

A Study on the Regional Aesthetics of Asian High-rise Buildings

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Abstract For more than 100 years, American skyscrapers got along with the change of Modern architecture. However, high-rise building can not be regarded anymore as a monopoly of America. The purpose of this study is to clarify the aesthetic characteristics of Asian high-rise buildings. Basic concepts on the aesthetic and artistic expression of high-rise building have been discussed, emphasizing the importance of artistic characteristic. A brief introduction on the rise of Asian high-rise buildings also summarized in terms of changing trends for decades from 1970s. Among the 75 buildings in Asian countries out of 100 tallest buildings in the world, 10 buildings are selected to clarify the artistic characteristics which can be presented as an Asian trend in 21st century. The results can be summarized as follows; It was from 1990s that the Asian high-rise buildings began to express a specific regional aesthetics as a trend of post-modernism. Conventional ideas, traditional objects, and regional shapes and patterns are good instruments to successfully represent their national prides. Religions in Chinese and Islamic culture are popular motifs in Asian countries as well as feng shui and conventional idea of five primary elements. Traditional objects like pagoda and minaret are good precedents that can provide friendly recognized vertical objects. Many other interesting cases can be found referring to the traditional shapes and patterns like Chinese character, geometric pattern, Islamic sign, etc.

Keywords: Asian High-rise Building, Regional Aesthetics, Tradition

1. INTRODUCTION

As Vitruvius asserted in his book *De architectura* that a structure must exhibit the three qualities of *firmitas*, *utilitas*, *venustas* – that is, it must be solid, useful, beautiful, aesthetics has been an indispensable requirement of architecture for a long time. Begun to be built on the basis of practical purpose of effective land use, the high-rise building required a technological innovations like steel skeleton frame, passenger elevator system, and others successfully provided a great amount of office space during the 20th century. As a symbolic landmark of urban landscape, on the other hand, the high-rise buildings rapidly increased their aesthetic value and visual impact on the city.

The history of high-rise buildings in the 20th century, which has described and analyzed the rise and change of those complex

attribute was written through the development of American skyscrapers. For more than 100 years, American skyscrapers got along with the change of Modern architecture. However, high-rise building cannot be regarded anymore as a monopoly of America. In 2013, only 21 of the 100 tallest buildings in the world have been built within the America. Asian countries like China and others in Middle East dominate the mainstream of tallest high-rise buildings. This rapidly changing trend also contributed to a new design of high-rise buildings which is different from that of American skyscrapers.

The purpose of this study is to clarify the aesthetic characteristics of Asian high-rise buildings. Basic concepts on the aesthetic and artistic expression of high-rise building have been discussed, emphasizing the importance of artistic characteristic. A brief introduction on the rise of Asian high-rise buildings also summarized in terms of changing trends for decades from 1970s. 75 buildings in Asian countries are currently included in the 100 tallest buildings in the world, and 10 buildings out of 75 in Asia are selected to clarify the artistic characteristics which can be presented as an Asian trend in 21st century.

2. ARTISTIC CONSIDERATIONS ON HIGH-RISE BUILDINGS

(1) Artistic and Aesthetic Attribute

Development of high-rise buildings has been discussed by many historians and critiques. Aesthetic and artistic attributes were always the primary concern for the studies, while much technical and engineering aspects of high-rise building was also emphasized.

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However, it is difficult to clearly separate the artistic aspect from aesthetic one for high-rise buildings. Several determinants like plan view, elevation, and external appearance usually can be compared in terms of proportion, scale, balance, and others for architectural aesthetics (CTBUH, 1995). There are many other attributes characterizing the aesthetics of high-rise buildings. Not only the geometric shape in plan and elevation but the treatments of finishing materials, entrance level and roof design influences on the aesthetics of high-rise buildings. Architects need to be very skillful in combining these attributes to combine a composition that can provide the best result that is most proper decision for a specific design. More comprehensive visual expression of high-rise buildings that is the result of aesthetic component can be regarded as an artistic attribute.

In this study, the artistic characteristics of high-rise buildings are examined as a changing trend of architectural style. An architectural style is characterized by the features that make it notable. As most architecture can be classified as a chronology of styles which changes over time, high-rise building style also can be reflected through changing fashions, beliefs and religions, or the emergence of new ideas, technology or materials which make new styles possible. Once a style becomes dominant for a specific period and region, it often spreads to other places, so that the style at its source continues to develop in new ways while other countries follow with their own twist. For instance, the American skyscraper which developed for more than 100 years with its own style spread to all of Asian countries since 1970s with unique characteristics.

The first important attempt to define the artistic aspect of high-rise building was done by Louis Sullivan. In an article, 'The Tall Buildings artistically considered,' Sullivan (1896) emphasized that "The skyscraper must be tall, every inch of it tall. The force and power of altitude must be in it the glory and pride of exaltation must be in it. It must be every inch a proud and soaring thing, rising in sheer exultation that from bottom to top it is a unit without a single dissenting line." The Wainwright Building, which was completed in 1891, exemplifies Sullivan's theories about the tall building, which included a tripartite (three-part) composition (base-shaft-attic) based on the structure of the classical column, and his desire to emphasize the height of the building.

Paul Goldberger (1981), the outstanding architectural critic of New York Times, concerned primarily on the aesthetic aspects of American skyscrapers from 1890s to 1980s. He also described that skyscrapers seemed to be the form born and developed best from north-American continent. He emphasized the aesthetic changes of American skyscrapers separately from those of technological and planning. From the rise of American skyscrapers in Chicago and New York, he consciously described the changing trend of skyscraper design through the 20th century in terms of decades. However, he introduced only a limited number of non-American skyscrapers in Japan and Singapore and regarded as a merely mediocre imitation of American postwar structures.

In homage to Sullivan, Huxtable (1992) published a book, 'The Tall Buildings artistically Reconsidered - The Search for a Skyscraper Style.' She also recognized the accomplishments of Sigfried Giedion, Winston Weisman and Carl Condit for

the research of skyscrapers.¹ But, she insisted that the history of skyscrapers had to be aesthetically reevaluated, because skyscraper stand at a crossroads between a new and an old vision - between architecture as a mission and architecture as style - in one of the most significant transitional periods in the history of art in 1980s. On the basis of the accepted 4 phase design trends of skyscrapers : the first functional age from 1880s to 1890s, the second eclectic age from 1890s to 1940s, the third modern age, and the fourth post-modern age until 1980s, she proposed some other new aesthetic movements in early 1990s like the new Eclecticism, Neo-modernism, and a special interest on the treatment of facade. Huxtable's conclusion on the aesthetics of high-rise building was not limited within the historic caprice but open not only to the creativity of architects and designers but also to continuously changing social needs.

(2) Change of High-rise Building Style in America

This study includes the high-rise buildings built in America from 1880s to 1980s. Four phases are introduced to define different trends; early development phase from 1880s to 1890s, race for height phase from 1900s to 1930s, international style phase from 1940s to 1970s, and looking for variety phase after 1970s. (Kwon, 1993) The classification for these phases may look rather arbitrary and there are many exceptional cases. However, it is based not just on the changes of design trends but also on the prominent architectural movements which characterize each phase.

The early development phase belongs to the high-rise buildings in Chicago and New York in late 19th century. As Chicago and New York developed as the most representative cities in America at that time, the architects of each city competed for the title of the first skyscraper city through significantly different ways. With strong demand from clients, most of whom came from the east coast, Chicago architects had to find a new method for high-rise buildings which could be built in a short period and provide maximum interior space. Practicality was the primary concern of the Chicago architects. A profusion of similar rectangular building forms and wide window openings indicates the priority of economy in Chicago skyscraper design. The Home Insurance Building (1884) by William Le Baron Jenney and the Reliance Building (1895) by Burnham and Root would be the best examples of the functional Chicago skyscrapers. Meanwhile, New York architects preferred to more classic or at least eclectic design to demonstrate more authoritative trend through high-rise buildings. They look to Europe, reproducing Gothic towers, Romanesque churches, and Renaissance Palazzi. The tripartite design of building facade that is an analogy of classic column, became the principle of skyscraper design in New York. This eclectic trend can be found from the facades of the St. Paul Building (1899) by George Post.

¹ In his book 'Space, Time, and Architecture' in 1948, Giedion introduced the high-rise buildings in the mainstream of modernist doctrine. Weisman's researches authoritatively dealt with definition and chronology of American skyscrapers in 1950s. Condit thoroughly documented the early development of high-rise buildings in terms of technology through 'The Rise of Skyscrapers' in 1952.

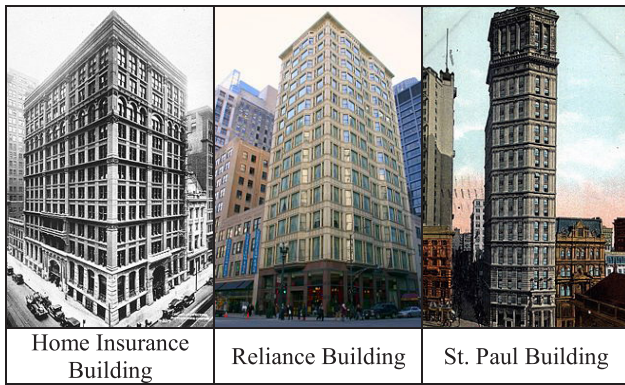


Figure 1. High-rise Buildings of late 19th century

At the turn of the century, there was a fairly traditional sense of what a city was supposed to be and the skyscrapers design in New York after 1900 could be characterized by historicism. New York seemed to care little for expression of technological innovation. New York buildings were visually more ornate and could symbolize the belief of their corporate owners and tenants. They were buildings for who wanted all the glory of the past along with all of the promise of the future. The simple-minded contest to build the world's tallest building accelerated the development of skyscrapers in New York. Several prominent skyscrapers like Daniel Burnham's 21-story Flatiron Building (1903), Ernest Fragg's 42-story Singer Building (1908), Napoleon LeBrun's 50-story Metropolitan Life Tower (1909), and Cass Gilbert's 58-story Woolworth Building (1913) proved that the historicism was rapidly spread to New York during the early decades of 20th century. The historicist trend combined with the race for height continued well until 1920s and reached its climax with Art Deco style. Passing through the Art Deco era until 1930s, American skyscrapers established their own stylistic foundation and began to be regarded by the public as highly aesthetic structures.



Figure 2. High-rise Buildings of early 20th century

International Style was first recognized in America by Henry-Russell Hitchcock and Philip Johnson's co-authored book 'The International Style : Architecture Since 1922' in 1931. Along with the modern movement in the 20th century, International Style provided a new trend of high-rise building after Art Deco style. American skyscrapers had already experienced the modern sensibility through the Art Deco period. The PSFS Building by George Howe and William Lescaze in 1932 was an absolutely

serious attempts to evolve a new skyscraper form in accordance with the guidelines of the International Style. All of the hallmarks of the International Style were there: horizontal strip windows, a cantilevered tower mass, and a clear expression in the structure of the difference between the vertical service and horizontal office areas. (Goldberger, 1981) However, it was not until the 1950s that the International Style became popular in America. The building boom after the end of World War II demanded a more productive and standardized way of building construction. Immigration of European master architects like Walter Gropius in 1937 and Mies van der Rohe in 1938 also contributed much to the development of modern architecture in America. Since the stunning glass box of United Nations Secretariat Building was completed in 1950, the Lever House of blue-green glass skin was designed by Gordon Bunshaft in 1952, the International Style finally reached to the high point through the Seagram Building by Mies van der Rohe in 1958.

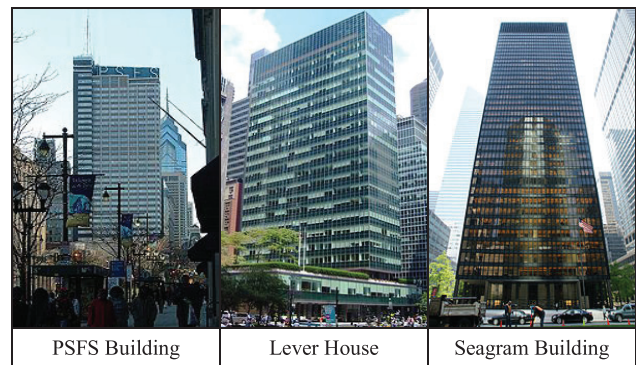


Figure 3. High-rise buildings of International Style

By the 1970s, the pure expression of form on the basis of function faced a new social circumstance. Mass production through simplifying was no longer necessary due to the development of computer technology. The rapid increase in large multi-national capitals required a new symbol of complexity. Consequently, a new phase of high-rise building design has appeared. This new and flamboyant images developed in reaction to the austere, essential images of the modern skyscrapers until 1960s. The most encouraging aspects of this trend, so-called post-modernism, are the rediscovery of the past, the continuation of the context of the city, and the recognition of the value of diversity. The post-modernists wanted everything that the modernist had discarded: history, imagery, context, contrast, symbolism, metaphor, and most of all, variety. Because post-modernism is not a purely formal phenomenon but a freewheeling, unfettered, and unapologetic exploration of style, it is not possible to clearly identify the trends. Only several prominent aesthetic approaches can be proposed as follows; a trend for a diverse building shape on the basis of new constructional technology, a trend based on the specific aesthetic formulas and details of early modernism, and a trend for a regional, historic, contextual design. Among the above three trends, the third one provided more challenging direction for Asian high-rise buildings than others after 1990.

The changing styles of American Skyscrapers can be summarized as the following Table 1.

Table 1. Changing Styles of American Skyscrapers

phase	period	primary style
early development	1880s to 1890s	functional or eclectic
race for height	1900s to 1930s	historicist
international style	1940s to 1960s	modern
looking for variety	after 1970s	post-modern

3. RISE OF HIGH-RISE BUILDINGS IN ASIA

Even though Paul Goldberger underestimated the existence of Asian high-rise buildings, several Asian countries like China(especially Hong Kong) Japan and accumulated the potentials to build the high-rise buildings from 1930s. The history of Asian high-rise buildings can be traced back to the 1935 Hong Kong & Shanghai Bank Building in Hong Kong. The 1941 Bank of China Building in Shanghai and the 1950 Bank of China Building in Hong Kong opened the way to a high-rise construction era. Palmer & Turner (today known as P&T) made their mark on high-rise building design in China by designing all of the above-mentioned building with Art Deco motifs during the decades. (Binder, 2001)

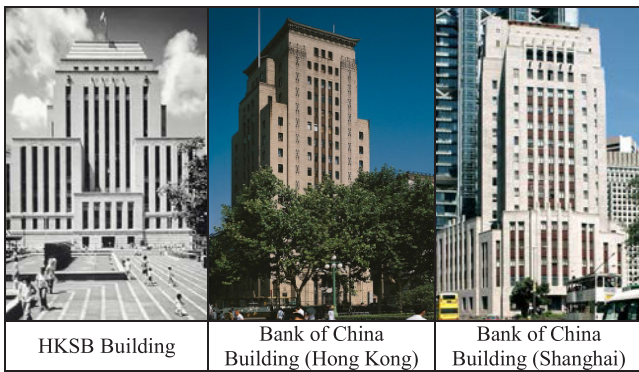


Figure 4. High-rise buildings of China in 1930s

Table 2. Numbers of new Buildings that became the tallest 100 Building in the World

year	North America	Central & South America	Oceania	Europe	Asia	Africa	Total
1960-69	44	2	1	-	-	-	47
1970-79	40	3	2	1	9	1	56
1980-89	37	1	2	0	9	0	49
1990-99	15	0	4	3	29	0	51
2000-10	6	0	2	2	37	0	47
2010-13	-	2	-	1	36	-	39

(1) 1970s

It was from 1970s that the high-rise buildings began to appear in Asian countries. Table 2 explains that Asian high-rise buildings appeared on the list of 100 tallest buildings in the world since 1970s. Because of the earlier earthquake regulations height limit of 31m,

Japan did not see a high-rise building until 1968. Keiko Plaza North Building(47F, 178m) in Tokyo was the first high-rise building that was included in the list of 100 tallest buildings in world as the 41st. In 1972, the completion of Jardine House(52F, 178m) in Hong Kong extended the existence of high-rise buildings in Asia. Japan accelerated that movement with the completion of Shinjuku Mitsui Building (55F, 225m) and Shinjuku Sumimoto Building (52F, 210m) in 1974. Singapore followed Japan with DBS Tower 1 (50F, 201m) in 1975. At the end of 1970s, Asian countries had 9 buildings among the tallest 100, putting the Sunshine 60 Tower (60F, 240m) of 1978 at the ranking of 22nd. During the 1970s, most Asian high-rise buildings just followed the International Style of American skyscrapers like the demolished World Trade Center (1972), Aon Center(1973), and Willis Tower(1974).



Figure 5. Asian High-rise buildings in 1970s

(2) 1980s

The increase of high-rise building continued during 1980s. While Japan went slow for high-rise building construction during that period, Korea and Malaysia joined in the company. Hong Kong completed Sun Hung Kai Centre (56F, 215m) in 1980 and Hopewell Centre (64F, 222m) in 1981. Hopewell Centre was the first circular skyscraper not only in Hong Kong but in Asia. Singapore rapidly increased the number of high-rise buildings in 1980s. 3 dominant high-rise buildings were completed in 1986 with specular shapes of double triangular Overseas Union Bank Centre (72F, 282m) and circular 8 Shenton Way (52F, 235m) and Swissotel The Stamford (73F, 226m). Korea and Malaysia became new participants for 100 tallest buildings. Seoul completed KLI 63 Building (60F, 249m) in 1985 and Trade Tower I 1988 (55F, 228m) in 1988. Malaysia had Menara KOMTAR (65F, 232m) at Penang in 1985 and Menara Maybank (50F, 244m) at Kuala Lumpur in 1988.



Figure 6. Asian High-rise buildings in 1980s

(3) 1990s

From 1990s, the momentum to build high-rise buildings definitely moved to Asia from North America. During the early 1990s, Hong Kong continued to be front runner with completion of Bank of China Tower (72F, 367m) in 1990. Designed by I.M. Pei, it was the tallest building in Hong Kong and Asia until 1992 when it was overtaken by Central Plaza (78F, 381m). It was also the first building outside the United States to break the 300m mark. The building boom at mainland China dominated that movement during late 1990s. The race to building the tallest building in China was triggered by Shun Hing Square (69F, 384m) at Shenzhen in 1996 and CITIC Plaza (80F, 390m) at Guangzouh in 1997 reached its height with the completion of Jin Mao Building (88F, 421m) at Shanghai in 1999. Although the title of World's tallest building was taken by Petronas Towers (88F, 452m) which was completed in 1998 at Kuala Lumpur, Jin Mao Building was enough to be the pride of economic development of China.

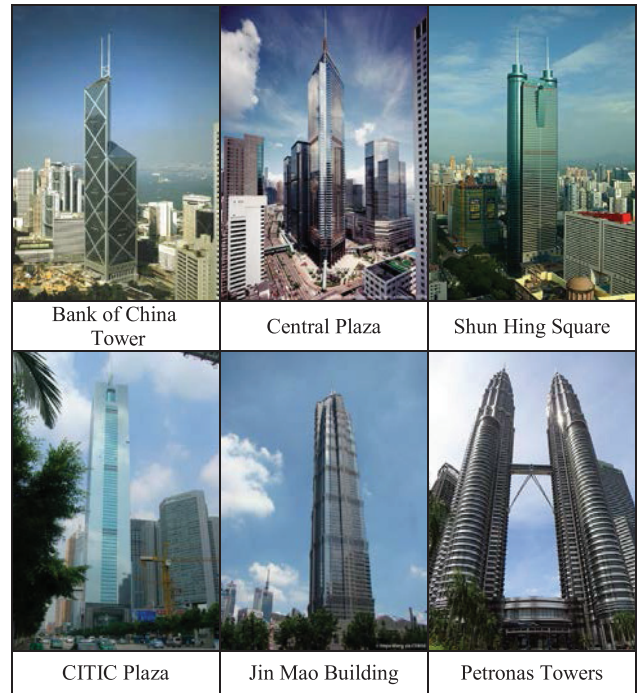


Figure 7. Asian High-rise buildings in 1990s

(4) 2000s

At the turn of new millenium, Asia became the primary playground of high-rise building than ever before. Taiwan, which accumulated the capacity to have the tallest buildings with 2 buildings in 1990s, took over the title of world's tallest building with Taipei 101 (101F, 508m) in 2004. China, including Hong Kong, continued to be the most popular place of tallest buildings. In 2008, Shanghai World Financial Center (101F, 492) became the second tallest building in the world after Taipei 101. However, a prominent phenomenon appeared at Middle East counties like Arab Emirates, Saudi Arabia, Bharain, Quartar, and Kuwait. Since Burj Al Arab Hotel (60F, 321m) was first completed in 1999, Dubai became another center of world's tallest building within 10 years including 11 buildings among the tallest 100.



Figure 8. Asian High-rise buildings in 2000s

(5) after 2010

The title of world's tallest building moved to the Middle East when Burj Khalifa (163F, 828m) was completed at Dubai in 2010. Burj Khalifa increased the height of world's tallest building more than

300m after Taipei 101. In 2012, Dubai had 20 of 100 world's tallest buildings by adding 12 newly completed buildings from 2010-2012. In 2012, Makkah Royal Clock Tower Hotel (120F, 601m) of Mecca, Saudi Arabia followed Burj Khalifa and encouraged the boom of high-rise buildings in Middle East. However, China continued to keep the title of largest number of tallest building with 31 building. It is interesting that the phenomenon is not discovered only from Shanghai and Hong Kong, but also from many major Chinese cities like Shenzhen, Guangzhou, Nanjing, Beijing, Tianjin, Jiangyin, Wenzhou, Shaoxing, Shongqing, and Suzhou. Among the 14 new tallest buildings in China that completed during that period, International Commerce Center (108F, 484m) was the only case that was built in Hong Kong and Shanghai did not have any new one.



Figure 9. Asian High-rise buildings after 2010

4. ARTISTIC CHARACTERISTICS OF ASIAN HIGH-RISE BUILDINGS

Dupre (1996) already asserted that the best new Asian skyscrapers are more than thoughtless Western import. He classified the general trend of Asian skyscrapers into three categories. One type incorporates modern designs that are particularly well-suited to their Asian context like Sir Norman Foster's Hong Kong Shanghai Bank(1984) and I. M. Pei's Bank of China (1989). Another type integrates regional interpretations of the skyscraper and has successfully synthesized the local vernacular with the corporate through Stubbins Associates's Landmark Tower (1993) and Cesar Pelli's Petronas Towers (1998). The last trend is the monumental coupling of the regional vernacular with high-tech imagery that can be found from Nikken Sekkei's NEC Super Tower (1990) and Hijjas Kasturi's Maybank Headquarters (1988). Kwon (1999) also emphasized the regional identity of Asian high-rise buildings and classified it into the expression of influence from specific elements and that from symbolization of them.

This study concentrates on the artistic characteristics of 10 Asian high-rise buildings which has demonstrated the regional traits through various approaches. As they are listed in Table 3, those 10 cases has been constructed from 1990 as a leading buildings for each counties and continue to keep their status as 100 tallest building until now. All of those cases commonly express a specific appearance which can symbolize their own traditional or regional characteristics and overcome the modern trend of design that had dominated the high-rise buildings in 1980s.

Table 3. 10 Selected Cases for Asian High-rise buildings

	year	city	Architect(s)
Bank of China Tower	1990	Hong Kong	I.M.Pei
Landmark Tower	1993	Yokohama	Stubbins Architects
Tuntex Sky Tower	1997	Kaoshung	C.Y. Lee
Petronas Towers	1998	Kuala Lumpur	Cesar Pelli
Jinmao Building	1999	Shanghai	SOM
Taipei 101	2004	Taipei	C..Y. Lee
Shanghai World Financial Center	2008	Shanghai	KPF
Burj Khalifa	2010	Dubai	SOM
Longxi International otel	2011	Jiangyin	A+E Design
Makkah Royal Clock Tower	2012	Mecca	Dar Al-Handasah

(1) Conventional Ideas

The new debate on aesthetics of high-rise buildings in Asia was triggered from the Bank of China Tower which completed in 1990 as the tallest building outside U.S.A.. It was not just on the striking appearance of super structures but also on the unprecedented triangular building form. The structural expressionism adopted in the design of this tower dramatically expresses extreme verticality, symbolizing the livelihood and prosperity of China. According to Wiseman's monograph on Pei, however, it also has been criticized by some practitioners of feng shui for its sharp edges, double mast atop the building, and its negative symbolism by the numerous 'X' shapes in its original design. (Wiseman, 1990) After a series of reconciliation, Pei modified the design to some degree before construction and it has been known that some traditional ideas critically effect on the design of high-rise buildings in China.

More clear expression of conventional ideas through the aesthetics of high-rise buildings was realized from the Jinmao Building in Shanghai in 1999. As a keynote speaker of 2012 Shanghai Congress of CTBUH, Adrian Smith of SOMI who acquired a worldwide fame with the design of Jinmao, emphasized that the super-tall building can fit into their urban environment by expressing the character of each place. To solve this problem, he said he looks for the context as a relationship to elements in the physical surroundings of a place. He listed the elements that he considers are shapes, colors, repetition, significant iconic references, patterns, climatic influences, geographic influences, historic influences. (Smith, 2012) Jinmao's proportions revolve around the number 8, associated with abundance, prosperity and good fortune in Chinese culture. The 88 floors of octagonal shape plans are divided into 12 segments, each of which is 1/8 shorter than the 16-story base. (16+14+12+10+8+7+6+5+4+3+2+1=88)

Taipei 101, designed by C.Y. Lee & partners, is a landmark supertall skyscraper in Taipei, Taiwan. The building was officially classified as the world's tallest from 2004 to 2010 until the opening of Burj Khalifa in Dubai and famous for the symbolism of numbers for design motif. The height of 101 floors commemorates the

renewal of time: the new century that arrived as the tower was built (100+1) and all the new years that follow (1 January = 1-01). It symbolizes high ideals by going one better on 100, a traditional number of perfection. The number also evokes the binary numeral system used in digital technology. Taipei 101 also features a series of eight segments of eight floors each. In cultures that observe a seven-day week the number eight symbolizes a renewal of time (7+1).

Longxi International Hotel, a supertall skyscraper in Jiangyin, China, is another good example of preference for conventional idea. The skyscraper is 74 stories high, and tops out at 328 meters — the same size as the tallest building in Beijing. This height was not unintentional, as the number 328 is loaded with significance. In Chinese thought, 32 is associated with business and 8 represents prosperity — put them together and you can add on a layer of auspiciousness to one big, expensive, and very strange skyscraper. Its design of three pedestals supporting a pearl is also based on the traditional aesthetics of Chinese culture. Traditional Chinese architectural concepts of streets, marketplaces, back alleys and courtyards are incorporated into the 3-dimensional structure of modern skyscraper. The conventional idea of five primary elements (metal, wood, water, fire, and earth), which explains the principle of natural composition, is another interesting aspect seen throughout the entire building: on every 12th floor, there is a club dedicated to each element. All these details reflect the ancient Chinese philosophy of all things opposing and complementing each other in overall harmony.

(2) Traditional Objects

An aesthetic approach which can be found through the design of Asian high-rise buildings is to adopt specific traditional and regional vertical objects like pagoda and minaret.

Designed by Hugh Stubbins, 73-story Landmark Tower of Yokohama was the tallest building in Japan when completed in 1993, standing 296.3m high. It synthesized the subtlety and refinement of tradition of Japanese craft with contemporary technology: the simple grace of a hair comb, the precision of wood jointing, and the translucence of a paper lantern all inform its satisfying aesthetics. (Dupre, 2013)

Jinmao Tower's postmodern form, whose complexity rises as it ascends, draws on traditional Chinese architecture such as the tiered pagoda, gently stepping back to create a rhythmic pattern as it rises. Not only the body of 88 stories tower, 5stories spires and pinnacle reference the top of pagoda. In Taipei 101, the repeated

segments also recall the rhythms of a Chinese pagoda, a stalk of bamboo, and a stack of ancient Chinese ingots or money.

Designed by American architectural firm Kohn Pedersen Fox, Shanghai World Financial Center was topped out at 492.0 meters in 2008 making it, at the time, the second-tallest building in the world and the tallest structure in Mainland China. The most distinctive feature of the original SWFC's design is the singular form of bamboo sprout and the circular aperture at the peak. The aperture, 46m in diameter, was introduced to reduce the stresses of wind pressure and to reference the Chinese mythological depiction of the sky as a circle. It also resembled a Chinese moon gate due to its circular form in Chinese architecture. However, this initial design began facing protests from some Chinese, who considered it too similar to the rising sun design of the Japanese flag. Pedersen then suggested that a bridge be placed at the bottom of the aperture to make it less circular. KPF submitted an alternative design and a trapezoidal hole replaced the circle at the top of the tower.

The use of pagoda in Chinese culture can be compared with that of minaret in Islamic culture. Burj Khalifa, also designed by Adrian Smith and completed in 2010 as world's tallest building incorporates cultural and historical elements particular to the region such as the spiral minaret. The spiral minaret spirals and grows slender as it rises. The Y-shaped plan is ideal for residential and hotel usage, with the wings allowing maximum outward views and inward natural light. As the tower rises from the flat desert base, there are 27 setbacks in a spiraling form, decreasing the cross section of the tower as it reaches toward the sky and creating convenient outdoor terraces. At the top, the central core emerges and is sculpted to form a finishing spire.

(3) Regional Shapes and Patterns

Tuntex Sky Tower (1997) was to be a Taiwanese landmark with a strong Chinese traditional flavor. It considers the aesthetics to meet the ancient Chinese principles of geometry. The building was designed by C.Y. Lee & Partners and Hellmuth, Obata & Kassabaum, and has an unusual 'prong' design with two separate 39-floor sections, which merge into a single central tower rising to a spire. This unique design leaves a substantial space below the central part of the tower. The design was inspired by the Chinese character Kao, meaning "tall," and also the first character in the city's name.



Figure 10. Yunyan Pagoda(961) in Suzouh



Figure 11. Pinnacle of Jinmao Tower



Figure 12. Chinese character of Kaoshung



Figure 13. Shape of Tuntex Sky Tower

The 88-floor Petronas Towers, designed by Cesar Pelli, had been the tallest buildings in the world from 1998 to 2004 and remain the tallest twin tower in the world. Pelli chose a distinctive style of Eastern culture to create a 21st-century icon for Kuala Lumpur. The twin towers were placed on a central axis, framing a void doorway to the infinite future with a bridge that connect the towers at the 41st and 42nd floors. An Islamic influence on the design is that the floor plans of the towers are based on a Rub el Hizb, albeit with circular sectors added to meet office space requirements. (Moskai, 2004) Pelli's design also embraces the architecture and decorative arts of Malaysia. The geometric patterns are found throughout the country in screen, architectural ornament, and decorative arts.

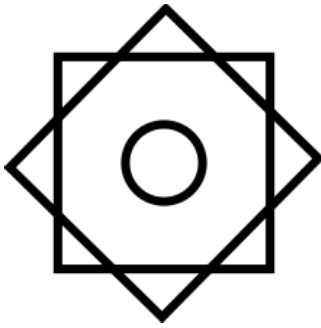


Figure 14. Pattern of Rub el Hizb



Figure 15. Top of Makkah Royal Clock Tower Hotel

Makkah Royal Clock Tower Hotel, completed in 2012 is the tallest of 7 high-rise building complexes that is not far away from the world's largest mosque and Islam's most sacred site, the Masjid al-Haram. Designed by Dar Al-Handasah Architects, the tower stands as the tallest building in Saudi Arabia, with a height of 601m and symbolizes religious existence of the place as well as the national pride. A four-faced clock of the hotel tower is the masterpiece of project. The Saudi coat of arms is displayed at the center of each clock behind the dials and huge Arabic script reading: "God is the Greatest" is located just above the clock on the north and south faces and on the west and east the Koran. Four golden domes on pillars on all the corners are also present. Another 21,000 white and green colored lights, the same as the Saudi Flag, fitted at the top of the clock, will flash to signal Islam's five-time daily prayers. The clock tower is topped by a 93m spire with 23m high golden crescent at the top and demonstrates the image of minaret.

5. CONCLUSION

This study intended to clarify the aesthetic characteristic of Asian high-rise buildings that is different from the American skyscrapers. Even though the 10 selected example buildings that discussed in this study are only part of major Asian high-rise buildings, it is not difficult to find out that they represent diverse expression of traditional and regional properties. This trend started from 1990s as a part of post-modern approach by some prominent American architects. As the symbol of each country's development and economic accomplishment, however, the height and the number of floors are not enough. Those buildings requested to present some

indigenous aesthetics. Conventional ideas, traditional objects, and regional shapes and patterns are good instruments to successfully represent their national prides.

Religions in Chinese and Islamic culture are popular motifs in Asian countries as well as feng shui and conventional idea of five primary elements. Traditional objects like pagoda and minaret are good precedents that can provide friendly recognized vertical objects. Many other interesting cases can be found referring to the traditional shapes and patterns like Chinese character, geometric pattern, Islamic sign, etc. Although these kinds of approaches for Asian aesthetics may not be the exclusive method for high-rise building design in Asia, regional aesthetics can make Asian high-rise buildings differentiated from western buildings.

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