conservation process and final appearance of the heritage buildings. Conservation of heritage buildings contributes the emotional ties to the people and the sensitivity towards the past.

This paper will present building conservation practice in Malaysia. It also explains the concept, principle and approach in conservation of heritage buildings.

2. Heritage and Conservation

Heritage is our past that been preserved for the present and it will be inherited for the future generations. Heritage itself is conceptualized as the meanings attached in the present to the past and is regarded as a knowledge defined within social, political and cultural context [1]. I pursue the argument by Graham because heritage is knowledge which abstractly or implicitly be proven through the physical evident especially in our environment likes monuments, buildings, streets, landscape includes the activity of people. Old and historical buildings are a symbol of cultural identity and heritage of a certain community of particular. From acknowledging the qualities of buildings, people can relate to and learn about not only the life of their predecessors but also the building innovations made in the past. Innovations can be seen through the architectural style and design, materials and texture also the buildings technique and construction.

The concept of heritage is invariably. UNESCO's Convention Concerning the Protection of the World Cultural and Natural Heritage (1972) has defined cultural heritage by the following classifications:

- Monuments: architectural works, works of monumental sculpture and painting, elements or structure of an archeological nature, inscriptions, cave dwellings and combinations of features, which are outstanding universal value from the point of view of history, art or science
- Groups of buildings: groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science.
- Sites: works of man or the combined works of nature and of man, and areas including archeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological points of view

In Malaysia context, National Heritage Act 2005[2], defined heritage as any heritage site, heritage object, underwater cultural heritage or any living person declared as National Heritage (under section 67)[2]. Under section 2, heritage definably into two categories:

- Cultural Heritage: includes tangible or intangible form of cultural property, structure or artifact and may include a heritage matter, object, item, artifact, formation structure, performance, dance, song, music that is pertinent to the historical or contemporary way of Malaysians, on or in land or underwater cultural heritage of intangible form but including natural heritage
- Natural Heritage: includes natural feature of any area in Malaysia which may consist of earthly physical or biological formation or group of such formations, geological or physiographical features, mountains, river, stream, rock formation, sea shore or any natural sites of outstanding value from the point of view of nature, science, history conservation or natural beauty including flora and fauna of Malaysia.

According to the Act, Cultural Heritage divided into two aspects which is tangible and intangible form of cultural property. Tangible heritage includes area, monument and buildings. Intangible heritage includes any form of expression, languages, performance, dance, and song, music, martial arts, that may have existed or exist in relation to the heritage of Malaysia.

All potential cultural heritage can be listed and declare as National Heritage property. Under section 67[2], they are nine (9) criteria for potential heritage buildings can be considered on declaration of National Heritage property:

- i. The historical importance, association with or relationship to Malaysian history
- ii. The good design or aesthetic characteristics
- iii. The scientific or technical innovation or achievements
- iv. The social or cultural associations
- v. The potential to educate, illustrate or provide further scientific investigation in relation to Malaysian cultural heritage
- vi. The importance in exhibiting a richness, diversity or unusual integration of features
- vii. The rarity or uniqueness of the natural heritage, tangible or intangible cultural heritage or underwater cultural heritage
- viii. The representative nature of a site or object as part of a class or type of a site or object
- ix. Any other matter which is relevant to determination of cultural heritage significance.

The potential heritage sites, buildings or object which suits any criteria on declaration of National Heritage [2] has further prospect to be conserved. In 2009, there are 173 cultural heritage have been listed under section 67 as National Heritage [2]. For this reason, it seems that heritage buildings also can be categorized as a limited resource of architectural heritage that can be seen in our built environments. Almost all these buildings, of course, suffer from defect problems, been neglected and deteriorate without proper maintenance.

3. Conservation Concept and Principle

Conservation is the action taken to prevent decay and manage changes of historical buildings. However what is the concept or method should be taken to conserve heritage buildings? The true concept of conservation is preserving the authenticity of the heritage base on the original or historical evident. Authenticity is a process or desire to reveal the true nature of an object. The United Kingdom Guidance for Practice [2] defines conservation as ‘the means by which the true nature of an object is preserved. The true nature of an object includes evidence of its origins, its original construction, and the materials of which it is composed and information as to the technology used in manufacture.

How thus concept can be applied or practice in conservation works is quiet difficult to judge. In practice, judgment and decision in conservation is an ethical considerations rather than aesthetical needs. To comply the ‘true nature’ concept and the desire to reveal and preserved the heritage as its original form, the international conservation guidelines and charters such as [3] has provide the conservation principle and standard which base on ethical codes. Ethical codes are definable as ‘a series of moral principles or values’ [4]. Base on practice in abroad and local, ethical consideration is the best way of achieving the aims of heritage conservation. The codes encourage the conservator and practitioners more respect, understand and appreciate cultural heritage. The basic principles and standards of conservation which contain in international charters are:

- i. Careful recording and research before intervention
- ii. Minimum alteration of historic fabrics
- iii. Minimal risk of significant loss, damage or uncertainty in performance through intervention
- iv. Reversibility of interventions
- v. Retention of a minimum of the original structure
- vi. Distinctive or distinguishable use of new and additional material
- vii. Sympathy in interpretation and sympathy in use
- viii. Respect for the quality of place
- ix. Preference for original material and workmanship
- x. Longevity in the finished work

Malaysia is a member of UNESCO’s Convention Concerning the Protection of the World Cultural and Natural Heritage since 1988. Since that, lot of effort have been done to make sure our National Heritage been preserved accordingly the international charters and achieve the standard of World Cultural Heritage. With the references and guidance of international charters, the aims and goal of all conservation projects is to achieve the authenticity of cultural heritage.

4. Authenticity in Conservation

When I started my career as a building conservator in 2000, the first thing that was taught by my professor is... “When you enter the historic buildings, you need a taste the home or building as you occupy a while ago... "you need to find the history and stories ... you need to talk to the building, with wood, stone, and all components because from there you know the artisans, time and eventually can make the hypothesis of the past and you do not confuse to restore the building even it has been posted, linked, replaced, exaggerated and treated with a new history because the original components will be talking through the emotions and sense” [5].

Authenticity is not only the physical return of the building but what is most important is the emotion, memory and the resulting sense when the building is conserved. We try to stay in the transformation of time from the first building constructed, imagined in the minds of the environment when the craftsman constructed the building, the material and environment at every space. Determinations of authenticity are

often raised to the history and local stories, whether in buildings itself or communities and the surrounding environment.

How to determine the authenticity? Authenticity is not an easy concept. Each part of a site's development is authentic in its own right, as a reflection of its time. [6] stress the importance of conservation of cultural heritage must respect and considered in all its forms and historical periods is rooted in the value attributed to the heritage. The conservation of heritage property should meet the test of authenticity in design, material, workmanship & setting.

Design and material is the most an authentic criterion in conservation of heritage building. Design and materials included the architecture styles and construction technique is considered an important value in the building because it brought together the history of the past. In these original design and materials, contained evidence of knowledge which has been gone within time, ideas and the golden era of the heritage buildings.



Figure 1: Kampung Kuala Dal Old Mosque, Kuala Kangsar (before and after conservation, 2009). The conservation of this mosque achieves the aims of heritage conservation. The plaited bamboo walls and carvings was restored base on original form, design and materials. The wall's panel also been paint base on original colour schemes.



Figure 2: Bangunan Suluh Budiman, Universiti Pendidikan Sultan Idris (2011) is a National Heritage Building. The decision on conservation was guidance strictly by conservation guidelines – authentic in design. With an adaptive re-use approach, the building was converted to education museum. The architecture and design includes the colour of the building is remains as original. The interior or existing class room has change to gallery and exhibitions rooms without miss the memory or sense of original function.

5. Conservation Approach

Conservation is an activity taken to prolong the life of historic buildings. It involves various action includes restoration, preservation, reconstruction, rehabilitation and adaptation or any combination. In

current practice, the decision to conserve heritage buildings is based on the historical and cultural factors. The uniqueness of the architectural of the historic buildings is considered as historical and cultural contribution. The techniques, methods and material that been use to build and construct the buildings is a main concern in conservation projects. In current practice, there are three (3) approach that always been apply in conservation of heritage buildings.

i. Restoration

Restoration means the process of accurately recovering the forms and details of structure or part of a structure and its setting, as it appeared at some period in time, by removing the latter work and replacing the missing original work, and includes full restoration which involves both exterior and exterior. Restoration action is appropriate when it is limited to the reassembling of displaced components and the removal accretions. The reassembling of displaced components is appropriate when it is based on respect for original material and authentic documents.



Figure 3: Kedai Mulong Mosque, before and after restoration (2009). The original buildings (left) was a palace hall (*balai istana*) and located at Kota Bharu, in 1958 have been relocated to Kedai Mulong. The restoration of old mosque was based on historical and physical documentation. The new mosque is compatible with the historic/original character of palace hall.

ii. Preservation

Preservation means aiming to halt further deterioration, decay or state of dilapidation and providing structural safety and well being. Preservation should be carried out only in such a way that evidence of the construction or use of the fabric would not be obscured.



Figure 4: Paint's scrapping to reveal the original colour of exterior wall Taiping Museum (Left) and paints scrapping using burning technique.

iii. Reconstruction

Reconstruction means the process of accurately reproducing by new construction, the form and detail of vanished structure, or part of it, as it appeared at some period in time and includes full or partial reconstruction. Reconstruction is appropriate only when a site is incomplete, and reconstruction is necessary for its survival and it reveals the cultural significance of the place as a whole.



Figure 5: The reconstruction of west wall Fort Cornwallis (2001) was based on several references including the old survey map, photographs and archaeological findings. Reconstruction of the west wall involved thousands of salvaged red clay bricks supplied from abandoned old shop houses in Penang built between 1892 and 1928. The salvaged red clay bricks were laid down according the original brickworks.

6. Conservation Process

The practice of heritage building conservation requires careful attention from building owners, occupiers and the involvement and expertise of various professionals such as town planners, conservation architects, building surveyors, landscape architects, quantity surveyors, specialized engineers, building contractors, archaeologist, art historians and antiquities. They also be supported by other skilled personnel such as craftsmen, biologist, chemist, archeologist and geologist. All this expertise demands a high degree of corporation, teamwork, experience, communication and knowledge of building materials and construction especially when dealing with historic buildings because repair and conservation work is an expensive item to historic buildings. The correct diagnosis of building defects associated with the

correct remedial action and the obligations to conservation principles is the only economic basis for successful conservation.

The conservation practice involved three (3) main stages.

1. Documentation and Record
2. Dilapidation Survey and Building Investigation
3. Conservation Works

The basic conservation activities in current practice as shown in diagram 1.

Stage 1: Documentation

Documentation is divided into two stages as follow:

i. Historical research.

Before embarking on any physical interventions in, or design strategy for a potential conservation project it is essential to assemble all the available evidence on the building and/or site that is to be conserved. Original documentation that may be of interest includes:

- Original design drawings.
- Drawings from previous investigations.
- Historical evidence such as old photographs, old maps and old paintings.
- Reports from previous investigation or any historical reports.

Historical research should be conducted well in advance of physical investigation. This allows time for important written, visual, and oral information to be located, transcribed, organized, studied and used for planning the actual works.

ii. Measured drawing.

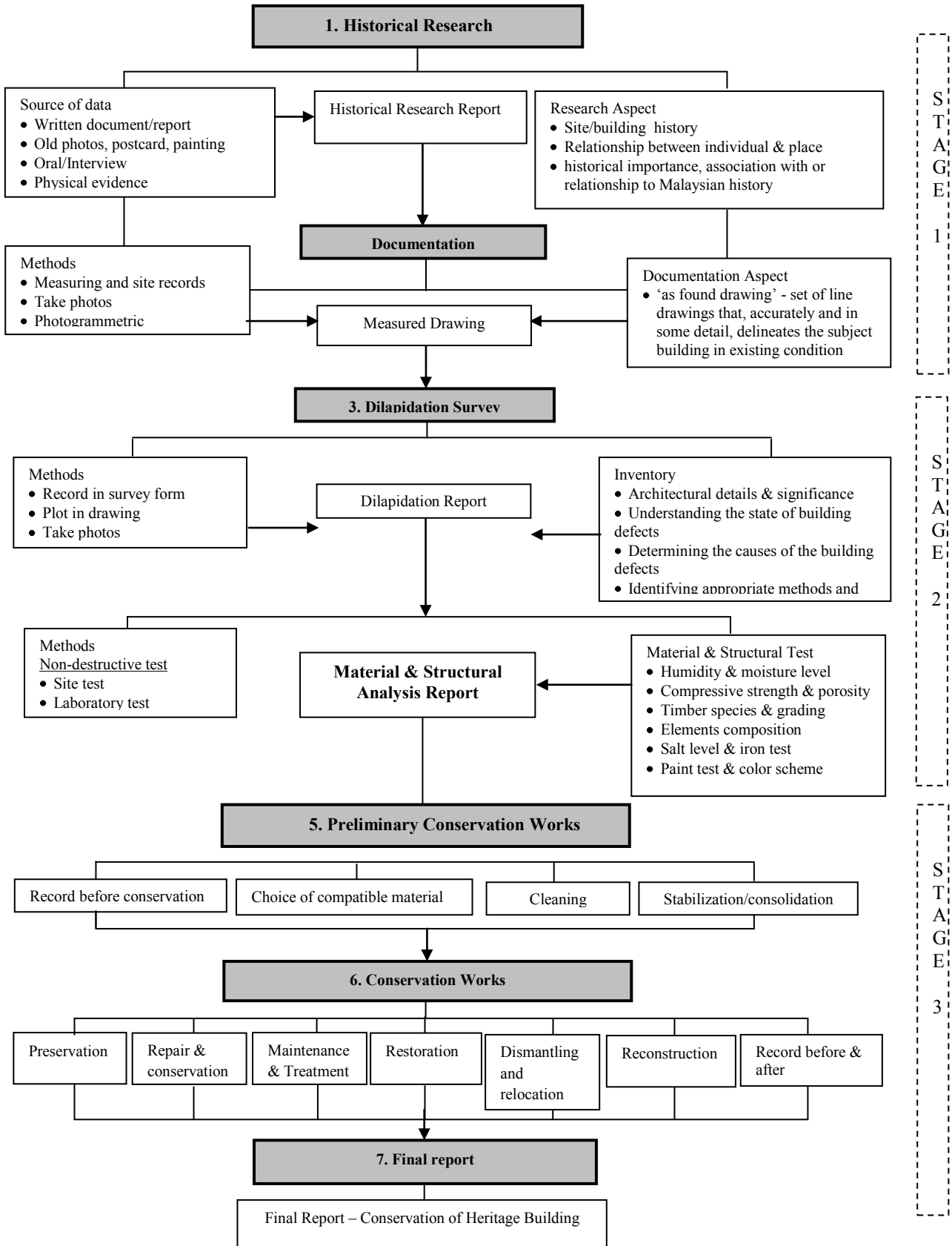
Measured drawing or 'as found drawing' means a set of line drawings that, accurately and in some detail, delineates the subject building in existing condition. The measured drawing will illustrate the interior and exterior of a building including the structural detail. It will also illustrate the defect areas such as cracks in plaster and the missing elements.

Stage 2: Dilapidation Survey and Building Investigation

A dilapidation survey is the practice of identifying and recording building defects through the means of photographic and digital documentation prior to any conservation work. The core of dilapidation survey is the process of walking through a building to gather and record information based on observation of the finished surfaces and any exposed structure. In the practice of building conservation, dilapidation surveys are generally instrumental in regard of the following aspects:

- Understanding the state of building defects
- Determining the causes of the building defects
- Identifying appropriate methods and techniques of building conservation
- Providing reference materials to client, consultants and projects contractors

Diagram 1: The basic conservation activities in current practice



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To be effective, the practice of dilapidation survey should involve a multidisciplinary approach which requires in-depth knowledge in conservation as well as other related fields in order to correctly assess building defects, determine their causes, and proposes restoration methods [6].

The historic building and its components should be carefully inventoried prior to taking any action. There are two stages of investigation as follow.

i. Site testing.

Site testing is an action to identify materials and their condition by using instruments. For instance, to monitor the temperature of environment we may use thermometer. The use of this instrument provides greater accuracy than merely feeling whether the room is warm or cool. The site test is a non-destructive test, which is usually based on detection of the physical properties of the wall or exposed surface. Example of site tests available are moisture monitoring, flat-jack, crack monitoring and load test.

ii. Laboratory test.

The material, sometimes have changes from their original composition that cannot be analyzed by using the naked eye. Although the properties of the materials can be identified through the texture, color and moisture, we cannot guess what the original composition is because the material may be too old and they may have already combined with new elements. A sample of material is taken from the defect area. Only the minimum amount required should be removed and a record of removal must be made. They are several types of laboratory tests. It depends on the stage of conservation project such as to identify the original material and the composition of materials if it is a mixture like mortar and plaster, to find the hardness of bricks and to find the level of porosity. Some other examples of laboratory test including microbiological test to identify plant species, dispersion agents and chemical fungicides; the timber test to identify timber species, grading and group strength; the salt test to detect the salt levels and percentage of total irons; and the paint test to classify paint types as well as colour scheme analysis.

Stage 3: Conservation Works

After diagnose the defect of heritage buildings, the conservator will prepare the proposal or method of statement on technique to repair and conserve heritage buildings. Conservation works start with preliminary activity such as cleaning the building surface from dirt and leech; make clear to the surrounding area, cut all the unwanted vegetation and poison it to prevent future root damage; and consolidation the buildings with temporary structure like tent to cover the leaking roof and control the damp admitting to interior space.

The major conservation works will start after preliminary works finished. By doing this, the appearance of old historic building becomes clear and the conservation activities can be manage systematically such as dismantling, removing rotten timber and hack crumble plaster can be done earlier and followed by preservation, restoration, repair and reconstruction activities. The building conservation process start with roof repair and continue with others part of buildings elements. The process is from top to the down of the buildings. Example of building conservation works as follow:

1. Removal of dirt, fungal and harmful growth on wall and column.
2. Dismantling roof tiles and storage the salvage.
3. Cover the roof structure before started restoration works.
4. Removal of any rotten timber trusses and ceilings.
5. Reconstruct the central Jack Roof
6. Laying new clay tiles
7. Fixing water proofing membrane to roof
8. Remove and replace the badly decayed timber floor
9. Hack off the crumble plaster
10. Re-plastering and painting the wall with lime wash
11. Reconstruct the collapse and damage column to the original form
12. Remove and re-pointing loose mortar on the exposed bricks.
13. Restoring any decayed door, window and fanlights
14. Laying and fixing new timber floor

All those process and activities are guided and monitored by the guideline and standards from Department of National Heritage. Especially in choice of the materials and technique, it should respect the traditional practice. The use of traditional material like terra cotta roof covering; timber species and grading; mortar for plastering, masonry and brick layering; and buildings colour scheme is main concern and if there is no source of it, the new material must compatible with expression, appearance, texture, scale, colour, materials and form of the original. The reconstruction of missing and damage elements also should respect the original technique and the design must base on historical documentation and compatible with the historic character.

The final stage in conservation process is preparation of final report. The final report is very important document. It contains the whole process of building conservation. This report becomes an importance evidence for future reference on heritage conservation and maintenance. It's a valuables record of National Heritage property and serves as an essential archival resource for future reference.

6. Challenges in Conservation Practice

As heritage conservation is seen as a new phenomenon in the local architectural scene, it is imperative to highlight several issues and challenges associated with the conservation project.

i. Conservation plan

The conservation projects need a proper planning. Stage by stage approach base on conservation process is a standard practice. However in practice, the contractor always uncared at dilapidation stage. The decision on conservation sometimes been made without the dilapidation result or base on an assumptions. Rushing on repairing will cause future damage to building's fabrics. To monitor the insufficient works on conservation, the contractor need to submit the method and technique to conserve and must get the approval from conservator before start the works.

ii. Lack of skill workers and responsibility challenge of conservator

Presently, there are practically lack of laborers and technical experts in conservation methods and techniques. This is the major problem because almost all conservation projects involve both repair and maintenance stages requiring an understanding of and analysis of building defect diagnoses. There is also the question of testing and treating building material, choosing appropriate tools and the methods to conserve the building. Regarding this issues, the responsibility to conservation task is major challenge for conservator. Conservator also acts as project manager, he or she shall strive to attain the highest standards in all aspects of conservation including investigation, treatment, research and documentation.

iii. Choice in material

Despite on the skill workers, the conservation projects also have a problem in getting the original material to reconstruct the buildings. The materials like roof tiles and timber truss was an unlimited sources. The contractor must get the same material to match with the original material. Regardless of this, the challenges is not only to get the original materials but the contractor needs to expert in interpretation of the needs of the project contract - new material is compatible with original and its must been testing on similar strength, texture, scale and form.

iv. Conservation Guidelines for Conservation Works

Appropriate conservation guidelines usually serve as an important tool for the conservator and building contractors. Although National Heritage Act 2005 gives emphasis to the care of listed buildings and declaration of National Heritage, however these regulations need be accompanied with guidelines and technical manual for conservation works.

7. Conclusion

The conservation of Heritage building requires knowledge and understanding of those resources and the history they represent. Conservation needs a proper management of resources and a systematic procedure on conservation works. The activities in conservation works should therefore be handled with great sensitivity and skills in order to preserve the rare qualities of the buildings materials, architecture and craftsmanship. Building conservation is a multi-disciplinary field, which involves inputs from various professionals including architects, engineers, historians, archeologists, chemists, environmentalists, and

other experts. For future development of this field, more efforts should be undertaken by all sectors to educate the people about heritage conservation.

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