



Courtyard Housing in China: Chinese Quest for Harmony

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ARTICLE INFO:

Article history:

Received 02 June 2017

Accepted 11 June 2017

Available online 12 June 2017

Keywords:

Courtyard house;
Courtyard housing;
Courtyard garden villa;
Architectural
acculturation;
Cultural sustainability;
China.

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ABSTRACT

The Chinese have lived in single-extended-family courtyard houses in many parts of China for thousands of years. The earliest courtyard house found in China was during the Middle Neolithic period (5000-3000 BCE). The courtyard form signifies Chinese quest for harmony with nature and in social relationships. However, the 20th century was a significant turning point in the evolution of Chinese courtyard houses; this paper provides an overview of this transition. It starts by briefly introducing traditional Chinese courtyard houses and their decline since 1949, it then examines the emergence of new courtyard housing in Beijing and Suzhou since the 1990s, and then it evaluates the new development of Chinese-style courtyard garden villas in/around these two cities since the 2000s, such as Beijing Guantang and Suzhou Fuyuan villa estates. They are explorations of a new way to honor Chinese architectural history and philosophy, meanwhile, incorporating Western interior design principles to meet modern living requirements. This architectural acculturation represents Chinese sustained quest for harmony in their art of living. The paper finally proposes four designs of new courtyard garden houses for future practice.

CONTEMPORARY URBAN AFFAIRS (2017) 1(2), 38-56.

<https://doi.org/10.25034/ijcua.2017.3647>

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1. Introduction

This paper is a chronological overview of the transformation of Chinese courtyard houses over the last 60 years (1950-2010). It briefly introduces traditional Chinese courtyard houses from ancient times and their decline since 1949, it then examines the rise of new courtyard housing in Beijing and Suzhou since the 1990s, and the focus is on the growth of Chinese-style courtyard garden villas in/around Beijing and Suzhou since the 2000s. The original contributions are in the discussion of the two

generations of new courtyard house types based on the author's onsite and online surveys, as well as the four designs of new courtyard garden houses for future practice.

Two historic and cultural cities in China, Beijing and Suzhou, have been chosen as the case-study sites because they have followed the city planning principles set in the *Record of Trades in Rituals of Zhou (Zhou Li Kao Gong Ji)* and *Feng Shui* theory. Their traditional courtyard

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houses embedded in their urban fabric are representative of traditional Chinese urban culture despite their climatic differences. Beijing is a northern Chinese city with a rich history of 3000 years, and as China's capital for 800 years; its famous *siheyuan* (courtyard houses) with strict axial, bilateral, symmetrical, and hierarchical planning embody the Confucian ideal of "harmony in social relationships." Suzhou is a southern Chinese city with a prosperous history of 2500 years, and was a regional capital renowned also for its private gardens enclosed within courtyard house compounds, whose spontaneous layouts reflect the Daoist principle of "harmony with nature." They were thought to offer a good comparison of their traditional courtyard use and the contemporary new courtyard housing.

2. THE QUEST FOR HARMONY THROUGH COURTYARD HOUSES

The courtyard house is one of the oldest types of human habitat, spanning at least 5000 years and occurring in distinctive forms in many parts of the world across climates and cultures, such as China, India, the Middle East and Mediterranean regions, North Africa, ancient Greece and Rome, Spain, and Latin-Hispanic America (Blaser, 1985, 1995; Edwards *et al.*, 2006; Knapp, 2005; Land, 2006; Ma, 1999; Pfeifer and Brauneck, 2008; Arenibafo, 2017; Polyzoides *et al.*, 1982/1992; Rabbat, 2010; Reynolds, 2002).

Archaeological excavations unearthed the earliest courtyard house in China during the Middle Neolithic period, represented by the Yangshao culture (5000-3000 BCE) (Liu, 2002). Ancient Chinese people favored the courtyard form because it offered light, air, and views, as well as defence, security, family privacy, and control of noise and dust. Moreover, the courtyard functioned as a place for cultural activities and festivities when weather permitted (Knapp, 2005; Ma, 1993, 1999; Zhang, 2011, 2013/2016, 2015a).

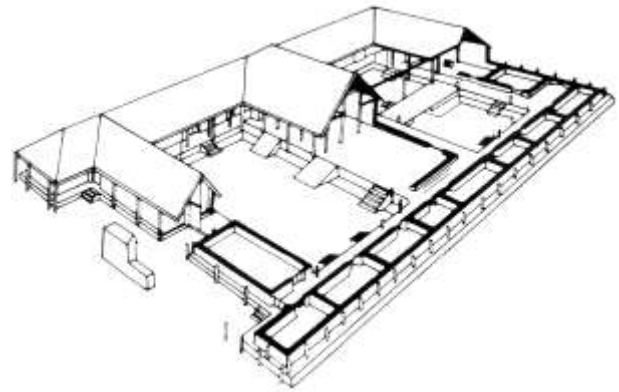


Figure 1. Reconstruction drawing of a large courtyard house compound at Fengchu, Qishan, Shaanxi province, Western Zhou period (1046-771 BCE). Source: Liu, 2002, p. 27.

A traditional Chinese house would normally host an extended family of three or four generations, and courtyards or lightwells (*tianjing*) were important features in the layout of a fully built Chinese house. The shape and size of the courtyards are determined by the amount of sunlight desired in the space. For example, in southern China, the courtyards are smaller, called *tianjing* (lightwells), to reduce the summer sunlight; whereas in northern China, the courtyards are relatively large to allow abundant sunlight in the winter.

Philosophically, the courtyard is the soul of Chinese architecture; it acts as a link between Heaven and Earth. During the Han dynasty (c.206 BCE-220 CE), the Chinese regarded Heaven and Earth as a macrocosm and the human body a microcosm to reflect the universe (Chang, 1986); offering sacrifices to Heaven and Earth in the courtyard was considered crucial to bringing harmony and good fortune (Flath, 2005). Ronald G. Knapp's book *Chinese houses: The Architectural Heritage of a Nation* (2005) is a masterpiece on the subject.

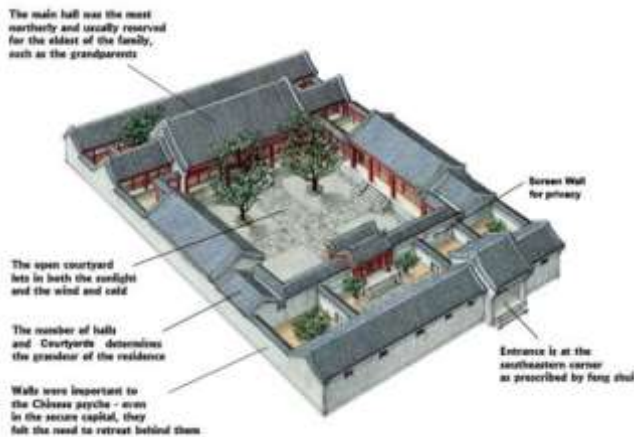


Figure 2. A standard/typical Ming (1368-1644) or Qing (1644-1911) Beijing courtyard house (*siheyuan*) with three yards: front, central, and back. The central courtyard is where most family activities would take place. Source: chinaspree.com, 2014.



Figure 3. Model of a small riverside courtyard house in Suzhou Folk Custom Exhibition Center. Photo: Donia Zhang 2007.

Although China's population has more than doubled (2.3 times) between 1953 and 2010 (Census 1953; Census 2010), the family structure has decreased from extended to nuclear families, a trend echoed elsewhere in the world (Amato, 2008; UN, 2002; Van Elzen, 2010). Statistics show that until recently, the average household size in China had remained relatively constant at about 5.2 persons (Jervis, 2005); it reduced to 3.96 persons in the 1990 Census, 3.44 persons in the 2000 Census, and 3.1 persons in the 2010 Census. The drop is either due to the state-imposed "One Family One Child" policy implemented since 1979 (and began to be formally phased out in 2015), or free choices under circumstances of rapid

modernization. The vertical, parent-son relationship typically found in traditional Chinese families is being replaced by the horizontal, conjugal tie as the axis of family relations in contemporary China (Yan, 2005). Thus, Chinese family structure evolved from a complex corporate organization to a relatively simple conjugal unit, in which family life revolves around the couple's pursuit of financial independence, privacy, and personal space (Cohen, 2005; Yan, 2005; Zhang, 2010).

3. THE FALL OF TRADITIONAL COURTYARD HOUSES IN CHINA

The change in Chinese family structure demands a subsequent change in the housing form, which has implications for new housing design (Cohen, 2005; Jervis, 2005). The modern housing units are frequently built with extra rooms for the future married son and his wife, and in anticipation of the later development of a stem family (Jervis, 2005). Similarly, in the multifamily courtyard house compounds of Beijing, the grown-up children required additional rooms in the courtyards, which made the courtyards filled with impromptu extensions. This situation has led to the physical decline and massive demolition of Beijing's *siheyuan* (traditional courtyard houses) and *hutong* (lanes) (Table 1).



Table 1. Destruction and conservation of Beijing *Siheyuan* and *Hutong*.

Year	Beijing <i>siheyuan</i> (courtyard houses)	<i>Hutong</i> (lanes)
1949	100 percent (of 62 sqkm of inner-city land area)	7000
1990	1.9 percent (805 courtyard houses in relatively good condition in the conservation zone)	3900
2003	1.5 percent (658 courtyard houses in relatively good condition in the conservation zone)	1570
2004	1.3 percent (539 courtyard houses in relatively good condition in the conservation zone)	1200

Sources: The author's summary based on Abramson (2001), *Beijing City Planning Chart* (2007), Collins (2005), Kong (2004), Ornelas (2006).

Table 1 shows a drastic decline of *siheyuan* between 1949 and 2004. There is no current data on the number of *siheyuan* still remaining in Beijing, as it is increasingly more difficult to count them due to their impoverished conditions. One can expect the number has further decreased since 2004.

4. THE RISE OF NEW COURTYARD HOUSING IN CHINA

To sustain traditional Chinese architectural culture, two new courtyard housing projects were built in inner Beijing: the Juer Hutong ("Chrysanthemum Lane New Courtyard Housing Estate," b. 1990-1994) prototype in the Nanluogu xiang area (Wu, 1991, 1994, 1999; Zhang, 2013/2016, 2016a); and the Nanchizi ("South Pond New Courtyard Housing Estate," b. 2003) experiment on the east side of the Forbidden City (Lin, 2003, 2004; Zhang, 2013/2016).

In inner Suzhou, similar projects to modernize traditional housing forms include Tongfangyuan ("Aleurites Cordata Fragrant Garden Housing Estate," b. 1996) and Shilinyuan ("Lion Grove Garden Housing Estate," b. 2000) by the Lion Grove Garden, and Jiaanbieyuan ("Excellent Peace Garden Housing Estate," b.

1998) in walking distance to the Master-of-Nets Garden and the Canglang ("Surging Waves") Pavilion (Zhang, 2013/2016).

These projects have attempted to reinterpret classical Chinese courtyard houses while resettling multi-families in 2-storey row/town/terraced houses or 2-4-storey walk-up apartments surrounding communal courtyards. The author's doctoral study (Zhang, 2006-2012) investigated the above five new courtyard housing prototypes (Table 2) on their architectural, environmental, spatial, constructional, social, cultural, and behavioral aspects, to see whether they are culturally sustainable, and whether they facilitate residents' traditional cultural expressions. Four key themes in Chinese philosophy that have influenced imperial city planning and classical courtyard house design were identified: Harmony with Heaven, Harmony with Earth, Harmony with Humans, and Harmony with Self. This information became the benchmark against which change and continuity were measured.

Based on data collected through a number of research methods, including onsite surveys (N=290), interviews (total N=93) with residents (n=82), architects (n=6), planners (n=3), and real estate developers (n=2), time diaries (n=22), architectural drawings, photos, planning documents, conversation and observation notes, journals, real estate magazines, brochures, and related material, the findings suggest that due to the high population density and a lack of land in the inner cities of Beijing and Suzhou, the new courtyards are generally too small to admit enough sunlight. The architectural drawings show that the new courtyard proportions are no longer preserved as in tradition (Zhang, 2013/2016, 2016a).

To achieve the same amount of sunlight as in traditional Chinese courtyard houses, the ratio of building height to distance should be at least 1:3 for Beijing (Zhang, 2006, 2011, 2016a) and 1:1.3 for Suzhou, which means a minimum of 18 m distance for 6 m high surrounding



buildings in Beijing, and a minimum of 12 m distance for 9 m high surrounding buildings in Suzhou. However, the two Beijing cases and two of three Suzhou cases have not met these criteria, which have seriously affected their environmental quality (Zhang, 2013/2016).

The findings further reveal that the interior spaces of new courtyard housing are generally small in Beijing Juer Hutong and Nanchizi, they are larger and more satisfactory in Suzhou Jiaanbieyuan and Shilinyuan. These results may be related to less restrictive planning regulations but more rigorous construction requirements set by the Suzhou municipal government. Interior space of 120-180 sqm per unit for a 3-4-person household is generally satisfactory. The findings also indicate that most residents prefer to live in low-rise housing of 1-3 storeys for practical reasons, and living close to the earth is still preferred. Residents have expressed a preference for pitched roofs than flat ones because they have experienced better thermal performance of pitched roofs. These outcomes reflect their desire to be in harmony with nature as in traditional Chinese culture. Moreover, 40 percent (n=67) of residents still value traditional Chinese-style furniture for their interiors (Zhang, 2013/2016).

The findings likewise suggest that communal courtyards foster social interaction and private courtyards facilitate self-cultivation. Residents still regard courtyards/gardens as important spaces for establishing harmony with

their neighbors and with themselves. Nevertheless, neighborly relations are only partly influenced by the form and space of the courtyard housing, and are perhaps influenced even more so by a changing and polarizing society, socio-economic differences, housing tenure, modern lifestyles, community involvement, common language, cultural awareness, and the cultural background of the residents (Zhang, 2013/2016, 2015b, 2016a).

The findings also show that the communal courtyards help sustain some traditional Chinese cultural activities. The primary function of a communal courtyard is to maintain health/natural healing. However, many cultural activities are much less or no longer partaken in the communal courtyards, likely due to such factors as time, climate, courtyard ownership, yard size, facilities, and so on (Zhang, 2013/2016, 2016a).

These results indicate that the new courtyard housing projects are only culturally sustainable to various degrees and in different contexts; they have not achieved this harmonious state of being due to a multitude of issues mentioned above and discussed in depth and detail in the book *Courtyard Housing and Cultural Sustainability: Theory, Practice, and Product* (Zhang, 2013/2016) published by Ashgate/Routledge.

Table 2. First-generation Chinese-style new courtyard housing estates constructed in China since the 1990s.

City	Name of Estates	Year of Completion	Number of Units	Number of Floors	Size of Units	Size of Courtyards	Volume Ratio ^a	Greening Ratio ^b
Beijing	Juer Hutong (菊儿胡同 "Chrysanthemum Lane New Courtyard Housing Estate")	1990-1994	210	2-3-storey walk-up apartments	40-120 sqm	13m × 15m; 6.5m × 7.5m	2.5	26%
	Nanchizi (南池子 "South Pond New Courtyard Housing Estate")	2003	301	2-storey row/town/terraced houses	45-75 sqm	7-9 m (distance between buildings)	2	25%
Suzhou	Tongfangyuan (桐芳苑 "Aleurites Cordata Fragrant Garden Housing Estate")	1996	220	2-storey row/town/terraced houses, 2-storey courtyard garden villas, and 3-storey walk-up apartments	70-200 sqm	10-12 m (distance between buildings)	1	30%
	Jiaanbieyuan (佳安别院 "Excellent Peace Garden Housing Estate")	1998	600	2-storey row/town/terraced houses, and 4-6-storey walk-up apartments	90-180 sqm	Ratio of building height to distance is 1:1.3	1	35%
	Shilinyuan (狮林苑 "Lion Grove Garden Housing Estate")	2000	232	3-storey row/town/terraced houses, and 3-4-storey walk-up apartments	90-180 sqm	8-13.5 m (distance between buildings)	1.39	30%

Note: (a) In China, Volume Ratio=Built-up Area/Site Area. Ideally, the value should be less than 1.5 for a low-rise, comfortable residential environment. (b) Greening Ratio=Green Area/Site Area. Ideally, the value should be no less than 40% for a low-rise, comfortable residential environment. Sources: the author's onsite and online surveys of Beijing.anjuke.com (2014a, 2014b), Lin (2003, 2004), Suzhou.anjuke.com (2014a, 2014b, 2014c), Wu (1991, 1994, 1999), Zhang (2006, 2011, 2013/2016, 2016a).

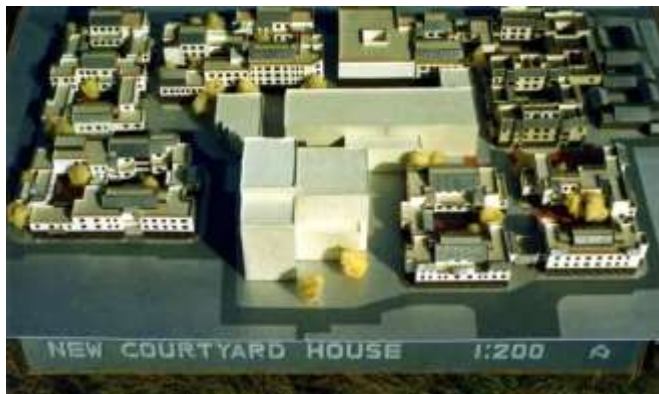


Figure 4. Model of Beijing Juer Hutong new courtyard housing estate. Source: Information Center (previously Resources Center) of the School of Architecture at Tsinghua/Qinghua University 1994.



Figure 5. A new courtyard at Beijing Nanchizi Chinese-style new courtyard housing estate. Photo: Donia Zhang 2007.



Figure 6. The Chinese-style new courtyard housing at Suzhou Jiaanbieyuan. Photo: Donia Zhang 2007.

5. THE GROWTH OF COURTYARD GARDEN VILLAS IN CHINA

China's rapid economic development since 1978 coupled with other factors have resulted in some creative housing forms, one of which is the Chinese-style courtyard garden villas constructed since the 2000s. The author's onsite and online surveys have found superb examples in the suburbs of Beijing, such as Yijun ("Yi Villa Estate," b. 2005-2011) in the Shunyi County, Guantang ("Cathay View Villa Estate," b. 2005-2008) near Beijing International Airport, and Beijing Wan ("Beijing Bay Villa Estate," b. 2006-2009) in the Changping County.

In the inner city of Suzhou, such projects include Jiangfengyuan ("River and Maple Garden Villa Estate," b. 2003-2008) and Hanshe ("Humble Homes Estate," b. 2003) by the Hanshan Temple, Lantingyuan ("Blue Pavilion Garden Villa Estate," b. 2004-2005) near the Lion

Grove Garden, Hongqiaoshijia ("Rainbow Bridge Aristocratic Family Villa Estate," b. 2004-2005) along the thoroughfare of Ganjiang Road, Shijialiuyuan ("Aristocratic Family Linger Garden Villa Estate," b. 2005-2007) next to the Linger Garden, Zhuozhengdongyuan ("Suzhou Garden Village," b. 2005-2012) adjacent to the Humble Administrator's Garden, and Suzhou Tingyuan ("Suzhou Courtyard Garden Villa Estate," b. 2006-2008) near the North Temple Pagoda, among others. There is also the Jindichengshibieshu ("Golden Empire City Villa Estate," b. 2005) in the New District whose phase one is in traditional Chinese style.

In the outskirts of Suzhou, similar projects include Tianlunsuiyuan ("Family Garden Villa Estate," b. 2004-2005), Xishantianyuan ("Western Hill Tranquil Villa Estate," b. 2004-2009), Dongshanjingyuan ("Eastern Greenhill Villa Estate," b. 2005-2006), and Gusu Taohuayuan ("Suzhou Peach Blossoms Garden Villa Estate," b. 2009-2011), all in the Wuzhong district, and Suzhou Fuyuan ("Suzhou Fortune Garden Villa Estate," b. 2007-2008) in the Town of Guangfu by the Lake Tai.

It is noted that the number of Chinese-style courtyard garden villa estates constructed in/around Suzhou (n=13) is much higher than that of Beijing (n=3) (Table 3), possibly due to the more advanced economic development in southern regions of China than that in the north.



Table 3. Second-generation Chinese-style courtyard garden villa estates constructed in China since the 2000s.

City	Name of Estates	Year of Completion	Number of Units	Number of Floors	Size of Units	Volume Ratio	Greening Ratio
Beijing	Yijun (易郡 "Yi Villa Estate")	2005-2011	330	2½	200-300 sqm	3	40%
	Guantang (观唐 "Cathay View Villa Estate")	2005-2008	329	2½	300-450 sqm	0.47	70%
	Beijing Wan (北京湾 "Beijing Bay Villa Estate")	2006-2009	334	2½	350-440 sqm	0.34	60%
Suzhou	Jiangfengyuan (江枫园 "River and Maple Garden Villa Estate")	2003-2008	614	2-3	150-1000 sqm	0.37	53%
	Hanshe (寒舍 "Humble Homes Estate")	2003	510	1-4	200-350 sqm	0.85	44%
	Lantingyuan (兰亭苑 "Blue Pavilion Garden Villa Estate")	2004-2005	68	3	200-250 sqm	1	26%
	Hongqiaoshijia (虹桥世家 "Rainbow Bridge Aristocratic Family Villa Estate")	2004-2005	76	3	220-280 sqm	1.2	35%
	Tianlunsuiyuan (天伦随园 "Family Garden Villa Estate")	2004-2005	46	2-3	350-460 sqm	0.25	70%
	Xishantianyuan (西山恬园 "Western Hill Tranquil Villa Estate")	2004-2009	60	2-3	230-300 sqm	0.26	51%
	Dongshanjingyuan (东山景园 "Eastern Greenhill Vista Villa Estate")	2005-2006	165	3	190-340 sqm	0.37	62%
	Jindichengshibieshu (金帝城市别墅 "Golden Empire City Villa Estate" Phase One)	2005	125	3	180-280 sqm	0.7	35%
	Shijialiuyuan (世家留园 "Aristocratic Family Linger Garden Villa Estate")	2005-2007	64	3	250-700 sqm	0.7	60%
	Zhuozhengdongyuan (拙政东园/润园 "Suzhou Garden Village")	2005-2012	30	2	320-380 sqm	0.35	59%
	Suzhou Tingyuan (苏州庭园 "Suzhou Courtyard Garden Villa Estate")	2006-2008	257	2-3	210-280 sqm	0.64	36%
	Suzhou Fuyuan (苏州福园 "Suzhou Fortune Garden Villa Estate")	2007-2008	142	2½	290-500 sqm	0.7	45%
	Gusu Taohuayuan (姑苏桃花源 "Suzhou Peach Blossoms Garden Villa Estate")	2009-2011	1089	3-4	175-250 sqm	0.96	40%

Sources: The author's onsite and online surveys of doc88.com, 2008-2014; esf.focus.cn, 2014; house.focus.cn, 2014; Suzhou.focus.cn, 2014

5.1 CASE STUDIES

5.1.1 Beijing Guantang Chinese-Style Courtyard Garden Villa Estate (b. 2005-2008)

Guantang (观唐 "Cathay View Villa Estate," b. 2005-2008) is located in Beijing's Chaoyang district, adjacent to the Riviera Villa Estate, and west of Xiangjiang bei lu (Riviera Road North). It is in the heart of high-end villa zone surrounded by highways radiating in all directions, about 3 km from the northern 5th ring road, and 10.5 km from Beijing International Airport. It is the closest villa estate to the inner city.

Occupying a land area of 48 hectares with a built-up area of 115,000 sqm, Guantang

has 329 units of 2½-storey (with semi-basement) single-family luxury homes classified into five plan-types and three unit-sizes: 300 sqm, 350 sqm, and 450 sqm, with two courtyard-/garden-sizes: 290 sqm and 320 sqm, all of which have incorporated traditional Chinese architectural features, applied conventional craftsmanship in the building of enclosing walls, gates, grey-color pitched-tile roofs, elements in traditional façades, and equipped with modern interior facilities. The frontyard, central courtyard (sometimes sideyard), and backyard within each property boundary generate a gradual privacy and a series of activity spaces as in traditional Chinese houses. Meanwhile, these outdoor spaces allow sunlight/daylight and



fresh air to enter indoors. The author's site visit of the estate in 2014 found that the design of some private courtyards has borrowed elements in classical Suzhou gardens, such as fish pond, pavilion, and so on, generating a sense of "harmony with nature."

Inside the Guantang villa estate, the width of the roads and alleys is 6 m and 4 m, respectively. These widths have nostalgically imitated traditional Beijing's *hutong* (lanes), and functionally, 6 m is wide enough for fire engines to pass through in case of emergency. Moreover, the design is compatible with Beijing's cross axes and ring-road system, forming a clear spatial sequence from wide streets, to narrow lanes, to private courtyards/gardens.

Guantang is a poetic approach to contemporary Chinese housing design, and a picturesque setting for both visitors and residents. Walking or driving through the estate, one can sense the lingering charm of old Beijing, while the residents can enjoy the comfortability of modern living. However, the verandas – a traditional transitional space between indoors and outdoors, are eliminated, which is a loss of a protective zone for enjoying the courtyard in different weather conditions.

Guantang has attempted to modernize classical Beijing courtyard houses, meanwhile, incorporating the interior circulation systems in Western villa designs. Its layouts meet ecological design principles of having large space with small room-depth and using perimeter to link interiors to afford more sunlight/daylight and thermal insulation. It represents not only a return to Chinese courtyard life, ideology, and spiritual realm, but also to absorb foreign architectural culture to create a housing product that is both unique and beneficial. The buildings are all at human-scale; they establish a balance between privacy and community, and a link between nature and culture. They are concrete embodiments of Confucian "harmony with humans" and Daoist "harmony with nature"

continually present in contemporary China, and archetypes of architectural acculturation of the East and the West.

However, only very rich Chinese households can afford such luxury homes. Some of the owners only use their villa as a weekend and/or holiday retreat, it nevertheless showcases their wealth and serves as a symbol of their social status.



Figure 7. Site plan of Beijing Guantang ("Cathay View Villa Estate," b. 2005-2008). Source: Beijing Institute of Architectural Design 2014.



Figure 8. Computer-rendered axon of a Beijing Guantang courtyard garden villa. Source: house.focus.cn, 2009.



Figure 9. Plans of Beijing Guantang courtyard garden villas, presenting the courtyards/gardens and Western interior circulation system. Source: Beijing Institute of Architectural Design 2014.



Figure 10. Computer-rendered façade of Guantang courtyard garden villas, showing traditional Beijing architectural features and colors. Source: Beijing Institute of Architectural Design 2014.



Figure 11. Computer-rendering of Guantang courtyard garden villas, incorporating traditional Chinese moon gate and lattice windows. Source: Beijing Institute of Architectural Design 2014.



Figure 12. Snow scene of a Guantang alley, reminiscent of a traditional Beijing's *hutong* (lane). Source: Beijing Institute of Architectural Design 2014.



Figure 13. A closer view of a Guantang courtyard garden villa with traditional enclosing walls, gate, and modern garage. Source: Beijing Institute of Architectural Design 2014.



Figure 14. Courtyard/garden of a Beijing Guantang villa with classical Suzhou-style garden elements of fish pond and pavilion. Photo: Donia Zhang 2014.



Figure 15. Living/dining room of a Beijing Guantang courtyard garden villa, designed, built, and furnished in classical Western architectural style. Photo: Donia Zhang 2014.



Figure 16. Family room of a Beijing Guantang courtyard garden villa, designed, built, and furnished in Western architectural style. Photo: Donia Zhang 2014.

5.1.2 Suzhou Fuyuan Chinese-Style Courtyard Garden Villa Estate (b. 2007-2008)

Suzhou Fuyuan (苏州福园, "Suzhou Fortune Garden Villa Estate," b. 2007-2008) was built in the Town of Guangfu near the Lake Tai, about 25 km west of Suzhou City Center. The estate's name has used the familiar Chinese character *fu* (福), which can be translated into English as "good fortune," "good luck," or "happiness." Its name conveys that the designer or developer wished to bring harmony and prosperity to this residential environment.

Occupying a land area of 6.94 hectares with a built-up area of 63,372 sqm, Suzhou Fuyuan has 142 units of 2½-storey (with semi-basement) Chinese-style single-family luxury homes, with the interior space ranging from 290-500 sqm, and private gardens from 150-200 sqm. Each unit has a two-car garage and two gates, one gate at the front and the other at the back. Each household has a frontyard/garden, a sunken central courtyard/garden, and a sunken backyard/garden, forming a series of three-dimensional gardens connecting to the interiors, and separating the lively spaces from the quiet ones. These courtyard garden villas combine the style and features in traditional Suzhou houses and gardens, meanwhile, providing an 8000 sqm communal garden (塔影园, Tayingyuan) in the elegance of classical Suzhou gardens at the forefront of the estate. Simultaneously, it creates a setting that one can rest his/her body, mind, and spirit (Suzhou Guardian Real Estate Development Co., 2007).

The author's field tour of the estate in 2007 revealed that there is no longer a central axis or bilateral symmetry as in traditional Suzhou houses, the spaces are more dynamic. Suzhou Fuyuan has attempted to combine the advantages of Chinese vernacular architecture of different regions with those of modern interior design approaches (*Explore*, August, 2007, pp. 21-22; *Times China*, September 2007, pp. 30-31). However, like Beijing Guantang, Suzhou Fuyuan only serves a small number of the growing rich; the middle-income households cannot afford such lavish homes.



Figure 17. Model of Suzhou Fuyuan courtyard garden villa estate, Suzhou 7th Housing Exhibition. Photo: Donia Zhang 2007.



Figure 20. Villas, alley, pavilion, and corridor at Suzhou Fuyuan. Source: Suzhou Guardian Real Estate Development Co. 2007.



Figure 18. Suzhou Fuyuan courtyard garden villa estate gate in its vernacular architectural style. Photo: Donia Zhang 2007.



Figure 21. Traditional gate attached with modern garage at Suzhou Fuyuan villa estate. Source: Suzhou Guardian Real Estate Development Co. 2007



Figure 19. Suzhou Fuyuan communal garden (塔影园) in its classical style at the forefront of the villa estate. Source: Suzhou Guardian Real Estate Development Co. 2007.



Figure 22. Model of a Suzhou Fuyuan traditional courtyard garden with fish pond and circulation corridor, Suzhou 7th Housing Exhibition. Photo: Donia Zhang 2007.



Figure 23. Courtyard with veranda in its vernacular style at Suzhou Fuyuan villa estate. Source: Suzhou Guardian Real Estate Development Co. 2007.

Table 4. Comparison of the Chinese-style first-generation new courtyard housing and second-generation courtyard garden villa estates built in China in the 1990s-2000s.

Generation of New Courtyard Houses	Size of Units (average)	Volume Ratio (average)	Greening Ratio (average)
First-Generation Chinese-Style New Courtyard Housing Estates in Beijing and Suzhou	70-150 sqm	1.6	±30%
Second-Generation Chinese-Style Courtyard Garden Villa Estates in/around Beijing and Suzhou	240-410 sqm	0.76	±50%

Source: The author's estimates based on Tables 2-3.

6. DISCUSSION

Table 4 shows that compared with the first-generation new courtyard housing built in Beijing and Suzhou, the second-generation Chinese-style courtyard garden villas in these two cities are much more enhanced. The average unit size has increased more than three times, from 70 sqm to 240 sqm. The first-generation new courtyard housing estates have an average volume ratio of 1.6, but it should be lower than 1.5 (a standard value of measurement for a comfortable living environment in China). This outcome is caused by the two Beijing projects whose volume ratio of 2.5 and 2 have brought up the figure while the three Suzhou projects all have a satisfactory volume ratio under 1.5. Whereas the second-generation Chinese-style courtyard garden villa estates' average volume ratio of 0.76 is much lower than 1.5. The first-generation new courtyard housing estates' average greening ratio is ±30%, which is lower than the 40% minimum requirement for a comfortable residential quarter in China; while the second-generation Chinese-style courtyard garden villa

estates have an average greening ratio of ±50%, which is higher than the 40% benchmark.

Arguably, the first-generation new courtyard housing estates were all built in the inner cities of Beijing and Suzhou where the land is scarce and population density high, it would be very difficult to meet current design standards for volume ratio and greening ratio. The second-generation Chinese-style courtyard garden villas are all located in the suburbs of Beijing where the land is not so constraint. In Suzhou, although some of the courtyard garden villa estates are located in the inner city, Suzhou seems to have less restricted planning policies that have allowed more ideal design solutions. It may also be true that to meet China's newly-rich marketers' demands, the designers of the courtyard garden villas have learned the lessons from the first-generation new courtyard housing experiments, and have taken comfortability and sustainability into their design considerations, which in turn, have afforded more harmony with nature and with humans than the first-generation projects.



Compared with traditional Chinese courtyard houses of timber-framed structures, the new courtyard housing and courtyard garden villas are all of steel and concrete constructions equipped with modern facilities, which should be more enduring. Moreover, the second-generation Chinese-style courtyard garden villas all have private courtyards/gardens where more self-cultivation may happen than the first-generation new courtyard housing with mainly communal courtyards. However, there would be less social interaction to occur in the courtyard garden villas than that in the new courtyard housing estates' communal courtyards.

Chinese-style courtyard garden villa estates were also built in other parts of China, such as the Qinghua Fang (清华坊, b. 2002) in Chengdu and the Number Five Garden Villa Estate in Shenzhen (深圳第五园, b. 2005-2009), among others.

The planners, architects, and builders of these villa estates wanted to test the possibility of realizing a dream of traditional life in contemporary Chinese society. They used modern materials and technologies to explore a new way to construct a residential environment in honor of Chinese architectural history and philosophy, but also to meet modern living requirements. The above projects demonstrate a more sensitive approach to Chinese housing development to better fit into its cultural landscape; they make a stark contrast to some European- and North American-style suburban villa estates constructed in China since the 1990s.

For example, in the suburbs of Beijing, there built the American-Canadian-style Dragon Villa Estate (龙苑别墅, b. 1995) in the Shunyi County, and the European-style Rose Garden Villa Estate (玫瑰园, b. 2007) in the Changping County (Beijing.anjuke.com, 2014c,

2014d). They are single-family homes advertised as "Just like Beverly Hills of California," "Just like Richmond of Vancouver," "Just like Bayview Hill of Toronto," and "Just like Long Island of New York" (King, 2004). These transplanted villa estates may be a result of housing demands from an influx of foreign expatriates working in Beijing, but may also reflect some Chinese citizens' aspirations for exotic tastes.

Similarly, in Shanghai's Songjiang County, nine European-themed towns were erected: Thames Town in Georgian/Victorian style imitating the Olde England, German New Town modeled on their cultural capital Weimar, Nordic Town in Scandinavian style, Barcelona Town where people can walk along a Chinese Las Ramblas, and Italian Town in the suburb of Pujiang by Venetian-style canals. Shanghai Thames Town was built around a medieval market square, with red phone boxes and village greens (Coonan, 2006). The author's field visit of the estate in 2014 showed that it is a mixed-use, low-rise development with pedestrian-centered residential quarters. The site has induced many tourists, wedding-photographers, and film-makers for its exotic sceneries.



Figure 24. Shanghai Thames Town residential quarters in the Songjiang County imitating the Olde England. Photo: Donia Zhang 2014.

In April 2011, the State Council issued a new guideline entitled *Catalogue for the Guidance of Foreign Investment Industries*



(*Waishang Touzi Chanye Zhidao Mulu*) to ban foreign investment in villa construction in China (International Business Times, 2011; Reuters, 2011), to cool the real estate market, to prevent further urban sprawl, and to save arable land for agriculture.

Moreover, according to *The Guardian* of August 20, 2014, Chinese homeowners' tastes are evolving: they are no longer as enchanted by developments with lavish homes marketed by shiny brochures as "modeled on the sumptuous and classical US West Coast villas." Instead, "health and livability are now major, major factors that developers are taking seriously into account for how they promote new developments" (Bosker, 2014).

Furthermore, in a press conference on March 16, 2014, which concerned the *National New Urbanization Plan 2014-2020*, the Vice Minister of the National Development and Reform Commission, Xu Xianping, stated that China's new modernization should be people-oriented, and that "it should be ecologically friendly and carry forward cultural traditions" (China.org.cn, 2014). The speech sends a message that the courtyard form of housing will likely be rebuilt in China's new cities and towns.

An international symposium entitled "Reclaiming Identity and (Re)materialising Pasts: Approaches to Heritage Conservation in China" was held at Xi'an Jiaotong-Liverpool University (XJTLU) in Suzhou on April 6-8, 2016, which invited academics and practitioners worldwide to offer case studies and critiques on China's current practice of cultural heritage conservation (XJTLU, 2016).

China's villa estate development is confined by its current socio-economic conditions; only those "on the top of the pyramid" can afford such high-end homes, with developers cognizant of losing money if they aim at middle-class citizens.

7. PROPOSALS FOR NEW COURTYARD GARDEN HOUSES

The author has proposed four designs of new courtyard garden houses for ordinary citizens or

middle-income families in China or elsewhere, as illustrated in Figures 25-28. These schemes are meant for a discussion on the future housing development direction for Beijing and Suzhou, and for other historical and cultural cities in China, or elsewhere in the world.

Detailed designs of the four schemes are presented in the books *Courtyard Housing and Cultural Sustainability: Theory, Practice, and Product* (Zhang, 2013/2016), and *Courtyard Housing for Health and Happiness: Architectural Multiculturalism in North America* (Zhang, 2015c).

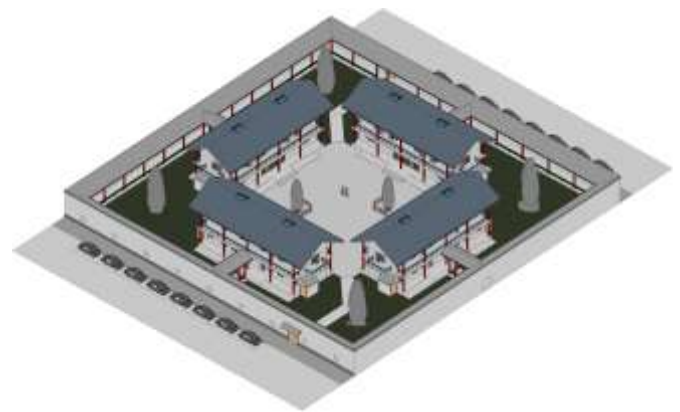


Figure 25. Beijing new courtyard garden house compound based on a system of 60 m × 60 m standard block size, a communal courtyard of 26 m × 26 m shared by eight nuclear families, with each household enjoying a private garden at the back. Each housing unit measures 6 m × 10 m (total 180 sqm) with a semi-basement and 2 ½ storeys. Design and computer model by Donia Zhang 2016b.



Figure 26. Beijing new courtyard garden house compound based on a system of 78 m × 78 m standard block size, the



communal courtyard is 26 m × 26 m shared by eight nuclear families, with each household enjoying a private garden of 12 m × 6 m at the front and the back. Each housing unit measures 10 m × 12 m (total 240 sqm) with a semi-basement and 2 ½ storeys. Design and computer model by Donia Zhang 2015c, 2016b.



Figure 27. Suzhou new courtyard garden house compound based on a system of 40 m × 40 m standard block size, the communal courtyard is 12 m × 20 m shared by four nuclear families, with each household enjoying a private garden on the side. Each housing unit measures 6 m × 10 m (total 180 sqm) with 3 storeys. Design and computer model by Donia Zhang 2016b.



Figure 28. Suzhou new courtyard garden house compound based on a system of 40 m × 66 m standard block size, the communal courtyard is 14 m × 40 m shared by four nuclear families, with each household enjoying a private garden of 12 m × 6 m at the front and the back. Each housing unit measures 10 m × 12 m (total 240 sqm) with a semi-basement and 2 ½ storeys. Design and computer model by Donia Zhang 2015c, 2016b.

ACKNOWLEDGEMENTS

Parts of the paper are extracted from the author's doctoral thesis *Courtyard Housing and Cultural Sustainability: A Study of Housing Renewal and Redevelopment in Beijing and Suzhou* (2006-2012). The author thanks the director of the study, Dr Marcel Vellinga, and advisor, Dr Aylin Orbasli, both at Oxford Brookes University, for their critiques, constructive comments, and suggestions. The author is also grateful to SUNY Distinguished Professor Emeritus, Ronald G. Knapp, for reviewing the paper and offering resources. The author is also thankful for her late father, Junmin Zhang, and mother, Suzan Xiuzeng Li, for their unconditional support throughout the project.

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