

The Beneficial Past: Promoting Adaptive Reuse as a Beneficial Design Method for East and South-East Asia

Keefe Hien Yau Ch'ng
December 2010

Submitted towards the fulfillment of the requirements for the Doctor of Architecture Degree.

School of Architecture
University of Hawai'i

Doctorate Project Committee
Marja Sarvimaki, Chairperson
William Chapman
Frederick Creager
Kathryn Ladoulis Urban


The Beneficial Past: Promoting Adaptive Reuse as a Beneficial
Design Method for East and South-East Asia

Keefe Hien Yau Ch'ng
December 2010

We certify that we have read this Doctorate Project and that, in our
opinion, it is satisfactory in scope and quality in fulfillment as a
Doctorate Project for the degree of Doctor of Architecture in the School
of Architecture, University of Hawai'i at Mānoa.

Doctorate Project Committee


Marja Sarvimaki, Chairperson


William Chapman


Frederick Creager


Kathryn Ladoulis Urban

For my parents
For my loved ones
For my teachers
and,
For perseverance

Table of Contents

| | |
|---|-----|
| Abstract..... | v |
| Introduction..... | vi |
| Chapter 1: <i>What is Adaptive Reuse?</i> | 1 |
| Chapter 2: <i>Is Adaptive Reuse a Term for Replication, Remodeling, or Renovation?</i> | 23 |
| Chapter 3: <i>Is the Reuse of Buildings Hazardous?</i> | 37 |
| Chapter 4: <i>Is the Industrial History of the Asian City Significant?</i> | 53 |
| Chapter 5: <i>Is There Interest for Adaptive Reuse in Asian Countries?</i> | 76 |
| Chapter 6: <i>Is Adaptive Reuse a Worthwhile Investment?</i> | 93 |
| Chapter 7: <i>Are International Standards and Practices of Adaptive Reuse Applicable to Asia?</i> | 108 |
| Chapter 8: <i>Conclusion</i> | 124 |
| Selected Projects | 130 |
| Appendix 1: <i>The Seven Levels of Activities</i> | 131 |
| Case Studies | 138 |
| Bibliography | 142 |

Abstract

The pace of modernizing Asian cities has created a threat of erasing their architectural heritage, history, and sense of place. This is true particularly in regard with many industrial neighborhoods and utilitarian buildings that are not considered as ‘important’ part of architecture heritage than older monuments and other preservation sites. This Doctor of Architecture research project will provide clear evidence to show that many existing industrial buildings in Asia are not only significant part of the architectural heritage of their context, but also potential targets for adaptive reuse. Hence, this study defines adaptive reuse as a beneficial, green design method for Asian cities, citizens, and developers alike. The method of adaptive reuse should be practiced in East and South East Asia, on industrial and utilitarian buildings, to prevent the disappearance of urban historic character. However, the practice should be authentic, preserve original materials, and not replicate portions that are nonexistent.

The focus of this research is to cover adaptive reuse of industrial and utilitarian buildings, an architecture that is often underutilized, unnoticed, and demolished without a whim of thought in Asia. The focus cities of Beijing, Yokohama, Kuala Lumpur, and Singapore will be used for this research, because elucidating examples of successful adaptive reuse can be found in these cities. In addition, this research will discuss international case studies of adaptive reuse in order to further develop basis for the applications of adaptive reuse method in Asia.

This project will center around seven conjectures to why Asian urban developers might be reluctant to adaptively reuse buildings. The seven conjectures will define: Appropriate adaptive reuse, clarify adaptive reuse, address issues of danger in adaptive reuse, address the significant histories of industrial development of Asian cities, discuss the interest in adaptive reuse, illustrate the profitability for adaptive reuse, and finally conform international standards that fit the Asian context.

This project’s conclusion will illustrate that by changing the function of old industrial buildings in Asia, they can continue to be part of the architectural heritage of their location, and preserve its sense of place. This D.Arch project does not seek to change the world, but aims to warn against wanton demolition of the existing built environment for the sake of development.

Introduction

The post-World War II development of the urban metropolises in Asia is a rapid phenomenon of growth and improvement. Unlike European and American cities, their development experienced a significant acceleration within the past few decades. City development in Asia is a direct result of economic growth and urbanization, bringing wealth and prosperity to Asian countries. However, the increased reform and change of economic status has challenged the urban fabric of these cities. The result of new fortunes has steadily increased the possibilities of building newer and increasingly technologically advanced buildings. Therefore, we can generalize that “the level of urbanization in relation to economic development: the percentage of population living in urban places clearly rises as economic development proceeds and income rises.”¹ Skyscrapers are being designed and built to function as new spaces of commerce and finance. Tao Ho reiterates this fact, stating that in Asian cities, “Architecture’s response to unpredictable economic forces led to the vertical and horizontal mushrooming of new structures throughout our cities”. He continues on, stating that “Many historic buildings and districts have been destroyed through urbanization, and the situation is particularly urgent in developing countries, where the public all too often sees historic structures as reminders of backwardness that they would rather forget. Instead, people want Western-style buildings to symbolize progress”.²

1. R. Yin-Wang Kwok, and et al, *Chinese urban Reform: What model Now* (Armonk, N.Y.: M.E. Sharpe, 1990).

2. Cynthia C. Davidson, ed., *Anywise* (New York, N.Y., Anyone Corporation; reprint, Cambridge, Mass.: MIT Press, 1996).

With the loss of historic neighborhoods, the uniqueness of the country is also lost with neglect of the local culture and society. Critics often point out a growing lack of difference between developing urban areas of Asian cities and cities in America and Europe as a result of earlier Westernization and current globalization.³ As pointed out by Robbie S. Goh, “the embracing of global capitalism, and the cultural and aesthetic values it entails coloured everything [into western ideals]. Even the discourse about architecture, urban planning, and culture was and still is couched in the concepts and words of the industrial west. The aesthetics of place – local, specific, rooted – has no voice and therefore no place in the new scheme.”⁴

But how can a city preserve culture and identity, while progressing into a more developed future for Asia? There are no single answers to this question. Historic preservation of architecture is one method for saving culture and identity, but its strictest form does not satisfy the problem of growing development. In Europe and North America, developers utilize adaptive reuse as a successful and highly recognized method for dealing with the problem of development versus cultural preservation. Adaptive reuse, a design method of rehabilitating existing buildings, can preserve cultural identity within a modern context and function. Asia has some examples of adaptive reuse, but not to the same extent as some other parts of the world (fig. 1 and 2), which is the reason why this study focuses on increasing awareness of the benefits of adaptive reuse in Asia.

3. William S. Logan, ed., *The disappearing "Asian" City: Protecting Asia's urban heritage in a globalizing World*, Oxford ed. (New York: Oxford University Press, 2002).

4. Robbie B.H. Goh, and Brenda S.A. Yeoh, *Theorizing the Southeast Asian city as Text: Urban landscapes, cultural documents, and interpretative Experiences*, Singapore ed. (New Jersey: World Scientific, 2003).



Figure 1. (L) The reuse of prison cells into cafes and shops in Intramuros, Philippines. It is a good reuse that celebrates patina, but controversial for their previous use as torture chambers & prison cells. Source: Author, 2005.

Figure 2. (R) Reuse of historic district can sometimes be so saturated, that architectural heritage is reduced to more than just a “fancy look”. Bugis Junction’s once gritty avenues are converted to covered, climate controlled shopping mall. While it is a clear attempt to copy the Galleria Vittorio Emanuele II in Venice, Italy, its majesty is ruined with the inclusion of shopping carts and monochromatic pastel color scheme. Source: <http://alicesg.blogspot.com/2010/09/bugis-junction.html>, 2010.

In addition to the above mentioned shortcomings in regard with the perception of old industrial and utilitarian buildings as backwardness, Asian building regulations also might limit adaptive reuse. Hiroyasu Fujiyoka points out that Japan's building laws about "seismic proof has been revised every time a big earthquake caused damage[. O]lder buildings are likely to be judged as "disqualified" (needed to be reinforced) when the latest standard is applied. This does not always mean the old building is unsafe against earthquakes... The old standard is not always inferior to the new one... [and] that judging an old building by the Building Standard Law of Japan is like judging it applying a standard of another country. [T]he present Building Standard Law ...assumes only new buildings on a vacant lot; not care for keeping existing buildings."⁵ While buildings must be safe for human occupancy, the idea of completely tearing down a building due to the standards of a brand new construction is unjustified. As adaptive reuse is one method to preserve culture for the benefit of future generations, this project seeks define adaptive reuse, showcase existing examples, and develop ideals for adaptive reuse in Asia. This project will also exclusively focus on industrial⁶ structures, because their historical significance has attracted less attention than other buildings in Asia, such as ancient temples or government buildings. Finally, because Asia is a very broad term, the focus will be on the urban cities of Kuala Lumpur, Singapore, Beijing, and Yokohama; places with examples of adaptive reuse architecture. Additionally, projects in different cities and countries will be used for further clarification.

5. Hiroyasu Fujioka, "Architectural Preservation Activities as a New Insight into Modern Technology and Social Systems of Modern Japan," Center for Innovation System Research, <http://www.cisr.iri.titech.ac.jp/CISR/other/files/WS-Civic/WS3/presentation/04-fujioka.pdf> (accessed January 26, 2009).

6. "Industrial" from this point on will refer to industrial and utilitarian types of buildings.

Authenticity in Adaptive Reuse

In this project, the definition of adaptive reuse architecture relies heavily that buildings should be authentic in their age and material. Unfortunately, some developments that appear adaptive reuse are, in fact, thematic. Anaheim Disneyland's Main Street USA development (fig. 3) is an example of themed, replicated architecture that is staged with the intent of creating a pleasant environment reminiscent of a historic environment. While criticizing the Main Street attraction is not to condemn the practice of Disneyland theme parks, its artificiality can be problematic if applied to real historic neighborhoods. Some Asian adaptive reuse projects adopt similar characteristics to Disney's Main Street with artificial treatment (fig.4), although good adaptive reuse practice should celebrate patina⁷.

European and American adaptive reuse, while recognized and publicized in numerous books and magazines, is often quiet, yet innovative in their design, and these projects are sometimes hidden treasures that are exclusively known to the architectural community. An example of this is the Alte Nikolaischule in Leipzig, Germany (fig 5-7). Its adaptive reuse is actually more installation than a reuse, but converts the once empty courtyard space into a main lobby and reception hall for the local University. The design of the inner space is not ostentatious, and does not detract from the existing brickwork and plaster walls. It introduces windows as doorways, cutting the original frame without compromising the supporting arcs. And because the installed materials are new, the materials are not treated to look like the original architecture. There is little signage or

7. "Patina" – a surface appearance of something grown beautiful especially with age or use. (<http://www.merriam-webster.com/dictionary/patina>)



Figure 3. (L) Anaheim Disneyland's Mainstreet Attraction is an earliest example of inauthentic architecture that mimics historic architecture for enjoyment, but at the cost of providing an environment that is saturated and artificial. Source: <http://xpurr.com/videos/watch/mainstreet-usa.html>, 2010

Figure 4. (R) Shopping alleys at the nearby Yu Garden in Shanghai try to mimic the past with decorative architectural elements that are equally saturated and artificial as the Disneyland Mainstreet. It is an artificially enhanced alley. Source: http://picasaweb.google.com/lh/photo/fFYRyUQcuVBggFObyDa_lg, 2009



Figure 5. The Alte Nikolaischule's installation creatively ignores the boundaries of preexisting window borders to fabricate doorways that are muted. Next to the doorway, the window orifice retains its original stone material, albeit with minor wear. Source: Author, 2010



Figure 6. (L) Another entranceway shows a respect for the existing stone material. But for the purposes for door access, a significant portion of the window's sill and below is removed. Source: Author, 2010.

Figure 7. (R) Clear juxtaposition of the elements between old and new material are apparent in this view. To the right is the original building's material, restored to a white glory and original look. The left is the entrance stairwell. Source: Author, 2010.

tourist pamphlets that promote the building is of architectural importance, except being published in *Old Buildings Looking for New Use* by Pierre Thiebaut.

Because adaptive reuse can be applicable to all buildings, there are no rules to determine what can be reused, and how. The philosophical basis can be surmised as: the reuse of buildings to take advantage of a structurally sound, existing shelter. Varied publications, such as Kenneth Powell's *Converting Old Buildings for New Uses*, offers the explanation that adaptive reuse takes advantage of tax breaks and is more economical than new construction. Other reasons include environmentally friendly construction, heritage preservation, and more. But overall, taking advantage of available shelter is the primary reason, while reducing the energy consumption of new construction, recycling building materials, and reusing existing buildings makes it a sustainable option for development.

As adaptive reuse does not have a doctrine, it is discussed as a design method in this project, recognizing European and American adaptive reuse as model methods to emulate for Asia.

Industrial Architecture in Asia

Developed in the early 20th century, modern architecture emphasizes simplification of form, free from ornamentation, and utilization of the most recent (of the time) technology of glass and steel. The Bauhaus School was a part of this movement, with its philosophy stating that new thinking, designing, and creation was needed. As part

of modern movement, industrial architecture generally follows the philosophy of function as the primary source for form, while Asian industrial architecture is a byproduct of the early trading history. However, unlike historical buildings such as temples and other regionally unique buildings, industrial architecture in Asia has not attracted the same attention. Industrial buildings are often found in a very poor and hazardous state, and their final fate of demolition and clearance is a poor use of available materials. This way of development can lose potential architectural history, innovation and character of the area, for the sake of the land the existing building occupied for new construction,

The existing buildings could be adaptively reused, and the result can be beneficial for the collective community. Laurence E. Reiner's book *How to Recycle Buildings* is a very thorough book of how to apply adaptive reuse on buildings from a detailed and systematic standpoint. Reiner states that the principal owner sometimes has an unidentifiable new use from the start, and that *change* is difficult without a specific *use* in mind. Reiner's solution is that, "no matter what kind of structure is involved, its final use must be determined by the requirements of the community and by surveys of the physical conditions and adaptability of the buildings and the trends of the neighborhood."⁸ As seen in countless projects in Europe, the adaptive reuse projects of industrial buildings are often cited and showcased as exceptional development. As an example, the National Studio for Contemporary Arts in Le Fresnoy, France, adaptively reused by Bernard Tschumi, is a project which reuses former community center buildings as stages for art classes and studios, with utility services separate and hovering over the structure. Another

8. Laurence E. Reiner, *How to recycle Buildings* (New York: McGraw-Hill, 1979).

example is the defunct Lingotto in Turin, Italy, an automobile factory adaptively reused by Renzo Piano into a concert hall and public function building. A third example is the Tate Modern in London, adaptively reused by Herzog & de Meuron, an oil-fired power station that is now an art museum. These buildings are existing artifacts that showcase the industrial past of their respective cities and locales, while also being accessible for the local community. As stated by Michael Forsyth: “Every building, however humble, possesses a history, and buildings from different periods and regions are unique.”⁹

Any industrial building is an artifact of a country's, city's, or locale's industrial past. As Asia entered the modern world, industrialization was an important phenomenon for the many cities and countries of Asia. The cities of Beijing, Yokohama, Kuala Lumpur, and Singapore all have important and different histories that brought modernism to their countries. This historic heritage can be preserved through adaptive reuse of industrial buildings, similar to the treatment of Le Fresnoy Studio, Lingotto Concert Hall, and Tate Modern Museum, housing new functions in old shells.

A Benefit to the Country

The benefits obtained by adaptive reuse of industrial architecture are numerous. If an authentic approach of adaptive reuse is adopted, the likelihood of such developments being perceived as memorable buildings is increased; buildings will be recognized. A greater knowledge of local history can be expressed for international and domestic audience. Innovative reuse of space can also be inspirational for future students of

9. Forsyth, *Understanding historic building Conservation*, 41.

architectural and related arts. Overall, the major benefit is recognition and acknowledgement of design innovation. The profitability of adaptive reuse, however, is difficult to ascertain. Nevertheless, this project will highlight cases in which adaptive reuse design has made the buildings iconic and financially viable developments, in order to examine authentic adaptive reuse of industrial architecture as a beneficial option for the Asian cities.

It is the observation of this author that architectural history and cultural heritage of Asian countries is slowly being erased. As stated by Yves Dauge, Roland-Pierre Paringaux, and Minja Yang, “The uncontrolled frenzy of construction has provoked ecological, aesthetic and cultural disasters right to the historic heart of the cities claiming many icons of art, history and tradition. Only the financial and tourist interest represented by many of these places has saved the historic districts from demolition. But, over and above commercial concerns, it is as a symbol of the cultural identity of the citizens and the community that this heritage should be protected and used as a basis for new cultural creations”.¹⁰ Some developments of adaptive reuse in Asia today have been completed, but they are either thematic, Disney-fied projects, or do not reuse industrial architecture (fig 8-10). Richard Berman references the Yokohama Red Brick Warehouses, stating that despite “the same type of warehouse [that may exist elsewhere], when adapted for a particular use, such as a restaurant or retail store, the forms and functions may combine to retain the site’s uniqueness.”¹¹ Through this project's research, Berman’s message of

10. Davidson, *Anywise*.

11. Richard W. Berman, *Assessing urban Design: Historical ambience on the Waterfront* (Lanham, MD: Lexington Books, 2006).



Figure 8. (L) At the cost of increasing tourism, river cities such as Zhouzhuang, China have mirrored their success in repairing buildings, ultimately becoming close to saturated and Disney-fied. While still being successful in displaying heritage, the areas are close to an inauthentic look. Source: <http://www.chinalandscapearchitect.com/blog/2010/06/13/preserving-culture-and-respecting-culture-in-cities/>

Figure 9. (R) Bar streets are becoming more prevalent examples of attempts to replicate history in Asia. Here, the *Lao Waitan* (“The Bund”) in Ningbo, China demonstrates such an attempt. Source: <http://sinophiles.wordpress.com/2009/12/28/ningbo-lao-waitan-bar-street/>



Figure 10. Xintiandi reuses a complex of Shikumen-style houses unique to Shanghai, which many critics regard as facadism. Source: Author, 2003.

uniqueness will be clearly defined, ultimately justifying what he states as a good goal to strive for.

The format for this project is to address seven conjectures as reasons why adaptive reuse of industrial buildings is not further widespread in Asia. They are generalized to produce greater interest and access to this D.Arch project for the benefit of everyone, while still being prevalent for architects and designers. The use of conjectures is to simplify the discussion for applying adaptive reuse method in Asian cities.

The Seven Conjectures

The seven conjectures, created by the author, are from an assumed point of view of developers and investors who are faced with the decision of whether to demolish the existing industrial building or not. These conjectures take the form of questions to further personify their perspective:

1. What is Adaptive Reuse?
2. Is Adaptive Reuse a Term for Replication, Remodeling, or Renovation?
3. Is the Reuse of Buildings Hazardous?
4. Is the Industrial History of the Asian City Significant?
5. Is There Interest for Adaptive Reuse in Asian Countries?
6. Is Adaptive Reuse a Worthwhile Investment?
7. Are International Standards and Practices of Adaptive Reuse Applicable to Asia?

The first conjecture is merely developing a definition of adaptive reuse method, and outlining the measures for its success. The second is further clarification of the definition, explaining the differences between adaptive reuse and other forms of reuse and Disney-fication. The third addresses the continued concern that recycled buildings can have hazardous safety issues. The fourth and fifth assumptions discuss whether industrial history and adaptive reuse has interest in Asia; in particular in the cities of Beijing, Yokohama, Kuala Lumpur, and Singapore. The sixth discusses the qualitative benefits of adaptive reuse of industrial architecture, including possible profit benefits. Finally, the seventh and final conjecture will discuss whether this project's argument, that adaptive reuse of industrial architecture in Asia is a worthwhile investment, is legitimate and justified.

For the basis of this project, each conjecture will be presented and defined with information and case studies within and outside of Asia. Each will provide an answer that is further challenged, when the project proceeds to an overall conclusion.

What will be concluded?

The goal of this project is, as discussed, higher local and international recognition of the adaptive reuse design method in Asia which justifies adaptive reuse as a worthwhile innovation. The nature of any architectural design, regardless of its function, is construction of a building that has potential of being a profitable investment. From this perspective, it is worth pointing out that innovative architecture and use of space has become more recognized as a selling point. This also applies to the design method of

adaptive reuse by promoting innovative design of environment and creative RE-use of space.

Ultimately, the conclusion of this project will formulate more holistic questions than specific answers in addressing adaptive reuse. Some of these include: Is Adaptive Reuse a viable form of historic preservation? Is physically preserving heritage an acceptable goal in a globalizing city? And is Adaptive Reuse the only choice? These will be answered, with support from discussion of the seven conjectures, in the concluding chapter.

This project's aim is not to change the landscape of Asia, but to bring awareness to Asian developers and designers. The idea of adaptively reusing what is already there, avoiding rebuilding something inauthentic, and preserving the poorly represented industrial history is something that is beneficial for the uniqueness of a country's urban structure and people. In this way, we can guarantee that, for the local community and tourists alike, the past benefits everyone, in every way architectural design and construction can.

Chapter 1

What is Adaptive Reuse?

In order to deliver a compelling case for promoting adaptive reuse, this project will first depict what adaptive reuse is. Adaptive reuse is a design method of reusing buildings from the past for new use. According to John Warren, “our engagement with history is evaluative, and by evaluating the past and seizing upon what we find important, we are tacitly involved in a creative act”.¹² Adaptive reuse does exactly that by taking portions of the existing building that, in the architectural designer’s view, are significant in “identifying, retaining, and preserving buildings and their features as well as features of the site [that] are important in defining its overall historic character”.¹³

Some governments and heritage preservation organizations prescribe guidelines that dictate what proper adaptive reuse is. In the United States, *The Secretary of the Interior's Standards for Rehabilitation (Standards of Rehabilitation* from here-on) can be considered as an official guideline, listing the many procedures that building owners should follow in the rehabilitation of their properties. Among these procedures, a set of ten rules (app. 1) delineates what can and can’t be done to a building. The first rule states that the building “shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment”. Another rule in the ten standards is (#3) “Changes that create a false sense

12. John Warren, John Worthington, and Sue Taylor, eds., *Context: New buildings in historic Settings*, Oxford ed. (Boston: Architectural Press, 1998).

13. National Park Service Heritage Preservation Services, *Standards of Rehabilitation and Guidelines for Rehabilitating Historic Buildings* (Washington D.C.: U.S. Government Printing Office, 1990).

of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.” The *Standards of Rehabilitation* are very useful in preserving the architectural heritage of buildings, but they are not rules that must be followed in every adaptive reuse project.

Adaptive reuse does not adhere to a specific set of directions or instructions. The freedom of designing adaptive reuse architecture can juxtapose past construction methods to present technologies in order to create interesting, functional spaces (as long as the character and heritage is not lost or eliminated). But, the cost of this freedom is that some adaptive reuse projects in Asian cities appear Disney-fied and thematic, rather than preserving heritage of the space (Figures 4, 8, 9). In addition, guidelines such as the *Standards of Rehabilitation* are not necessarily applicable in Asia, which lacks actual funding for adaptive reuse (discussed later). Therefore, this chapter will develop standards for adaptive reuse specifically in Asia by looking at an Asian precedent model – the *Objectives, Principles and Standards for Preservation and Conservation*.

Of all the explored cities this project will cover, Singapore is the smallest in size. Being small, many of the older buildings in the city-state are critical in preserving its urban history. By 1974, Singapore’s government realized that it was necessary to form a national land use authority that designed and upheld the sense of urban structure, while preserving what little historic urban attributes that exist. The Urban Redevelopment Authority (URA) of Singapore was developed and placed in charge of maintaining and designing urban planning for the benefit of Singaporeans. One publication that is the

focus of heritage is the *Objectives, Principles and Standards for Preservation and Conservation*. Developed by URA, it is a comprehensive guidebook that outlines the principles and values of heritage preservation and conservation in a Singaporean context. The guidebook outlines seven *Levels of Activities* (appendix I referred to as the *Levels* from now on) that are important in the process of evaluating, and updating historical buildings in Singapore. These levels are based on precedents, such as the *Venice Charter*, the *U.S. Secretary of Interior's Standards of Rehabilitating Historic Buildings (revised 1983)*, among others. The development of these seven levels of activities is in consideration of Singapore's young urban history of the post-colonial age; a time period when most Asian industrial architecture was constructed. Because the seven levels address industrial buildings, this project will define adaptive reuse according to the seven *Levels*:

1. Maintaining the essential character
2. Prevention of deterioration
3. Consolidation of the fabric
4. Restoration
5. Rehabilitation
6. Reproduction
7. Reconstruction

This chapter will summarize each level as defined in the URA guidebook, evaluate them for their merits and detriments, and explain their use in supporting Asian adaptive reuse.

Maintaining the essential character

In the first level, the URA states that a spirit of essential character of the building must be maintained. A continuous activity of protecting, retaining, and even restoring original qualities and examples of skilled craftsmanship must be done. Dependent on the defined time period, buildings with historical character should have superimposed work removed. However, a thorough evaluation of building character must be done, since some of the superimposed works are significant to character. Superimposed work may have acquired significance in its own right due to the integrity and form of the building.

This first level of activity is essential in adaptive reuse. The character of a building essentially refers to the look and visual appearance, taking into account the decorative elements, the use of materials, and overall aesthetic quality. In determining character, a designer must research and choose a period of time, or several of them, that are most significant in the building's lifetime. The period of time, a "timestamp", should not be a strict factor. For example, if superimposed work on a building is evaluated as being extremely dissimilar to the style of the chosen date, it should be up to the architectural designer's recommendation whether it should be removed or not (fig 11 and 12).



Figure 11. Here is an example of superimposed work. Yokohama Red Brick Warehouse's construction was completed in 1912. However, the original elevator shaft and machinery was later added to the Yokohama Red Brick Warehouses in 1956, by the Yokohama City Customs Administration of the time.¹⁴ But because the exterior metal trellis has become part of the building's character, rather than restoring the original look, the architectural designer has restored the elevator and exterior trellis. Source: Author, 2008



Figure 12. The non-usable elevator is left as an artifact of being the first elevator in Japan in 1956. Source: Author, 2008

14. Yokohama City Website, "History of Red Brick Warehouse (chronology)," <http://www.city.yokohama.jp/me/port/general/akarenga/history.html> (accessed October 23, 2008).

The benefits in following this level of activity helps to eliminate non-essential aspects of the building, and to define the architectural character, including all significant historic layers, per the designer's choice. As a building's character is the primary factor of tourism enticement, of urban history, and of design innovation, designing a positive visitor experience is one reason for adaptive reuse.

Prevention of deterioration

Prevention of deterioration, in essence, is to protect the building from further damage. The URA *Levels* imply that with proper steps of regular housekeeping and maintenance, the architectural character will continue to exist. But if massive damage has occurred, the last option that remains is replacement (discussed in level 7). The URA *Levels* exclusively mentions water seepage – possibly because its effect is the most devastating in adaptive reuse in Singapore.

In adaptive reuse, the prevention of further deterioration is necessary, regardless of the project's design intent (fig 13). It is most important to prevent deterioration if, for example, an original wall continues to be part of the primary structure. However, prevention of deterioration should also be done as a safety issue. In order to continue its use for new function, buildings new and old should be safe.

In drywalls or other non-load bearing elements, only minor repair may be needed - depending on the state of deterioration. In these cases, enough prevention should be installed to prevent major collapse from seismic or loading issues (again, a safety issue). When major reinforcement is required, the wall can be replaced with new material. Or as



Figure 13. The Media Center in Hamburg, Germany has wings within the reused factory complex that are left to deteriorate naturally. Source: *Architecture Reborn* by Kenneth Powell, p.75

an alternative design choice, the wall could be semi-demolished without repair or replacement. Whatever the solution, as long as the building character is coherent, preventing deterioration is beneficial for the building's continued life and usage. Also, regular maintenance is still recommended, and echoing the URA *Levels*, any water seepage that is observed should be remedied without discretion.

Consequently, it is important to determine if prevention of deterioration is needed. From a designer's view, the deterioration may be the very element that defines the essential character of the building, and preserving its patina is therefore needed in order to maintain this character. Patina is clearly seen in the Minneapolis Flour Mill Museum (fig 14), where the post-explosion walls are still standing as relics. Adaptive reuse can attempt to celebrate a building in its current form, and highlight the actual deterioration

of a wall, window opening, a particular door, etc., by adding contrasting new materials (fig 15). Replicating the worn look of patina, however, fails authenticity and leads to Disney-fication. In the end, the designer must determine whether the deterioration is part of the character and is safe to visitors.

Like Level 1, Level 2 is important to all the levels of activities. Level 2 is more technical in nature, and without its consideration, the other *Levels of Activities* suffer because of the physical impact of deterioration.

Consolidation of the fabric

Hand-in-hand with the previous Level 2 goes the consolidation of the fabric. As defined in the URA *Levels*, it discusses physical reinforcement of the building's actual fabric for further durability. The consolidation of the fabric may be necessary if previous methods are deemed inadequate in slowing deterioration, and as such, modern methods may be utilized. As long as the new methods are tested and proven, do not violate the structural system's integrity or destroy the historical character of the building, consolidation is allowable.

The activity, as described by the URA, states that the modern method should complement the traditional building technique. The juxtaposition of the existing building and modern method, however, is a designer's challenge. Maintaining the visual integrity of the original structural system and its historical aspects is important; it cannot and should not be violated. But modern methods should not recreate old techniques. For



Figure 14. The adaptive reuse of the Mill City Museum in Minneapolis deliberately exudes patina by maintaining the post-explosion walls as they were, using them as an element that reflects the building's character. It also serves as a barrier from the outside into a courtyard. Source: http://events.mnhs.org/media/Images/Sites/mcm/MM_300.jpg, 2010.

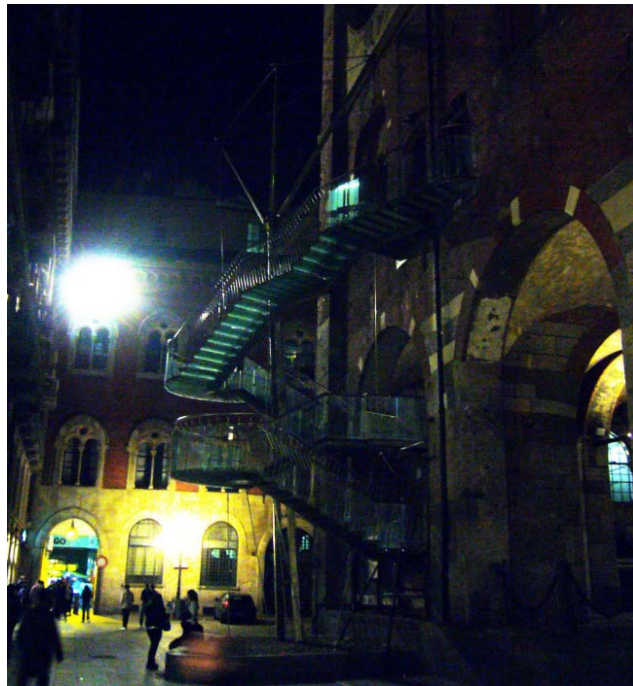


Figure 15. Buildings in Milan, Italy such as this one indicates design flair by using modern materials that contrast with the old brick-architecture. Source: Author, 2010.

example, if an existing building's structural system is old, it would be tedious and inauthentic to recreate the old structural system with new material. The structural system should be supported by new material if needed.

European adaptive reuse projects often has new structure integrated into the existing building - either as reinforcement (fig 16), replacement, or for new function/space (fig 17). In these cases, this additional portion is clearly different from the original structure, often consisting nothing more than glass and/or structural framing. Additionally, new structure must also NOT add physical stress on the old structure. While additions provide physical support to a hybrid of the old and new structure, the best additions support themselves 100% independently, thereby eliminating stress from the existing building.

Overall, the consolidation of fabric for the benefit of historic preservation is very important in preventing further damage. In relation to the *URA Levels*, its relevance is close to that of prevention of deterioration (level 2), where in order to prevent deterioration, installation of seamless materials may be required. However, for this project, the implied seamless-ness of the *URA Levels* seems stringent in the adaptive reuse of industrial buildings. Appropriate choices must be made to choose what is acceptable versus what is blatantly modern. Most European adaptive reuse projects make these choices well.



Figure 16. The exhibition hall, at the Museo della terra in Latera, Italy, reuses the traditional wood ceiling in a medieval barn. The ceiling is braced by modern metal tie rods. Because of their thin profile, the rods serve to disappear and become obtrusive. Source: *Old Buildings Looking for New Use* by Pierre Thiebaut, pg 191.



Figure 17. Sometimes, the confines of the existing building cannot fit the function of a lobby, and a addition for a lobby must be made like The Children's Library at Ueno Park, Japan. Source: Author, 2006.

Restoration

The longest and most detailed of the seven *Levels* refers to the importance of original documents pertaining to the structure as the resource in preserving the building's historic value in its restoration. This level addresses that replication of elements is acceptable, to the limits of information available. Any newly constructed additional element should look similar to the original building, though "appropriate only if there are good historical, physical or pictorial records of what the missing element looked like, or similar architectural elements". The level goes into further detail, defining limits of development in historic preservation. Mainly, however, the level defines the amount of restoration that can be done, with replacements being integrated harmoniously.

The intent of this level of activity is rigorous, and gives a sense of discipline and authority. But, from a design standpoint, its rigid nature is not compliant to all standards of adaptive reuse of industrial buildings. At one point in regarding the installation of extension portions, the level states that, "[n]ew construction, demolition or modification which would alter the relationship of mass, texture and colour of the setting should not be undertaken". This is contrary to the adaptive reuse defined in this project. New additions and extensions are sometimes required, as existing buildings may sometimes not provide enough functional space required. However, the next point of "[a]dditions and extensions may be acceptable, provided that they do not detract from the distinctive features of the building" is relevant. What is important to realize is that new character is developed according to the existing building's character.

The replacement of missing or deteriorated parts should also be based on available historic evidence, to the earliest available record (within character and time period). A great example is the Nuwarya Eliya Tea Factory Hotel, which preserves a portion of the original factory's machinery to work and run for display purposes. Developer G.C. Wickremasinghe had the original power generator of the factory recommissioned to work at a lower speed and run the original machinery that was used to move the tea leaves across the factory¹⁵. This gives guests the experience to see how the tea was moved within the factory, and how the individual equipment was powered by camel hair belts (fig 18). In short, the adaptive reuse of buildings is not limited only by its architecture – its interior components can play a major role in the experience of historic architecture.

Ultimately, the URA *Levels* acknowledge that historic buildings may have components that are unrecoverable in its restoration, and an appropriate replacement should be made. These components and portions should be visually seamless, or be a contrasting change that does not become the focus of attention. The complexity and large amount of rules of this fourth level of the URA *Levels* provide the sense of authority on historic building preservation in Singapore. But, while the level of restoration is strict, some of its major issues are still relevant to adaptive reuse, such as additions not being the center of attention, or the importance of creating an environment that reflects the character of the building.

15. *Asia Conserved: Lessons Learned from the UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation (2002-2004)*, ed. Richard A. Engelhardt (Bangkok: UNESCO, 2007), 157.



Figure 18. The Tea Factory Hotel contains a real, still working display of the mechanical drive-train system that, before, transferred tea leaves from one side of the factory to another. This makes an experience that is unique to the building, but not in a fashion of a Disney-fied ride or presentation. Today, the belts run at a slow speed. Source: <http://www.flickr.com/photos/naeemebrahimjee/4817427991/sizes/o/in/photostream/>

Rehabilitation

The level of rehabilitation is by far the most compatible of the levels in terms of adaptive reuse. According to the URA *Levels*, the best method of preservation and conservation of a building is to keep it in use. Rehabilitation is defined as the idea of “returning the property to a state of utility through repair or alteration”. It also advises that, in choosing a function, the original use or function is usually the best. However if the original function is not possible, and alterations are required for a new function, adaptive reuse should be minimal in alteration. The altered spaces should also be “consistent with structural integrity, spatial quality and building character”. The level of Rehabilitation in the *Levels* suggests more of a solution, and in relation to the other levels, indicates what the final design should be.

For this project, the level of rehabilitation is a fundamental backbone of adaptive reuse. Preserving the historical character of a building by using it for the old of a new function is important, because it continues maintenance that will lengthen the lifetime of the building. Also, developing a continued use will provide a monetary incentive. Chan Yew Lih supports this, stating that buildings should "remain in use and that most buildings, with the exception of religious buildings, remain economically sustainable. Therefore while heritage buildings have been protected, adapting the heritage buildings to new uses has been a common practice. Alongside adaptive re-use (sic), the modification of the heritage buildings has been allowed to accommodate new uses. In fact, even for buildings that retain their original uses, modifications such as intensification of use and modernization often take place. Singapore’s government stresses the need to ensure these

heritage buildings are not ‘frozen’ in time and continue to stay relevant. Heritage buildings need to be carefully restored and adapted to accommodate new uses in the 21st century.”¹⁶

Preserving the spatial layout and character of a building, as proposed at this level, is limiting. The available space of an existing building may not satisfy spatial requirements of new function, requiring additional space to be constructed. But adding space and changing a building’s envelope does not necessarily compromise its building character. An example of this is the Kuala Lumpur Performing Arts Center, a building that was once a train depot. Despite the ample space available for performance theaters, there was still need for areas for set construction, business offices, a ticket booth, and more functions (fig 19). In order to preserve the important part of the building’s character, the barrel-vault roof, was changed as little as possible. Additional space was created in a new annex, where significant portions were assigned to functions of set construction workshop, a café, and office area (fig 20). The building’s characteristic of a previous train depot is still present, in conjunction with the new additions.

According to Stewart Brand, “new usages persistently retire or reshape buildings...[B]uildings are shaped and reshaped by changing cultural currents, changing real-estate value, and changing usage”¹⁷. Rehabilitation can be an indicator reflecting the

16. Chan Yew Lih, “Conservation and Change - A Singapore Case of Urban Conservation and Change,” *ICOMOS Xi'an 2005 Papers* (2005). <http://www.international.icomos.org/xian2005/papers/2-9.pdf>.

17. Stewart Brand, *How buildings Learn: What happens after they're Built* (New York, NY: Viking, 1994).



Figure 19. In developing KLPac, Design group designed the box office as a separate building that serves as the initial reception area, prior to entering the concert hall itself. In this figure, the box office building's side profile is designed using similar colored brick of the adaptively reused train depot, juxtaposed with modern materials. Source: Author, 2008.



Figure 20. Seen from across the site's man-made lake, KLPac additions such as the café and offices on top don't appear to obstruct the barrel vaulted original building. Source: <http://www.flickr.com/photos/junglecatwoman/58052658/sizes/l/in/photostream/>

current state of the context and its appropriateness as a new function within an old shell. In fact, rehabilitation becomes part of the history of a building, which the URA *Levels* do not discuss about. Proper adaptive reuse does not just save the visual nature and character of a building, but the changes in historical layer as well, when reusing buildings for new purpose.

Reproduction & Reconstruction

The last two URA *Levels*, reproduction and reconstruction, are the shortest and simplest in definition. Reproduction is “the replication of missing features or parts of the building using old or new material”, while reconstruction is “the rebuilding of parts of the building or the entire building to the original form using old or new material”. For the most part, the differences between the two are the size and scale. Reproduction refers to small items that can be replaced (such as guardrails or lightning rods), while reconstruction refers to large portions (such as a demolished wing of a building). Both are done in order to maintain or revive the aesthetic quality of the building, or to congeal the character when major portions are reconstructed.

The reproduction of parts is a fairly simple task, the work is often minimal and, sometimes, unnoticeable, because, as part of adaptive reuse, it is important to maintain the essential character of a building. Reproduction replaces parts of an existing building that are damaged, as well as fully replace all similar old parts to similar, new parts. A clear case of this is the Yokohama Red Brick Warehouses, an adaptively reused customs building that has parts of the building reproduced. This was done because the original

parts were heavily damaged by water and fully oxidized to the point of deterioration. Parts such as the lightning rods, glass-panel doors, window shutters, and even large barn-doors were reproduced to eliminate the potential danger, and create and preserve the visual character of the building. Some of the replaced damaged parts were placed in the on-site museum that describes the history of the buildings.

Reconstruction is implied in the URA *Levels* as a level that, if it can be avoided, should be. While “Reconstruction of the entire building is not allowed”, the URA *Levels* deems that such actions will only be allowed “as a last resort”. Of course, reconstruction of an entire building is not adaptive reuse, though it should be allowed only if the building’s character is not compromised, as such actions may be necessary while the building can still retain its character. The best example is the aforementioned Minneapolis Mill City Museum, whose historical explosion in 1878 has continued in a ruined, but beautiful, state. Rather than reconstructing the existing building to its previous character as a factory, the building now has new character as a museum showcasing the city’s flour mill history, and remains of the old building displayed within and outside it.

Reproduction and reconstruction is relevant for the preservation of the building’s character, but should not be a barrier that blocks adaptive reuse from being creative. The example of Mill City Museum is an example of innovative architectural design. And despite the Yokohama Red Brick Warehouses as examples of preserving the building character, the added glass elevators and café terraces display a profound juxtaposition between the new and the old that, ultimately, also becomes part of the character.

Design Standards for Adaptive Reuse in Asia

The Singapore URA *Levels of Activity* is not a step-by-step list, and still thoroughly recommends research about the building's history and procedures for preservation done before any work. The *Levels* is a summarization of values that illustrate Singapore URA's commitment to preservation in a city that does not have a long history. Maintaining the character, preventing deterioration, and the other levels are essential in adaptively reusing buildings. In particular, the idea of rehabilitating is the most attuned of all the levels in stating that a building's existence is dependent on its continued use. Despite this project's other older focus cities, Beijing, Kuala Lumpur, and Yokohama having more buildings that were constructed prior the 20th century, the benefits of the values implied by the URA *Levels* are still applicable. Because we are more concerned with the adaptive reuse of industrial buildings, and since most Asian industrial buildings are from the early 20th century, they correspond with Singapore's urban history.

Through the analysis of the URA *Levels*, we can discuss what the merits of quality adaptive reuse. Although there are no standards to adaptive reuse, there is a fine line of judgment that must be defined for the purposes of this project. This definition, based on the URA *Levels*, is developed with the same spirit of the *Levels*, emphasizing industrial buildings. The definition is not a guideline on how to design quality adaptive reuse *per se*, rather like the *Levels* and the *Standards of Rehabilitation*, the definition shows how to *recognize* good adaptive reuse of industrial buildings in different cities of Asia.

- Proper adaptive reuse must retain enough of the existing building's material and

character to indicate the building's history. Material can be original or younger material that replaces the old material due to deterioration. (Levels 1, 6, 7)

- New space that expands beyond or replaces portions of the building should appear different and not mimic the original design. The appeal of the newer portion is its contrast to the old, and its innovative design. Also, new additions should not be the focus of the building. (Levels 3 and 4)
- Adaptive reuse of buildings can be designed with semi-ruined portions, provided that the issues of safety comply with national safety standards. Removal of dangerous elements (toxic materials, exposed rebar, etc.) and securing structural elements must be made to ensure safety of the users and to prevent further deterioration. Structural support should be tastefully chosen and installed if existing structural systems are tested to be weak. (Levels 2 and 3)
- Adaptive reuse of buildings should be designed to provide flexible spaces that serve multiple users for multiple purposes. This also provides potential for future adaptive reuse of the building. (Level 5)
- Adaptive reuse of buildings should provide a plaque that describes the building's history and its context, including possible recognition by local heritage NGOs for its contribution toward the local cultural and national history.

These standards of evolution are the author's classification of what a proper adaptive reuse of a building can and should be. Not all existing adaptive reuse buildings fulfill these criteria, but still have exceptional quality. In short, good adaptive reuse maintains and defines building character, has measures installed to prevent deterioration, portions restored, reproduced, and reconstructed, and ensure safety, structural integrity, and functionality additional support might be constructed. And of course, the new function must be appropriate for the old building in order to avoid unnecessary changes that not only change the character, but are also costly.

Adaptive reuse is not a method for historic preservation, though it preserves a building's existence. Adaptive reuse should be considered as a viable design method that promotes monetary gain and benefits the community. But as a method, it is a disciplined process that must be tasteful, lest being designated as gimmicky or a Disney-fication of a particular architecture or time period. When adaptive reuse is properly done, designed tastefully, and maintained to a high quality, the interpretation of modern innovation for the building can and will be made.

Chapter 2

Is Adaptive Reuse a Term for Replication, Remodeling, or Renovation?

In the construction industry, the contractor's or developer's most significant concern is the cost-effectiveness of a construction project. Adaptive reuse of a building is a specialized design process, and because of this, adaptive reuse may be unfairly perceived as expensive remodeling. Adaptive reuse is less cost-intensive in comparison to new construction, provided that a cohesive pre-inspection and design strategy is utilized. Analysis of an existing building can prove that its elements still retain their strength, current technology can reinforce any preexisting damages, and additions can be designed to be independently supported (eliminating adding weight to the existing building). While a comprehensive design of adaptive reuse may involve more historical-related specialists than new construction, the cost of Construction and Materials is reduced, because the building is already built. The repair of a preexisting brick wall, or incorporating a new element into it, can cost significantly less than a new construction.

Federal incentives can be earned when developing adaptive reuse. For example, the United States provides tax subsidy for adaptive reuse projects. This tax subsidy is the "Historic Rehabilitation Tax Credit[, a] program [that] generates a credit that directly reduces taxes rather than offering a tax deduction such as depreciation, which reduces taxable income."¹⁸

18. Joel Cohn, "Federal Historic Tax Credit Aids Adaptive Reuse Developers," Sept/Oct 2001, CIRE Magazine, http://ciremagazine.com/article.php?article_id=345 (accessed April 20, 2010).

In this chapter, adaptive reuse will be defined again, by comparing the design method to the methods of historic preservation, renovation, and replication. This task is to reduce the confusion of labeling adaptive reuse as being one of the three methods. Comparison will be done by defining each, comparing them to adaptive reuse, and showcase real cases around the world. The last section of this chapter will discuss existing adaptive reuse projects in the focus cities, illustrating the type of adaptive reuse that is beneficial and follows the standards defined in this project.

Adaptive Reuse vs. Historic Preservation

Historic preservation is, and will always be, the best and most accurate form of preserving buildings. A building is preserved *in-situ*, and may include protection, renovation, and replacement of deteriorated materials. Historic Preservation is an academic and scientific process conducted by local historic preservation societies, and experts of government, NGO, and academic institutions.

Adaptive reuse, in comparison, does not come close to the complexity and accuracy of historic preservation. Historic preservation preserves existing buildings as they are, while adaptive reuse allows additions to be made on the structure and change of function. Mainly, the focus of reuse is on building character. Historic preservationists can still support the idea of adaptive reuse, because it preserves the historical character of the building and context. While adaptive reuse may lack the historical accuracy, it can still be regarded as a beneficial method of preservation, especially that of industrial buildings which is the focus of this project. As long as countries and city-governments do not use

adaptive reuse as the only avenue of historic preservation, adaptive reuse has its own value as a design method.

Adaptive Reuse vs. Renovation and Remodeling

In this project, the definition of renovation is to construct and upgrade existing structure to the current standards of comfort and safety. Remodeling is the technique of rebuilding existing components with new or the same construction techniques and materials, or the replacement the broken components by using new materials for replacements.

Adaptive reuse can be either renovation or remodeling or both, depending on the scope of work. This is apparent in the adaptive reuse of 62 Emerald Hill Road in Singapore (fig 21) by WoHa Design. The building (fig 22) is an old shop house reused as a residential house. But as part of a designated historical, its building exterior had to remain unchanged. The building was a ruin, and WoHa removed the interior floors and dividing walls to reveal a “space inherent in the form, but was concealed with partitions and floors”¹⁹. WoHa then reorganized the building with an interior courtyard, and new spaces for bedrooms, kitchen, and living room. The building is an example of a shell that continues to be part of the urban city, highlighting the quaint and charming shop house character, while providing a new environment that is responsive to the needs of its owners.

19. Winnie Yu, “Tropical change - reorganization of shophouse in Emerald Hill, Singapore,” *The Architectural Review*, June, 1999, http://findarticles.com/p/articles/mi_m3575/is_1228_205/ai_55282328/ (accessed October 25, 2010).



Figure 21. Exterior photo of 62 Emerald Hill shows the building character unchanged, with its colors muted and not ostentatious from the past. Source: Wohadesigns.com



Figure 22. A closer shot of the front façade shows a continued use of the windows and doors in their original sizes and shapes. Source: *Singapore* by Kenneth Powell

62 Emerald Hill is an example that renovation and remodeling are hand-in-hand with conservation and adaptive reuse. But, the difference between renovation and remodeling, and adaptive reuse, is that the focus of adaptive reuse is in conserving the building character. WoHa design could have followed the URA standards, which would have stated that the interior layout must be renovated and look the same. But, because the interior layout did not provide enough space, and its elements were deteriorated, WoHa demolished the interior spaces and remodeled the existing environment to create a new, dynamic interior. The exterior shell was renovated, to comply with the neighborhood's character. The building's designer, Mr. Wong Mun Summ, states that, if he had to follow URA conservation practice, he would be "inhibit[ed of] creativity...[follow]ing guidelines [that] many architects simply adhere to without any attempt to radically rethink the purpose of the internal arrangements of a building"²⁰ (fig 23, 24). This is why adaptive reuse should not be confused with renovation or remodeling.

Adaptive Reuse vs. Replication

In this project, replication is defined as the action of duplicating or mimicking a past style in an artificial manner. Disneyland's Main Street attraction in Anaheim, California is a blatant example of replication that was built in 1955, and is a sterilized version of turn-of-the-century early 19th century Marceline, Missouri. The attraction is

20. Robert Powell ;, *Singapore: Architecture of a global City* (Singapore: Archipelago Press, 2000), 82.

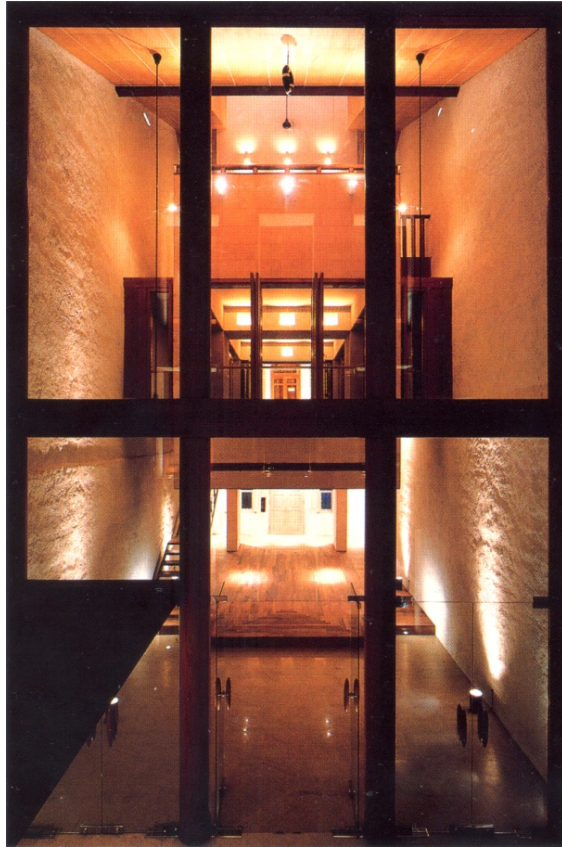


Figure 23. The interior of the building splits the front room of living and master bedroom from the additional bedrooms and other functions at the back. Source: *Singapore* by Kenneth Powell

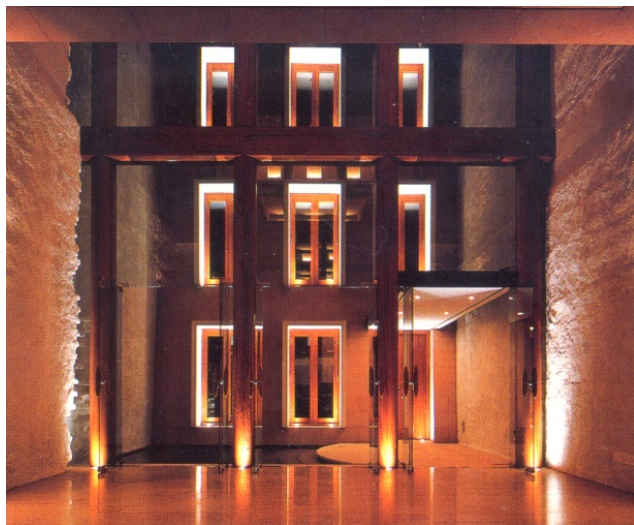


Figure 24. The interior environment, and therefore, the dynamics of space are changed with the inclusion of glass walls that separate the guest annex and main room functions. The space is different, but still respectful of the past. Source: *Singapore* by Kenneth Powell

accentuated by construction using *trompe l'oeil*²¹ that makes the buildings appear taller, assigning turn-of-the-century functions such as a saloon, a candy shop, etc., and installing signage to create a vibrant environment that is inauthentic. In Asia, there are new projects that attempt the same Disney-fied attraction of Main Street, with incoherent success. The Curve Shopping Center in Kuala Lumpur was constructed in 2005, and is a commercially successful project that replicates history. One section of the center, called "The Street", attempts to replicate Malacca's Jonker Street by constructing *faux* storefronts, passageways, and courtyards that mimic Jonker Street (fig. 25, 26). This mimicry is reminiscent of the Disney-fied replication, in providing a space that replicates the past and artificially incarnates the spirit of the Southeast Asian street.

Even whole streets are preserved and transformed into shopping promenades. The highly visited Bugis Junction in Singapore is one example of this, but as a result of over-adaptive reuse, the project has become a replication. The over-adaptive reuse includes recoloring of original facades, erasing the building character with repair, and installing a canopy that turns the once exterior elements into interior decoration. While Bugis Junction is extremely successful in terms of the numbers of visitors and profitability, it loses its spirit by using unnatural colors that attempt to brighten the street, renovating characteristic facades and roadwork for sterilization, and artificial environment that is comfortable but not in theme with the original. In other words, Bugis Junction has become Disney-fied by completely erasing what little character it had before.

21. *trompe l'oeil* - Force perspective that makes the buildings appear taller by reducing the ceiling heights (on the façade) and making them smaller on each level (second level is 5/8 the height of the first level, third level is 1/2, etc.).



Figure 25-26. (T) Jonker Street of Melaka is a source of inspiration for (B) The Curve’s “The Street” wing. Its festive atmosphere of the traditional *pasar malam* (street market) is a staple of Malaysian life of the past. Source: <http://www.allychan.com/sample/web1/?tag=jonker-street>.

Apart from ‘looking nice’, replication is the extreme inverse of what adaptive reuse is. While the success of replicated projects are commendable because of the money they bring in, they are inauthentic to the past, replicate decorative architectural elements that are not the original, and an inauthentic spirit of place. Disneyland's Main Street was, during Walt Disney’s development, nothing more than his idea of a ‘carefree’ past and as a ‘weenie’, which Disney defined as something, “which says to people 'come this way.' People won't go down a long corridor unless there's something promising at the end. You have to have something the beckons them to 'walk this way.’”²² Similarly, the Curve’s “Street” promenade is only a design attribute that creates a vibrant environment. And despite Bugis Junction’s real adaptive reuse of historical buildings, the character of the place is erased in favor of creating a pleasant environment, and the loss of historical potential. It is a waste of historical heritage for the earthly treasure of money.

The idea of adaptively reusing a district like Bugis Junction and Xin Tian Di as shopping malls is commendable and smart. To update buildings for continued use is good. To reinforce the structures for safety purposes is even better. However, once projects start introducing colors that are unnatural, installing permanent, decorative elements different from the past, and make blatant changes in structure that violate the character of the building, the project is in danger of being over-adaptively reused. In the case of Bugis Junction, much of the building’s materials were saved, but the character of the buildings shifted from focusing on the building to focusing on the experience of shopping; the site’s attraction is changed, and the patina is erased. Xin Tian Di, while doing a better job

22. Brad Aldridge, “Disneyland's History,” 2003, Justdisney.com, <http://www.justdisney.com/disneyland/history.html> (accessed September 15, 2010).

in preserving patina and having a dedicated museum describing the Shikumen architecture of the place, its history is lost as well.

Honest Adaptive Reuse

So if historic preservation, renovation, remodeling, and replication are not adaptive reuse, what is? Critics may point to the globally famous Xin Tian Di as being a good example. Xin Tian Di's treatment of the existing buildings is liberated, mixing old with new, disregarding building envelopes by installing signage, modern windows, streetlamps, and opening facades to make new doorways and windows. It is a project that does not replicate by painting the exterior envelope in pastel colors, and existing materials are strengthened for safety reasons. However, its history as an old cloth dyeing district is subdued to portray the unique style of old Shikumen style (which it is), and its history as being near the headquarters of the first communist party meeting (located outside the shopping area). The sterilization of the environment makes Xin Tian Di an example of losing historical value, and in this case, of the cloth dying history.

Three honest examples of adaptive reuse (among others) are the Kuala Lumpur Performing Arts Center (KLPac [sic]), The Yokohama Red Brick Warehouses, and the Beijing 798 Art Zone. All located in Asia, and these projects are not only exemplary of their adaptive reuse, but reuse the particular building style (industrial) that is addressed in this project.

KLPac, once an old, rundown engineering workshop, is in the north of Kuala Lumpur's town of Sentul. The designers preserved most of the physical appearance of the KLPac building, with the outside massively improved to fix major damage while "[t]he cracks on the floor...add authenticity of KLPac"²³. As adaptive reuse, the building's character is preserved by allowing flaws such as cracks to exist. Even old trees and vegetation that matured with the old building was retained and preserved. The original elements are not covered, and interesting flaws, that were assessed safe, were not repaired. This is a more honest adaptive reuse. The complete outlook of KLPac instills a sense of creativity because of its juxtaposition of façades on the outside, its eclectic mix of structural and surface materials on the inside, its variety of spaces and function within itself, and its preservation of patina. Overall, the building is a rare example that follows the tradition of European adaptive reuse.

The Yokohama Red Brick Warehouses was previously storage facilities for foreign traders in Japan. Adaptive reuse of the Warehouses was done by constructing functions that are metaphorically 'transparent' within and around the existing structure. Further enhancing its adaptive reuse is the development of a museum that describes the history of the warehouses, of Yokohama, and exhibits that display the artifacts of original lightning rods, the original warehouse door hardware, and other architectural elements. It is a public display of architectural history of the warehouse. The adaptive reuse of the building is sophisticated, in that the collective replacement of the building's elements

23. The Star Online, "Salvaged Art," October 29, 2007, YTL Corporation, <http://www.ytlcommunity.com/klpac/index.asp?proc=1&psize=10&cpage=5&fid=0&sid=0> (accessed October 23, 2009).

maintains and enriches the character. Where the option of historic preservation was unfeasible, the Red Brick Warehouse's adaptive reuse was a better alternative to complete demolition. Yokohama's tourism value has since increased with creatively adaptive reuse of the Warehouses, and ultimately benefits the City of Yokohama, the Japanese Art Community, and the Japanese public in reliving a preserved piece of national history.

The Dashanzi Art District (referred to as Factory 798 hereon), a Bauhaus-inspired factory, was used for the manufacturing of technological products. Beijing's Central Academy of Fine Arts rented a portion of Factory 798 in 1995 for reuse as classrooms and studios, but in 2002, Tabata Yukihiro rented space in the district, starting the trend of international artists coming to Factory 798 for the purpose of exhibiting art works, and made Beijing THE place for high-end art²⁴. The process of adaptively reusing Factory 798 is for convenience, minimal demolition, and ideal lighting design. The factories had Bauhaus-style concrete light diffusers that were aligned toward the north, allowing constant, near shadow-less natural light to come in and be diffused. Furthermore, the developer's retention of some broken precision machines²⁵ and communist propaganda has become decorations that acknowledge the Factory's past. The original look was not changed dramatically (fig 27); the original envelope is reinforced and brought to new use without covering its original colors. The qualities of the buildings are reused and updated without

24. Jorge Larrañaga, "Beijing #798," Art Signal Magazine, <http://magazine.art-signal.com/en/beijing-798/> (accessed October 13, 2008).

25. Changyan Xiao, "State of the Art," August 14, 2008, China Daily, http://www.chinadaily.com.cn/china/2008-08/14/content_6934612.htm (accessed October 13, 2008).



Figure 27. The Bauhaus-style light diffusers at Factory 798 are adorned with old communist propaganda signs amidst the modern art reuse of the space. Source:

<http://www.flickr.com/photos/kirabelle9/4635203765/sizes/l/in/pool-957149@N20/>

changing its appearance. The primary design goal is preserving the spirit of the space with minimal impact, which is done well. Factory 798 is the universally commended as fantastic – and its retention of its history is what brings the building into honest adaptive reuse. Its philosophy in adaptive reuse design is similar to that of European and Western uses, which preserves the building envelope. Factory 798 is a milestone of adaptive reuse in Asia, because it not only provides history and knowledge for future generations, but preserves an environment that is already at the brink of its environmental decay.

Honest adaptive reuse of buildings should reflect the architectural character of existing buildings. In the case of Industrial architecture, that nature is the “practicality [of] production, efficiency, and sometimes safety of employees... designed and built by craftsmen [with] rich architectural detailing, character-defining features, and unique public spaces often created in industrial complexes.”²⁶ The adaptive reuse of KLPac, The Red Brick Warehouses, and Factory 798 does this by keeping the rich detailing, features, and public spaces. Historic preservation saves old architecture for educational benefits, and renovation and remodeling are techniques used in adaptive reuse, but adaptive reuse is different because it is a comprehensive design method that saves building character and patina for the public’s enjoyment

26. S Cantrell, “Master's Thesis, Virginia Polytechnic Institute and State University,” *The Adaptive Reuse of Historic Industrial Buildings*: (May 2005), 3-4.

Chapter 3

Is the Reuse of Buildings Hazardous?

When a building is found, its condition is varied, and as such “a compilation of varied materials through which the building has been organized bursts out of assigned positions in efflorescence of deconstruction. Catalyzed by contact with moisture, temperatures and non-human life, the latent energies of matter emerge and act to transform their containment in the form of a building, producing ruin.”²⁷ In other words, there is a chance that the building has toxic materials due to the previous function or installation. The previous function could have involved the use of chemicals that are hazardous. Installation of building materials that were once considered safe but are now proven to be toxic can exist as well (asbestos), or building materials can deteriorate into a state that is toxic when inhaled or ingested (lead paint). Deteriorated structures can be fragile, break, and the debris can injure anyone on-site. A found building can be initially hazardous and precaution must be exercised when visiting them.

The reuse of existing buildings is safe, as long as proper evaluation is made in determining if the building is reusable prior to construction. This chapter describes the steps in making this determination. It is a generalization of things to look out for, and can help prove against a stigma that abandoned buildings are dangerous. What will be developed at the end of this chapter is a clear conclusion that reusing buildings is a perfectly healthy construction process that has created success in European and American

27. Tim Edensor, *Industrial Ruins: Spaces, aesthetics, and Materiality*, Oxford ed. (New York: Berg, 2005).

projects. While this discussion may not alleviate the stigma in some developers, others may become interested in visiting and investing in abandoned buildings for adaptive reuse.

Alexander Newman's List

In order to properly define what must be done, we must describe a list of the most appropriate actions of what must take place and when. Chapter 2 of the book *Structural Renovation of Buildings* by Alexander Newman, P.E. (known as *Newman's list* from here on) provides a concise and thorough method of what evaluation should be done, listed here:

Step 1: Develop a project plan that outlines a proposed function.

Step 2: Review any existing plans and construction documents.

Step 3: Any wall or structural element undefined undergoes “exploratory demolition”.

Step 4: Testing as a result of replacement of materials.

Step 5: Visual inspection is required.²⁸

The five steps are integral in Newman's discussion of renovation, but for our purposes, their fundamental nature is a good outline of initial activities for adaptive reuse. While *Newman's List* is not for adaptive reuse, its simplicity is thorough, concise, and appropriate. Every case of adaptively reusing a building is different, and the first

28. Alexander Newman, *Structural renovation of Buildings: Methods, details, and design Examples* (New York: McGraw-Hill, 2001).

activities should be appropriate on a project by project basis, regardless if the follow *Newman's List*.

Prior to following *Newman's List*, it is pertinent to conduct an evaluation of safety and building character of the existing building before any physical modification is done. The evaluation should provide answers to what can be reused, what must be replaced, what must be restored, and what must be disposed of. Proper quality inspections must be conducted as well, since mere visual inspection is insufficient. Therefore, it is in the interest of the designer and developer to work together with contractors, engineers, historical experts, and other consultants to handle this preliminary procedure.

First Planning with Function

Following *Newman's List* after evaluation, the first step is development of a description of proposed functions. In new building construction and adaptive reuse, the function of a building is determined by the developer and/or owner, and it is the architect who is responsible in designing a building that can accommodate the function(s). But in adaptive reuse, the building envelope can be redesigned to have additions that accommodate the function(s) and more. Also, reinforcement or repair may be needed on the existing building, and it is up to the architectural designer, with the help of a structural consultant, to determine what repairs are needed and what additions can be used. When the amount of available space is too little, the designer has to choose whether to physically increase the amount of space, reduce the function space, or eliminate the

function. Mechanical spaces are the exception to reducing their space or eliminating them, as they are necessary functions.

To increase spaces, removal of interior and/or exterior walls is necessary. The removal of both types of walls changes space size and can change dynamics (fig 28). New doorways and archways can be inserted into solid wall (fig 29). But before removal or change, proper inspection must be conducted to determine if the wall has critical load, allowed by historical authority, and if the action is within budget. Careful planning and study must be made to avoid compromising the structural integrity and historical quality of the building. A historical consultant should be on-hand to advise on any change in the building appearance. Exterior walls present more issues changing, compared to interior walls, because they are often part of the structure, the building envelope, and the building character. Therefore, in changing exterior walls, measures must be installed to redirect structure forces, to seal against the permeation of outside elements, and to properly install new materials, if the building is expanded, that reinforce the changing building envelope (fig 30).

Also considering the building's vertical nature is important. New functions change the live and dead load distribution, endangering the preexisting floor's strength to critical and dangerous point of failure. Mechanical fixtures such as air conditioning units are dead loads and lighter unfixed furniture such as desks and cabinets are live loads, but both can develop uneven distribution of load on supporting existing elements. It is important for the architectural designer to be aware of this, and work in conjunction with



Figure 28. The Museo della Carta, located in Isola del Liri, Italy, was once a cardboard factory, and before that was once a convent. Here, the construction of a entrance footbridge, with a partial archway, shows an intense relationship of old with the new blackened metal structure. Source: *Old Buildings looking for New Use* by Pierre Thiebaut.



Figure 29. A contemporary bridge at the Stadtbibliothek in Landau, Germany permeates the existing abattoir building façade, and links the contemporary offices with the reading rooms. Source: *Old Buildings looking for New Use* by Pierre Thiebaut.



Figure 30. Built in the remains of the former Parliament building, the Children's Library at Ueno, Japan, built extensions that serve as hallways and transition spaces, while the original building is used as the library collection. Source: Author's, 2008.

a structural engineer and contractor to design and install devices that strengthen the floor slabs. New penetrations, that are aesthetic or mechanical, can also be dangerous like uneven loading. The technique in penetrating the floor slab is important – the best loading is on areas that are equidistant from all structural members (fig 31). At times when a shaft is required, such as an elevator or escape stairway, it may be more innovative to either place the device on the exterior of the building as a separate, freestanding fixture independent from the building's structure (fig 32).

The best additions also do not add pressure on the existing building. Gangways and catwalks fixed to the ceiling can be used to hover over fragile floors, and therefore reduce load onto the existing floor (fig 33). Material changes that replace damaged structural elements should perform as good as or better structurally than original element, and should weigh as much as or less than the original material's weight. A structural consultant should advise in this process, to recommend structural changes that fit, offer options of available structural technology, and work with the architectural historian in choosing what types of technology works best to prevent changing the building's character.

In adaptive reuse, the architectural designer must creatively reuse a building to accommodate new function. Determining the new function can create hypothesized loads, and allow the calculation of hypothesized load limits to determine if the structural system can or cannot support that hypothesized load, or if reinforcement is necessary. However, the limitations of what functions can be implemented, simply by calculating the loading

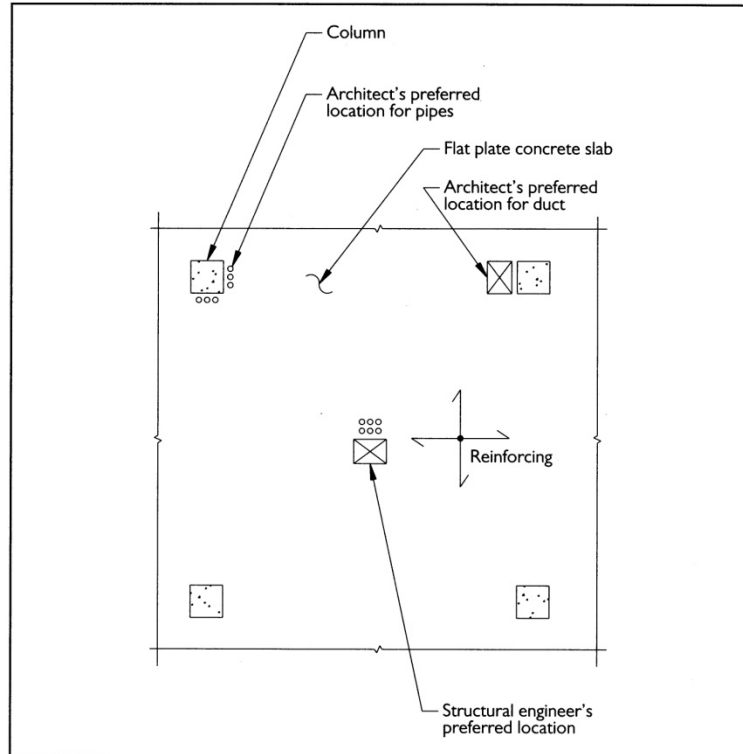


Figure 31. This diagram indicates the difference between the designer's preferences and the realistic preferences, on a sample of a concrete slab floor of a reused building. Source: *The Design of Renovations* by Donald Friedman and Nathaniel Oppenheimer.



Figure 32. The Whitfield Barracks, now the Hong Kong Discover Heritage Center, utilizes new facilities (elevator and lobby on left) that are separate from the original barracks (on right).

Source: <http://picasaweb.google.com/lh/photo/7ikvAu3RJoKxJDeYE0Y6YQ>



Figure 33. Gangways and walkways can relieve stress on existing building. Source: Source: *Old Buildings looking for New Use* by Pierre Thiebaut.

threshold, should not be deterrent to adaptively reusing a building. For example, in determining the reuse for the Les Fresnoy buildings, Bernard Tschumi states that his strategy “could radically protect the most spectacular parts of Fresnoy with a big roof, thus sheltering them from bad weather while installing all necessary technical installations (ductwork, air-conditioning, stage mechanisms) on the underside of the roof.”²⁹ Not only did Tschumi successfully deliver an adaptive reuse that saved the building and brought the buildings to modern use, but his addition transformed the roof levels of the original school into an “in-between” space that separates old and new (fig 34). The Le Fresnoy studio is a very good example of adaptive reuse that is sensitive and protects the historical character in an innovative way.

Reviewing the Known Entities

Newman's second step on his list is to review any existing plans and construction documents. This helps in defining the building's materials, structure, and construction methods that were used. The result of this review is to solidify what the original construction or design was. Determining if the building had been altered from its original construction layout helps in eliminating the need of guessing whether portions of building are original construction or from years of various remodeling done on the building. If allowable, the designer can develop a comprehensive model (physical or virtual) based on original documents that shows the original look of the building. In reviewing the documents, the result can be a comprehensive record of each and every element that is of original construction, and differentiates it from what is of newer construction. One

29. Bernard Tschumi, “Le Fresnoy (1991-97),” 1997, Archined, <http://www.archined.nl/oem/reportages/fresnoy/fresnoy2.html> (accessed September 7, 2010).

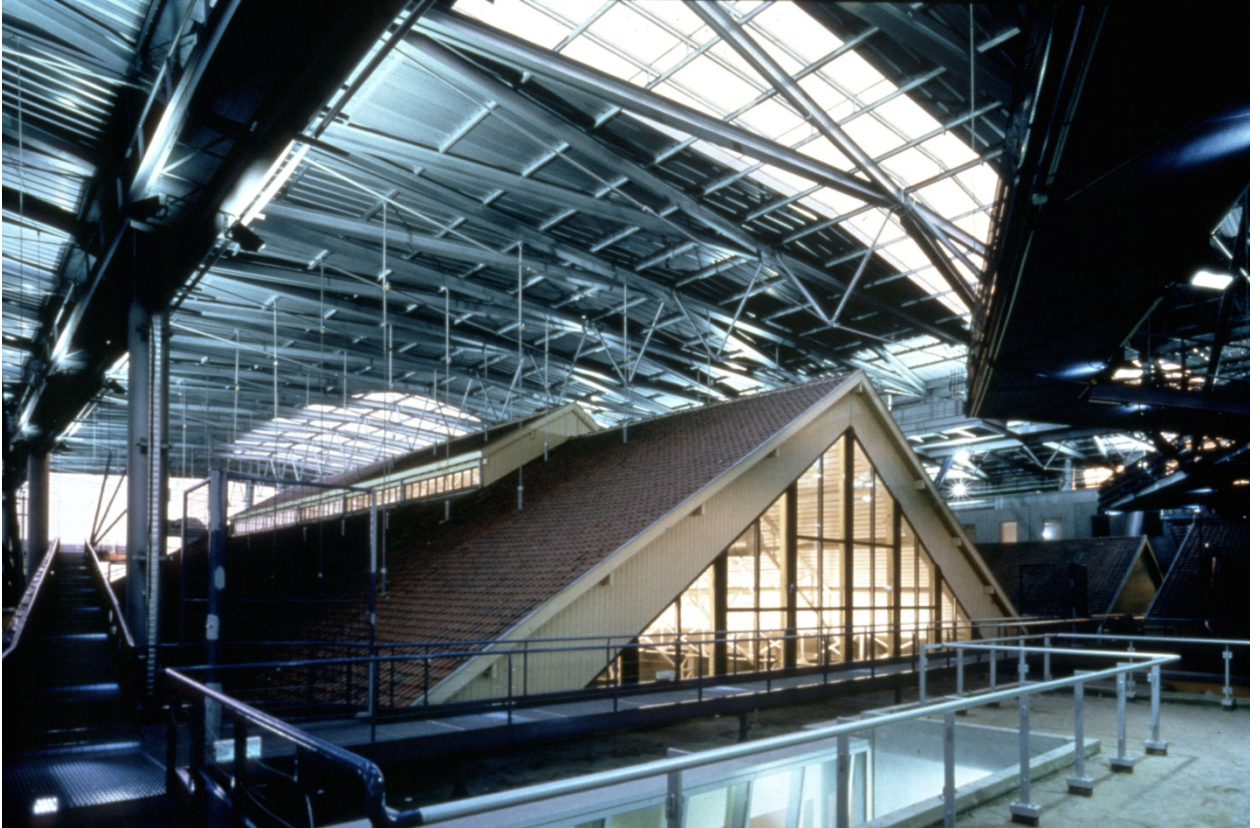


Figure 34. (T) Between the reuse of existing buildings into studios, and the new mechanical layer, the “between-space” of the Le Fresnoy Contemporary Studio has dynamic walkways and pathways that turn an otherwise mundane roof into new spaces of transition and development.

Source: http://ead.nb.admin.ch/web/biennale/bi06_A/index_n.htm.

potential problem is that the original documents might be difficult to recover, and Newman describes cases where consultants faced difficulty when trying to recover the original documents.

In the event that original documents cannot be found, it is up to the architectural designer and a historical consultant to determine the building's character. Their task is to simplify the existing character of the building based on pure design and historical influence, and have that become the focus of adaptive reuse. The danger behind this is the overdevelopment and turning the architecture into Disney-fied adaptive reuse, like Bugis Junction. Therefore, it is imperative that the layers of history are defined and determined. These layers are basically descriptions of architectural design, ornamentation, and of key physical elements. An example is the Yokohama Red Brick Warehouses, which has the one layer as its previous function as a customs warehouse, a second layer describing its use of rebar reinforced brick in the existing building, and a third layer as the site of the first elevator of its kind in Japan. Additionally, if portion of a building's character is chosen to be removed, remodeled, or edited for whatever reason, the structural consultant should be on-hand to advise whether the change will affect the structure, or if the change will be just decorative.

The known entities are focused on the physical elements of the existing building. Regardless of whether the existing building documents exist, it is important that the building character does not get erased or overshadowed by any new additions or construction.

Inspecting the Unknown Entities

Newman's next step in the assessment process is the inspection of unknown, undefined entities. Any wall or structural element, especially those undefined in the construction documents, should undergo 'exploratory demolition'³⁰ for the purposes of safety. This process enables an inspector to observe the interior appearance of the exposed area. This may be required for all the walls, depending on the project, scope of work required, or from the available information of known entities.

For unknown elements, this is again important in distinguishing what elements are structurally critical and damaged, from what elements can be removed. This inspection process should be done with associated engineering consultants, because their expertise and advice provides hypothesis of what the steps of decay and destruction are. They can also advise what possible solutions in repairing and restoring. Even if the structures were to not drastically change, exploratory demolition can uncover layered history in the building (fig 35). In short, the inspection of unknown entities can be similar to the archaeological process of excavation, observation, and deduction.

From a strictly contractor's standpoint, the inspection of unknown entities is a safety procedure. The more information that can be found and recorded, the more

30. 'Exploratory demolition' is described in Newman's book as the partial removal of, "the finishes and obstructions by making openings so that an engineer can review and measure the members". This is in response to areas of an existing building, where the "framing is obscured by fireproofing, ceilings, and wall finishes". Pg 46

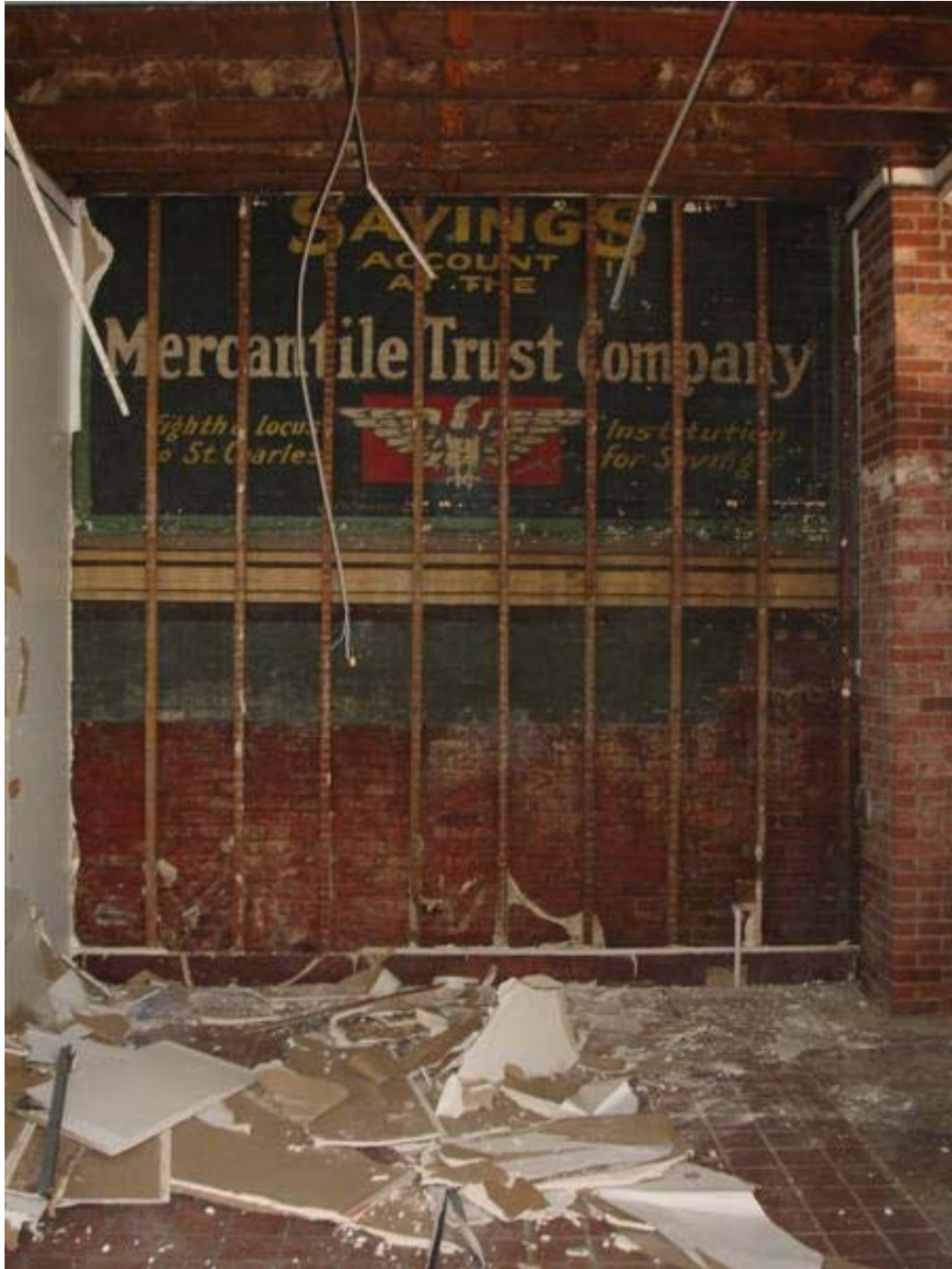


Figure 35. 'Exploratory demolition' can also result in the discovery of fascinating details of an existing building's historic layers. Source: <http://glodeck.blogspot.com/2007/06/exploratory-demolition.html>

information can be used to create a safer environment. Critical, delicate areas of construction can be corded off, redirecting and reducing worker access. Ultimately, gathering information results in greater knowledge of materials and less guessing on what later construction steps and methods to conduct.

Testing and Visual Inspection

Newman's fourth and fifth steps are testing and visual inspection. Testing of the materials is important to indicate how new materials interact with the existing structure. If the results of interaction are good it will provide a clearer construction direction, and if bad will require redesigning. Testing is varied and different according to the type of materials involved, but in whatever method of testing, it is fundamental to know that changing the structural qualities of the building effects the loading thresholds and dynamics. Visual inspection consists of interior and exterior walk-around, where cracks, leaks, or anything that looks out of place is carefully examined, noted, and during the construction process is fixed. It is an essential step that prevents overlooked mistakes.

Like the other steps, testing and visual inspection should be done with structural and historical consultants. Their assistance is beneficial in discussing structural integrity and historical character of the building. No amount of inspection can completely catch and cure 100% of an existing building's structural and historical issues, but still necessary to adaptively reuse an existing building into a safe building.

Safe existing buildings

Newman's steps are fundamentally indifferent to the steps in the pre-construction phase of any type of construction (for example, in new construction, soil analysis for toxic materials or precarious issues is needed). Existing buildings, overall, will have SOMETHING that is hazardous to construction workers, but a preplanned set of activities to do before construction should be done and followed to further alleviate construction starts. The fear of hazardous or unsafe materials can be temporarily quelled, but should not completely rejected. If workers forget about the hazards existing buildings can potentially have, workers will be careless and can injure themselves. A thorough inspection and evaluation of an adaptively reused structure's integrity, before construction, should help reduce the fear of hazards.

Newman's five steps is a fundamentally worthwhile description of adaptive reuse. The description from the book is close to what should be done in order to start designing a great adaptive reuse building. Newman's book goes into further detail than what has been covered, and reviewing the second chapter of *Structural Renovation of Buildings* is recommended. But whether the *List* is read here or from Newman's book, hopefully the fundamentals of developing a project function, reviewing any existing documents, conducting 'exploratory demolition', testing of materials, and inspecting any missed sections will bring more safety to all.

Chapter 4

Is the Industrial History of the Asian City Significant?

In the last several years, Asian cities have achieved great economic success and progress. This success is reflected in the construction of new buildings and growth of the city. However, the construction and growth comes with a price – the unique Asian architectural history is disappearing, as old buildings are being demolished to make room for new development. If this continues, the unique Asian architectural history will only exist as pictures and descriptions in the future, without any older physical buildings that reflect the past. Augusto Villalon expresses similar concern in this quote:

The image [of progress], well ingrained in the minds of decision makers and of the majority of the population, is rapidly turning Asian cities into copies of each other. At this point, a new way of looking at progress should be introduced. The new thinking should develop an awareness that in the face of globalization, it is cultural traditions that sets nations apart, identifying each people and the cities that they live in as unique and individual.³¹

Villalon believes that the unique image of Asian cities is disappearing, and a change in urban development must be made in order to save it. If we do not save unique architectural history, future generations will be limited of visualizing the Asian city development through photos and words. In contrast, adaptive reuse of industrial buildings can help save parts of architectural history and the uniqueness of the Asian city.

This chapter will first briefly discuss modern Asia history in order to provide background to the impact of foreign cultures in Asia. Next, we discuss the evolution that

31. Augusto Villalón, “Adaptive reuse in developing Economies: Trying to be World Class,” *National Trust of Australia (NSW)* (9-10 November 2000).
<http://www.nationaltrust.com.au/conservation/files/Adapt%20Villalon.pdf>.

made the city's current form is important to bridge context to current development. Finally, the chapter will provide reasons why industrial architecture is part of Asian city history and heritage. The major message of this chapter is that the history of the city is beneficial for everyone and erasing it will eliminate heritage that brings uniqueness and respect to the city as a world destination.

A Short History of Modern Asia

In order to direct the discussion of this chapter, we should briefly describe the historical environment of the countries of our four major focus cities: China, Japan, Malaysia, and Singapore.

China

China's past history is marked with turmoil, corruption, and volatile allegiances that ultimately affected all levels of Chinese society. Marked with foreign trade, peasant uprisings, the end of the Qing Dynasty, and the communist revolution, China's passage into the 20th century was especially rocky. China's rise to the industrial age started with the political teachings of Sun Yat-sen, a co-founder of the Chinese Nationalist Party (CNP). By 1949, however, the Communist party, led by Mao Zedong, started a new era of industrialization; while on the other hand, the Russian Socialist movement brought the Soviet Union and China together, creating political allegiances and development of trade in military materials.³² Mao's rule was marked by turbulence, with national campaigns such as the 'Great Leap Forward' in 1958-63. Although the goal of this campaign was a

32. Cao Yin, "Beijing's 798 District," December 14, 2006, Studio International, http://www.studio-international.co.uk/reports/beijing_798.asp (accessed October 3, 2008).

rapid transformation of China's agrarian economy into an industrial society, it was highly unsuccessful both in terms of agricultural and industrial production, leading to social pressure, violence, famine, and death of tens of millions of people. Following this devastating campaign, the Cultural Revolution of 1966-73 sparked outrage against the 'foreigners', who at this time were freely trading with China. The Cultural Revolution sought to eliminate class struggles by restricting the permeation of outside technologies, lifestyles, and thought, while trying to demolish all evidence of the past dynasties and historical sites (fig 36). Despite this tragic change in culture, the post-Mao period brought new thought, and gave the economic success of today.³³

When Deng Xiaoping became the new CNP leader in 1979, education and economic activity needed great revitalization to counter the after effects of the Cultural Revolution. Deng's capitalist-inclined system of government meant the reintegration of Open-door policy, and is the turning point that led to China's phenomenal development of current economic success. Since the 1980s, China's economic growth has averaged a 10% rise annually, becoming the fourth largest economy behind the US, Japan, and Germany, Despite the country's continuing dereliction of open economic development, the general viewpoint of China has a strong sense of nationalistic pride amidst conservative ideology. Some criticize its government uses its economic strength to gain the upper hand in

33. Leon Poon, "The People's Republic Of China," April 19, 1994, History of China, <http://www-chaos.umd.edu/history/prc.htmlrticles/The-unique-theme-hotel.htm> (accessed June 22, 2010).



Figure 36. (TR) The result of the Cultural Revolution in Mao's China and its surrounding territories brought massive removal and destruction of unique culture. Here, a historical picture shows the extent in the damage of "Buddhist statues and ritual objects in the Jokhang Temple were destroyed by the Red Guards." Source:

http://voyage.typepad.com/china/2007/04/tibet_during_th.html

controlling its citizens and business owners, in order to reap the gains of the world economy.³⁴

Japan

Japan's industrial history started when Western traders began trade with Eastern Asia. Since 1633, Japan enacted *sakoku*, which was a policy that refused entry of non-Japanese ships, except Dutch and Chinese vessels limited to the port of Nagasaki (fig 37). On July 1853, US Commodore Matthew Perry demanded that Japan receive his and future US ships for landing and trade. This, along with the Japanese public discourse against the ruling classes, advanced the society of the Japanese people, and ended *sakoku*. However, in the process of allowing foreign ships into their harbors, the Japanese signed treaties that gave Western traders economical and legal advantages. In response to this, Japan became determined to close the economic and military gap to the Western countries. Drastic reforms in society were carried out, such as establishing a compulsory education system modeled after French and German educational systems. Japanese scholars went abroad to study Western science and languages, and foreign experts were allowed to teach in Japan.³⁵ This was done in order to transform the old agrarian economy into an industrial economy, which by 1879 found Japanese children educated and surrounded by modern technology.

34. Simon Elegant, "China," August 1, 2007, Time Magazine, <http://www.time.com/time/world/article/0,8599,1648769,00.html> (accessed June 25, 2010).

35. www.japan-guide.com, "History of Japan," <http://www.japan-guide.com/e/e641.html> (accessed March 20, 2009).



Figure 37. (T) A scale model from 1995 show's Dejima island in Nagasaki harbor. This was the only island Dutch traders were allowed to conduct business during *sakoku*. Notice buildings on the right are more distinct, and therefore probably of more European design, than the buildings on the left, which followed traditional Japanese design. Source: <http://en.wikipedia.org/wiki/Dejima>

A societal campaign promoted nationalism heavily, and indoctrinated the Japanese population to believe that its expansion and gaining of resources on other lands were for the benefit of the world. However, the annexing of Korea in 1910, the invasion of Manchuria in 1931, the Rape of Nanking in 1937 and other occupations in and around Southeast Asia were the result of expansion, which was essentially a continuation of World War I for Asia. The expansions did empower Japan, but at the cost of brutalizing large populous areas of Asia. To the Japanese, the period between both world wars was indiscernible. After their (continued) participation into World War II, the Japanese war machine was stopped with the Hiroshima and Nagasaki bombs in 1945 by the United States.

Although the Japanese were never occupied by foreign people, their post-war influences and ideas of the Americans, under the Supreme Commander of the Allied Powers, dramatically changed the society, paving the road to Japan's economic growth.³⁶ Japan experienced a dramatic rise in growth in the 1960's with 10% growth, 70's with 5%, and 80's with 4%, and is considered an "economic miracle", due to its rapid development, post-WWII. Japan's more recent growth rate of 1% ranks third in GNP growth, but is still an economically, culturally, and politically influential country.

Malaysia

The history of Malaysia is one of the most racially diverse in Southeast Asia. Chinese entrepots were founded strictly for the purpose of "exchange or distribution of foreign merchandise with little or no local commodities to export"³⁷. The Portuguese came to Malaysia in 1511, enforcing the Strait of Malacca from the port of Malacca (fig 37), and changed the town into a fortified city for the protection of non-local communities and residents. The city was racially segregated; the fort walls housed the Portuguese community, separate from the Chinese and Native communities. After the Dutch ruled Malacca, the British arrived in 1786 and claimed both the Malaysian peninsula and Borneo islands as colonies, turning the country into a resource of various materials. The British introduced non-native plant species, like oil palm and rubber, and Malaysia became a world resource that provides 55% of the world's palm oil, 93% of its rubber, and 60% of its tin. Subsequent issues and events also occurred after this time of

36. ed, *Japan* (Alexandria, Va.: Time-Life Books, 1985).

37. Johannes Widodo, *The boat and the City: Chinese Diaspora and the architecture of Southeast Asian coastal Cities*, Cultural studies (Chinese Heritage Centre; reprint, Singapore: Marshall Cavendish Academic, 2004).



Figure 37. (BL) This picture shows a conglomeration of European style in Melaka. The bank of the canal (Dutch) has buildings that resemble Portuguese style, with the Gothic-style Francis Xavier Catholic Church in the background. Source: <http://fidus15.blogspot.com/>

growth, since profits were mostly hoarded by the wealthy foreigners. The growing resentment of foreigners who profited from trade and crop growth grew, and yet little was done to counteract against it. The British released its control of the country in 1957 and 1963 (of Borneo).

During World War II, the Japanese arrived with the intent of providing its forces with an endless supply of resources, devastating the lands and society in general. Their defeat in 1945 started the two decades of reconfiguration of the country, with the independence after the departure of the British in 1957. The rise of education standards, modeled after British standards, was a social benefit for the population of Malaysia. Even

the economic and political systems, which were modeled after the British, became the source of wealth that brought economic success to the country and politically unified the country into a democratic society. Ultimately, the racially diverse country was able to unify the region in order to create “peaceful coexistence among different religions and racial groups”³⁸.

Today Malaysia plays an important part of the world economy. The United States and Singapore are the top two export partners, while the “Growing economy of Malaysia increases demand for U.S. exports [because] it is vital for economic growth at Malaysia.”³⁹ For the year 2010, Malaysia’s economic growth has been downhill with a bolstering 10.1% during the first quarter, 8.9% and 5.3% for the second and third. However, the official growth forecast is predicted to be 6% this year, and despite the global recession, Malaysia’s growth is not expected to fall further.⁴⁰

Singapore

Singapore is the smallest of the countries discussed here, with a native population as diverse as Malaysia’s, but with a majority of Chinese descent. The city was designed in 1819 by Sir Stamford Raffles of the East India Company, with the “the north bank of the Singapore River up to the prominent hill about a mile inland for government offices,

38. Ibid.

39. Stanley St. Labs, “Malaysia Economic Growth,” Economy Watch, <http://www.economywatch.com/economic-growth/malaysia.html> (accessed November 23, 2010).

40. Associated Press, “Malaysia’s 3Q economic growth slows to 5.3 percent,” November 22, 2010, Bloomberg Businessweek, <http://www.businessweek.com/ap/financialnews/D9JL5LQG0.htm> (accessed November 25, 2010).

residences, a centre for learning and an Anglican Church. There was room also for an esplanade by the sea”⁴¹ (fig 39). The city was designed primarily for the purpose of British control as the trade center of all South Asia. Like Malacca, the city’s diverse races and cultures divided sections of the port city, with the feeling that “the urban spatial arrangement forcefully demonstrated the imperial ideological agenda and stark asymmetry of power between the colonized and the colonizers”⁴². Over time, these invisible race divisions disappeared, and the recent past has shown that Singapore’s urban development reflects different cultural architectures. Singapore gained its independence from Malaysia in 1965, and became a developed country-state. Because of its freedom from British and Malaysian rule, many races and religions have privately funded and erected buildings that service their respective communities.

Modern industrialization of Singapore began around the 1960’s, with major industries including rubber milling, tin smelting, and later with electronics, financial services, and more. The Jurong Town Corporation Act of 1968 was created with the intent of upgrading industrial estates and sites to attract high-technology and skill-intensive industries, which it successfully developed.⁴³ Today, Singapore has experienced an

41. Edwin Lee, *Historic buildings of Singapore* (Singapore: Preservation of Monuments Board, 1990).

42. William S.W. Lim, *Architecture, art, identity in Singapore: Is there life after tabula Rasa* (Asian Urban Lab; reprint, Singapore: Sole distributor, Select Books, 2004), 26.

43. Inc Adavameg, “Singapore - Industry,” *Encyclopedia of the Nations*, <http://www.nationsencyclopedia.com/Asia-and-Oceania/Singapore-INDUSTRY.html> (accessed November 4, 2010).

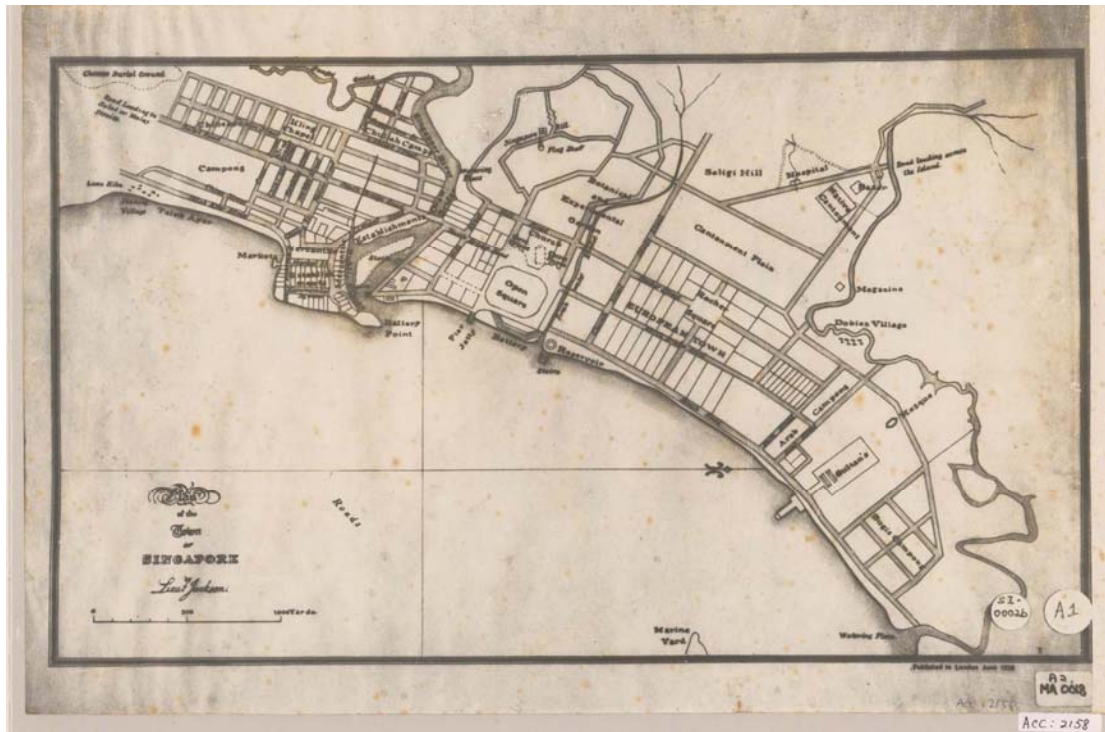


Figure 39. (BR) The result of previous unsuccessful plans, Sir Stamford Raffles presented Jackson Plan, the plan for Singapore by Raffles and named after the supervising engineer who was in charge of its development in 1822. Source: http://www.a2o.com.sg/a2o/public/html/etc/09_Farquhar.htm

average of 7.9% growth from 1965 to 2009, with major downfalls buoyed by subsequent rises in by its major industries.⁴⁴

Foreign Design on Asian Soil

In the past, the location of any Asian village was chosen to take advantage of the landscape, such as coastal areas and river mouths that provided arterial access to inland towns and villages (fig 40). Villages were configured in communal fashion, in which public buildings were accessible to everyone, private houses surrounded the public buildings, and a central boulevard or square provided access everywhere. Later, urban forms of the Asian city were organized in response to a functional manner, or for spiritual influence (fig 41). However, the entrance of European traders changed Asian city development, due to the change of administration, the modern industrial age, and the revolution of communications⁴⁵. European colonizers and traders constructed warehouses, forts, and homes within the areas of Asian communities and villages, exposing new architectural design and construction. These villages subsequently became capital cities of the country (Singapore) or port cities that supplanted an interior capital city (for example, Klang is the port that supplies Kuala Lumpur, while Yokohama is the port that supplies Tokyo).

Native architecture of Asia was often constructed based on religious principles (such as the shin-no-mihashira central pillar in Japanese architecture) (fig 42), political standing

44. Bureau of East Asian and Pacific Affairs, "Background Note: Singapore," October 29, 2010, U.S. Department of State, <http://www.state.gov/r/pa/ei/bgn/2798.htm> (accessed November 23, 2010).

45. Preservation of Muslim Heritage et al., *International Seminar, Preservation & Documentation of Traditional Architecture, 24-27 March 1982, Karachi* (Karachi: The Institute, 1982?).



Figure 40. The early development of Singapore’s urban area was around the mouth of the Singapore River, with foreign traders stationed on the Southern Bank at Johnston’s Pier. Source: http://www.lib.utexas.edu/maps/historical/baedeker_indien_1914/txu-pclmaps-singapore_1914.jpg

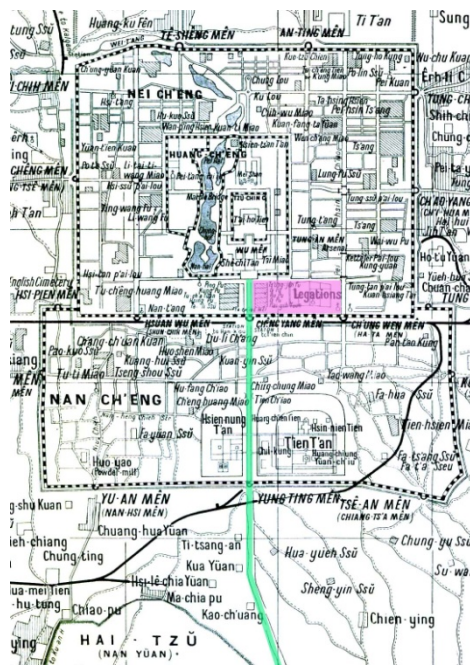


Figure 41. The development of the Beijing capital centered the Forbidden City in the center of the city. A main thoroughfare (highlighted in green) was the main entrance and was oriented center to the Forbidden City, while the foreign Legations area (pink) was located to the right of the main entrance to the Forbidden City. Source: http://www.lib.utexas.edu/maps/historical/peking_environs_1912.jpg

御本殿平面図

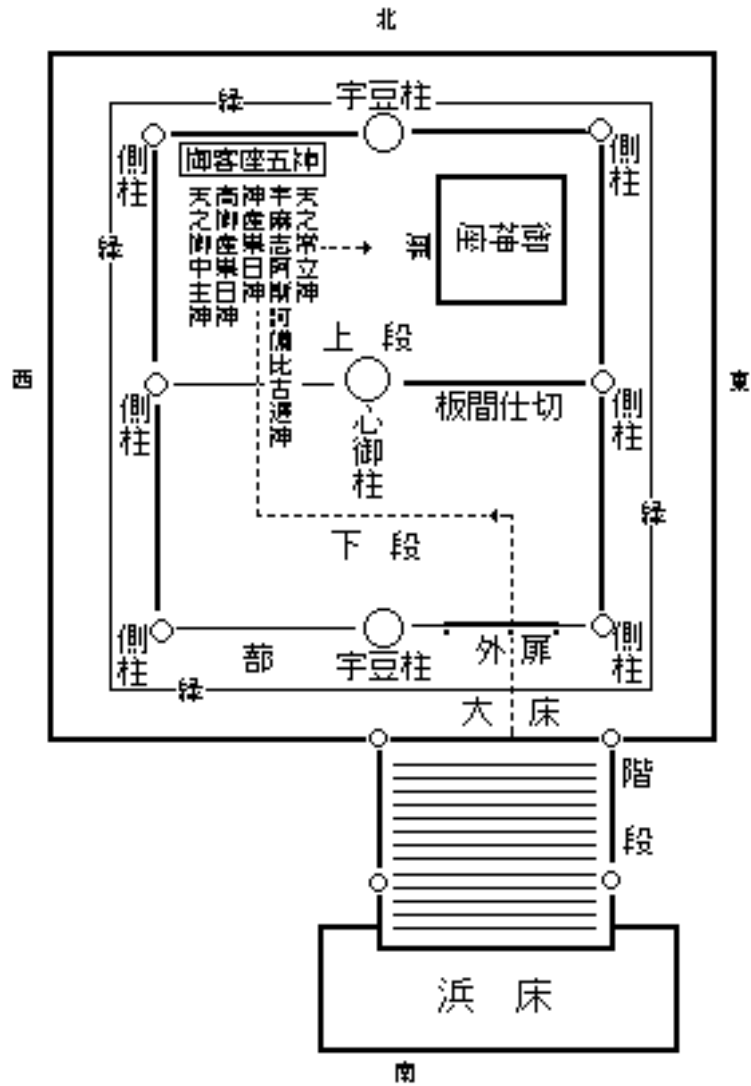


Figure 42. Development of the traditional temple begins with the erection and blessing of the *shin-no-mihashira* (the central circle in the middle). This is a plan of the Izumo Taisha Temple.

Source: <http://www.japonia.org.pl/?q=pl/node/104>

(the Forbidden City of China), or sustainability (Malaysian Kampong House), among other reasons. Asian architecture used renewable resources like wood for residential, sturdy materials that were either carved stone or formed clay brick for constructing palaces or temples, or a hybrid of both. The exposure of European building methods and design changed the architectural landscape. Architecture built by Europeans was, at first, built in European styles that were not sustainable to the hot Asian climate. However, the European architecture was sturdier than the existing Asian architecture at the time, able to protect against thieves, demolition, and attacks more effectively. With this, Asian architecture changed as local buildings adopted same construction techniques and materials of European architecture. The result greatly influenced Asian architecture, creating buildings that lasted longer, allowed multiple-stories, glass facades, and other advanced construction technologies. For example, the Yokohama Red Brick Warehouses were built using the latest technological advancements in building construction of its time: shear brick walls with reinforcing rebar. The usage of this technologically advanced method proved fruitful during the 1923 Kanto Earthquake that wiped out many buildings within Yokohama⁴⁶, while the Red Brick Warehouses suffered nothing more than a few cracked (but structurally intact) bricks.

As Asian architecture evolved; wood and adobe were replaced by brick and reinforced concrete, trellis windows became glass windows, and indoor plumbing and electrical fixtures became commonplace. The conveniences of modern buildings that were earlier exclusive to the upper class came to be used by the middle and lower classes. In hindsight,

46. "Yokohama Timeline," Weekender Online, <http://www.weekender.co.jp/new/031107/feature-yokohama-timeline.html> (accessed October 4, 2008).

what was once seen as foreign construction became widely used and cemented (literally) the urban tapestry of Asian cities. In more recent times, the urban development of Asian city is similar to other cities around the world. There is a designated Central Business District (CBD), a culture-focused section(s) that are given nicknames (like “Chinatown”), and housing areas reflecting the configurations of society. The industrial era brought construction innovation and design that changed architecture and the city form in Asia.

Basis of Architectural Heritage

The varied histories and cultures of Asia have made unique architectural heritage relative to each Asian country. Asian countries have independently developed their own standards of evaluating heritage. Sometimes, these standards are based on precedent examples; The URA Standards is based on five different foreign publications, while the Principles for the Conservation of Heritage Sites in China by China ICOMOS is partly based on the Venice International Charter for Conservation (1964). Other times, standards in Asia are not based or influenced by foreign-originated standards. The Conservation Guidelines of Malaysia is an example of original development by the Unit Pengekalan Seni Bandar (Conservation and Urban Design Unit of Kuala Lumpur City Hall), which pertain only to the urban facades of buildings within the Kuala Lumpur metropolis.

Regardless of whether the standards of architectural heritage are inspired by foreign standards or entirely original, there are comparable similarities between foreign and Asian urban centers. These similarities are the basis of this project, hypothesizing that the

solutions of preserving heritage in the West are applicable to the East. This applicability is similar in particular to the adaptive reuse of industrial buildings and neighborhoods, and in this case in Beijing, Yokohama, Kuala Lumpur, and Singapore. Industrial buildings adaptively reused in Europe and America has proved to be a heritage worth saving, and this is applicable in an Asian context as well. The foreign architectural influence as part of the industrial building heritage in Asia is important, mainly because it marks the change of native cultures, social thinking, and government into modern society and globalization, based on function and sustainability, accounting for the needs of the current economy and modernization (fig 43). For example, the industrial heritage of Factory 798 in Beijing is based on German engineering that takes advantage of northern facing orientation of the skylights, natural illumination that allows a uniform light across the former large workspaces that now function as art galleries and studios⁴⁷. Also, KLPac's previous train maintenance building is testament to the introduction of trains in Malaysia as a new, modern form of transport, while the Yokohama Red Brick Warehouses are a testament to the abolishment of the closed-door policy in Japan.

Defining, or at least acknowledging, the industrial period a part of history is important for future generations, because historical narrative would otherwise be inconsistent, incomplete, and omit a major step in architectural evolution (fig 44, 45). The heritage of industrial architecture provides evidence for evolution of Asian cities into the modern,

47. Yahan Wu, "798 Art District – Explore Modern Art in Beijing," October 16, 2009, Suite101.com, <http://www.suite101.com/content/798-art-district-explore-modern-art-in-beijing-a159589> (accessed February 16, 2010).



Figure 43. Evidence of industrial architecture is prevalent in cities in Asia, in different conditions, and not advertised loudly. Here, the building on the right, a *godown* (warehouse), belongs to the Bangkok Bank, with a more modernized, yet abstract version of it constructed next door. This was found along the riverbank of Singapore River, past Clarke Quay. Source: <http://vacuumstate.blogspot.com/2007/06/park-connectors-in-singapore.html>



Figure 44. An example of Industrial architecture of the past influencing newer architecture of the present. This Pepsi factory in Battambang, Cambodia was built in 1975, but is currently abandoned and unused. On the right of the picture, the roof ridges of the manufacturing portion of the factory can be seen. Source: <http://www.mattprestonphotography.com/tag/travel/>



Figure 45. An interior shot of the manufacturing building. Here, a conveyor belt was once laid on the concrete pedestals. Source: <http://www.mattprestonphotography.com/tag/travel/>

globalized world, and may one day help to predict the direction of the Asian history and society.

Adaptive Reuse: Rehabilitation, not Historic Preservation

Adaptive reuse is a design method that upkeeps the architectural heritage of a city, where the continued dynamic of the society is changing the building's function. Historic preservation, on the other hand, does not allow changing the function. The Coliseum Theatre of Kuala Lumpur is a modern industrial architecture that has been treated and retreated to retain the city's architectural heritage, but retained the original building without any major renovations, apart from repainting (fig 46, 47). The Coliseum Theatre, to this day, still functions as a theater, but this is not historic preservation. Nor can the



Figure 46. The Coliseum Theatre is one of the oldest theatres still operating in Kuala Lumpur, Malaysia. Built in 1921, recent development and rehabilitation has continued the building's original use as a cinema, albeit with colorful reinterpretations of the exterior envelope. The color scheme is extremely representative of the Indian culture and style, who are coincidentally the majority of users of the building today. Source:

http://www.mattriviera.net/2007_01_01_archive.html



Figure 47. The Coliseum Theatre, again repainted with a more muted, mundane scheme. While the colorful reinterpretation is gone, the more mundane, and possibly more accurate interpretation, is repainted on, the Coliseum continues its use as a cinema. Despite a 2006 proposal by the government to convert the building into a cultural center, the people were against this decision and the project was not initiated. Source: <http://blog.ratestogo.com/vintage-movie-theaters/>

Coliseum be considered adaptive reuse, since it continues its original function. Work conducted on the Theater can be considered as working to retain and preserve the original building tectonics, commended in retaining heritage against modern development.

Adaptive reuse should be considered as rehabilitation, a term defined by the US National Parks Service, as “the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values”⁴⁸. This definition, by a governing body, is philosophically the same as that of adaptive reuse, but the use of the words ‘preserving’ and ‘historical’ within the definition does not make rehabilitation a form of historic preservation. Rehabilitation and adaptive reuse should be considered as a design method, and not as a replacement for preservation. To do so would only denigrate the purpose and validity of historic preservation and proper academic work. Adaptive reuse should be seen as an alternative design method for saving existing buildings, and a careful and comprehensive evaluation of the existing building's history and structure should be done before reuse. We would not adaptively reuse the Parthenon, the Pyramids, or the Forbidden City because of their architectural heritage, their uniqueness as intact structures, and their fragility in supporting new use. But, we may adaptively reuse a building that has value to its context, as long as its structural integrity is intact.

The western approach of adaptive reuse has proven to be appropriate in utilizing old buildings for new uses, preserving the historical character of the building, and

48. Russell E. Dickenson, “Preservation Terminology,” September 26, 1983, National Parks Service, http://www.nps.gov/history/local-law/arch_stnds_10.htm (accessed March 13, 2010).

constructing new elements into the existing structure (fig 48, 49). Although adaptive reuse has research of the historical and structural background of an existing building, this work is done for design and construction purposes. The rehabilitation of the building changes the function, but not the building's character, and ultimately benefits the urban city. Historic preservation signifies academic progress for the benefit of present and future education, while adaptive reuse signifies economic progress for the benefit of present and future heritage and urban development.



Figure 48. A Guangzhou Electrical Plant built in 1905 was the main source of electrical supply for much of the area. Its structure is reminiscent to European standards, with many windows and an arcade...



Figure 49. ...however today, the building is poorly adaptively reused into a restaurant/KTV. And the industrial nature is lost, with the only remaining characteristic being the arcade and window façade. It does little to reflect the building's history, and is an example of the very poor, not-so-sophisticated methods of adaptive reuse in China. Source:

<http://www.cantongs.com.cn/articles/tag/%E7%94%B5%E5%8E%82>

Chapter 5

Is There Interest for Adaptive Reuse in Asian Countries?

Proper adaptive reuse depends on the condition of the building and its context. Until now, this project's discussion of adaptive reuse has focused on its methodology, and the importance of historical context. It is important to consider a third attribute – the context of public interest. Adaptive reuse of existing buildings is often heralded in architecture design magazines and publications, praised for their ingenuity, and repeatedly promoted as good green building design. Often, these buildings are seen for their efficiency in space usage or their clever adaption of old buildings into new function. Adaptive reuse of a building is simply a “recast for domestic and leisure use for the simple reason that conversion is a cheaper and less complicated process than new-build”⁴⁹. Even during the post-construction discussions about the reuse of 4th-Linden, a previous Los Angeles cat shelter, the consensus was that, “One of the main reasons the project stayed in the black was that construction costs stayed under \$1 million. This was due in large part to the fact that the developer reused the building rather than tearing it down. Another ingredient for its success was the swift turnaround. As the developer was able to work with an existing building, it was faster for them to complete the conversion, sell it, and get a tenant than it would have been to tear down, permit and title, rebuild, sell, and gain tenants.”⁵⁰

49. Kenneth Powell, *Architecture Reborn: Converting old buildings for new Uses* (New York: Rizzoli, 1999).

50. Theo Douglas, “Doing the Numbers: Synopsis,” March 3, 2010, [Adaptivereuse.info](http://adaptivereuse.info/info/doing-the-numbers/), <http://adaptivereuse.info/info/doing-the-numbers/> (accessed October 29, 2010).

Criticism against adaptive reuse, on the other hand, is unusual and typically directed toward the societal impact the building has on the neighborhood. During construction of the same 4th+Linden project, local architect David Santana challenged that the overlying complexities of the local economics cannot merely be overcome by beautiful architecture. His argument was that the adaptive reuse of the 4th+Linden building does not contribute any meaning to the architectural landscape⁵¹, despite the eventual benefit the project brought.

Xintiandi in Shanghai, China, on the other hand, is an example of the societal change an adaptive reuse project can have. With the rehabilitation of this area into fancy and expensive hub of restaurants, bars, and shops, the original inhabitants were moved to faraway suburbs in a similar manner than the Shanghai authorities demolished ancestral homes without prior consent of their owners, in preparation of the World Expo 2010.⁵² (fig 50, 51) If these ancestral homes were reused, or even improved, the houses would be beneficial to its residents and to visitors who come to view the ancestral homes. Shanghai's rapid redevelopment is one example that has been predicted to bring "environmental degradation... imperil[ing] the rich social and historic fabric of city neighborhoods [and ultimately providing] little room for architectural quality"⁵³, and ultimately affect the city, the country, and its population. On the other hand, one could also argue that in spite of drawbacks, adaptive reuse of buildings such as those in Xintiandi, at least saves them for future generations. An opposing example is the *Save America's Treasures and Preserve America* program, which was cancelled due to a

51. Theo Douglas, "Doing the Numbers," *The District Weekly* March 2010
<http://thedistrictweekly.com/2010/print/news/doing-the-numbers/>.

53. chinaview, "Home Demolished for World Expo, Shanghai Petitioners Seek Just Compensation," April 1, 2010, Status of Chinese People: News, reports about China and Chinese people's living Condition, <http://americancity.org/magazine/article/everything-is-going-to-be-alright-demolition-and-adaptive-reuse-in-detroit/>.

53. Clifford Pearson, "China: Moving heaven and earth, and doing it faster than thought Possible," *Architectural Record*, 03/2004, 72.



Figure 50. A tectonically beautiful Shikumen gateway frames the destruction of unique architecture in Shanghai. Source: <http://pocket-calculator.blogspot.com/2007/07/shanghai-shikumen.html>.

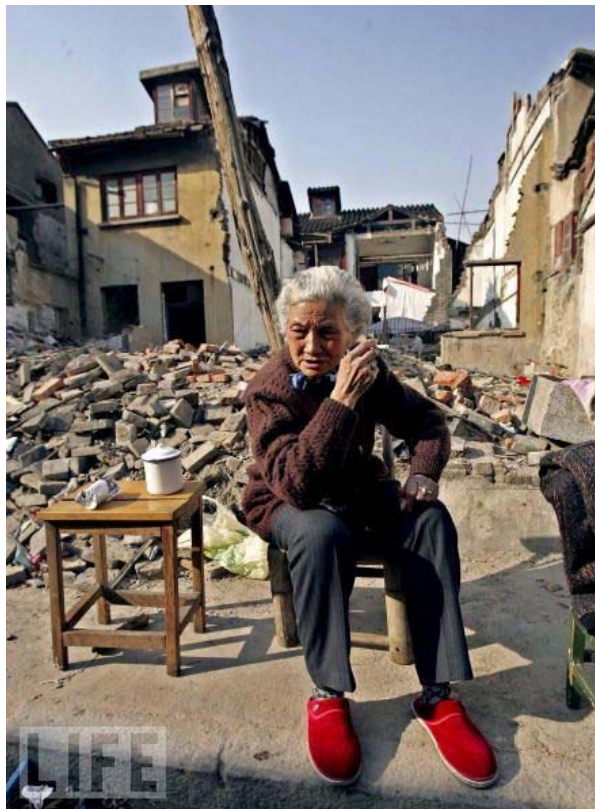


Figure 51. The emotion of forced relocation causes most citizens to refuse the measly compensation the Chinese government offers, resulting in protest. Source: <http://www.life.com/image/52324452>.

“lack [of] rigorous performance metrics and evaluation... [and therefore its] benefits were unclear”⁵⁴, as stated by the current U.S. administration. Therefore, this chapter will discuss how existing adaptive reuse projects illustrate evidence on their success and overall public opinion in order to find out whether there is interest in Asia for adaptive reuse, like elsewhere in the world.

Significance versus Interest

UNESCO’s World Heritage Organization is recognized as the leading authority on evaluating the cultural significance of heritage sites. Developed by the World Heritage Organization, the *Criteria of Selection* (CoS) is a method that UNESCO uses to choose what sites of heritage deserve be recognized as examples of world heritage, and to be listed in the World Heritage List (WHL). Selection to be on the list implies that the site and building is of a particular significance, bestowing one or more of the following traits: human creative genius, interchange of human values/technology, bear a unique cultural tradition or civilization, an outstanding example of a type of building, a human settlement, or is associated with events or living traditions. Penang Tourism Development, Cultural, Arts and Heritage Committee chairman Danny Law Heng Kiang said, in response to the recent 2008 addition of the cities Malacca and Georgetown, that, “Listing George Town and Malacca on the World Heritage List would definitely help to boost the tourism in both [cities] in a long run. [Also] the former Chief Minister Tan Sri Dr Koh Tsu Koon

54. Lloyd Alter, “Preservationists Outraged As Obama Cancels Building Restoration Programs,” February 10, 2010, Treehugger, <http://www.treehugger.com/files/2010/02/preservationists-outraged-obama.php>.

said the success in the bid is a boost to multiculturalism and tourism for Malaysia”⁵⁵. It is often implied that the mere mention on the WHL can generate more tourism on a site. As another example, UNESCO’s Asia-Pacific Heritage Awards for Culture Heritage Conservation recently awarded the 2010 Award of Distinction for the Yokohama Red Brick Warehouses, stating that the building, “allow[s] the citizens of Yokohama to retrace their city's industrial heritage”, and is an example of “the latest innovation for industrial architecture at the time of its construction.”⁵⁶ However, there are also sites that are not listed on the WHL that possess a significant industrial tradition and are of great interest. Therefore, adaptive reuse should not be designed with intent to be listed on the WHL. Rather, in designing an existing building for reuse, a designer and developer should adaptively reuse the building for the potential interest that can be generated.

Public Opinion, Interest, and Benefits

Factory 798, The Red Brick Warehouses, KLPac, and the Tea Factory Hotel are cases of the adaptive reuse in Asia that are celebrated for their unique design ingenuity. The common trait between these four different examples, other than their adaptive reuse, is that their new function serves the general public, being either a place of creativity or a place that caters to the tourists. A measure of success in architecture is if a building continues to be used; adaptive reuse should be judged in this manner too. Therefore,

55. Eddie Chua, “Unesco accepts George Town and Malacca as World Heritage Sites,” *The Star*, July 8, 2008, <http://thestar.com.my/news/story.asp?file=/2008/7/8/nation/21765425&sec=nation> (accessed July 10, 2008).

56. UNESCO, “2010 UNESCO Asia-Pacific Heritage Award,” September 1, 2010, UNESCO Bangkok, <http://www.unescobkk.org/culture/world-heritage-and-immovable-heritage/asia-pacific-heritage-awards-for-culture-heritage-conservation/2010-heritage-awards/award-winners/> (accessed November 7, 2010).

another measure of success of adaptive reuse should be the visitors' opinion about the adaptive reuse of the building. The local community must be taken into account, and discussion with the public is helpful in finding out interest for adaptive reuse.

A 2000 Market & Opinion Research International (MORI) report stated that 98% of citizens in the UK believed that architectural heritage is important, with 45% feeling that Asian heritage is unrepresented.⁵⁷ A later 2003 MORI poll also stated that 8 out of 10 people agreed that "the heritage in my area is worth saving".⁵⁸ The latest *Heritage Counts Report 2009* study by the English Heritage organization surveyed that, out of 5,000 people in England, 60% felt a historic environment makes a better place to live, 75% believing that it makes the area look more attractive, and 55% felt connection to their area.⁵⁹ There are no records that indicate similar survey in Asia, but during the renovation and renewal of the Gota De Leche (fig 52), located on Manila's University-Belt, Dr. Zenaida Manalo of the University of the Philippines School of Urban and Regional Planning, observes that, "The restoration revived public awareness of the viability of integrating heritage structures with contemporary lifestyles." As part of an urban renewal project, the Gota De Leche development invited local Mayor Alfredo Lim, representing the community, committed to making better traffic systems, increase police visibility, and most importantly, help in the maintenance of old and abandoned structures

57. MORI, "MORI Poll Reveals Overwhelming Support For The Historic Environment," *Attitudes toward the Heritage*, Poll - What Does 'Heritage' Mean To You? (September 2000). <http://www.ipsos-mori.com/researchpublications/researcharchive/poll.aspx?oItemId=1558> (accessed December 24, 2009).

58. Forsyth, *Understanding historic building Conservation*, 41.

59. English Heritage, "Heritage Counts 2009 (video)," Historic Environment Review Executive Committee, <http://hc.english-heritage.org.uk/server/show/nav.10745> (accessed July 26, 2010).



Figure 52. Once a forgotten building of Italian renaissance style, the Gota de Leche redevelopment and subsequent award for restoration by UNESCO in 2003 spearheaded the idea of viability in restoration. Source: <http://traveleronfoot.wordpress.com/2008/02/17/gota-de-leche/>

and quality. As stated by Anna Leah Sarabia, a director of operations in Gota de Leche, that the building's, "historical flavor merits the attention of people in the community. That's why we encourage residents and establishment owners to do their part for this project for this will instill a sense of ownership and pride of place in them."⁶⁰

60. Tina Santos, "Rediscovering heritage architecture in Manila's U-Belt," *Philippine Daily Inquirer*, May 31, 2008, <http://newsinfo.inquirer.net/inquirerheadlines/metro/view/20080531-139998/Rediscovering-heritage-architecture-in-Manilas-U-Belt>> (accessed April 24, 2010).

Public opinion can sometimes be against adaptive reuse. The common complaint is an adaptive reuse is futile in developing a program that is sensitive toward the historical preservation of the building and its environment. For example, a former theater in New London, CT (fig 53) promoted the idea of changing the building into a new tourist center, to entice visitors to visit the small town. In this case, the public opinion arose, stating that “the building [should be] used strictly as a theater-only again”⁶¹. Albany, NY and the state of Vermont have similar problems, in which the redevelopment of their city/state is recommended by public opinion to keep the urban character unique in their environments. However, Mark Thaler, in response to the Albany issue, stated that reuse would ultimately boost tourism and lessen environmental impact⁶², while in Vermont; there are measures that can provide federal provision and economic incentive⁶³ toward the owner.

Nevertheless, the aforementioned Tea Factory (fig 54) provides a viable source of sales for local trinket peddlers who sell their goods to hotel guests.⁶⁴ Shanghai’s Xin Tian Di has become a tourist center that showcases the nearby historical site, has local and international boutiques, and includes development of a park with a man-made lake for the benefit of the local population to enjoy. In short, these sites, among many others, provide

61. Nadine Baker, “Just Imagine: A dream for the Capitol Theater,” *The Day* (February 2010). <http://www.theday.com/apps/pbcs.dll/article?AID=2010302149996>.

62. Mark Thaler, “Adaptive reuse of historic buildings makes economic Sense,” *The Business Review (Albany)* (October 2002). <http://albany.bizjournals.com/albany/stories/2002/10/21/focus4.html>.

63. “Adaptive Re-Use Regulations,” Smart Growth Vermont, <http://www.smartgrowthvermont.org/toolbox/tools/adaptivereuse/>. (accessed June 17, 2010).

64. *Asia Conserved: Lessons Learned from the UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation (2002-2004)*, ed. Richard A. Engelhardt (Bangkok: UNESCO, 2007), 157.



Figure 53. The Capitol Theatre in New London, CT, suffers massive disrepair and crumbling interiors, refusal for adaptive reuse by the community, and a substantially high tax debt that must be paid by any new owner, resulting in reluctance for anyone to reuse the building. Source: <http://www.theday.com/apps/pbcs.dll/article?AID=2010302149996>



Figure 54. The Tea Factory Hotel provides monetary incentive for locals by selling goods at the hotel, or working on the plantations surrounding the hotel. The Hotel is testament to the time of tea manufacturing. Source: <http://travel.webshots.com/photo/1166989179057228696fjKVGd>

impetus for the benefit of the local people. While there is no strong evidence from Asia that claims that the general public welcomes such creativity to their urban neighborhood, the fact that they use these places for recreation is a positive indicator. Adaptive reuse projects that serve the general public stand a better chance on being successful, and therefore adaptive reuse projects should have a function that is beneficial and accessible to everyone.

The European City Model

The interest in old buildings is apparent in Western cities visited for their fashion, culture, and architecture. In their preservation of architectural heritage, the buildings, the historic environment, and the livelihood of the city are preserved. Many European and American cities are prosperous due to the reuse of old architecture for modern use (fig 55). Rigorous policies determine the extent of their reuse, which the Asian city can, and should, adopt for their benefit. This is particularly because cities in Asia that rely on tourism as a major part of their economic growth.

The Asian city, in general, was based on urban policy that is European in origin. As stated previously, great influence on architecture in Asia came from European traders and settlers. This resulted in the creation of urban centers with foreign tenements and storage warehouses that follow European city design and policy. But, despite their historic significance, these buildings are torn down to make room for new construction, to curtail sprawl, privatize development, and other solutions that are appropriate for problems in Western cities. These solutions are sometimes inappropriate for the Asian city, and



Figure 55. The streets of Milan, Italy are a mixture of old Roman architecture with more modern buildings, the latter dating to the early 20th Century. Source: Author, 2010

ultimately transform the city to look the same.

The successful European city model, which preserves many aspects of architecture and context, can be applicable in the Asian City. However, the removal of local history and promoting modern development that is universal in many other cities in the world is the trend the Asian architectural community faces and affects Asian cities⁶⁵. Therefore, something must be done in order to rectify this situation. Asian cities should retain their own identity to create a city that is visually richer and cultural, having historic preservation and adaptive reuse, as well as contemporary architecture.

Green Design

Heritage aside, the most compelling case for the adaptive reuse method is not related to the building's past, but the building's present and future use. Adaptive reuse is often seen as part of the ecologically conscious 'Green Design' movement and life cycle assessments ("from cradle to cradle") of building materials; the practice of utilizing environmentally friendly materials and methods in order to reduce the polluting impact buildings and their functions have on the natural environment. The simple fact that a building is reused is justification for labeling it as green architecture. In a recent article about adaptively reusing St. Paul's School (fig 56) in Garden City, New York, it argued that in new building construction, "statistics show that [it] consumes 40% of the energy and raw material consumption in the global economy each year. [Studies show that],

65. Nihal Perera, "Transforming the Asian City: Innovative Urban and Planning Practices in Asia," *The Transforming Asian City: Innovative Urban and Planning Practices - Conference Proceeding* (May 3-5, 2007). <http://issuu.com/nihal/docs/proceeding-book-of-transforming-asian-cities>.



Figure 56. In the face of demolition, the St. Paul's School showed great potential in becoming adaptively reused to become a functional school with architectural heritage. Source:

<http://www.panoramio.com/photo/9165827>

[i]n 2001, the [new construction] used 25% of wood harvest, 16% of fresh water supplies, 44% of landfill debris, 45% of carbon dioxide production, and half of the total greenhouse emissions.” The article states that the design method of adaptive reuse uses considerably less materials, justifying that in the process, “an older building is stabilized and historic materials are saved and strengthened - holding down the need for natural resources and ameliorating the effects of production.”⁶⁶

In addition to adaptive reuse, green design and technology can be installed into an industrial building, without loss of building character. An example of this is 60L Green Building (fig 57), in Melbourne, Australia. The building was constructed within the shell of a 1870s brick warehouse. This allowed a significant reuse of the brick walls that consisted of both original and recycled brick (the latter was cleaned without acids). As part of the designer’s philosophy, only the most *appropriate* technology was installed, because “solutions which balance energy and resource [for] the best outcome for building occupants”⁶⁷. The development of 60L includes innovative technology (low flow toilets, PV panels, passive cooling/heating), green design (plant troughs using reclaimed water, positioning wiring in a manner that prevents added solar heat gain), and adaptive reuse treatment (reuse old doors, doorframes and timber on and off site for doors and floor use). 60L is one testament to green design for a better future with adaptive reuse.

66. The Garden City News Online: Community, “Historic Preservation: The Ultimate in Recycling,” June 15, 2007, <http://www.gcnews.com/News/2007/0615/Community/018.html> (accessed February 30, 2008).

67. Green Building Partnership, “OVERVIEW OF THE 60L GREEN BUILDING,” 2002, Australian Conservation Foundation, http://www.acfonline.org.au/uploads/res/Detailed_report_on_60L.pdf (accessed October 23, 2010).



Figure 57. 60L in Melbourne, Australia, is the model of Green architectural design. Not only adaptively reusing an older warehouse building, the project contains many mechanical systems and design considerations to showcase how to build an office without excessive pollution. Source: http://www.greenlivingpedia.org/60L_green_building

Procedure of Adaptive Reuse

The city of Yokohama's urban character consists mostly of modern buildings, and not of buildings from the industrial period. However, its development of the Red Brick Warehouses museum and shopping gallery, and its namesake park, denotes acknowledgement of the city history as a busy trading port since the mid-1800s. Beijing was developed because of its history as the capital and governmental center of China since the 1400s. Kuala Lumpur was developed due to its history as a frontier town since 1850s, and Singapore was developed because of its history as a British port in 1824. A

philosophical change of urban development must be made in order to preserve the unique Asian city history and character (fig 58). One option for the development of city character is adaptive reuse of its buildings that showcase the city's history and development in order to celebrate the past and adapt to the present and future. Hopefully Asian developers can adopt lessons learned outside of Asia to develop distinct and successful cities with adaptive reuse. The public opinion about the significance of heritage preservation, the interest in historic buildings, the tourism successes of older cities, and the globalizing phenomenon of green design indicates that adaptive reuse is a successful design method for the Asian context as well.

The topics we have covered in this chapter express reasons to justify adaptive reuse. Adaptive reuse can be designed to be compliant with the goals of historic preservation, while being environmentally friendly, promote heritage tourism, give a sense of local pride, and differentiate a unique city from other cities. In the case of industrial buildings, there are cases across the world in which adaptive reuse can transform once useless and decrepit buildings into interesting, vibrant spaces that affect the local and surrounding communities. The cases listed in Chapter 9 are examples of adaptive reuse that are interesting, and that developers should consider the method of adaptive reuse before demolishing existing buildings.



Figure 58. Asian cities that promote a sense of heritage and historical preservation can ultimately be unique in the context of cities everywhere. Here, a shot of Kyoto River showcases the old, stilted architecture in front of the newer modern architecture boxes. Even fishermen continue the old tradition of fishing, further elaborating on the city's uniqueness as an "old" city. Source: http://blogs.courant.com/colin_mcenroe_to_wit/2009/05/kyoto.html

Chapter 6

Is Adaptive Reuse a Worthwhile Investment?

The measures of success in an architectural project are varied and different. One measure that holds the most value for the developer is profitability. No investor will spend their money without some indication of profit. However, the lack of a clear, measured profit gain of adaptive reuse might be why Asian developers do not embrace this design method. Profitability is a goal that often impedes the creative potential of architecture design, yet from the developer's or owner's point of view, profitability is essential; often the most important measure for success.

As discussed previously, the initial monetary investment in adaptive reuse is less than in new construction, while the investment of time and additional skilled labor may be more. The initial cost and investment is not the true value of the building, but if the lifecycle of the building (as well as the history, the environmental impact, etc.) is factored in, what is calculated is a monetary value. Monetary value of adaptive reuse, in reality, benefits from proper planning, innovative design, qualitative but budget-modest construction, and good post-construction maintenance that extends the value of the existing building for the owner and the users. This chapter discusses the pre-construction, construction, and post-construction steps in developing an adaptive reuse project, and the monetary value that can be produced when adaptively reusing buildings.

More than simply 'Adaptive'

In order to obtain the best investment, the architectural designer and developer must foresee their project being more than just adaptive reuse. As mentioned, the successes of architectural projects vary, and that an adaptive reuse project must benefit the public. Therefore in order to create profit, developers must realize that “people are not just consumers, but also citizens”⁶⁸. Successful adaptive reuse lies in creating spaces that people enjoy using. Adaptive reuse of a building should perform beyond its primary function.

In analysis of the reuse of “big-box” buildings, Julia Christensen defines buildings being of past, present, and future. In her book *Big*Box Reuse*, she presents case studies of buildings that were once big-box retailers (such as Wal-Mart, Kmart, etc.) in the United States being reused for different purposes (such as a Courthouse, Hormel Headquarters, Indoor Go-Kart Track, and others) (fig 59). The point Julia Christensen makes is that the adaptive reuse of big-box buildings can be successful, even if they lack historical character. Many industrial buildings have historical character of the past two centuries, but are still abandoned, left standing without purpose, and being “in the blind spot of memory.”⁶⁹ This is similar to the fate most big-box buildings have faced, according to Christensen. She also states that the reuse of the big box can “conceptually archive the

68. David J. Smiley, ed., *Sprawl and public Space: Redressing the Mall* (New York, N.Y.: Princeton Architectural Press, 2002).

69. Julia Christensen, *Big box Reuse*, Queen's policy studies series (Kingston, Ont; reprint, Cambridge, Mass.: MIT Press, 2008).



Figure 59. The Jen Library at the Savannah College of Art and Design is an example of Middle American adaptive reuse of big box buildings of yesteryear. The Jen Library building, open to the public and students, was once 85,000 sq. ft unspecified department store. Source:

<http://www.bigboxreuse.com/SCAD.html>

past, display it for the present, and preserve it for the future”⁷⁰. This concept should also be followed in adaptive reuse of industrial buildings in Asia.

Public space is a slowly vanishing element within the urban landscape, due to development of semi-public commercial spaces. Julia Christensen deems further disengagement from a physical center to a virtual center; virtual forums replacing face-to-face discussion. Margaret Crawford theorizes that out in rural areas, the mall has become

70. Ibid.

a dominant building in society and becomes a safe version of the outside world, where girl scouts can camp, singles can meet (for dates), and become a magnet for hotels, offices, and other urban functions⁷¹. Despite the popularity of virtual centers and forums, a physical space is still needed and desired. Singapore's Bugis Junction is an example of a public center, as well as an adaptive reuse project (albeit an inauthentic marketplace). A record of 0.367 people per square meter on average during the daytime visit the center, while 0.418 during the nighttime⁷². And similar to the observations of Crawford on the mall, Bugis Junction has become a magnet for teens, young couples, and a branch of the Inter-Continental Hotel chain. A place for big-name brand shops, a hotel, and even concerts, Bugis Junction is also a central location for bargain shopping, all within the adaptive reuse of old shop houses. To put it curtly, Bugis Junction is profitable because it functions beyond its intended purpose of adaptive reuse.

Likewise, the Red Brick Warehouses in Yokohama, Japan, are also a center for congregation. The Red Brick Warehouses and Park serves as an outdoor performance center, a boutique and fine dining center, and a museum. Like Bugis Junction, it serves as a central arena where tourists and local residents congregate for different events and purposes. However, unlike Bugis Junction, it is a comparatively better example of adaptive reuse; according to the evaluation criteria of this thesis (see Chapter 1). Its developers have preserved the past by keeping its natural interior and exterior colors, and the installation of a museum dedicated to telling the history of Yokohama and the Red

71. Smiley, *Sprawl and public Space: Redressing the Mall*.

72. YUEN BELINDA, and CHIN HOONG CHOR, "Pedestrian Streets in Singapore," *TRANSPORTATION*, no. 25 (December 1997), 225, <http://www.springerlink.com/content/p2w9622642r00134/>.

Brick Warehouses. The developers also acknowledged safety, fixing broken details and hazardous materials by replacing rusted weather vanes, broken glass and brick. The installation of permanent canopies for the new use of cafés makes the warehouse flexible for future use, in addition to the arrangement of the stores into the preexisting ‘bays’ that are separated by sliding doors.

Both examples above show that profitable adaptive reuse design should extend beyond the limits of the building’s functionality for the benefit of people. By providing an experience of history, the designer should design an experience that will resonate in the visitor’s mind, and prompt him or her to return. In discussing about changing the shopper’s experience, Peter Coleman states how the visitor must be given, “a fulfilling experience, and it should provide something that is unique and different to visiting another place”⁷³.

Initial Planning for Adaptive Reuse

As discussed in Chapter 3, some form of preservation would occur on a proper adaptive reuse project. Chapter 21 of the book *Historic Preservation: Project Planning and Estimating* by Swanke Hayden Connell Architects discusses this issue, and is the basis for this section. The main point in this book is that after the purchase of the building and property, it is important for the historical consultant and the architect/designer to gather any and all records of the property in the preplanning stage (Newman’s second *Step*, see Chapter 3).

73. Peter Coleman, *Shopping Environments: Planning and Design* (Boston, MA: Elsevier, 2006), 7.

Open forum meetings must also be conducted for the benefit of the general public. This will help identify what functions the reuse should have, and how the reuse will affect the surrounding community. During these meetings, information regarding the building and those involved must be disclosed. Consultation of local labor unions must also be included, to avoid as much political conflict or protest as possible. While this is a tedious task, it is necessary, as it will give people not directly involved in the construction a chance to express their opinions. When involving communities in order to discuss what needs to be done and what is needed, everyone can be satisfied and tolerant at what changes will be made and how it will affect their associated community or organization.

Pre-planning and Planning are important stages that determine what needs to be done, although a considerable amount of time and service is needed to conduct this work. In addition, this kind of participatory design process can reduce uncertainties by the involvement of the community, which brings social cohesion for the benefit of the society, while the historic consultant can provide the direction that should be followed in the courses of action by the developer.

During Adaptive Reuse Construction

Continuing with Chapter 21 of *Historical Preservation* by Swanke Hayden Connell Architects, maintaining or renewing the structural integrity of a building during its adaptive reuse construction phase is critical; particularly when workers are on site. While industrial buildings may not require a complete preservation of all members, the

structural elements may still need structural reinforcement. Therefore, before any construction or removal of materials, it is recommended to properly check dangerous occurrences, such as instability or loose materials. The site and subsurface which the building sits on should also be properly checked, and temporary or permanent solutions should be installed for reinforcement.

Reinforcement is also dependent on the climate of the building's location. This is particularly significant in applying international guidelines to Asia, where even the Western style buildings are in a different state of deterioration because they have faced different climactic conditions. An industrial building located in Southeast Asia may have suffered mildew and mold fungus, but the same building in East Asia may have suffered thermal expansion of materials due to the cold winters and hot summers (especially to metal fixtures and components). Buildings near the equator may have suffered damage from wood termites; buildings farther from the equator may have suffered from owls or a rat infestation. Buildings closer to the coast may suffer saltwater and wind damage; buildings inland may have suffered warping from flooding and earthquakes. Whatever the location, the damages can be different and therefore methods of adaptive reuse are unique to every adaptive reuse site.

Many issues regarding new construction and adaptive reuse are similar, such as a budget, site development, and plans of construction. But adaptive reuse still has additional issues such as:

- Protection of materials may require installed fencing and barricades that prevent access or further damage from human hands. Devices that prevent dust exposure may be needed for fragile finishes or fabrics.
- Materials may require extra handling and care due to their fragility, if state and local government requires replacement with original materials. The most fragile materials are often windows and special items such as light fixtures and iron railings. This is may not be the case with all adaptive reuse projects, but depending on the tax credit requirements and consultant recommendations it may be required as such.
- Testing, as noted before on earlier chapters, may be done during the construction process if new, suitable materials are found.
- Mock-up models or drawings may be an additional requirement to illustrate what is needed or what will be done in the construction process. Depending on what the function is, the mock-up can be abstract or detailed to develop a greater understanding for all involved parties.
- Progressive cleanup and disposal may be required to eliminate toxic fumes or accidents. This is obvious for safety reasons, but also because it further protects materials from splash damage, over exposure from vaporous materials, and other issues.
- Progressive cleanup may also include the use of an environmental consultant to determine whether the cleaning materials and their disposal are toxic or not.
- Special equipment that requires expertise or consultants with specialized skills may be called upon for their use

The issues are case-specific, and it is up to the developer, designer, and historical consultant to determine what issues are relevant to their project's adaptive reuse.

Budgeting Maintenance Costs

Like almost everything discussed so far, the price of maintenance costs is a case-by-case issue. Chapter 24 of *Historical Preservation* by Swanke Hayden Connell Architects suggests three different analysis methods to determine what the maintenance costs may be to keep a building's components running and properly working. The three analyses that are extremely effective for determining the maintenance cost of adaptive reuse projects are the Existing Building Analysis (EBA), the Replacement Reserve Study (RRS), and the Preventive Maintenance System (PMS). The former two are real-time analyses and recordings of building elements, while the third is an analysis of assumed requirements for maintenance in a future period. These three studies will not be overtly described in this project, and therefore reviewing Chapter 24 of the *Historical Preservation* book is highly recommended.

The EBA, also known as a Building Condition Assessment, is simply an examination (and if needed, invasive and destructive inspection) of the building in its existing state. This analysis identifies the costs, quantity, materials, and priority for the replacement of the building's members. The RRS measures the same details like EBA, but includes the deterioration of elements in a building, and factors the deterioration history based on a 20 year span. The PMS is a dynamic, ever-changing analysis that requires recording of

maintenance *as it happens*. In this analysis, three separate logs are recorded (the Inspection Assignment log, the Maintenance log, and the Bidders' Checklist) which record many details of work. And as each repair and maintenance is finished, it is recorded in the logs, and future work is based on the new record.

If we were to compare EBA, RRS, and PMS, their usefulness varies depending on the project size and complexity. The EBA is effective if the initial budget is small with an unchanging source of funding, while the RRS is used if the initial budget is very big with changing source of funding. The EBA is the most updated because of its predictability for analyzing and estimating the times for maintenance, and is useful for the economical developer. The RRS study also is efficient for allocation of costs and savings in the long run, but requires that the initial income is high or that income is constant for the next 20 year time period. PMS assumes that labor cost does not fluctuate considerably, and is complicated because of its detailed and changing nature. In short, the EBA identifies what needs to be built/maintained, the RRS identifies what the costs will be, for the next 20 years (or whatever chosen time period), and the PMS identifies on a work-by-work basis about what the itemized costs are.

In an adaptive reuse project, ideally all three analyses would be used in conjunction. But if there were a choice of only one, EBA would be the best and most efficient. The consistency and record-keeping that is required in EBA makes it invaluable as a record of history to building owners and the possible new buyers. In the event that the building is sold to another party, the EBA delivers a schedule of changes that can provide the new

owners with the building's construction history. The other two studies may work independently, but in the end they are merely elaborate versions of the EBA.

Moreover, it is obvious that general maintenance is required to elongate the usefulness of an adaptively reused building and hence must be included in the budget. In essence, the profitability of an adaptively reused building not only depends on the planning and construction costs, but also on those for maintenance, which often includes installation of new technologies such as energy-efficient or -producing devices – money saved is money earned. Preplanning what must be done, how it can be done, and determining how much it costs to maintain an adaptively reused building can make adaptive reuse very cost-effective.

The Return Income of Adaptive Reuse

In some Western countries, government grants and/or tax incentives reduce the initial investment or its return (R.O.I.) of adaptive reuse projects. However, such resources are not available or are difficult to receive in Asia. In China, heritage preservation is a limited resource that is granted to only select projects that are deemed important historic preservation. Xie Li, in speaking about government subsidies for redevelopment of Beijing neighborhoods, states that government resources are often used for maintenance and management, not for initial investment (fig 60). He surmises that government subsidies are very few to nonexistent, and that in fact, soft bank loans and various grants are more reliable sources of investment. Shanghai's Xintiandi, for example, was privately funded by its developers, Shui-On Group for CNY 1.3 million, with a



Figure 60. This is an example of poor planning for heritage architecture. Here, the temporary wall (painted blue) is built for the sole purpose of hiding a former residential *hutong* neighborhood, which now exists as nothing more than partial walls. This was done in time for the Beijing 2008 Olympics, and was a direct answer to officials' worries as to what foreign visitors would think. Source: <http://www.washingtontimes.com/news/2008/aug/04/beijing-walls-hide-neighborhoods-blight/>

partial funding of CNY 0.6 million soft loan from banks⁷⁴. Malaysia, Japan, and Singapore are just as unlikely to develop comprehensive programs for initial investment or tax incentives, despite many local NGOs frequently demanding them, and the *Kuala Lumpur Structural Plan 2020* acknowledges the importance of historical preservation and heritage redevelopment⁷⁵.

74. Xie Li, "Adaptive Reuse in Beijing's Traditional Neighborhoods," *Brandenburg University of Technology, Cottbus, Germany*, Master's Thesis (2005).

75. Government of Kuala Lumpur, "Kuala Lumpur Structure Plan 2020," 2000, Official Portal of Kuala Lumpur City Hall,

In the lack of government incentives that could bolster Asian adaptive reuse projects, where can the return of investment come from? There are two major sources: one is the saving caused by good preplanning, and the other is the economic success of the project after its construction. Good design and adaptive reuse of an existing building can help the developer achieve these tasks, by reducing the initial investment and future maintenance cost, while popularity of the completed design leads to high occupancy of leasers and users, and eventually, high profit (fig 61). Of course, there are exceptions, as many adaptive reuse projects, like Singapore's Bugis Junction, Kuala Lumpur's Petaling Street (fig 62), and Shanghai Xin Tian Di, are economically successful, even though they do not match all standards of adaptive reuse defined by this study. Therefore, adaptive reuse of an existing building or a neighborhood does not guarantee the success of the project, but it is the developer's skill and creativity of the design which does it; including the boost to local economy with increasing tourism. Taylen Petersen points this out, stating:

Adapting an existing building saves money and fuel involved in purchasing and shipping new materials. There is usually the extra labor involved in reviving the old materials for their new use, but even this has its benefits. Even if the end costs of an adaptive reuse project and a new construction project were the same, more money has been spent at the local level as a result of the adaptive reuse project. These jobs are more labor intensive but better inject the local economy with money, not only by providing jobs but by paying local contractors who will then spend their pay at local establishments⁷⁶.

Although the focus of this chapter is economic efficiency of the adaptive reuse design method from the perspective of a developer, it should also be pointed out that monetary success is clearly connected to the success of both pre- and post-construction planning

76. Taylen Peterson, "Like New Again: On Adaptive Reuse for Green Buildings," Green-buildings.com, <http://www.green-buildings.com/content/78469-new-again-adaptive-reuse-green-buildings> (accessed May 25, 2010).



Figure 62. A world class site, the Cheong Fatt Tze Mansion in Georgetown, Penang, is an example of redevelopment and historic preservation with continued use for the benefit of tourism and heritage architecture. Source:

<http://travel.webshots.com/photo/1117183274053000611JbxxYZ>



Figure 63. As a gathering place, Petaling Street is a successful magnet for social activity, despite its poor reuse of architecture. From this view, traces of the original architecture façade poke through the modern signage. Source: <http://ketchuptomyfries.blogspot.com/2009/11/petaling-street.html>

(architectural and financial), as well as the quality of the design. This, together with the participatory design process, leads to the societal benefits as well (even though that would not be the goal of the developer) and to the success of the project in all measures.

Chapter 7

Are International Standards and Practices of Adaptive Reuse Applicable to Asia?

Contextual differences can raise questions to the compatibility of one culture's standards of adaptive reuse to another different culture. The American Standards of Rehabilitation was developed "to determine the appropriateness of proposed project work on registered properties within the Historic Preservation Fund grant-in-aid program"⁷⁷. Over the years, the Standards of Rehabilitation have also helped to guide government agencies, local preservation societies, and local and state officials in the determination of awarding Federal Tax Credit and defining heritage architecture in America for the benefit of the U.S. Department of the Interior and the nation. Other western countries offer similar help, but while their standards might vary, the fact remains that there is correlation between the historical architecture assessments of all cultures. While the standards to "determine appropriateness" may be culturally different for Asian countries, it is still fundamentally similar in function.

We can see it was the culture and education of varied European countries that first started the drive of preservation, and that adaptive reuse's first major commercial use occurred in European cities. Numerous European cities (fig 63) have demonstrated that a clear profit can be made for local government and citizens through the adaptive reuse of

77. U.S. Department of the Interior, "Standards of Rehabilitation and Guidelines for Rehabilitating Historic Buildings," December 29, 2006, <http://www.nps.gov/hps/tps/tax/rhb/stand.htm> (accessed April 7, 2009).



Figure 63. A street in Leipzig, Germany, demonstrates a fraction of the development of the once city of commerce. Extensive work was done to ensure continued use of the buildings retain their architectural character, scale, and façade, while harmoniously existing with modern structures. Source: Author's, 2010.

old buildings. Often, a building reused correctly and interestingly can create new spaces for exploration, physical areas for selling products, and highlight the identity of a city or a neighborhood. This type of development is reflected in many adaptive reuse projects that are given accolade for their inventive and creative development. Adaptive reuse has a considerably broad definition in Europe, the Americas, and Australia (the “West”⁷⁸), and is often considered part of historic preservation of architecture in these societies.

78. “West” in reference to countries within Europe, the Americas, and Australia

In comparison, the Asian definition of historic preservation is much narrower in terms of local rules, regulations, and incentives. The previous chapter illustrated that a very small portion of the federal budget in Asian countries is reserved for historic preservation. It is from this limited budget that significant sites receive minimal financial support. This is detrimental to the promotion of adaptive reuse, because if we were to follow western methods of adaptive reuse, added with private funding previously discussed, the lack of government support should not stop adaptive reuse from being a legitimate form of architectural design. Also, as the Asian industrial city characteristics and technology was based on European industrial philosophy, adapting the international standards of adaptive reuse of architecture to the Asian city and context should be applicable and appropriate in most cases, with adjustment to local conditions.

In Japan, preservation standards are especially challenging, because of the changes that have taken place through time. Cherilyn Widell's article *Cultural Hurdles for Adaptive Re-use of Historic Buildings in Japan* describes such strict regulations in the discussion of *machi-nami* buildings (fig 64). She claims that adaptive reuse of historic buildings would be difficult; simply allowing people to wear shoes in the building would require the removal of the raised floor structure, and removing the *tatami* would change the smell and feel of the room. Moreover, accommodating the handicapped would require the removal of the wooden thresholds, and because average dimensions of Japanese people have increased, many heights, widths, and lengths within a building may seem too small or uncomfortable for use. While industrial buildings in Asia do not suffer from this type of detailing, we must acknowledge that Widell's statement of preserving the



Figure 64. An example of a *Machi-nami* building in Gokasyu Town, Japan. The front door of the building, which is coincidentally the Center for *Machi-nami* Preservation, is stepped up and is clearly an ADA violation – if the building were to be reused in an American context. Source: http://upload.wikimedia.org/wikipedia/commons/e/ee/Kondo_machinami_hozon_koryukan.JPG

building’s environment is highly relevant. Adaptive reuse should continue the building’s character, and if possible, the same ephemeral senses. The preservation of Japanese architecture “depends upon a continuation of traditional lifestyles, which seems unlikely”⁷⁹, meaning that adaptive reuse design should bring new function that is suitable for the old buildings. Widell’s article still supports adaptive reuse, in stating that

79. Cherilyn Widell, “Cultural Hurdles for Adaptive Re-Use of Historic Buildings in Japan,” *Places: Forum of Design for the Public Realm*, Transformation and Conservation, 8, no. 1 (1992), 80, <http://repositories.cdlib.org/ced/places/vol8/iss1/> (accessed February 3, 2009).

“preservation must go beyond saving facades. Economic and cultural change can sap the soul and regional character of buildings and towns. The essence of preservation should be find[ing] the [building] of a place, the strong relationship between buildings, spaces, community and people, and helping [the essence] to survive”⁸⁰.

Tourism is a source of income in the Asian city, and hence an important factor in the financing adaptive reuse projects, as discussed in the previous chapter. Widell states that the regional character of buildings and towns is the allure and appeal that brings people to come to Asia for tourism. Although there are many facets of tourism that we will not cover, and historic preservation is not the sole purpose of tourism, it fuels hospitality industry because the majority of tourist attractions anywhere are buildings. With this in mind, we turn to the subject of how adaptive reuse and rehabilitation can fit the Asian city.

Beginnings of Historical Preservation

The purpose of this section is to identify how the guidelines of historic preservation in Asia were based on European and American values of historic preservation. Numerous Asian organizations such as UNESCO Bangkok, the Singapore URA, and the Government of China, have created guidelines in defining historical preservation. These organizations have tailored their guidelines for their particular city, country, or region, and the guidelines differ by the society, culture, and history of the addressed area.

80. Ibid.

The *Venice Charter for the Conservation and Restoration of Monuments and Sites* of 1964 is a starting point in defining international historic preservation. The subsequent general UNESCO conference of the *Convention Concerning the Protection of the World Cultural and Natural Heritage* of 1972 (known as *Convention 1972* from here on) helped to further depict the differences between Natural and Cultural Heritage, and is a text often inspiring current local historical preservation guidelines. In essence, these two texts serve as precedence guidelines that inspire past and current historical preservation ideals and thought. It should be noted that the *Convention 1972* guidelines were drafted with the cooperation of UNESCO member-countries, including both Asian and Western delegates.

The Article 5, Point 2, of *Convention 1972* states that in protection of heritage:

“[O]ne or more services for the protection, conservation and presentation of the cultural and natural heritage with an appropriate staff and possessing the means to discharge their functions”

The influence of this point is reflected in China’s *Law of the People's Republic of China on Protection of Cultural Relics* (known as *Order 76*) which states under Article 15:

“The administrative departments for cultural relics under the local people's governments at or above the county level shall formulate specific protective measures for the immovable cultural relics of the sites protected for their historical and cultural value and of the sites that have not yet been verified as such, and announce the measures for implementation.”
(“Immovable cultural relics” refers to historic buildings and sites.)

One can clearly see the philosophy that protection of heritage sites is equally important in both contexts. The *Convention 1972* article states that a ‘service’ should be developed for the protection of heritage, while *Order 76* article states that ‘measures’

should be formulated for the protection of heritage. Although we cannot assume direct influence from Article 5, Point 2, onto Article 15, the *fundamental* meaning and function of both is the same. Similar fundamentals can also be seen between the ICOMOS *Charter for the Interpretation and Presentation of Cultural Heritage Sites (ICOMOS Charter)* and the *Malaysia Government Act 645: National Heritage Act 2005 (Act 2005)*. The *ICOMOS Charter*'s first principle, Point 2, addressing public access to heritage sites, states that:

“Interpretation and presentation should encourage individuals and communities to reflect on their own perceptions of a site and assist them in establishing a meaningful connection to it.”

In comparison, *Act 2005* Section 46 summarily states that the acting Commissioner of heritage should promote the education of protecting heritage sites, with the Point C:

“Promoting schemes for the education of, or for practical and financial assistance to, owners and occupiers, and for community involvement in decision making.”

In the two points, the similar goal is promotion and awareness of heritage preservation for the local community's benefit. The difference is that the former inscribes that heritage has ephemeral value, while the latter inscribes an educational and monetary value. *Order 76* and *Act 2005* do not directly indicate influence on each other by their points; it may be only coincidence that they address similar issues, groups, and fundamentals. However, some publications, like the URA's *Objectives*, clearly state that its development is based on the precedent examples (in the *Objectives* case, the *Venice*

Charter, Historic Buildings and Conservation Areas (London), Standards for Rehabilitating Historic Buildings (U.S.), The Burra Charter, and Conservation of Historic Buildings by Bernard Feilden, Former Director of ICCROM, Rome). Although the URA and Asian articles are similar to the Western standards in writing, both are tailored for the use in their respective countries.

More recently, the need for historic preservation and value of the heritage of architecture within the Asia Pacific region is being recognized (fig 65). The United Nations Educational, Scientific, and Cultural Organization (UNESCO) Bangkok is one of the leading organizations in the region. UNESCO Bangkok's Culture division has hosted the Asia-Pacific Heritage Awards for Culture Heritage Conservation, and has awarded Asian projects that are found to promote local heritage since 2000. The award is bestowed upon entries of architecture around the Asia-Pacific region (East Asia, West Asia, South East Asia, Pacific Islands, and Australia), and the purpose is to "recognize the achievement of individuals and organizations within the private sector, and public-private initiatives, in successfully restoring structures of heritage value in the Asia-Pacific region"⁸¹. Many of the projects that are awarded by UNESCO are not strictly preservation projects. A significant portion of candidate projects utilize adaptive reuse design method, and in hindsight any architectural heritage that is unique to the project site nationally or locally.

81. UNESCO Bangkok, "2008 Heritage Awards Programme," <http://www.unescobkk.org/index.php?id=7707> (accessed February 25, 2008).



Figure 65. Heritage is often demolished without clearance of historical assessment. Here, the façade of the Chik Sin Thong Crematorium in Kuala Lumpur, Malaysia, demonstrates last-second supporting beams that precariously save the façade from collapsing. Source: Author's, 2005.

An exceptionally good example of UNESCO Bangkok's philosophy is the Tea Factory Hotel, a project that was awarded the 2001 Award of Merit for "showcas[ing] the industrial heritage of the Sri Lankan hill country, where tea factories are the predominant building type, and suggests how this legacy can be adapted to future uses. The respectful treatment of the exterior allowed the project to maintain its contextual integrity, while bolder interior interventions allowed the building to assume its new role in the hospitality sector"⁸². Similarly, Bushell's Tea Warehouse in Sydney, Australia, a 2001 Award of

⁸². *Asia Conserved: Lessons Learned from the UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation (2002-2004)*, ed. Richard A. Engelhardt (Bangkok: UNESCO, 2007), 157.

Distinction receiver, UNESCO commended that, “It has become a notable model demonstrating the adaptive reuse potential of this type of historic building, leading to greater interest in preserving and converting other historic industrial buildings. Such trends have created an environment which will ensure that the Bushell’s Warehouse will continue to be retained for the foreseeable future⁸³”. Project commendations, such as these, show that the international standards of heritage preservation, including adaptive reuse, is perfectly compatible in Asian development.

Catering to the Tourist

Asian countries are fast becoming areas of increasing tourism, in terms of ever higher number of visitors. These countries receive domestic and international visitors from everywhere, and intraregional Asian tourism began with the result of the 1997 Asian Financial Crisis. Prior to the financial crisis, observers noticed that there was “an increase in [foreign] people’s ability to afford to travel the [Asian] region”⁸⁴. After the crisis however, “the decline in the region’s economies has meant that regionally generated inbound [foreign] tourism has deflated across the region. Inbound tourism from outside the region has therefore become extremely valuable – and extremely competitive”⁸⁵. Tourism today has recovered, and the United Nations World Tourism Organization has reported that Asia travel today has climbed +14% of its total

83. *Asia Conserved: Lessons Learned from the UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation (2002-2004)*, ed. Richard A. Engelhardt (Bangkok: UNESCO, 2007), 139.

84. C. Michael Hall, and Stephen J. Page, eds., *Tourism in South and Southeast Asia: Issues and Cases*, Oxford ed. (Boston: Butterworth Heinemann, 2000).

85. *Ibid.*

international visitors⁸⁶, a significant growth from its low levels in 2009. In order to address the general increase of global tourism, proper adaptive reuse must be catering to both the international and local tourist.

Most tourists seek affordable travel options that give them a sense of unique experience that is relevant toward the culture, society, and/or architecture of their destination. This is why many adaptive reuse projects in Europe and America are tourist-friendly, often inexpensive (to visit), and cater to tourism for an interesting experience. The Yu Yuan (Pleasing Garden) District in Shanghai is one such example of an extended district that works as a tourist experience. Around the original garden, the district was reconstructed by merchants who originally bought Yu Yuan in 1760.⁸⁷ The district basically continues its function as shops and restaurants, but there are two different district areas; a thematic, heavily staged, replicated area to look like the pre-20th century, and an area that is more akin to the original district's look (fig 66, 67). While the replicated, inauthentic district has an unnatural look in terms of ideal adaptive reuse, there's no doubt that the experience of the place is a driving force that continues to bring tourists to the area. The difference between Mainstreet of Disneyland versus Yu Yuan District is that while former is completely staged, the replicated Yu Yuan architecture is still a reinterpretation of its own past context.

86. Marcelo Risi, "International Tourist Arrivals up 7% in the First Half of 2010: Asia Leads Growth," September 2, 2010, United Nations World Tourism Organization, http://www.unwto.org/media/news/en/press_det.php?id=6561&idioma=E (accessed October 28, 2010).

87. travelchinaguide.com, Yuyuan Garden," http://www.travelchinaguide.com/attraction/shanghai/yuyuan_garden.htm.



Figure 66. Although unfortunately covered with shopkeeper's signs, the original architecture of stores in the Yu Yuan district is still consistent with architecture of its time in developing, war-torn Shanghai. Source: RTKL Shanghai Site Photo, 2006.



Figure 67. The newer, redeveloped areas of the Yu Yuan district replicate old architecture that, while reflective to the core magnet site of Yu Yuan, is still distracting, inauthentic, and Disneyfied. Source: RTKL Shanghai Site Photo, 2006

There are many projects in East Asia that are adaptively reused and provide good sources of income. In catering to the tourist, these projects present a fine balance between building character and experience in adaptive reuse. The Yu Yuan districts, along with Xintiandi, are examples of that balance in Shanghai. However, other adaptive reuse projects such as the Tea Factory Hotel and KLPac, while not districts, provide both experience and authenticity within its own contexts. The reward in achieving this balance is immeasurable, as local visitors and tourists both are provided with an experience that is greater than what can be bought. In catering to the tourist, adaptive reuse provides experience that they pay for, and to the local visitor, adaptive reuse provides the authenticity and sense of place which gives them the initiative to revisit their own past.

Embracing Globalization and Memory

Richard Berman's book *Assessing Urban Design: Historical Ambience on the Waterfront* discusses a building's context as historical ambience. He defines this phenomenon as the ephemeral feelings that are introduced to the users and individual that enters a site. "An ambience is felt strongly when visiting a location for the first time as a first impression. It exists, though less powerfully, during multiple visits to the location, and remains as a memory after those visits are complete"⁸⁸. Frank Steele further defines this, stating that "even if the individual may never have physically visited a particular site, still fantasies of what life might have been like in that setting are projected into it"⁸⁹. Yi-Fu Tuan states that "When a tourist stops into an old city, he feels he has moved back in

88. Berman, *Assessing urban Design: Historical ambience on the Waterfront*.

89. Ibid.

time”⁹⁰. Therefore the preservation of a context is an issue that focuses on intangible emotions to transport visitors to a *past period* of human history in a particular context and/or environment. The consideration of context is part of the western standards of adaptive reuse, and has been reflected in Asian adaptive reuse projects. Projects such as the Yokohama Red Brick Warehouses and the Tea Factory Hotel, among others are context-specific adaptive reuse projects that reflect the architectural history and sense of place within their cultural context, as opposing to the standardization of built environment across the world, partially due to modernism and the international style.

We must acknowledge the fact that increased usage of adaptive reuse is not only a sign that people are conscious about the value of historic preservation, but that it also is a global phenomenon. Globalization has effectively and permanently changed architectural design around the world, and what were once exclusive design attributes of one country are now inspirations for design anywhere. Inspiration is limitless and, in turn, the same ephemeral emotions can transfer between cultures. This section will discuss the globalizing effects of human memory, which could also be defined as emotion of nostalgia, and how it is the primary component in supporting adaptive reuse.

Nostalgia is defined as "the state of being homesick; or as a wistful or excessively sentimental yearning for return to some past period or irrecoverable condition" (Merriam-Webster). The nostalgia that is experienced in an adaptively reused building is often a yearning to return to a past period that has perhaps never even been experienced by the

90. Berman, *Assessing urban Design*.

visitor. There is little architectural evidence to support this fact, but Asian movies, music, literature, and entertainment serve as relevant examples in establishing universal emotions of love, hate, life, death, and other emotions. Old Bruce Lee Kung-fu movies, Bollywood movies, and Japanese Kurosawa works are highly appreciated in both local Asian cultures and those in the West, and the same applies to new movies such as *Letters from Iwo Jima*, *Crouching Tiger, Hidden Dragon*, and *Slumdog Millionaire*. These are not movies that relate to western culture, yet in this globalizing world, universally understood over cultures and generations. Memory is therefore fueled by human emotions and capacities, not limited by cultural differences.

Old factories often evoke nostalgia as being buildings that held the fruits of determination and drive to success of the local society. Industrial facilities, especially those owned and operated by local owners and workers, are held as pinnacles that led to the success of locally owned and operating businesses at the turn of the 20th century, while industrial complexes that were once owned or designed by foreign or colonizing people are now seen as the initial start toward the modernization of the urban city and part of its history. In short, adaptive reuse seeks to fulfill those who want “the avenues and lanes, the old apartment houses and villas, the gardens, the ambiance of old [buildings] has somehow survived for those with a sense of history who are seeking the Good Life”⁹¹. The revenue generated by this group is one indicator that adaptive reuse is a viable and beneficial design method. This phenomenon can be explained by adaptive reuse projects not only reflecting a nostalgic past by *romanticizing* a period when society

91. Deke Erh, and Tess Johnston, *Frenchtown Shanghai*, 1st ed. (Hong Kong: Old China Hand Press, 2000), iii.

was 'much better', but also reflecting the increasing awareness of the value of all the historic layers of the architectural tradition of any given place, including its industrial past.. By adaptively reusing buildings in a proper manner for the given context, the visitors, especially those who may not come to see the architecture, can feel attuned to a past they may not have necessarily experienced first-hand, but feel it anyway and learn from it.

Chapter 8

Conclusion

The purpose of this project is simple: To bring along awareness of the value of industrial building tradition in Asia, in danger of being torn down, and to thereby justify the adaptive reuse of these utilitarian buildings that are part of the historic layers of their context. Before coming to a conclusion, let us revisit each conjecture and their answers, which make up the structure of this research project.

The first conjecture “What exactly is Adaptive Reuse?” is background information that defines an ideal adaptive reuse. In this case, the definition is based on international examples that reuse historic industrial buildings for a new function. The Singapore URA’s *Levels* provide a clear list of how adaptive reuse can celebrate the historic building’s character without drastically changing it. As it is the only Asian guidebook with ‘guidelines’ on adaptive reuse, it was used as a precedent in this study.

The second conjecture “Is adaptive reuse merely a fancy term for remodeling and renovation?” is basically a clarification for the confusion of adaptive reuse with similar terms such as replication and renovation. The chapter further strengthens the definition of ideal adaptive reuse with existing examples within Asia, indicating that some developers are practicing the ideal. Based on this, adaptive reuse is identified as vastly different from remodeling and renovation, celebrating the building’s existing character without replicating the past, but accepting the need to introduce new elements to support the building’s structure or its new function.

The third conjecture “Is the reuse of buildings hazardous?” is response to the concerns of safety of existing buildings. The chapter summarizes Alexander Newman’s book *Structural Renovation of Buildings*, Chapter 2, to develop steps on proper pre-planning and assessment of an existing building for adaptive reuse. A pre-planned strategy to assess the existing building will organize the tasks of bringing it to safety standards, such as removing toxic and hazardous materials, strengthening its structural integrity, etc.

The fourth and fifth conjectures discuss the interest in significance of adaptive reuse in Asian cities. The rich history of the post-colonial and industrial Asian city is very interesting, and structures that celebrate that period are equally interesting. Adaptive reuse as a design method is also interesting, not only because of its ability to retell the history of a city, but because it is an innovative design method that continues the building’s life cycle and maintains its character through changing function.

The sixth conjecture addresses the concern that adaptive reuse is not a worthwhile investment. As shown, a good return of investment is achievable in adaptive reuse projects, provided that proper pre-, during, and post-construction planning is undertaken. The points of the book *Historic Preservation: Project Planning and Estimating* by Swanke Hayden Connell Architects illustrate the procedure in which developers can save money with their prescribed planning. This conjecture acknowledges that funding in the

form of tax credits and other incentives is difficult to obtain in Asia, and for that reason adaptive reuse in Asia is more dependent on private financing.

The last conjecture, “Are international standards and practices of adaptive reuse applicable to Asia?” addresses the concern that mainly ‘Western’ standards of adaptive reuse might not be suitable for Asia. The research outcome clearly indicates that they are very suitable for a number of reasons, particularly in the adaptive reuse of utilitarian buildings built during the past two centuries. The first reason is that the development of industrial cities in Asia followed the Western models, and therefore same principles are applicable to their adaptive reuse as well. The second point is that the growing globalization has unified international values, including appreciation of adaptive reuse, while leading to a counter-action against the standardization of built environment across the world, in which adaptive reuse is one method in creating uniqueness of a city and its sense of place. And finally, these principles are applicable everywhere because tourism benefits from the historic preservation of old buildings and neighborhoods, which makes adaptive reuse successful.

In the evolvement of this project, the purpose was to address the Asian city heritage that is being wiped out at an increasing speed. This project proposes adaptive reuse in general as one solution to this loss of uniqueness, and opposing the association of local buildings as ‘backward’ rather than ‘modern’. Probably the most significant reason for the relative lack of Asian adaptive reuse projects is that they do not receive any government monetary support. However, the lack of government support has not

completely stopped adaptive reuse in Asia. Hence, this study examines elucidating examples of adaptive reuse as an attempt to shed light into this interesting design method and its potential in the Asian context.

Residential-type homes have been primary targets of Asian adaptive reuse – the *Shikumen* Houses of Shanghai, *Hutongs* in Beijing, the *Machiya* around Japan, Shop houses in Singapore, and Plantation Buildings in Malaysia. This author believes that, like industrial buildings in the West, industrial and utilitarian buildings in Asia have similar unique building character and history that is relevant to the context. The details and building character of Factory 798, Yokohama Red Brick Warehouses, Tea Factory Hotel, and KLPac are all significant part of architectural heritage that illustrates history of Asian industrial development. The reason for the success of their adaptive reuse is that they all celebrate a distinct type of architecture that has a local character and is relevant to the context. This is in contrast to Bugis Junction and Xintiandi, which are examples of projects with good intentions for adaptive reuse, but with poor execution that leads to loss of building character and authenticity.

The importance of Asian industrial buildings lies in the fact that they are significant part of the context of their urban city environment. They exist because of the success of the urban city, and their presence is found within the changes of the city's urban development. This fundamental change not only saves the heritage of the city, but raises the level of standards of architectural sense and meaning, as well as makes the city remarkably more unique in comparison to other cities around the world.

The borough of Braddock, Pennsylvania is, as of today, one of the most blighted cities in the United States. As part of its industrial history, the mayor of Braddock has made it his goal to emphasize its industrial history of the city through adaptive reuse and urban planning. In his words, this will be “improving the quality of life for the young people in Braddock, attracting the kind of outside energy, ideas, and interest from the artistic, urbanist, and creative communities”.⁹² The Asian industrial buildings of the 19th and 20th centuries have their histories intertwined with the history and development of their countries. Technologies have risen, improved, and fallen. Whatever the case, adaptive reuse is a reminder of the past that can, and will, benefit the future of Asia’s children, in the same vein as the future communities of Braddock and other examples across the world.

But for now, there are projects in Asia that are embracing such development of older, industrial and utilitarian buildings. The Zhongshan Shipyard Park, in Guangdong, China, is a project that embraces the history of the older buildings and, rather than remove the existing steel framing, keeps it as a reminder of the past. In the words of principal architect Kongjian Yu: “The design . . . turn[s] a wrecked site into a beautiful, meaningful and functional place” and that “Though small in scale, it reflects the

92. Kern & Co, “Mayor,” Braddock: Destruction Breeds Creation, <http://www.15104.cc/mayor.html> (accessed March 23, 2009).

remarkable 50 year history of socialist China [and is] a space to remember and tell stories to those who did not experience this period of history.”⁹³ (fig. 68)



Figure 68. Zhongshan Shipyard Park is a newly landscaped area in Guangdong, China. Once a brown-field, the site is being redeveloped by Turenscape Landscape Architecture to become a new park, capable of fulfilling the public’s need for a play-space, while fundamentally preserving its historic character as a former shipyard. Source:

<http://www.architectsnews.org/archproject.php?arch=kongjian&proj=shipyard>, 2010

93. Kongjian Yu, “Zhongshan Shipyard Park,” Architects News, <http://www.architectsnews.org/archproject.php?arch=kongjian&proj=shipyard> (accessed November 29, 2010).

Selected Projects

In the process of developing this research project, there are numerous projects around the world that are significant examples of adaptive reuse of industrial buildings, but were not used in the writing of this project. Here is a listing of all the projects that were unmentioned:

- Insadong – Seoul, Korea
- 1933 Abattoir District – Shanghai, China
- Ningbo Y-Town – Ningbo, China
- The Cool Docks – Shanghai, China
- The Bridge 8 – Shanghai, China
- Suzhou River Warehouse – Shanghai, China
(2004 UNESCO Honorable Mention)
- Tak Sen On Pawnshop – Macao, China
(2004 UNESCO Honorable Mention)
- South Boat Quay Conservation Area – Singapore
- The Substation – Singapore
- The Tanjong Pagar Conservation District – Singapore
- Tan Quee Lan Suites – Singapore
- Wei-Ling Gallery – Brickfields, Kuala Lumpur, Malaysia
- Citizens’ Art Centre – Kanazawa, Japan
- Hakodate Bay Regeneration – Hokkaido, Japan
- National Museum of Science and Technology *Leonardo da Vinci* – Milan, Italy
- Le Fabbrica Del Vapore (The *Steam Factory*) – Milan, Italy
- The Lingotto – Turin, Italy
- National Studio for Contemporary Arts – Le Fresnoy, Lille, France
- Specks Hof – Leipzig, Germany
- The Leipziger Baumwollspinnerei (*Leipzig Cotton Mill*) – Leipzig, Germany
- German Design Centre – Essen, Germany
- Coop’s Shot Tower (Melbourne Central) – Melbourne, Australia
- Bushell’s Tea Warehouse – Sydney, Australia
(2001 UNESCO Award of Distinction Winner)
- Broken Hill Heritage and Cultural Tourism Programme – Broken Hill, New South Wales, Australia
(2002 UNESCO Honorable Mention)
- Waterworks Building – Auckland, New Zealand
(2009 UNESCO Award of Merit Winner)
- Nielson Tower – Makati, Manila, Philippines
(2001 UNESCO Honorable Mention)

Appendix 1

The Seven Levels of Activities

Extracted from the *Objectives, Principles, and Standards for Preservation and Conservation*

Developed by the **Urban Redevelopment Authority**

Singapore

PART II

PRINCIPLES OF PRESERVATION & CONSERVATION

4. Research and Documentation

Before any preservation or conservation work starts, the building should be thoroughly researched to ensure that restoration work is faithfully carried out.

A thorough and precise record should be made of all existing elements. The record should include reports, illustrated drawings and photographs. This will ensure that future owners of the building have access to information showing the status of the building prior to work proceeding. This will assist any work undertaken in the future.

In every stage of the preservation and conservation work – such as cleaning, consolidation, rearrangement and integration – the technical aspects and process of these activities should be identified and recorded. This will simplify the reversal of any parts of the restoration process which subsequently may cause problems.

For the benefit of quality preservation and conservation in Singapore, all records should be placed in the archives of a public institution and made available to researchers.

5. Levels of Activities

Several levels of preservation or conservation activities may take place simultaneously in various parts of the whole building. Seven levels are identified:

- 1 Maintaining the essential character
- 2 Prevention of deterioration
- 3 Consolidation of the fabric
- 4 Restoration
- 5 Rehabilitation
- 6 Reproduction
- 7 Reconstruction

The following are the definitions of these levels of activities and their principles.

5.1 Maintaining The Essential Character of The Building

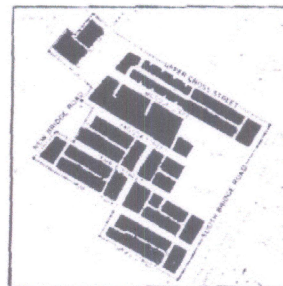
Maintaining the essential character of the building is the continuous protective care of a monument or a conservation building.

- The distinctive, original qualities and/or examples of skilled craftsmanship which characterise a building, structure, or site and its environment should be protected during restoration and retained.
- A building's exterior and interior features of interest should, wherever possible, be respected and retained.
- If a building is adapted for new uses, the original quality of the interior spaces should be retained.
- Changes which have taken place in the course of time are evidence of the history and development of a building, structure, site and its environment. These changes may have acquired significance in their own right due to their contribution to the essential form and integrity of the building. Such changes should be recognized and respected.
- Superimposed work of different periods, which is shown to be of little importance, should be removed.

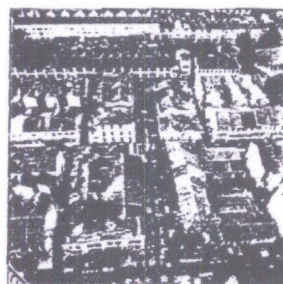
5.2 Prevention Of Deterioration

Prevention of deterioration is taking all necessary steps to prevent further decay or damage to the monument or conservation building.

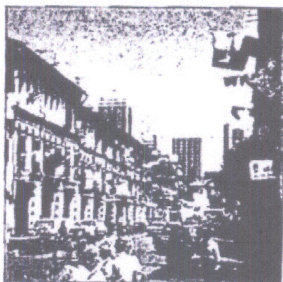
- The first step in preventing deterioration of a monument or building is cleaning and good overall regular housekeeping, including a thorough inspection.



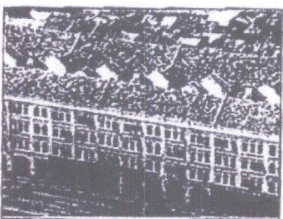
96



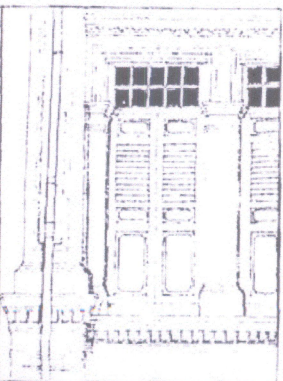
97



98



99



100

- Deteriorated architectural features should be repaired and retained wherever possible. Replacement should always be a last resort.
- During restoration, great care should be taken to prevent water seeping into the structure.

5.3 Consolidation Of The Fabric

Consolidation is the physical addition or application of materials that strengthen or support the actual fabric of the monument or conservation building to ensure its continued durability or structural integrity.

- Where traditional techniques prove inadequate, the consolidation of a monument or building can be achieved by the use of modern preservation and conservation techniques which complement traditional techniques. Any modern techniques used should be well tested and proven.
- In consolidating the building, the integrity of the structural system and its historical evidences should not be destroyed.

5.4 Restoration

Restoration is preserving and conserving the historic and aesthetic values of a monument or conservation building. Respect for original material and reference to authentic documents is therefore essential.

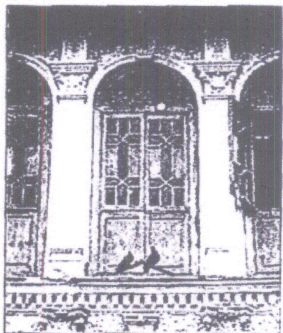
- Restoration is a highly specialised operation and, where applicable, all available scientific knowledge and techniques should be employed.
- Restoration should stop at the point where conjecture about the building's original form begins.
- Where the absence of archives or other records makes it impossible to determine the original character of a historic building



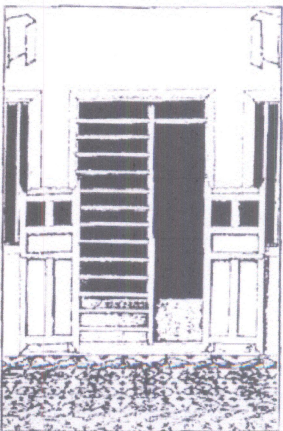
101



102



103



104

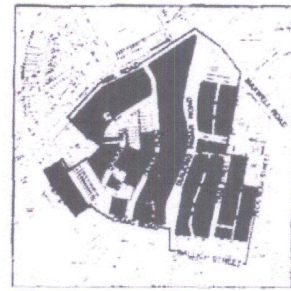
or monument's setting, restoration should be based on the earliest possible records.

- The practice of replacing missing or deteriorated parts of a building or monument depends on the historical evidence available. Replication of the missing or deteriorated element is appropriate only if there are good historical, physical or pictorial records of what the missing element looked like, or similar architectural elements are available from other buildings or structures of the same period.

Where such records are not available, the missing element should be replaced with an element which bears a contemporary stamp and is clearly distinguishable from the original. This replacement should, however, be integrated harmoniously.

- Sculptures, paintings or decorations which form an integral part of a monument or building should only be removed if relocation is the only means of ensuring their survival.
- New construction, demolition or modification which would alter the relationship of mass, texture and colour of the setting should not be undertaken. It is important to see that every new building is designed as part of a whole and not as a separate entity.
- Additions (any supplementary works implemented within the monument and conservation buildings proper) and extensions (any new erection within the gazetted boundary) may be acceptable, provided that they do not detract from the distinctive features of the building, its traditional setting, its composition and its relationship to its surroundings.

The design of additions and extensions should be compatible with the site scale, material and character of the monument or conservation building.



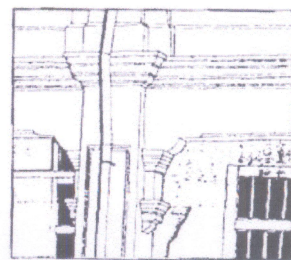
105



106



107

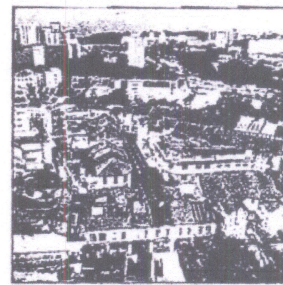


109

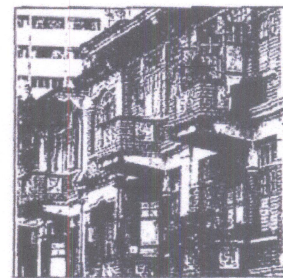
- Wherever possible, additions or alterations to buildings or structures should be done in a manner that will allow them to be removed in the future without impairing the original form and integrity of the structure.
- Unity of style should not be the aim of extension work. Rather, the sense of continuation of historical development should be emphasised. Such works that have no historical basis and which seek to create an earlier appearance are unlikely to be considered.
- Where an extension is proposed to complete the original design, unity of style is essential.
- Extensions which are not intended to complete the original design should take into consideration the spatial quality of the setting, setback, massing, height control and the distances between the gazetted building, the extension and the adjacent sites.
- The height of the new extensions to monuments should be subservient to the height of the gazetted building.
- Extensions should respect the spatial quality of the setting around the monument.
- The use of extensions should relate to the primary function of the gazetted building.



110



111

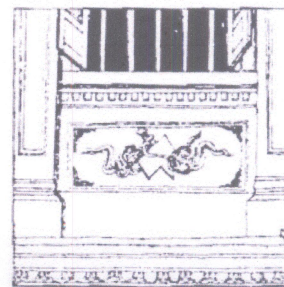


112

5.5 Rehabilitation

Rehabilitation is the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural and cultural values.

- The best way of preserving and conserving 136 buildings is to keep them in use. The original use is generally the best, as it requires



113

fewer changes to the structure of the monument or conservation building.

- If it is not possible to maintain the original use, adaptive re-use which entails minimal alteration to the monument or conserved building may be acceptable. The proposed use should be consistent with the structural integrity, spatial quality and character of the monument or conserved building.

5.6 Reproduction

Reproduction is the replication of missing features or parts of the building using old or new material.

- Only missing decorative features and artifacts should be reproduced where the aim is to maintain the building or structure's aesthetic harmony.
- Re-assembly of timber-framed buildings, may be acceptable if necessary.

5.7 Reconstruction

Reconstruction is the rebuilding of parts of the building or the entire building to the original form using old or new material.

- Reconstruction of the entire building is not allowed.
- Reconstruction of parts of a building may be allowed as a last resort but only where it is necessary for the benefit of the whole.



111



112



116



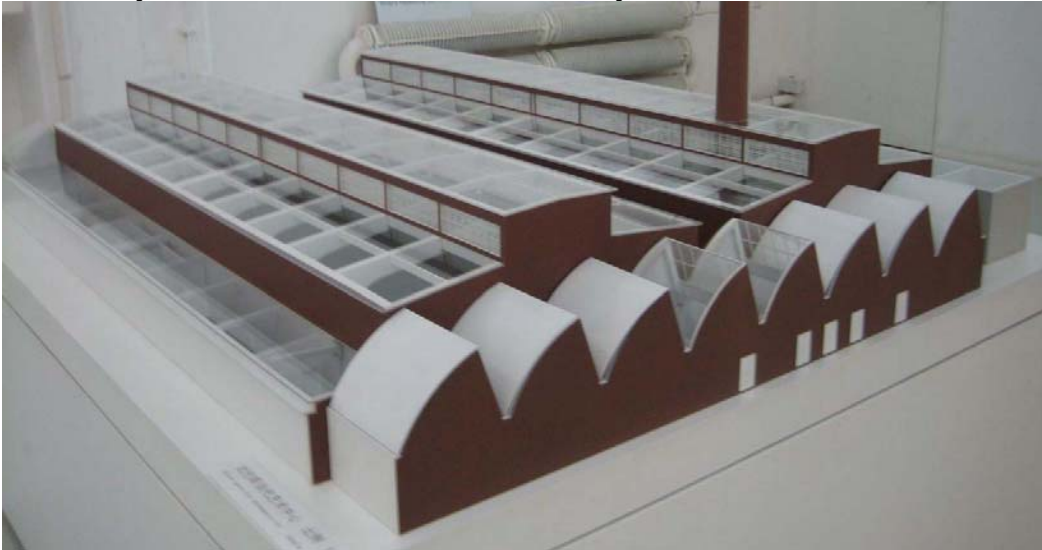
117



118

Case Studies

Case Study 1 – Dashanzi Art District “Factory 798”



| | |
|--|---|
| Location (Site, City, Country) | Dashanzi, Beijing, China |
| Square Footage (sq m) | 4306 ft ² (400 m ²) |
| Original Architect | East German Architecture Consultancy |
| Original Building Groundbreaking | 1954 |
| Original Building Completion | 1957 |
| Original Building Open | April 1964 (Established) |
| Original Function | Wireless Factory Producer |
| Original Architecture Type | East German Bauhaus |
| New Heritage/Design Architect | Varies According to Renter |
| Architectural Construction (appearance) | Concrete with Steel Support |
| Current Building Owner / User | Beijing Sevenstar Science and Technology Co., LTD |
| Restoration Date(s) | 2001 |
| Opening Date (current use) | 2002 |
| New Function | Art Gallery |

Case Study 2 – Yokohama Red Brick Warehouses



| | |
|--|--|
| Location (Site, City, Country) | Shinko Pier, Yokohama, Tokyo, Japan |
| Square Footage (sq m) | Building 1: 60,009 sq ft (5,575 m ²) Building 2: 115,766 sq ft (10,755 m ²) |
| Original Architect | Yorinaka Tsumaki |
| Original Building Groundbreaking | 1899 |
| Original Building Completion | 1907 |
| Original Building Open | Building 1: 1911, Building 2: 1913 |
| Original Function | Customs Building |
| Original Architecture Type | German Beaux Arts / Contemporary |
| New Heritage/Design Architect | Architectural Research Association, Kuni Architects & Engineers / Chiaki Arai Architect & Associates |
| Architectural Construction (appearance) | Reinforced Brick Masonry |
| Current Building Owner / User | Yokohama Red Brick Co. Ltd / City of Yokohama |
| Restoration Date(s) | 1992-2002 |
| Opening Date (current use) | April 12, 2002 |
| New Function | Commercial Mall and Museum |

Case Study 3 – Kuala Lumpur Performing Arts Center (KLPac)



| | |
|--|--|
| Location (Site, City, Country) | Sentul West Park, Kuala Lumpur, Malaysia |
| Square Footage (sq m) | |
| Original Architect | |
| Original Building Groundbreaking | |
| Original Building Completion | |
| Original Building Open | |
| Original Function | Train Storage and/or Repair Building |
| Original Architecture Type | Colonial Industrial |
| New Heritage/Design Architect | Design Group, Syarikat. Pembinaan Yeoh Tiong Lay. Sdn. Bhd. & Baldip Singh |
| Architectural Construction (appearance) | Brick Masonry |
| Current Building Owner / User | Sentul Raya Sdn. Bhd. & Others |
| Restoration Date(s) | 2003-2005 (15 Months) |
| Opening Date (current use) | 2005 |
| New Function | Performing Arts Center |

Case Study 4 – Tea Factory Hotel



| | |
|--|--------------------------------------|
| Location (Site, City, Country) | Kandapola, Nuwara Eliya, Sri Lanka |
| Square Footage (sq m) | 32,851 sq ft (3,052 m ²) |
| Original Architect | |
| Original Building Groundbreaking | |
| Original Building Completion | 1935 |
| Original Building Open | |
| Original Function | Tea Manufacturing |
| Original Architecture Type | Colonial Industrial |
| New Heritage/Design Architect | Colonial Industrial Architecture |
| Architectural Construction (appearance) | Metal Sheathing |
| Current Building Owner / User (Since 1992) | Aitken Spence Hotel Management Ltd. |
| Restoration Date(s) | Apr 1995 - Apr 1996 |
| Opening Date (current use) | 1996 |
| New Function | 4-Star Theme Hotel |

Bibliography

- “Adaptive Re-Use Regulations.” Smart Growth Vermont.
<http://www.smartgrowthvermont.org/toolbox/tools/adaptivereuse/>. (accessed June 17, 2010).
- Adavameg, Inc. “Singapore - Industry.” Encyclopedia of the Nations.
<http://www.nationsencyclopedia.com/Asia-and-Oceania/Singapore-INDUSTRY.html> (accessed November 4, 2010).
- Alter, Lloyd. “Preservationists Outraged As Obama Cancels Building Restoration Programs.” February 10, 2010. Treehugger.
<http://www.treehugger.com/files/2010/02/preservationists-outraged-obama.php>.
- Aldridge, Brad. “Disneyland's History.” 2003. Justdisney.com.
<http://www.justdisney.com/disneyland/history.html> (accessed September 15, 2010).
- Andersen, James. “Eyesore of the Week.” August 12, 2009. CityPULSE.
<http://www.lansingcitypulse.com/lansing/article-3316-eyesore-of-the-week.html> (accessed July 13, 2010).
- Asia Conserved: Lessons Learned from the UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation* (2002-2004). Edited by Richard A. Engelhardt. Bangkok: UNESCO, 2007.
- Armbruster, Stephanie. Unsmoke Artspace. <http://unsmokeartspace.com/home.html> (accessed March 24, 2009).
- Asia Conserved: Lessons Learned from the UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation* (2002-2004). Edited by Richard A. Engelhardt. Bangkok: UNESCO, 2007.
- Asia Conserved: Lessons Learned from the UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation* (2002-2004). Edited by Richard A. Engelhardt. Bangkok: UNESCO, 2007.
- backpackingmalaysia.com. “Georgetown and Melaka just became Unesco world heritage sites.” <http://www.backpackingmalaysia.com/stories/georgetown-and-melaka-became-unesco-world-heritage-sites> (accessed July 17, 2009).
- Baker, Nadine. “Just Imagine: A dream for the Capitol Theater.” *The Day* (February 2010). <http://www.theday.com/apps/pbcs.dll/article?AID=2010302149996>.
- Bangkok, UNESCO. “2008 Heritage Awards Programme.”
<http://www.unescobkk.org/index.php?id=7707> (accessed February 25, 2008).

- Barry, Joseph A., ed. *Architecture as space; how to look at Architecture*. New York: Horizon Press, 1957.
- BELINDA, YUEN, and CHIN HOONG CHOR. "Pedestrian Streets in Singapore." *TRANSPORTATION*, no. 25 (December 1997), 18, <http://www.springerlink.com/content/p2w9622642r00134/>.
- Berman, Richard W. *Assessing urban Design: Historical ambience on the Waterfront*. Lanham, MD: Lexington Books, 2006.
- Brand, Stewart. *How buildings Learn: What happens after they're Built*. New York, NY: Viking, 1994.
- _____. "Background Note: Singapore." October 29, 2010. U.S. Department of State. <http://www.nationsencyclopedia.com/Asia-and-Oceania/Singapore-INDUSTRY.html> (accessed November 23, 2010).
- Bureau of East Asian and Pacific Affairs. "Background Note: Singapore." October 29, 2010. U.S. Department of State. <http://www.state.gov/r/pa/ei/bgn/2798.htm> (accessed November 23, 2010).
- Cantrell, S. "Master's Thesis, Virginia Polytechnic Institute and State University." *The Adaptive Reuse of Historic Industrial Buildings*: (May 2005).
- Chan Yew Lih. "Conservation and Change - A Singapore Case of Urban Conservation and Change." *ICOMOS Xi'an 2005 Papers* (2005). <http://www.international.icomos.org/xian2005/papers/2-9.pdf>.
- chinaview. "Home Demolished for World Expo, Shanghai Petitioners Seek Just Compensation." April 1, 2010. Status of Chinese People: News, reports about China and Chinese people's living Condition. <http://americancity.org/magazine/article/everything-is-going-to-be-alright-demolition-and-adaptive-reuse-in-detroit/>.
- Christensen, Julia. *Big box Reuse*. Queen's policy studies series. Kingston, Ont. Reprint, Cambridge, Mass.: MIT Press, 2008.
- Chupaska, Stephen. "Capitol Theater going to Auction." *The Day* (April 2010). <http://www.theday.com/article/20100414/NWS01/304149901/-1/zip06&town=New-London&template=zip06art>.
- Cohn, Joel. "Federal Historic Tax Credit Aids Adaptive Reuse Developers." Sept/Oct 2001. *CIRE Magazine*. http://ciremagazine.com/article.php?article_id=345 (accessed April 20, 2010).
- Coleman, Peter. *Shopping Environments: Planning and Design*. Boston, MA: Elsevier, 2006.

- Davidson, Cynthia C., ed. *Anywise*. New York, N.Y., Anyone Corporation. Reprint, Cambridge, Mass.: MIT Press, 1996.
- Dickenson, Russell E. "Preservation Terminology." September 26, 1983. National Parks Service. http://www.nps.gov/history/local-law/arch_stnds_10.htm (accessed March 13, 2010).
- Douglas, Theo. "Doing the Numbers." *The District Weekly* March 2010 <http://thedistrictweekly.com/2010/print/news/doing-the-numbers/>.
- Press, Associated. "Malaysia's 3Q economic growth slows to 5.3 percent." November 22, 2010. Bloomberg Businessweek. <http://www.businessweek.com/ap/financialnews/D9JL5LQG0.htm> (accessed November 25, 2010).
- Staff, Culture24. "Tate Modern, Stonehenge, BFI and British Museum win in massive round of government funding." October 15, 2009. Culture24. <http://www.culture24.org.uk/history+%26+heritage/art72772> (accessed October 29, 2010).
- Stanley St. Labs. "Malaysia Economic Growth." Economy Watch. <http://www.economywatch.com/economic-growth/malaysia.html> (accessed November 23, 2010).
- UNESCO. "2010 UNESCO Asia-Pacific Heritage Award." September 1, 2010. UNESCO Bangkok. <http://www.unescobkk.org/culture/world-heritage-and-immovable-heritage/asia-pacific-heritage-awards-for-culture-heritage-conservation/2010-heritage-awards/award-winners/> (accessed November 7, 2010).
- _____. "Doing the Numbers: Synopsis." 2010 UNESCO Asia-Pacific Heritage Award. UNESCO Bangkok. <http://www.unescobkk.org/culture/world-heritage-and-immovable-heritage/asia-pacific-heritage-awards-for-culture-heritage-conservation/2010-heritage-awards/award-winners/> (accessed November 7, 2010).
- _____. "Doing the Numbers: Synopsis." March 3, 2010. Adaptivereuse.info. <http://adaptivereuse.info/info/doing-the-numbers/> (accessed October 29, 2010).
- ed. *Japan*. Alexandria, Va.: Time-Life Books, 1985.
- ed. *Southeast Asia*. Alexandria, Va.: Time-Life Books, 1987.
- Edensor, Tim. *Industrial Ruins: Spaces, aesthetics, and Materiality*. Oxford ed. New York: Berg, 2005.
- Edwards, Brian. "Thomson - pioneer of sustainable architecture? - Glasgow, Scotland architect Alexander Thomson." *The Architectural Review* (June 1999). http://findarticles.com/p/articles/mi_m3575/is_1228_205/ai_55282329/?tag=content;coll (accessed June 30, 2010).

- Elegant, Simon. "China." August 1, 2007. Time Magazine.
<http://www.time.com/time/world/article/0,8599,1648769,00.html> (accessed June 25, 2010).
- Erh, Deke, and Tess Johnston. *Frenchtown Shanghai*. 1st ed. Hong Kong: Old China Hand Press, 2000.
- Forsyth, Michael, ed. *Understanding historic building Conservation*. Oxford, UK. Reprint, Malden, MA: Blackwell, 2007.
- Fujioka, Hiroyasu. "Architectural Preservation Activities as a New Insight into Modern Technology and Social Systems of Modern Japan." Center for Innovation System Research. <http://www.cisr.iri.titech.ac.jp/CISR/other/files/WS-Civic/WS3/presentation/04-fujioka.pdf> (accessed January 26, 2009).
- Gardner, Ian. "The Tea Factory: The unique theme hotel." September 21, 2008. The History of Ceylon Tea. <http://www.historyofceylontea.com/farticles/The-unique-theme-hotel.htm> (accessed October 15, 2008).
- Goh, Robbie B.H., and Brenda S.A. Yeoh. *Theorizing the Southeast Asian city as Text: Urban landscapes, cultural documents, and interpretative Experiences*. Singapore ed. New Jersey: World Scientific, 2003.
- Government of Kuala Lumpur. "Kuala Lumpur Structure Plan 2020." 2000. Official Portal of Kuala Lumpur City Hall.
http://www.dbkl.gov.my/pskl2020/english/land_use_and_development_strategy/index.htm (accessed April 3, 2010).
- Green Building Partnership. "OVERVIEW OF THE 60L GREEN BUILDING." 2002. Australian Conservation Foundation.
http://www.acfonline.org.au/uploads/res/Detailed_report_on_60L.pdf (accessed October 23, 2010).
- Hall, C. Michael, and Stephen J. Page, eds. *Tourism in South and Southeast Asia: Issues and Cases*. Oxford ed. Boston: Butterworth Heinemann, 2000.
- Hearn, Fil. *Ideas that shaped Buildings*. Cambridge, Mass.: MIT Press, 2003.
- Heritage, English. "Heritage Counts 2009 (video)." Historic Environment Review Executive Committee. <http://hc.english-heritage.org.uk/server/show/nav.10745> (accessed July 26, 2010).
- "History of Red Brick Warehouse (timeline) (Japanese)." May 16, 2006.
<http://www.city.yokohama.jp/me/port/general/akarenga/history.html> (accessed October 28, 2008).
- Ho, Chi-Ping. "Heritage preservation as a way of building for the future." March 24, 2010. China Daily.

- <http://www.chinadailyasia.com/en/nation/fullstory.html?id=41595> (accessed July 24, 2010).
- ICOMOS. "The Venice Charter." January 12, 1996.
http://www.icomos.org/venice_charter.html (accessed June 11, 2010).
- Interior, U.S. Department of the. "Standards of Rehabilitation and Guidelines for Rehabilitating Historic Buildings." December 29, 2006.
<http://www.nps.gov/hps/tps/tax/rhb/stand.htm> (accessed April 7, 2009).
- Kern & Co. "Mayor." Braddocc: Destruction Breeds Creation.
<http://www.15104.cc/mayor.html> (accessed March 23, 2009).
- Kirby, Brandon. "Eyesore of the Week." December 16, 2009. CityPULSE.
<http://www.lansingcitypulse.com/lansing/article-3776-eyesore-of-the-week.html> (accessed July 12, 2010).
- Kirby, Brandon. "Eyesore of the Week." March 9, 2010. CityPULSE.
<http://www.lansingcitypulse.com/lansing/article-4044-eyesore-of-the-week.html> (accessed July 13, 2010).
- Koey, Ziqi. "Making Peace With My History: A Tale of Two Cities and Two Avenues." September 5, 2010. Letters From The Porch.
<http://lettersfromtheporch.wordpress.com/2010/09/05/making-peace-with-my-history-a-tale-of-two-cities-and-two-avenues/> (accessed October 16, 2010).
- Kwok, R. Yin-Wang, and et al. *Chinese urban Reform: What model Now*. Armonk, N.Y.: M.E. Sharpe, 1990.
- Larrañaga, Jorge. "Beijing #798." Art Signal Magazine. <http://magazine.art-signal.com/en/beijing-798/> (accessed October 13, 2008).
- Lee, Edwin. *Historic buildings of Singapore*. Singapore: Preservation of Monuments Board, 1990.
- Liangyong, Wu. *Rehabilitating the old city of Beijing: A project in the Ju'er Hutong Neighbourhood*. Vancouver: UBC Press, 1999.
- Lim, William S.W. *Architecture, art, identity in Singapore: Is there life after tabula Rasa*. Asian Urban Lab. Reprint, Singapore: Sole distributor, Select Books, 2004.
- Linn, Andrew. "Everything Is Going To Be Alright: Demolition and adaptive reuse in Detroit." *Next American City* Summer 2008
<http://americancity.org/magazine/article/everything-is-going-to-be-alright-demolition-and-adaptive-reuse-in-detroit/>.
- Logan, William S., ed. *The disappearing "Asian" City: Protecting Asia's urban heritage in a globalizing World*. Oxford ed. New York: Oxford University Press, 2002.

- MORI. "MORI Poll Reveals Overwhelming Support For The Historic Environment." *Attitudes toward the Heritage*, Poll - What Does 'Heritage' Mean To You? (September 2000). <http://www.ipsos-mori.com/researchpublications/researcharchive/poll.aspx?oItemId=1558> (accessed December 24, 2009).
- National Park Service Heritage Preservation Services. *Standards of Rehabilitation and Guidelines for Rehabilitating Historic Buildings*. Washington D.C.: U.S. Government Printing Office, 1990.
- Newman, Alexander. *Structural renovation of Buildings: Methods, details, and design Examples*. New York: McGraw-Hill, 2001.
- Ngiom, Ag. "KLPAC - Soul Place." *Architecture Malaysia (am)*, Renovation, Conservation, and Adaptive Re-Use, 18, no. 3 (June 2006), 4, http://www.pam.org.my/AM/18-3/P05_KL_PAC.pdf (accessed October 27, 2008).
- OshHisham. "Singapore's conservation programme for buildings wins Asia-Pacific award." July 11, 2008. Skyscraper City. <http://www.skyscrapercity.com/showthread.php?p=26221892> (accessed October 16, 2010).
- Paparazzi, Kakiseni. "The Kuala Lumpur Performing Arts Centre: Pick your favourite colour and take a seat." June 3, 2005. YTL Community. <http://www.ytlcommunity.com/commnews/shownews.asp?newsid=17542> (accessed September 17, 2008).
- Pearson, Clifford. "China: Moving heaven and earth, and doing it faster than thought Possible." *Architectural Record*, 03/2004.
- Perera, Nihal. "Transforming the Asian City: Innovative Urban and Planning Practices in Asia." *The Transforming Asian City: Innovative Urban and Planning Practices - Conference Proceeding* (May 3-5, 2007), 6-7, <http://issuu.com/nihal/docs/proceeding-book-of-transforming-asian-cities>.
- Peterson, Taylen. "Like New Again: On Adaptive Reuse for Green Buildings." *Green-buildings.com*. <http://www.green-buildings.com/content/78469-new-again-adaptive-reuse-green-buildings> (accessed May 25, 2010).
- Poon, Leon. "The People's Republic Of China." April 19, 1994. History of China. <http://www-chaos.umd.edu/history/prc.htmlrticles/The-unique-theme-hotel.htm> (accessed June 22, 2010).
- Powell, Kenneth. *Architecture Reborn: Converting old buildings for new Uses*. New York: Rizzoli, 1999.
- Preservation of Muslim Heritage, German Research Project "Mohenjo-Daro, " RWTH Aachen, and Karachi Goethe-Institut. *International Seminar, Preservation &*

- Documentation of Traditional Architecture, 24-27 March 1982, Karachi*. Karachi: The Institute, 1982?
- Reiner, Laurence E. *How to recycle Buildings*. New York: McGraw-Hill, 1979.
- Siegfried RCT Enders, ed. *Hozon: Architectural and urban conservation in Japan*. Stuttgart ed. London: Edition Axel Menges, 1998.
- Risi, Marcelo. "International Tourist Arrivals up 7% in the First Half of 2010: Asia Leads Growth." September 2, 2010. United Nations World Tourism Organization. http://www.unwto.org/media/news/en/press_det.php?id=6561&idioma=E (accessed October 28, 2010).
- Robert Powell ;. *Singapore: Architecture of a global City*. Singapore: Archipelago Press, 2000.
- Smiley, David J., ed. *Sprawl and public Space: Redressing the Mall*. New York, N.Y.: Princeton Architectural Press, 2002.
- Thaler, Mark. "Adaptive reuse of historic buildings makes economic Sense." *The Business Review (Albany)* (October 2002). <http://albany.bizjournals.com/albany/stories/2002/10/21/focus4.html>.
- The Garden City News Online: Community. "Historic Preservation: The Ultimate in Recycling." June 15, 2007. <http://www.gcnews.com/News/2007/0615/Community/018.html> (accessed February 30, 2008).
- The Star Online. "Salvaged Art." October 29, 2007. YTL Corporation. <http://www.ytlcommunity.com/klpac/index.asp?proc=1&psize=10&cpage=5&fid=0&sid=0> (accessed October 23, 2009).
- travelchinaguide.com. "Yuyuan Garden." 1999. http://www.travelchinaguide.com/attraction/shanghai/yuyuan_garden.htm (accessed July, 2010).
- Tschumi, Bernard. "Le Fresnoy (1991-97)." 1997. Archined. <http://www.archined.nl/oem/reportages/fresnoy/fresnoy2.html> (accessed September 7, 2010).
- Villalón, Augusto. "Adaptive reuse in developing Economies: Trying to be World Class." *National Trust of Australia (NSW)* (9-10 November 2000). <http://www.nationaltrust.com.au/conservation/files/Adapt%20Villalon.pdf>.
- Warren, John, John Worthington, and Sue Taylor, eds. *Context: New buildings in historic Settings*. Oxford ed. Boston: Architectural Press, 1998.

- Waterson, Roxana. *The living House: An anthropology of architecture in South-East Asia*. New York: Whitney Library of Design, 1998.
- Weber, Ralf, and Matthias Albrecht Amann (), ed. *Aesthetics and architectural Composition: Proceedings of the Dresden International Symposium of Architecture 2004*. Mammendorf: Pro Literatur, 2005.
- Widell, Cherilyn. "Cultural Hurdles for Adaptive Re-Use of Historic Buildings in Japan." *Places: Forum of Design for the Public Realm, Transformation and Conservation*, 8, no. 1 (1992), 80-82, <http://repositories.cdlib.org/ced/places/vol8/iss1/> (accessed February 3, 2009).
- Widodo, Johannes. *The boat and the City: Chinese diaspora and the architecture of Southeast Asian coastal Cities*. Cultural studies. Chinese Heritage Centre. Reprint, Singapore: Marshall Cavendish Academic, 2004.
- Wu, Yahan. "798 Art District – Explore Modern Art in Beijing." October 16, 2009. Suite101.com. <http://www.suite101.com/content/798-art-district-explore-modern-art-in-beijing-a159589> (accessed February 16, 2010).
- www.japan-guide.com. "History of Japan." <http://www.japan-guide.com/e/e641.html> (accessed March 20, 2009).
- Xiao, Changyan. "State of the Art." August 14, 2008. China Daily. http://www.chinadaily.com.cn/china/2008-08/14/content_6934612.htm (accessed October 13, 2008).
- Xie, Li. "Adaptive Reuse in Beijing's Traditional Neighborhoods." *Brandenburg University of Technolgy, Cottbus, Germany*, Master's Thesis (2005).
- Yin, Cao. "Beijing's 798 District." December 14, 2006. Studio International. http://www.studio-international.co.uk/reports/beijing_798.asp (accessed October 3, 2008).
- "Yokohama Timeline." Weekender Online. <http://www.weekender.co.jp/new/031107/feature-yokohama-timeline.html> (accessed October 4, 2008). Yokohama City Website. "History of Red Brick Warehouse (chronology)." <http://www.city.yokohama.jp/me/port/general/akarenga/history.html> (accessed October 23, 2008).
- Yu, Winnie. "Tropical change - reorganization of shophouse in Emerald Hill, Singapore." *The Architectural Review*, June, 1999, http://findarticles.com/p/articles/mi_m3575/is_1228_205/ai_55282328/ (accessed October 25, 2010).

Yu , Kongjian, “Zhongshan Shipyard Park,” Architects News, May 2001,
<http://www.architectsnews.org/archproject.php?arch=kongjian&proj=shipyard>
(accessed November 29, 2010).