

# Why we need to conserve the heritage construction essay



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" Our attachment to place is fundamental, but maybe unconscious in our daily lives until a place to which we are connected is threatened. Our response to such a threat will be charged with emotion, as it is our emotions that are touched by the connection." (Chris Johnson, What is Social Value?)

The dismantlement of the Queen's Pier and Star Ferry Pier for road and commercial buildings uses has aroused the public awareness of the heritage conservation in Hong Kong. Many media and different class of the Hong Kong people start to voice out their concerns about the heritage conservation and they complained that the focus of economic development will destroy our local culture and collective memories by those property-developers hegemony and our government. The term of " collective memory" popped up like mushrooms various the media and internet after this controversy. The public think that the collective memories are in close link with the heritage as the heritage plays an important role in the history of our city." People grow through experience if they meet life honestly and courageously. This is how character is built." (Eleanor Roosevelt, My Day)

The past shape us, they mold us into what we are today. We should not forget the past because it helps us to remember where we have come from. Similarly, historic buildings are valuable properties of the city. Heritage helps us to remind the past of the city and how the past generation worked together for building our city after going through many difficulties. Those buildings are one of the important elements of a city's past that are keys to its present identity. Those heritages bear the weight of the collective memory of our city and the past generation which are one of the important elements of our city. However, the cost of conservation of heritage is not only involves the cost keeping the building, but also the cost of repair and

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maintenance. For example, there is very little land but relatively vast population in Hong Kong, conservation of historic buildings always against the wills of many land developers and the economic development. Not only may it counteract the economic development and the chance of habitants of some historical building like the Blue House to have a better living environment, but also may cost a huge amount of money to preserve it." The conservation of monuments is always facilitated by making use of them for some socially useful purpose. Such use is therefore desirable but it must change the lay-out or decoration of the building. It is within these limits only that modifications demanded by a change of function should be envisaged and may be permitted. "(Article 5, International Charter for the conservation and restoration of monuments and sites, The Venice Charter 1964)Revitalization or adaptive reuse is one of the ways of heritage conservation in order to preserve and put those buildings which are historical and valuable into a better and innovative use. Adaptive reuse is defined as an action to renovate or restore the structurally sound old building in order to allow the old building to be used in a new economically viable function. Under the adaptive reuse, the building materials and structure are upgraded but leave the original appearance unaltered for the sake of reflect its original character. (Austin, 1988)Adaptive reuse is a way to bring a new life to the heritage; however, there are problems that if we repair the monuments to most of its original appearance and maintain its original uses in order to protect our collective memory. With regards to the past experience of revitalization in Hong Kong and other countries, revitalization scheme of some historical relics are complained by the public that it destroy the collective memory and the cultural meanings of the monuments in exchange

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for the commercial value of the building. It seems unavoidable to revitalize heritage with destroy the core of the building. Therefore, this study is to examine the common difficulties and constraints on adaptive reuse of the historical buildings around the world.

## **1. 2 Research Aims and Objectives**

The specific objectives of this dissertation are the followings: Find out the difficulties in balancing interest between financial and cultural aspect in revitalization. Compare the obstacles of adaptive reuse in different countries after gathering the information. Overview the common constraints faced by different country in conservation. Identify the difficulties of adaptive reuse of historic building in different aspect. Suggest some recommendations for improving the difficulties in adaptive reuse.

## **1. 3 Research Methodology**

The required information for this research methodology mainly comes from academic works, literatures, reference book, and newspaper. This research would be constructed by mainly qualitative and some quantitative methods.

### **1. 3. 1 Desk study**

Through reviewing different information from the reference books, literatures, journal paper, website and newspaper, the backbone of the research and analysis can be provided. The information found would not only be used for establishing the fundamental framework of this research, but also for the cases studies.

### **1. 3. 2 Cases study**

Different case studies are used to investigate the problem of adaptive reuse of heritage around the world. Through the summarization of case studies of adaptive reuse, it can help find out the common constraints of adaptive reuse around the world. The difficulties in four different aspects which are financial consideration, restoration to its original level, update to the existing regulation and legal affairs in applying adaptive reuse of the historic buildings would be discussed in this dissertation.

### **1. 4 Scope of the Research**

There are many cases of adaptive reuse project around the world. This research will mainly focus on the cases of adaptive reuse which the new uses would be profit making instead of museum.

### **1. 5 Summary of Chapters**

In this study, there are five chapters which involve Introduction, Literature review, Research methodology and approach, Findings and analysis, Conclusion and Recommendations. Chapter 1 Background information, research aims and objective and overview of the methodology are given in this chapter. Chapter 2 Basic concept about the heritage conservation including definition of heritage, conservation and adaptive reuse are given. Summarization of the advantages and constraints of adaptive reuse from different literature is provided. Chapter 3 Detailed concept and approach of the methodology will be explained in this chapter. Case studies will be used as the methodology for this study. Chapter 4 The comparison of the problems about adaptive reuse projects from 36 cases is conducted and the common

constraints of the reuse will be dug out through the analysis. The common difficulties of the adaptive reuse will be classified into three items which are financial consideration, restoration to its original level, update to the existing regulation and legal affairs. Chapter 5 The conclusion of the constraints of adaptive reuse faced around the world is indicated. Recommendations are suggested for the sake of improving the situation.

## **Chapter 2 Literature Review**

### **2. 1 Why we need to conserve the heritage?**

#### **2. 1. 1 Economic value**

Other than the heritage reminds the memory and history of the place and the inhabitants, the historic relics are the capital of the places. Each city has its own unique historic relics that attract people to live there and tourists to visit. (English Heritage, 2000; Australian Government Productivity Commission, 2006) The potential of cultural heritage tourism is increasing and generates most of the money, especially for those countries rely on tourism which provides the motivation to conserve the heritage. (English Heritage, 2000; Calgary Heritage Strategy, 2007) Heritage is one of the key selling points to the tourists. Part of the tourists wants to know more about the past and the stories of the cities through visiting the heritage site. Part of the tourists is attracted to a place by its reputation as a scenic spot. But no matter which type the tourists are, the heritage tourism can spur the economic growth of surrounding areas. The thriving of the heritage tourism helps permeating the sense of heritage conservation through the people. Many tourism-related jobs are provided; residents start to see the benefits brought by the heritage which will enhance their awareness of conserving

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the heritage. Through the process of conserving heritage, they can build up a sense of belongings to the place and identity of themselves.

## 2. 1. 2 Social Value

" Imbued with a message from the past, the historic monuments of generations of people remain to the present day as living witnesses of their age old traditions. People are becoming more and more conscious of the unity of human values and regard ancient monuments as a common heritage. The common responsibility to safeguard them for future generations is recognized. It is our duty to hand them on in the full richness of their authenticity." (Venice Charter, 1964) We cannot reach the sky in a single bound. We made every steps leave its print which make who we are today. Every single decision we made led to the way we are. Those historic relics are the inheritance of the past generation have made of the places in which they lived. These are the print of the steps the past generation made for their life which is irreplaceable. (English Heritage, 2000) We cannot build any more like these once we destroy it. We need to try out best to protect it, so that it can remind us and remind our offspring that what our ancestor have been through." Place memory is the key to the power of historic places to help citizens define their public pasts: place trigger memories for insiders, who have shared a common past, and at the same times places often can represent shared pasts to outsiders who might be interested in knowing about them in the present." (Dolores Hayden, 1995) The historic relics are not only the teaching tool that bears the weight of telling the history of the city, but also glue that creates the bound between the inhabitant and the place. It creates the sense of belonging of the people who live there to the place.

(Calgary Heritage Strategy, 2007) Those are the memory to the place which are the collective memory of the past generation and the chance we get to know the place we live for now.

## **2. 2 Advantages of Adaptive reuse**

The adaptive reuse of the building can give the new life to the heritage. After the adaptive reuse of the heritage, the structural systems, the fire service system and the exterior appearance will be renovated and upgraded which can maintain the heritage even better. (Steinberg, 1996) Rather than just keep the heritage in the place and simply protect the building from demolition, it gives a better chance of the rebirth of those historic relics. They can be reused in a more creative use. After removal of those unsound structural system and deteriorated part of the building, the upgraded infrastructure services are incorporated, the old building can be functioned again at better position. Without mass change of the details of the building, small scale of modernization of the physical fabric can be conducted in which the building can adapt to new function in order to provide better services to the public. (Steinberg, 1996) Most of the heritage has the architectural value which is more attractive than the other modern buildings. The special design and historic background of the buildings will increase the appeal and potential value of the heritage which can attract investor to reuse it, so that the architectural character and integrity of the buildings can be easily persevered. (Highfield, 1987) Those historic relics after the adaptive reuse are not only a spot which present the past of a city, but also a part of the city today. The inhabitants and tourists can get to know more about the monuments through enjoy the services the buildings provide. It can help



merging the heritage into the life of the residents. The merging of heritage and resident's life can sustain the culture of locality which can conserve the heritage even better.

## **2. 3 Constraints of Adaptive reuse**

### **2. 3. 1 High renovation and maintenance cost**

Even if we get that the importance of the heritage to our society, but the realistic problems we face in heritage conservation is the sources of funding. Being built many years ago, it is unavoidable that the heritage structure was deteriorated seriously and show different degree of malfunctioning which cost millions dollar or much more to conserve these. The renovation of the heritage for the reuse may not beneficial in the short term as it may cost a lot of money in repairing and reappearing the original position of the historic relics used to have and in maintenance fees. (English Heritage, 2000)

### **2. 3. 2 Limitation of the building characteristic**

When considering the alternative and viable use of the heritage, the characteristic of the historical building would have positive or negative impact to the adaptive reuse project while the negative impact will tend to poses the challenge to the adaptive reuse. (Kincaid, 2000) For example, according to the studies carried out by Gann & Barlow (1996), the difficulties in adapting the redundant offices into flats depend on the follow seven characteristic of the building: The size, height and depth of a buildingThe type of building structureThe building's envelope and claddingIts internal space, layout and accessThe building's servicesThe provision for acoustic separationFire safety measures and the means of escape. Kincaid (2000) has

conducted a study to investigate the most commonly building elements changed during adaptive reuse. It indicates that the most frequently changed building elements were air conditioning and the heating and ventilation services and the second most frequently changed elements during adaptive reuse was the means of fire escape.

### **2. 3. 3 Adaption to the new use**

In order to adapt to new functional demands, the newest systems need to be upgraded such as fire service, air-conditioning systems. The systems need to be constructed by following the existing legal regulation to make sure the heritage is safety and user-friendly for the use of people. The design team and constructor needs to retain the original appearance, without mass change of the details of the heritage; at the same time, they need to incorporate the newest technology into the building, it poses a huge challenge to the design team and builder which requires superior skills. (Austin, 1988)

### **2. 3. 4 Regulatory control**

The setting up of the regulatory control is to ensure the safety of the building works and avoid any adverse impact on built environment and the public. The regulatory control can be referred to planning and building regulation which often creates the difficulties to the adaptive reuse as it is difficult to suit the both circumstances of the past and contemporary situations at the same time. (Kincaid, 2000) When the adaptive reuse is adopted for the historical building, any addition and alteration works have to achieve the standard as a modern building and can be adapt to the new function use.

Under the Venice Chapter, it has laid out the principle in conserving the <https://assignbuster.com/why-we-need-to-conserve-the-heritage-construction-essay/>

heritage. The chapter has pointed out that the aim of the conservation of the heritage is to maintain the buildings on a permanent basis. Those historic buildings bear the weight of history of the city which allow the future generation to know what the city has going through to today. Every single elements of the building are witness of the past, so that it is better not to remove all or part of the monument. The heritage needs to be conserved in original location, appearance and components in order to maintain all the historical information. (Zhao Shulei, 2009) However, the upgrade to the existing regulation may face the opposition to the concept of heritage conservation.

## **2. 4 Conclusion of Literature Review**

The literature review aforesaid indicates that the difficulties in applying adaptive reuse can be divided in four aspects which are financial consideration, restoration to its original level, update to the existing regulation and legal affairs and would be discussed in this dissertation after the review different literature. To conclude the information from different literatures, the difficulties in adaptive reuse are high renovation and maintenance cost; limitation of the building characteristic; technical problems in adapting to the new use and complying with the regulatory control. But some further discussion and studies can be added to a growing body of evidence about the challenge in adaptive reuse of heritage. High renovation cost and maintenance fee of adaptive reuse project has been mentioned as the reason that why not many investors are willing to renovate the heritage for the adaptive reuse. However, further studies about how expensive of the adaptive reuse seem have not been conducted. The

literature review aforesaid shows that the building characteristic and condition such as the condition of the structure and fire safety system will affect the degree of ease to convert the old building for new use. However, instead of the exterior appearance of the heritage, the interior factor like the historical and cultural background of the heritage can also affect the success of the adaptive reuse project. One of the major reasons that we have to conserve the heritage is to conserve our history and the memory of the city. If the heritage after the adaptive reuse cannot embody the historical and cultural significance of the building, then what is the point to conserve the heritage through reuse instead of reconstruction of a new building? One of the areas in this study will discuss the difficulties in maintaining the cultural significance of the heritage under revitalization. Apart of the regulatory control of the building mentioned in the literature review aforesaid, the ownership of the heritage can also be the problem under adaptive reuse which would be studied in the following chapter.

## **Chapter 3 Methodology**

### **3. 1 Why case studies would be adopted as the methodology?**

As described by Nisbet and Watt (1984), case study is the methodology which is strong on reality; and can provide insights into other, similar situations and cases which can help assisting interpretation of other similar cases. The topic of this research is " challenges in adaptive reuse of heritage". Case study is a direct and understandable way to find out the usual challenges in adaptive reuse project through using a number of case studies which are similar in nature or problems. So case study is adopted as the research methodology in order to digging out and analysis the common

constraints of adaptive reuse project around the world. After finding the information of adaptive reuse project, the summarization and classification of the information can help figuring out the common constraints of the adaptive reuse more easily and directly.

### **3. 2 Approach of the case studies**

36 cases of adaptive reuse project are used including 10 cases from Hong Kong, 2 cases from Taiwan, 15 cases from America, 3 cases from Germany, 4 cases from Canada and 2 cases from England. Case studies are divided into four areas which are financial consideration, restoration to its original level, update to the existing regulation and legal affairs. The related information of these cases had been summarized and classified into these four areas. The information about construction cost of the adaptive reuse project and the maintenance fee are classified into the financial consideration. The difficulties to restore both the physical appearance and cultural significance encountered during renovation are summarized in the area of restoration to its original level. The problems encountered in sticking the existing regulation would be covered in the aspect of update the existing regulation. The last area is the legal affairs which are related to the problems to apply the adaptive reuse into private-owned heritages.

### **3. 3 Reliability of the findings**

Most of the findings in this research came from journals, newspaper and official website which are authoritative. For those data came from non-official website, objective instead of subjective information would be obtained in order to maintain the reliability of the findings.

### **3. 4 Limitation**

As some of the information about the cases of adaptive reuse outside Hong Kong in this dissertation are from the journal, news and interview from the internet, which may not accurate, it may affect accurately of those figures and the analysis of the foreign country experience in adaptive reuse. Due to the limit time and resources, the scale of the case studies may not be great also and focus only three aspects which are economical, physical and legislation which may affect the analysis of the difficulties in adaptive reuse.

## **Chapter 4 Findings and analysis**

### **4. 1 Overview**

This chapter contains the findings of the difficulties of adaptive reuse project around the world. It covered four main areas which are financial consideration, restoration to its original level, update to the existing regulation and legal affairs. Apart the findings of the four aspects, some basic information of the cases would be provided which are the floor area and the renovation period of the heritage. In the first aspect, it contains the information that related to the financial issue of the adaptive reuse project such as the renovation cost and maintenance fee of the heritage. In the second aspect, the findings would be further classified into four different sub-areas which are maintaining cultural significance, adapt to the new function uses, disintegrated with age and the restore to the original appearance. In the third aspect, it related to the problems in complying with the existing regulation. In the fourth aspect, it related to some legal affairs. It comprised 36 cases around the world which located at Hong Kong, Taiwan, America,

Germany, Canada and England respectively. After summarization of all the findings into the following table, the result would be analyzed.

## **4. 2 Findings**

### **Table 1 – Summarization of the constraints during adaptive reuse**

**Cases**

**Floor**

**area**

**Renovation period**

**Financial Consideration**

**Restoration to its original level**

**Update to the existing regulation**

**Legal Affairs**

**1. Old Tai O Police Station (Hong Kong)**

**1, 000 m<sup>2</sup>**

**2010 - 2012**

€ **Renovation cost:**

The renovation cost is around HK\$ 64, 900, 000 in converting into Tai O Heritage Hotel.

€ **Maintenance Cost**

Around HK\$ 200, 000 per annum

### € **Maintaining cultural significance:**

Only two small rooms are opened to the public for visit; there are lots of notice that remind to the visitors the hotel is the private place which kept the visitors away. People cannot know more about the heritage through the visit.

### € **Suit the new building code:**

The existing barrier free access cannot meet the required standard. There was no lift provided.

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## **2. Béthanie**

**(Hong Kong)**

**4, 150m<sup>2</sup>**

**2005-2006**

### € **Renovation cost:**

The renovation cost is about HK\$76, 000, 000; while HK\$74, 200, 000 comes from government-funded in converting into Academy's School of Film and Television.

### € **Adapt to the new function uses:**

One of the biggest challenges is to transform the Diary Farm to the theatre as it is difficult to handle the acoustic problem of the theatre.

### € **Suit the new building code:**

There are some constraints on compliance of building ordinance including balustrade height and allowable gap; fire resisting construction; disabled provisions; means of escape provision; ceiling height and corridor width.

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### € **Private property:**

Béthanie had been sold to Hong Kong Land Holding Limited in 1974 and planned to be demolished for constructing the residential buildings. The Hong Kong Government used a land in exchange for Béthanie and cowsheds.

## **3. Wo Cheong Pawn Shop (Hong Kong)**

**Around 7490 m<sup>2</sup>**

**2007**

### € **Renovation cost :**

The renovation cost is about HK\$15, 000, 000.

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## **4. Mei Ho House (Hong Kong)**

**6, 750 m<sup>2</sup>**

**2011-2012**

### € **Renovation cost :**

According to the September 2009 price index, it is estimated that the total renovation cost is around HK\$194, 800, 000 in converting into City Hostel.

### € **Disintegrated with age:**

There are many minor cracking and spalling at the ceiling, wall and beam; there were some deteriorated reinforced concrete column in the central connecting block.

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**€ Grading system carries no statutory status:**

Even though Mei Ho House was listed as a Grade I historic building in 2005, it had not been preserved well and vacant after the relocation of the households.

**5. Lui Seng Chun****(Hong Kong)****600 m<sup>2</sup>****2011-2012****€ Renovation cost:**

The renovation cost is about HK\$24, 800, 000 in converting into Hong Kong Baptist University Chinese Medicine and Healthcare Centre.

**€ Maintenance cost:**

Annual maintenance fee of HK\$ 600, 000; structural maintenance of about HK\$12, 000 per year

**€ Restore to the original appearance:**

Some of the unique floor tiles are destroyed; it is difficult to retain the original appearance.

**€ Suit the new building code:**

Lifts and accessibility need to be installed in order to fit for the newest building ordinance. It was suggested that the lifts are installed in back garden to minimize the impact of the appearance.

## **6. Yaumati Theatre & red brick building**

**(Hong Kong)**

**1, 542m<sup>2</sup>**

**2009-2011**

**(phrase 1)**

### **€ Renovation cost:**

According to the September 2008 price index, it is estimated that the total renovation cost is around HK\$171, 000, 000 in converting into Cantonese opera venue.

### **€ Restore to the original appearance:**

As the theatre is pre-war building and lots of information about the building design was lost, it is difficult to restore the original appearance of the theatre.

### **€ Suit the new building code:**

The basement need to be deepened to install the newest fire service system is installed including capacity of about 160 cubic meters of water tank and fore pumps in order to fit for the newest building ordinance.

## **7. Lai Chi Kok Hospital**

**(Hong Kong)**

**6, 500 m<sup>2</sup>**

## **2011-2012**

### **€ Renovation cost:**

According to the September 2011 price index, it is estimated that the total renovation cost is about HK\$258, 500, 000 in converting into Jao Tsung-I Academy, Hostel places and restaurants.

### **€ Disintegrated with age:**

Due to the differential settlement, there are some serious cracking of the wall of Block P, the land survey and foundation strengthening works are needed. During the construction, the condition of the Chinese roofing and the structural conditions of the historic buildings were discovered that were worse than anticipated.

### **€ Suit the new building code:**

The original building services system and public services are not fit for the newest ordinance.

## **8. Western Market**

### **(Hong Kong)**

1, 250 m<sup>2</sup>

## **1991**

### **€ Renovation cost :**

Land Development Corporation spent over HK\$55, 000, 000 and now used by several restaurant and shops

### € **Maintenance cost:**

From 1991 to 2003, the property maintenance expense is about HK\$21, 010, 000.

### € **Maintaining cultural significance:**

It is complained that even though the Western Market is conserved but only the shell of the Market, people cannot know the past through this place as the characteristic is covered by the new use.

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## **9. Old Stanley Police Station**

### **(Hong Kong)**

660 m<sup>2</sup>

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### € **Maintenance cost:**

HK\$1, 000, 000 to be spent over four years for repairs and maintenance.

### € **Maintaining cultural significance:**

The characteristic and the layout of the police office are deteriorated; the original underground cell is converted to the store room which cannot reflect the specialty of the police force under during the reign of England. The exhibition board displayed the history of the police station are covered by stacked goods; the old-fashion stove is inlaid with glass.

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## 10. King Yin Lei (Hong Kong)

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### ☾ **Private property:**

In June 2004, the owner intended to sell the King Yin Lei. As the government did not act to preserve the King Yin Lei at first, the owner sold the building out and part of the building has been demolished in September 2007. In 2008, the government gave an adjacent man-made slope site with 4, 700 square meter to the owner for compensation in exchange for the King Yin Lei.

## **11. Former American Consulate**

**(Taiwan)**

**34.8 m<sup>2</sup>**

**2000**

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€ **Maintaining cultural significance + Restore to the original appearance:**

The building has been converted to the restaurant and cinema which has covered the building's historical function as "ambassador's official residence". The renovation of the building changed majority part of the original appearance of the building.

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## **12. The Red House Theater (Taiwan)**

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**2002**

€ **Renovation cost:**

It has spent NT\$370 million in renovation including the event square and temporary shops. The Red House Theater was first run by The Paper Windmill Cultural Foundation until 2007, then was ran by Taipei Cultural Foundation.

### € **Restore to the original appearance:**

In order to maintain the feature of the Octagon Building, it only contained small scale renovation of the building which leads to some repair problem unsolved.

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### **13. Charles Street Jail (Boston, U. S. A)**

**23, 250 m<sup>2</sup>**

**2002-2007**

### € **Renovation cost:**

It has spent about US\$150, 000, 000 in transforming into a luxury hotel.

### € **Disintegrated with age:**

The roof was leaking badly, pigeons were perched inside. A temporary external truss is built in order to support the roof and permanent interior trusses and beams are installed.

### € **Adapt to the new function uses:**

Another difficulty is reconstructing the eight feet by ten feet cells into viable guest rooms. Also, some of the cells were set away from the windows, however, hotel rooms need windows.



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## **14. Minnesota Building**

**(U. S. A)**

**9, 393 m<sup>2</sup>**

**2010-2011**

### **€ Renovation cost:**

It has spent around US\$28, 000, 000 in transforming the Minnesota Building into an affordable-housing complex.

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## **15. 11 East Forsyth/ Lynch Building/**

**American Heritage Life Building**

**(Jacksonville, U. S. A)**

**14, 200 m<sup>2</sup>**

**2002-2003**

### **€ Renovation cost:**

It has spent around US\$25, 900, 000 and the building was renamed, 11 East Forsyth, and 127 apartments.

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## **16. Pacific Electric Building**

**(Los Angeles, USA)**

**46, 500 m<sup>2</sup>**

**2005**

### **€ Renovation cost:**

Converted into 314 luxury loft apartments on a budget in excess of US \$60, 000, 000.

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## **17. Loew's Pitkin Theatre (Brooklyn,**

**U. S. A)**

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**2012**

### **€ Renovation cost:**

POKO Partners spent over about US \$43, 000, 000 adaptive reuse of the structure, transforming the historic ruins into a mixed-used building featuring a charter school and retail space.

### ☾ **Restore to the original appearance:**

Many architectural details, including the terra-cotta ornamentation have been preserved in the renovation.

### ☾ **Adaptive to the new function uses:**

New, high-efficiency mechanical and lighting systems have been provided for the new use.. A new interior structure, built with state-of-the-art steel, concrete, and masonry systems, has been constructed within the existing shell to support the new building functions.

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## **18. Title Guarantee and Trust Company Building**

**(Los Angeles, USA)**

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### ☾ **Disintegrated with age:**

The Title Guarantee Building which was converted for housing was subject to the glaze failure due to many factors such as moisture penetration. Some special use of mold-making and patching techniques are needed to be used for restoration.

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## **19. Los Angeles Swimming Stadium**

**(Los Angeles, USA)**

**6, 130m<sup>2</sup>**

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### ☾ **Disintegrated with age:**

The Stadium which was converted to community center and pool was subject to failure of the concrete. Some of the reinforcing bars were deteriorated and rust.

### ☾ **Restore to the original appearance:**

Other challenges were the restoration to the original appearance in the patch-work and finding the proper color in order to restore the original appearance.

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## **20. Ames Building**

**(Boston, USA)**

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**2007-2009**

### € **Renovation cost:**

The developer spent over about US\$40, 000, 000, in converting the building into a luxury hotel and restaurant.

### € **Disintegrated with age:**

Because of the corrosion of the steel beams, there were extensive cracking and displacement in the brick masonry on the upper levels of the non-public elevations. There were some spalling, erosion and exfoliation on the stone surfaces

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## **21. Philadelphia Saving Fund Society Building**

**(Philadelphia, USA)**

**52, 000 m<sup>2</sup>**

**Addition**

**3700m<sup>2</sup>**

**1998-2000**

### **€ Renovation cost:**

The developer spent over totally US\$115, 000, 000 in converting the building into a The Loews Philadelphia Hotel.

### **€ Disintegrated with age + Restore to the original appearance:**

As there were no flashing of the building's windows originally, rainfall failed to drain which caused the corrosion of the window shelves and surrounding masonry. 97 percent of the windows needed to be replaced and repaired to original appearance.

### **€ Suit the standard of rehabilitation:**

Addition area is needed for hotel ballroom and meeting spaces; however, the building is a historic landmark, the addition must be strictly followed the secretary of the interior's standards for rehabilitation which posed the challenge to the addition. Finally, land was acquired along the building for the addition built.

## **22. Christ Methodist Episcopal Church/ Scott Methodist Episcopal Church**

**(Denver, USA)**

**1, 116m<sup>2</sup>**

**1995**

### **€ Renovation cost:**

It cost US\$2, 000, 000 in converting the church into a high-end loft.

### **€ Restore to the original appearance:**

Skilled craftsmen were hired to reconstruct the steeple and open the bell tower. New doors have been made in order to match the existing doors.

Those staircases with similar material and composition of treads and risers need to be treated with care.

### **€ Suit the new building code:**

The wiring and electrical system was upgraded in order to fit for the safety systems and sprinklers.

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## **23. Cannelton Cotton Mill/Indiana Cotton Mill**

**(Cannelton, USA)**

**7, 268m<sup>2</sup>**

**2001-2003**

### **€ Renovation cost:**

It cost US\$8, 126, 537 in converting the cotton mill into an affordable housing.

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### € **Sources of funding:**

Not many investors was willing to invest a relatively large, multi-family project in a rural area in the early stage of the project which caused the project to take four years from initial proposal to construction completion.

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## **24. Van Allen Building/ Van Allen and Company**

**(Clinton, USA)**

**2, 970m<sup>2</sup>**

**2003**

### € **Renovation cost:**

It cost US\$3, 118, 000 in converting the department store into commercial space and apartments.

### € **Restore to the original appearance:**

In order to repair the original exterior appearance, testing paint chips for determining original color choices and restoring window in place were conducted. The developer has to seek for additional resources from Save America's Treasures, the Federal Home Loan Bank, and local resources for the restoration.

### € **Suit for land use requirement**

Parking space need to be provided for the building. However, there were three structure nearby the building which the SHPO for the State of Iowa did

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not approve the demolition of the neighboring buildings. As a result, one building was completely removed and the other two buildings were reduced in size, but left with storefront areas intact.

/

## **25. Marsh Place Building**

**(Waterloo, USA)**

**2, 784m<sup>2</sup>**

**2000**

### **€ Renovation cost:**

It cost US\$2, 987, 944 in converting the office building into commercial space and apartments.

### **€ Disintegrated with age:**

The exterior terra cotta cornices were falling off the building. The metal braces were used to secure the cornices.

### **€ Suit the new building code:**

The building had only one staircase. The exterior staircase of the building for five floors was constructed for the fire escape and then joined the first floor of the building on the interior.

/

## **26. The Eaton Hotel**

**(Wichita, USA)**

**14, 848**

**m2**

**2001**

### € **Renovation cost:**

It cost US\$14, 739, 000 in converting the hotel into commercial space and apartments.

### € **Disintegrated with age:**

The hotel had serious sewer problems. In-depth structural and architectural studies were conducted for the renovation of the building.

./

### € **Private property:**

Originally, the City of Wichita had brought all block of the building, except one which was in private ownership. In order to renovate the building as a one project, the City of Wichita had to negotiate with private owner for the purchase of the whole building

## **27. First Regiment Armory Annex/ Portland Armory (Portland, USA)**

**5, 104m<sup>2</sup>**

**2002-2006**

### **€ Renovation cost:**

It cost US\$36, 100, 000 in converting the armory into theater.

### **€ Adapt to the new function uses:**

In order to facilitate the use of theater, innovative building technology had been incorporated in to the building, such as displacement ventilation system and radiant floors.

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## **28. Kloster St. Alfons (Aachen, Germany)**

/

**2007-2008**

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### **€ Restore to the original appearance:**

Architect only made necessary change and try to maintain the existing fabric in order to maintain its character. All additions to the interior are reversible to reduce the effect of many changes to the interior.

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/

## **29. Martini-Kirche (ehemalige) (Bielefeld, Germany)**

/

### **2004-2005**

#### **€ Renovation cost:**

It cost about 2, 000, 000 Euro in converting the church into restaurant.

#### **€ Restore to the original appearance:**

In order to maintain the character of the church, the church was restored without much more changes during the reuse. However, the architectural interior character of the church was more deteriorated which caused the difficulty.

#### **€ Suit the new building code:**

The ceiling needs to be constructed with satisfied fire and noise protection standard. The ceiling also was painted to resemble the original wooden ceiling.

/

### **30. Bethlehem-Kirche (Hamburg-Eimsbüttel, Germany)**

/

**2010**

#### **€ Renovation cost:**

It cost about 1, 300, 000 Euro in converting the church into kindergarten.

#### **€ Adapt to the new function uses:**

The church need to be inserted some new structure to suit for the requirements and needs of the kindergarten but without affect the architectural value of the church.

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### **31. Tip Top Lofts/ Tip Top Tailors Building (Canada)**

**23, 800 m<sup>2</sup>**

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#### **€ Adapt to the new function uses:**

The addition steel was constructed for the additional two floors. Because of steel not commonly used in Toronto and the inefficient works with the materials of the construction industry, the use of steel as the main structural material was delay-ridden.

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☾ **Suit the new building code:**

The fireproofing and soundproofing of the residential units need to be improved in order to fit for the new building ordinance.

/

## **32. Broadview Lofts**

### **(Canada)**

/

/

/

☾ **Adapt to the new function uses:**

The addition reinforcement needs to be used for the existing timber structure in order to support addition floor. Reinforcement of materials and bearing capacity tests need to be conducted in order to make sure the structural integrity of the building.

☾ **Suit the new building code:**

The structural capacity of the wood which is main structural material of the building did not pass the Ontario Building code to handle the additional floors.

/

### **33. Toronto Carpet Factory**

**(Canada)**

**28, 800 m<sup>2</sup>**

/

/

€ **Adapt to the new function uses:**

Utility connection need to be upgraded for the sake of meeting the additional load requirements of the newly use. Also, it required the replacement of the boilers, electrical transformers and wiring, and the plumbing.

/

/

### **34. Ashdown Warehouse**

**(Canada)**

**3, 629m<sup>2</sup>**

/

/

€ **Restore to the original appearance:**

Both the exterior and interior appearance of heavy timber framing and brickwork were maintained and restored to its original appearance in a considerable effort. New facilities and structure were inserted and match the original design at the same time.

### € **Suit the new building code:**

As it was a heavy timber frame building, the proposal for the renovation need to meet the fire safety and acoustical issue.

/

## **35. Jackson's Warehouse**

**(Manchester, England)**

/

**2003**

### € **Renovation cost:**

It cost about 4, 250, 000 Euro in converting the warehouse into residential apartment and a restaurant.

### € **Restore to the original appearance:**

The warehouse was repointed by using a heritage approved lime mortar.

New stone units to heads, cills and parapet were replaced in order to match the existing.



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/

## **36. Sunlight House**

**(Manchester, England)**

**1, 735m<sup>2</sup>**

**2009**

/

☺ Disintegrated with age: The building had been deteriorated by water ingress which the steel frame of many places had been rusted.

/

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### **4. 3 Analysis**

#### **4. 3. 1 Financial Consideration**

In this part, the economic aspect of adaptive reuse will be discussed. Cost needed to be spent in the adaptive reuse project is one of the important issue or even the first priority that would be taken into consideration. It's the profits rather than the risks that count in business.

##### **4. 3. 1. 1 Cost in renovation**

Even if there is no need to demolish the existing building and to construct the new building, it comes as no surprise that sometimes it would be more costly to renovate a heritage than constructing a new building. The incentive of protecting the heritage through the revitalization of those interested parties may be reduced after considering the huge investment of the

adaptive reuse of the historic building which creates the challenge. High renovation cost result in a high cost of borrowing money. Higher interest burden would be another financial consideration of the investors. The main reason of this is that due to the lack of maintenance and having been built so many years, the structure of the heritage was deteriorated seriously and show different degree of malfunctioning which cost millions dollar or much more to conserve these. Even if the structure is still in the good condition which needs not to renovate the deteriorate structure extensively, the heritage need to be incorporated modern service systems such as air-conditioning system and fire service system in order to adapting the new function use and existing building ordinance; it also cost huge amount of money. In addition to the alteration and addition works of the historic building, the developer need to make sure that the renovation works are conducted with the minimum intervention of the original appearance of the heritage. Restoration to its original appearance requires superior technique and it is another reason that the adaptive reuse of the heritage would be much more expensive than constructing a complete new building. Other than that, the degree of uncertainty and site contamination will affect the renovation cost. The following table show that the comparison of the renovation cost of the adaptive reuse project and construction of new building. It contains 11 cases which including cases in Hong Kong and America. After calculating the cost per square meter renovation cost at 2012 price level, those figures would be used for comparing the average cost per square meter of constructing the similar type and new building. The data of construction cost of the new building of the same type at 2012 price level

are came from the Rider Levett Bucknall which is an international quantity surveying company.

## **Table 2 – Comparison of adaptive reuse project and new construction**

**Cases**

**Floor area**

**Renovation**

**period**

**New Use**

**Cost per square meter of renovation after adjustment to 2012 price level**

**Average Cost per square meter of new construction at 2012 price level**

**1. Old Tai O Police Station (Hong Kong)**

**1, 000 m<sup>2</sup>**

**2010 - 2012**

**Hotel**

**HK\$68, 437**

**HK\$30, 750**

**(hotel, 5-star)**

**2. Béthanie**

**(Hong Kong)**

**4, 150m<sup>2</sup>**

**2005-2006**

**School**

**HK\$24, 359**

**HK\$21, 700**

**(office, premium)**

### **3. Mei Ho House**

**(Hong Kong)**

**6, 750 m<sup>2</sup>**

**2011-2012**

**Hostel**

**HK\$34, 757**

**HK\$24, 300**

**(hotel, 3-star)**

### **4. Lui Seng Chun**

**(Hong Kong)**

**600 m<sup>2</sup>**

**2011-2012**

**Chinese medicine shop**

**HK\$42, 003**

**HK\$18, 150**

**(office, low)**

### **5. Lai Chi Kok Hospital (Hong Kong)**

**6, 500 m<sup>2</sup>**

**2011-2012**

**Hostel**

**HK\$47, 896**

**HK\$24, 300**

**(hotel, 3-star)**

**6. Charles Street Jail (Boston, U. S. A)**

**23, 250 m<sup>2</sup>**

**2002-2007**

**Hotel**

**US\$7, 542**

**US\$3, 430**

**(hotel, 5-star)**

**7. Minnesota Building**

**(Saint Paul, U. S. A)**

**9, 393 m<sup>2</sup>**

**2010-2011**

**office & apartment**

**US\$3, 071**

**US\$1, 894**

**(residential)**

**8. 11 East Forsyth/ Lynch Building/**

## **American Heritage Life Building**

**(Jacksonville, U. S. A)**

**14, 200 m<sup>2</sup>**

**2002-2003**

**loft apartment**

**US\$2, 442**

**US\$1, 894**

**(residential)**

## **9. Pacific Electric Building**

**(Los Angeles, USA)**

**46, 500 m<sup>2</sup>**

**2005**

**lofts apartment**

**US\$1, 494**

**US\$1, 894**

**(residential)**

## **10. Philadelphia Saving Fund Society Building**

**(Philadelphia, USA)**

**55, 700 m<sup>2</sup>**

**1998-2000**

**Hotel**

**US\$3, 001**

**US\$2, 077**

**(hotel, 3-star)**

## **11. First Regiment Armory Annex/ Portland Armory**

**(Portland, USA)**

**5, 104m<sup>2</sup>**

**2002-2006**

**Theater**

**US\$8, 620**

**US\$1, 683**

**(strip shopping high)**

Sources of building cost index of U. S.: [www. turnerconstruction.](http://www.turnerconstruction.com/costindex)

[com/costindex](http://www.cedd.gov.hk/eng/publications/construction/index.htm)Sources of building cost index of Hong Kong: [http://www.](http://www.cedd.gov.hk/eng/publications/construction/index.htm)

[cedd. gov. hk/eng/publications/construction/index. htm](http://www.cedd.gov.hk/eng/publications/construction/index.htm)Sources of

construction cost of the new building of the same type at 2012 price level:

[www. rlb. com/](http://www.rlb.com/)After comparing the renovation cost per square meter of

renovation after adjustment to 2012 price level of those building mentioned

in the above and average cost per square meter of new construction at 2012

price level, we can find out that renovation cost under most of the adaptive

reuse project is higher that the construction cost of the new building.

### **4. 3. 1. 2 Maintenance cost after adaptive reuse**

The renovation cost is not the only thing needed to be considered in the

adaptive reuse project. It is not the end of the conservation of the heritage

under the adaptive reuse project after the renovation. After the renovation of

the historic building, routine maintenance needs to be conducted within a

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certain period in order to keep the historic building in a good condition. The adaptive reuse project is to renovate and repair the historical buildings to its original appearance instead of rebuilding the buildings. It is understandable that the life cycle of the existing materials would be less than the new materials which may lead to higher maintenance costs under adaptive reuse project than building a new building. The maintenance cost of those historic buildings can be burdensome as the cost of the materials used in maintenance is expensive and some technical specialists need to be hired as a consultant of the maintenance. High maintenance cost is a barrier in adaptive reuse project especially in the case of the cost generated from the business may not adequately cover the annual cost of repairs and maintenance.

### **Table 3 - Average maintenance cost per year**

#### **Cases**

#### **Average maintenance cost per year**

1. Old Tai O Police Station (Hong Kong)HK\$ 200, 0002. Old Stanley Police Station(Hong Kong)HK\$ 250, 0003. Lui Seng Chun(Hong Kong)HK\$ 600, 0004. Western Market(Hong Kong)HK\$ 1, 616, 154Variety cases show that higher maintenance cost has been spent of the reused historic buildings. It costs about two million Hong Kong dollars over four years in repairs and maintenance of the Old Stanley Police Station which is used as a supermarket now. It is much more expensive in maintenance fee than the other normal supermarket. From the case of Lui Seng Chun which is used as a Chinese Medicine and healthcare center now, annual cost of six hundred thousand Hong Kong dollars need to be spent in maintenance.

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### **4. 3. 2 Restoration to its original level**

The meaning of restoration to its original level I defined in this chapter is that to renovate the heritage to the original appearance including the artificial and structural context of the building in order to adapt the new function uses and maintain the characteristic of the building at the same time. However, some technical problems will be encountered during the restoration of the heritage to its original context and appearance, and meet the modern function at the same time. The following table shows that what kind of difficulties will be encountered during the restoration to the original context of the heritage.

#### **Table 4 – Difficulties encountered during the renovation to its original level**

##### **Restoration to its original level**

##### **Disintegrated with age**

##### **Adapt to the new function uses**

##### **Restore to the original appearance**

##### **Maintaining cultural significance**

**10**

**8**

**13**

**4**

##### **4. 3. 2. 1 Disintegrated with age**

After being built so many years and lack of maintenance, those historic

buildings were in a general state of disrepair which is one of the difficulties

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during the adaptive reuse. There are total 30 cases showing the challenges during the restoration to the heritage original appearance while 10 cases are about the technical problem such as the structural problems of the buildings which were disintegrated with age. As the architectural skills and technology was not advanced in the past, some of the heritages were built with unreinforced concrete which may cause the structural problems. After the renovation for the adaptive reuse, the original structural system may be overloaded. Moreover, due to several reasons such as differential movement of the building component, excessive lateral force or corrosion of the steel, cracking of the concrete or masonry always appeared in the historical buildings. Repair of those cracking and strengthen the structural systems require superior technical skills which pose the challenge during the renovation.

#### **4. 3. 2. 2 Adaption to the new function uses**

" The conservation of monuments is always facilitated by making use of them for some socially useful purpose. Such use is therefore desirable but it must not change the lay-out or decoration of the building. It is within these limits only that modifications demanded by a change of function should be envisaged and may be permitted." The Venice Charter (1964)The cases used in this study show that those historic building has been converted into different new uses; but no matter what kind of new function of the heritage, installation of new facilities are needed. Under the adaptive reuse, the historical building is converted into a new use. The building has to be adaptable to the new function. However, the renovation of the building and the installation of modern facilities to be conducted would be difficult due to

the criteria of minimum intervention of the original layout and loading capacity which forms another challenge to the transformation of the heritage. There are 8 cases showing the difficulties in adapting the new function uses. Charles Street Jail is one of the cases which was transformed from the jail into a hotel; however, the layout of the jail is not suitable for the conversion of the hotel. For example, some of the cells were set away from the windows. But it is inappropriate for the room of hotel without windows. It poses the difficulties for the designer to renovate the building which is adaptable to the new function but also have the least alteration of the original layout at the same time.

#### **4. 3. 2. 3 Restoration to the original appearance**

" Replacements of missing parts must integrate harmoniously with the whole, but at the same time must be distinguishable from the original so that restoration does not falsify the artistic or historic evidence." The Venice Charter (1964)The Venice Charter (1964) also stated that " it is our duty to hand them on in the full richness of their authenticity." Restoration to its original external appearance is another biggest challenge in adaptive reuse showed in the above cases where 13 cases are related to this problem. After being buffeted by wind and rain for many years, it is unavoidable that the appearance of the historical buildings was deteriorated. Color fade-out, missing pieces of the materials and spoiled façade were the general problems. In order to restore to its original appearance and make it more authentic, it requires a lot of information and technique. However, most of the buildings have very long history which may be established for more than a century, lots of information about the building design was lost which pose

the challenge to the designer in reproducing the missing part of the buildings. Furthermore, some of the destroyed materials may not be reproduced due to its long history. Because of the insufficient photographic reference of the design of the building and the incapability of manufacturing the ancient materials, it is difficult to find the suitable materials for the restoration of the heritage in order to match the original fabrics and design. Béthanie is one of the examples which faced the difficulties in restore to original appearance. There were 19 stained glass, sacrificial altar and statue were sold in 1974. During the renovation, they have to find the whereabouts of all those missing relics for the sake of restore the original appearance of the church.

#### **4. 3. 2. 4 Dilution of the cultural value of the heritage**

The practice of adaptive reuse may be a mixed blessing to the heritage itself. The clash between the aims of cultural preservation and the economic consideration comes into light under the adaptive reuse. The original reason that we need to conserve the heritage is to conserve the connotation of the heritage. But to a certain extent, the adaptation to the new function use under the reuse can only protect heritage from demolition and may deprive the core meaning of the heritage which has been revealed from some of the cases. The Venice Charter (1964) states that " The conservation of a monument implies preserving a setting which is not out of scale.

Wherever the traditional setting exists, it must be kept. No new construction, demolition or modification which would alter the relations of mass and color must be allowed." In my point of view, the traditional setting does not only mean the physical appearance of the heritage, but also the cultural

significance to the society and the spirits of the heritage. However, part of the value of the heritages is watered down for the sake of adapting to the new function use. Rossi (1982) thought that the collective memory of the inhabitants is associated to the monuments in which people remember the past and the collective memory to the city is recalled through the monuments. Collective memory is a term analyzed by Maurice Halbwachs (1992) which means a bund of information shared by two or a group of people of the society. Jeffrey Olick (1999) further stated that the collective memory is the past which change our life totally or forms our identities. To certain extent, the historical buildings can bring back the memory to the older generation. These buildings with its original appearance remind them both tough and wonderful time they have been through. More than that, these buildings are the identification of the city. Heritage conservation is not only preserving the original appearance, but also the feeling the heritage present to the public. However, retaining the cultural value and achieving the economic efficiency at the same time is one of the difficulties in adaptive reuse. Most of the examples show that only building's exterior shell is reused without restoring its original soul with the concern of the economic consideration. There are 4 cases indicating the difficulty in maintaining the cultural significance in both exterior and interior context of the heritage. Western Market is one of the examples which the cultural value is wiping out. The public always complain that the Western Market which transformed into the shopping mall and restaurant has lost the essential spirit leaving only the outer form. There is no denying that the exterior is a good renovation. But it's like you're looking at the building, but there is nothing inside. It's just this shell. All the value of the building has been scooped out.

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### **4. 3. 3 Update to the existing regulation**

#### **4. 3. 3. 1 Strict application of the existing building ordinance**

The aim of building control is to control the building design and construction through the building ordinance and allied regulation in order to ensure the health and safety of the users and related people of the buildings. Every building has to strictly follow the standards laid down in the building ordinance. Therefore, the abidance of the existing building regulation is one of the important factors and challenge during the execution of the adaptive reuse when there is no relaxation of those regulations. Most of the historic buildings were built for many years. People constructed those buildings without taking too much consideration on the safety and health issue of the users due to the lag in technology. Also, part of the design of the heritage is anachronism and not user friendly for the people now which may pose the danger to the users. For example, the fire service system of some historic buildings was outdated. There were even no fire sprinkler systems in some heritage. The construction materials were not fire resisting which pose the danger to the occupants in case of the fire happen. Moreover, due to the undevelopment of the science in the past, there were outdated or no lift installations in the historic building which may not be user-friendly to the people. That's why the adaptive reuse of the heritage needs to be strictly followed the existing building control in order to fit for the current situation. The construction materials, fire safety provision, disabled provision, etc. of those historic buildings are fail to meet acquired standard laid down in the existing building code. However, most of the existing building ordinance and regulation are set up for newly built buildings which create an obstacle to the

conversion of the heritage. The drawing up of the existing building regulation has not taken the heritage into consideration. The building regulation is not applicable to the adaptive reuse of the historic buildings which means that those buildings may need to have some changes in order to fit the building regulation and it will create some technical problems during the renovation. Most of the cases revealed that problems in complying with the fire service regulation. Yaumati Theatre was built in 1930s which was not fit in the existing regulation. Volume of 160 cubic meters of a fire service water tank and a water pump need to be installed to abide the building code. However, there was no spare space for installing the tank. The possible solution is to install the water tank and water pump under the auditorium which means the basement needs to be excavated deeper. It increases the complexity of the project and the construction cost at the same time. Some of cases show the problems in complying with the other regulation except fire service regulation. Under the case of Philadelphia Saving Fund Society Building, constructing additional areas for the hotel ballroom was restricted due to the compliance of standard of rehabilitation.

### **4. 3. 4 Legal Affairs**

#### **4. 3. 4. 1 Private property**

There are 36 cases of adaptive reuse of the heritages while 11 cases are government-owned and 25 cases are private owned. The legal affairs related to the private property are not serious in foreign country after reviewing all these cases. Most of the heritage for adaptive reuse are government-owned which reduce the problem related to the private property happened.

However, for those heritages which are private property, it creates the

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huddle for the adaptive reuse of the building due to the intervention of the private owner. In Hong Kong, if the historic building is not declared monument, the private owner of the building still has right to demolish the building for the redevelopment of residential building or other uses. When choosing between enormous economic gain of the redevelopment and cultural value of heritage conservation, it is human nature to choose money over the value of heritage. Without sufficient compensation of the loss of resale or redevelopment, the private owner even more tend not to conserve the heritage, even if the heritage conservation can benefit the whole society in cultural aspect. Only if the private owner hands in the historic building to government of his own free will for conservation such as the case of Lui Seng Chun which the owner is willing to donate the building for the conservation, otherwise, it would be difficult and costly for the government to conserve the heritage. Once the land is sold to the developer for the development of the residential buildings, there is no way for the government to prevent development as it would be seem as a breach of contract. The government needs to compensate the developer with huge amount of money. There is another option has been used by the Hong Kong Government to prevent the building from demolish which is that the government use other site in exchange of the land where the heritage located. Béthanie was a church originally which finally turn out an Academy's School of Film and Television. As Béthanie was a private property and not the declared monument, it had been sold to Hong Kong Land Holding Limited in 1974 and planned to be demolished for the development of residential buildings. The Hong Kong Government has to use a land with similar value in exchange of the Béthanie. But sometimes it would be timely process during the negotiation.

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There is a system of transferable development right in some other countries but not in Hong Kong which is more flexible in land resumption and conservation of heritage. The incentive of conservation of the heritages through adaptive reuse is relatively higher in foreign countries, so the problems related to the affairs of private property is lower even most of the cases of adaptive reuse project are private-owned.

## **Chapter 5 Conclusion and Recommendations**

### **5. 1 Conclusion**

" The past reminds us of timeless human truths and allows for the perpetuation of cultural traditions that can be nourishing; it contains examples of mistakes to avoid, preserves the memory of alternatives ways of doing things, and is the basis for self-understanding..." (Drew, Bettina) These historic buildings are the survivor in the mighty torrent of history. They are the witness of what our world been through. They are part of our history. Heritage conservation is taken to protect the heritage against the demolition, obsolescence and redundancy. Adaptive reuse is a way of heritage conservation to bring a new life to the heritage while maintaining its historic features. It aims to create a new identity for the historic buildings with its original construction. The merging of heritage and the society after the adaptive reuse can sustain the culture of locality which can conserve the heritage even better. However, it's not that easy to protect our history. We have to pay for what we treasure. It is usual that the cost spent in adaptive reuse of the heritage is quite expensive sometimes. Also, heritage is always associated with higher maintenance cost than a new building because of the short life expectancy of the existing materials. For those heritages which are

private properties, the government may need to compensate the owners a huge amount of money in exchange for the property right so as to conserve the buildings. We want to protect our city's memory, that's the reason why we make effort to restore the original appearance and historic features of the buildings. It is pointless if we disfigure the appearance of the heritages. However, it is impossible to repair the heritage up to 100% of its original appearance as impossible as to raise the dead because of extent of deterioration and the limitation of the existing building regulation. The restoration of the buildings is hobbled by the existing building regulation and other legal affairs. Financial consideration, physical condition and legal affairs are the major difficulties during the practice of adaptive reuse. Some recommendations will be given after identifying the obstacle in the next part.

## **5. 2 Further study**

The findings of this research indicated that one of the difficulties in adaptive reuse is to maintain the cultural significance of the heritage. Due to the limitation of the research, in-depth study on this area cannot be carried out. In-depth investigation can be further conducted to investigate the difficulties to conserve the cultural context of the heritages. Most of the cases in Hong Kong revealed that the new function use of the heritage would wipe out the historical relics. After the reuse of the building, the historical function and the memory public towards the building have been concealed. A further study of how to give the new life of the building but maintain the historical context which can allow the people to trace the past of the heritage at the same time can be conducted.

## **5. 3 Recommendations**

### **5. 3. 1 Development of financial supporting system for adaptive reuse**

Money is one of the critical considerations for the developers to decide whether invest the adaptive reuse or not. It is normal that higher renovation cost will discourage the investment. The government has to offer the incentive to investors for the heritage conservation. For public owned heritages, it is common that the government provide some subsidies for the renovation or redemption of maintenance fee to the investors. However, it is difficult and expensive for government to subsidy the heritage conservation constantly as it involves huge amount of public funding. The government can set up a Heritage Saving Trust fund in order to support the heritage conservation and adaptive reuse project every year. The government will inject a portion of public funding into the trust fund. The foundation can use the fund to invest in private and public companies, bonds, equities, real estate, etc. to earn more income through the investment.

### **5. 3. 2 Development of the transfer development right**

In some countries, there is no system of transfer the development right such as Hong Kong. Development of the transfer development right can help reduce the difficulties of applying the adaptive reuse in some private-owned heritage. To develop the system of transfer development right, we need to ensure that the property ownership and the development right of the property are separated and the development right of the property can be sold. The property owner can enjoy both the property ownership and development right of the property. They can choose to keep the original

property use or change the use of the building after obtaining the permission of the government. For example, they can choose to destroy the original building in order to develop a residential project. However, for some valuable private-owned heritage, both the government and the public tend to protect the heritage. For the owners, they may tend to demolish the heritage for development for the sake of earning more money. But the restriction of the demolition of the heritage would exploit the right of the private owners which is unfair for them. Under the system of transfer of development right, they can sell the development of the heritage in the free market. The developers who want to increase the density of their developments can buy the development right from them. This system can kill two birds with one stone. Those private-owners of heritage whose lose their right to develop their property can be compensated. At the same time, the government needs not to use the government fund or land in exchange of the land because the whole transaction of the development right is done in the free market.

### **5. 3. 3 Relaxation of the statutory requirement**

Strict statutory requirement of the building regulation create the difficulty in renovating the historic building. In order to meet he acquired standard laying down the existing building and safety regulation, configuration of the building would be needed which may cause some technical problem in renovation. Also, the modification of the buildings may distort some significant features of the heritage which represent the cultural and historical significance of the buildings itself. The renovation need to be conducted with minimal effect of the buildings. Relaxation of the statutory requirement can

help the practice of the adaptive reuse to be carried on with maintaining the special features and meeting the required standard for the new use. An assessment can be conducted to evaluate the various risks the heritage facing. Based on the nature and the function of the adaptive reuse project, the minimum requirement can be evaluated and determine to what extent the building shall be exempt from building regulation. Some unnecessary services system may be removed. If the relaxation of the regulation is not work after the evaluation of the risk of the heritage, a compensatory measure can be provided as an alternative. A compensatory measure is designed to achieve the safety and health requirement in a building but with the minimal effect to the character of the heritages. The compensatory plans vary from case to case as different heritage have their unique features.

### **5. 3. 4 Comprehensive technical guideline for the adaptive reuse**

Other than upgrading the existing fire and building services system for the sake of meeting the required standard, the technical problems encountered due to the poor physical condition, inadequate structural capacity or insufficient historical sources of the heritages are one of the difficulties. A comprehensive guideline related to the technical problems encountered during the adaptive reuse projects can be prepared. Different types of typical defects found in adaptive reuse projects, varied solutions and associated renovation costs would be assessed and given in this guideline. Common defects found in heritage can be classified in different subcategory such as floor, roof, wall, etc. Variety solutions and associated costs are provided as reference. Through this guideline, investors can find the most cost- effective

method that suitable for their project. However, different adaptive reuse projects will have own its unique problem other than common defect. The government can establish a team with variety professional including architect, engineering, historians who know well about heritage, etc. Advices can be given on both technical and financial aspects to the developers when encountering some special difficulties.

### **5.3.5 Comprehensive assessment of new compatible use**

The shell of the historical building shows us what does this building look like in the past or what kind of the architecture style. It is the first step to restore the building to its original appearance for the sake of conserving the heritage. The ultimate goal of the conservation is to protect the city's history belong to our forefathers and pass to our descendants. So what we really need to protect is the stories of the building which compose our history. The aim of the adaptive reuse project is to provide a new life of the heritage. But at the same time, we don't want the new function use devour the spirit of the heritage. The new compatible use need to be carefully considered. Unless the old building s has no historical value to speak of, for those monuments with strong historical sense, the new use should not conceal the building's historical function. The new function need to be integrated with the historical value and the context of the surrounding community. Also, the use needs to be economically viable which enable the sustainability. A comprehensive assessment is carried on to determine what kind of new use is suitable for the building based on the above requirement.