LILONG HOUSING, 
A TRADITIONAL SETTLEMENT FORM

by

Qian Guan

School of Architecture
McGill University, Montreal
July 1996

A THESIS SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE DEGREE OF MASTER OF ARCHITECTURE

© Qian Guan 1996

All right reserved. This work may not be reproduced in whole or in part, by photocopy or other means, without permission of the author.
The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.

The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author’s permission.

L’auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.

L’auteur conserve la propriété du droit d’auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.
ABSTRACT

"Li" means neighborhoods, "Long" means lanes. These two words combine to describe an urban housing form which characterizes the city of Shanghai. Indissociable from the growth of Shanghai from 1840s to 1949, lilong settlements still comprise the majority of housing stock in the city center today. Inherited traditional dwelling patterns prevailing in the southeast China, profound transformation due to drastic social changes during that era produced lilong housing. Though, these transformation were demonstrated by the evolution of lilong's house forms, the settlement's general organization pattern persisted.

Lilong settlement, as a low-rise, ground-related housing pattern, has many advantageous features: hierarchical spatial organization network, separation of public and private zones, high degree of safety control, strong sense of neighborly interaction and social cohesiveness, and so on. These factors make the lilong neighborhoods a pleasant place to live and hence they are loved by local populace.

This thesis traces the evolution of lilong settlement forms in response to social transformation, and analyzes its indigenous design features and urban characteristics. As an ultimate goal, this thesis also explores the key characteristics of this settlement pattern, and the valuable experience that could be drawn as reference in contemporary housing design.
RÉSUMÉ

"Li" signifie l'entourage et "long" signifie ruelle. L'ensemble de ces deux mots représentent un type d'habitation qui caractérise la ville de Shanghai. "Lilong" a coexisté avec le développement de Shanghai de 1840 à 1949, comprenant la majorité de l'habitation du centre ville. Les maisons "lilong" ont hérité une forme traditionnelle résidentielle dans la région sud-est de la Chine et la transformation drastique de l'époque.

L'établissement de "lilong", comme une forme de bâtiment résidentiel populaire a de nombreux avantages: l'organisation hiérarchique de l'espace, séparation entre les espaces publiques et privés, l'interaction sociale des voisins, etc. Les qualités des maisons "lilong" créent une atmosphère agréable d'habitation qui est bien aimé par les habitants.

Cette thèse examine l'évolution de l'établissement des maisons "lilong" au point de vue des transformations sociaux, et elle analyse ces caractères urbains et indigènes. Finalement, cette thèse explore les aspects importants de ces types d'habitation qui peuvent être utilisé dans la planification des projets résidentiels contemporains.
ACKNOWLEDGMENT

I would like to express my gratitude to my advisor, Prof. Vikram Bhatt, for his constant guidance and interest to my thesis topic. His advice and encouragement to my work, and his patience and effort in correcting my thesis have been of great help.

I would like to thank the many graduate students in this program during my time, particularly to Ghader Afshari, for his useful discussion about this topic during earlier stage, and to Abhijat Sinha and Sriram Ganapathi, for their enthusiastic help and friendship. I would also like to thank my former classmate in Tongji University, Shanghai, Zheng-yu Xie and Yi Cheng, who have provided me with some wonderful information.

I would like to extend my gratitude to graduate secretary, Marcia King, who is always generous in giving me her assistance and support throughout my graduate studies. Thanks also go to my many other classmates, who have made the two year long study period more memorial.

My deepest gratitude is to my parents, who have help me collect the earliest information for my work, and whose moral support has been essential for the completion of this thesis. And to my husband, Tao Zheng, who gives me many support during my whole graduate studies and who help me with the final editing of this thesis.
# TABLE OF CONTENTS

**ABSTRACT** ......................................................................................................................... i

**ACKNOWLEDGMENT** ........................................................................................................... ii

**INTRODUCTION** ................................................................................................................... 1

**CHAPTER I - HISTORY OF SHANGHAI** .............................................................................. 6
  1.1 GEOGRAPHIC CONTEXT OF SHANGHAI ........................................................................... 6
  1.2 HISTORY OF SHANGHAI .................................................................................................. 8

**CHAPTER II - THE URBAN DEVELOPMENT OF SHANGHAI AND THE GENERATION OF LILONG HOUSING** .............................................................................. 18
  2.1 URBAN DEVELOPMENT OF SHANGHAI ......................................................................... 18
  2.2 URBAN CHARACTERISTICS OF SHANGHAI .................................................................... 20
  2.3 THE PATTERN OF LILONGS ............................................................................................ 24
  2.4 THE DEVELOPMENT OF LILONGS .................................................................................. 26
  2.5 CLASSIFICATION OF LILONGS ....................................................................................... 30

**CHAPTER III - FIVE HOUSING MODELS OF LILONGS** ...................................................... 33
  3.1 THE OLD SHI-KU-MEN LILONG HOUSE ......................................................................... 33
  3.2 THE NEW SHI-KU-MEN LILONG HOUSE ......................................................................... 37
  3.3 THE NEW-TYPE LILONG HOUSE ..................................................................................... 39
  3.4 THE GARDEN LILONG HOUSE ......................................................................................... 46
  3.5 THE APARTMENT LILONG HOUSE ................................................................................... 49
  3.6 EVOLUTION OF THE HOUSE FORMS ............................................................................... 50

**CHAPTER IV - CASES STUDIES** ....................................................................................... 52
  4.1 HONG-DE LI ....................................................................................................................... 52
  4.2 ZHUN-DE LI ....................................................................................................................... 58
  4.3 TONG-FU LI ....................................................................................................................... 61
  4.4 CHANG-LE VILLAGE ......................................................................................................... 64
  4.5 JING-AN VILLA .................................................................................................................. 67
  4.6 HUAI-HAI VILLAGE .......................................................................................................... 71
  4.7 LI-YANG GARDEN ............................................................................................................ 74
  4.8 SHANG-FANG GARDEN ................................................................................................... 77
  4.9 SHAN-NAN VILLAGE ........................................................................................................ 80
  4.10 GARDEN APARTMENT .................................................................................................... 83
  4.11 SHING-KANG GARDEN .................................................................................................. 86
CHAPTER V: PLANNING FEATURES OF LILONG SETTLEMENTS
5.1 STREET PATTERN
5.2 LAND-USE PATTERN
5.3 A COMPARATIVE STUDY OF DENSITY AND OTHER QUANTITATIVE ASPECTS OF LILONGS WITH CONTEMPORARY HOUSING PROJECTS

CHAPTER VI: LILONG HOUSING AS AN URBAN FORM
6.1 LILONG AS AN URBAN FORM
6.2 LILONG AS A COMMUNITY
6.3 LILONG HOUSING AS AN EMBODIMENT OF DWELLING CULTURE

POSTSCRIPT

REFERENCES
INTRODUCTION

BACKGROUND
Lilongs, the small court-yard housing is named after through the principles of circulation in their urban organization: "Li" means neighborhood, "Long" means small lanes. Their origin lies in the spatial concept and construction in traditional Southeast Chinese dwellings. Their interior plans evolved as life styles became Westernized. They were the earliest type of mass commodity housing in Chinese history (Wang, 1989, p.4). Their density increased under the extreme circumstances of the growing metropolis of Shanghai from 1870 onwards. Since then, they were built in a large scale in the center of this city, and accounted for 60% of the total dwelling areas by 1949 (Wagn, 1989, p.6).

A lilong settlement generally varies in size from 0.35 to 5.0 hectares. Its housing units are two or three storied high, attached side by side, having one side lane at the front and another service lane at the back. The whole settlement has a couple of main lanes, used as the major circulation passages, which are accessible from the commercial streets. The side lanes, leading to each housing units, connect to the main lanes. The clear, rational structure of a lilong settlement give a high degree of security and quietness to its internal living environment, contrary to its noisy urban surrounding dominated by commercial developments. The front housing units along the perimeter of a lilong settlement are generally converted to shops which maintain the continuity of commercial activities along the streets. Some housing units inside the settlement have also integrated small-scaled, home-based businesses to provide the daily amenities of the entire community.

According to the difference in its basic unit- a house model, and the condition under which they have emerged, lilongs are basically classified into five types. They are: 1) the Old Shi-ku-men Lilongs, 2) the New Shi-ku-men Lilongs, 3) the New-type
Lilongs, 4) the Garden Lilongs, and 5) the Apartment Lilongs. The evolution of lilongs from a traditional Chinese dwelling prototype to a more Westernized pattern is obvious in the sequential study of these five types. However, this drastic transformation was not only a result of the increasing penetration of Western cultures into this port city, but also an inevitable outcome of the local social and economic changes. The development of economy, the rise of land speculation, the growth of population, and the disintegration of traditional extended families after the collapse of the Chinese Empire in 1911, all contributed to this trend. However, regardless of the evolution of its basic house models, the general pattern of the settlement form persisted. The traditional spatial concept remained in the overall composition of this settlement form.

RATIONALE

Lilong housing has being in existence for over 140 years. Except the earliest built ones, the majority of lilong housing will keep in use for the next several decades due to a sharp housing shortage in this city. Its many advantages, like spatial economy, efficient internal organization framework, convenient local service, high degree of safety control, and strong social cohesiveness within the community, has cultivated a dynamic but harmonious living atmosphere, the factors found missing in many contemporary housing development.

However, lilong housing are increasingly under intense commercial pressure. Due to fast development of Shanghai since the adoption of the "Open-door Policy" started in 1980, the economy has greatly developed. The commercial land speculation in center Shanghai has become so high that this low-rise pattern of residential settlements is facing strong challenges of urban renewal. Lack of maintenance and old age of these structures also causes problem. This situation presents serious challenge for architects and planners in their endeavor of preservation of this traditional housing architecture.

A comprehensive study of lilong housing - a well-documented report of the various types of its physical form, and an architectural analysis of its indigenous spatial
pattern and advantageous design features - will help understanding of lilongs' architectural, historic and cultural values. This understanding is crucial to the work of improving existing lilongs, and also essential for building of new housing projects which are humane, and pleasant living environments. It is from these points of view that the author embark on this study.

The intended audience for the study are researchers, scholars, architects and planners, and architectural students in housing field. This study will not only provide a comprehensive understanding of lilong housing, but also give extensive information for further research in this field.

GOALS

The overall goal of this study is to provide a comprehensive understanding of lilong housing as a settlement pattern. Though there are many sub-goals involved to achieved the general goal, this thesis concentrates on the following two major tasks:

1) Documents the various types of the physical form of lilong housing, giving an illustrative description of the evolution of lilongs from a traditional prototype to a more Westernized open dwelling.

2) Conducts an architectural analysis of the various design aspects of lilong housing, such as density, safety, privacy, individuality, social interaction, life convenience, dynamics, etc., in comparison with contemporary housing developments, summarizing its advantages and disadvantages.

METHODOLOGY

This study is based on Literature Review, Case Study, and Date analysis, which can be explained as follows:

(I). Literature Review
- Collect information;
- Undertake background reading;
- Careful review research within the same field or research and theories relevant to this topic;
- Generalize the state of art.

(II). Case Study
- Prepare a Framework or format which can be followed during the next stage of analysis;
- Prepare questionnaire for site interview;
- Travel to Shanghai, review lilong settlements;
- Search for graphic and literatural information about the wide range of lilong housing from certain departments, bureaus and institutes;
- Select two typical lilong settlements of each type to conduct case studies; Collect the first-hand information from the sites - maps, blue prints, plans and layouts, and detailed graphic information, etc.; and interview residents to get first source of information;

(III). Data Analysis
- Reproduce collected graphic information;
- Compile information; Organize information in prepared tabular framework or diagram;
- Analyze information in a regular format by following certain criteria.

(IV). Synthesis
- Summarize and generalize the overall findings.

SCOPES

Lilong housing at present covers almost 40% of the total dwelling areas of this city. The gross areas account for 35,000,000m² (Yu Minfei, 1992, p.148). This thesis is not able to cover the extensive lilong settlements, but looks at their common
characteristics and features. The cases and examples used in this thesis are all exemplar and illustrative, hence the results and findings are representative and rational.

**STRUCTURE**

Chapter I of the thesis reviews the social, economic context of lilong housing, particularly the history of Shanghai from 1840s to 1949. Chapter II introduces the emergence, development of lilong housing, elaborating its general pattern and classifying its different types. Chapter III clarifies different house models which make up the five types of lilongs, and examines the evolution of this settlement form from a ground-related, court-yard pattern of tradition, to an off-ground apartment-like modern dwelling. Chapter IV is a narrative of 11 case studies of lilong settlements, examining the livability of each lilong, and elaborating the advantages and disadvantages of each one. Chapter V analyzes urban characteristics of lilong settlement forms, examining its density in a comparison with prevalent contemporary housing development in this city. Chapter VI, by using contemporary Neighborhood & Community Design Principles, analyzes the design features of lilong housing, and summarize the valuable experience or essence that make this pattern of dwelling specially fond by local people. The Postscript overviews the problems in existing lilong stocks, and points out the critical importance to the renovation task of lilongs.
CHAPTER I:
HISTORY OF SHANGHAI

1.1 GLOBAL CONTEXT OF SHANGHAI

NATURAL GEOGRAPHIC POSITION IN TRANSPORTATION

The geographical location of Shanghai, combined with its navigable inland waterways network had, at the time of the first foreign treaties with China, given to the Chinese town, an outstanding position in the coastal, inland, as well as overseas trades. This strategic position had also laid out the foundation for the future growth of this city.

At latitude 31°10' and attitude 121°29', Shanghai is located at about the midpoint of the Chinese east coastline. Lying some twelve miles up the Huangpu River, Shanghai controls the outlet of Yangtze River - the greatest inland water highway of China (Fig. 1.1a). As a distributing center for the rich Yangtze Delta region of some 750,000 square miles of good cultivated agricultural land, the city occupies two shores of the Huangpu River, the lower course of which is wide and deep, and admits ships of over 10,000 d.w.t. (Yan, 1984, p.94). The Su-chow Creek, known also as Wu-song River, drains through the city from Tai Hu - Grand Lake - in the west and joins the Huangpu River (Fig. 1.1b). The connection of Huangpu River and Su-chow Creek, along with other minor waterways, is a part of the dense water network composed of the inland rivers and canals of the three rich provinces of Jiang-su, Zhe-jiang and An-hui (Yan, 1984, p.94). The geographic character of this region has been described by G.B. Cressey:

"The Yangtze Plain is a land of rivers and canals. Probably nowhere else in the world is there an area with so many navigable waterways."

---

1 Which runs into the estuary of the Yangtze River.
Located at the outlet of *Youngtze Delta Region*, Shanghai was a water town originally. Like other water towns in Jiang-nan area, its land mainly composed of cultivated plains, lakes and water-ways.

Within the city, five water-ways connected to Su-chow Creek and Huangpu River. The 7000 bridges in total built in the city, with some as pedestrian only, some others served for vehicles and bicycles, can also indicates the dense water networks within the city. This characteristics inherited in its natural geography would inevitably influence the civic structure and urban planning of the city.

Talking about land transportation, Shanghai is also the meeting node of two major north-south railway-lines developed after the Liberation: the Beijing - Shanghai Line and the Shanghai - Canton Line (Fig. 1.1b). The railway system, combined with waterway network, connects Shanghai with immense territory of western, northern and southern China. Hence, Shanghai, being the crossing node of the sea, river and land transportation, took on a superior geographic position which had caught the attention of the European travelers in 18th century.

**FAVORABLE CLIMATIC & GEOGRAPHIC CONDITION**

Shanghai's climate is influenced alternately by cold dry air from inner Asia and Siberia from the north and north-west, and by warm moist air from the Pacific Ocean from the south and south-east. It is tropical for one-third of the year and temperate for two thirds. Rainfall averages 1,200 mm annually, most of it falling during the spring and summer, without very marked seasonal concentration (Murphey, 1953, p43). The period from October to February is comparatively dry with clear skies and stimulating temperatures, making this the most pleasant season of the year (Fei, 1939, p11). Winter temperatures seldom drop to below freezing, hence Shanghai is the only port city that free from ice at all seasons among all ports in northern half of China. Owing to the southerly latitude, the summers are subtropical with temperatures which frequently rise to 38°C.
The average maximum temperature in summers is 37°C, and the average minimum temperature in winters is -7°C. The Yangtze Plain has climate conditions which are favorable for agriculture during most of the year so that the growing season lasts for about 300 days. As a result of advantageous transportation and favorable natural conditions, Yangtze Delta Region gradually became the richest part in terms of agriculture and commerce, and most advanced area in terms of economy and technology among all Chinese regions.

The Yangtze Delta region is a compound alluvial plain, the accumulation of sediment soil laid down by rivers during long ages. There are a few isolated hills, but for the most part, the land in this region is flat. As Murphey has described:

"Ample level ground was useful during the purely commercial phase of the city's development in allowing adequate space for storage of goods, for half of China's foreign trade passed through Shanghai from 1865 on, but it was more important in allowing the development of manufacturing after 1895" (1953, p.43).

In sum, the commanding position of this region in Chinese economy is due partly to its superior natural environment and partly to its favorable position in the system of communications. Being a coastal region, it has become more and more important since the development of international trade by ocean transport. Shanghai, the sea-port of this region, has developed into the biggest metropolis in the Far East in the late 19th- as well as in the early 20th-century, and it hence dominated a large part of Chinese commerce and trades internally and externally.

1.2 HISTORY OF SHANGHAI

ANCIENT TIME
About four to five thousand years ago, the early Chinese had already developed good skills in fishing and hunting. Later they adapted to agricultural economy and had established a number of settlements in this region. With the seaward extension of the Yangtze Delta, new coastal flats were gradually formed, and these settlements also extended eastwards. By the fourth and fifth centuries AD, during the Eastern Jin dynasty, the Song River (present-day Su-chow Creek) was already known for its prosperous fishing industry. During the period of the Northern and Southern dynasties (5 - 6 AD), the political focus of China shifted to the south, resulting in a southward migration of people from their original northern territory, brought about with them more advanced farming techniques. During the Tang and Song dynasties (7 - 8 AD), large-scale civil projects were undertaken in the Yangtze Delta to improve the use of inland rivers, while shallow sea inlets were dammed and turned into storage reservoirs. Irrigation and river transportation were enhanced, and a rapid development of fishing, salt extraction and farming with a concomitant growth in population, commerce and external trade took place (Wang, 1989, p16).

THE FIRST POLITICAL ESTABLISHMENT - ZHEN²

In the fifth year of the Tian Bao era of the Tang dynasty (AD 746), Qing-long Zhen (the Fortress of the Green Dragon), as the first Zhen in this region, was established in the eastern part of present-day Qing-pu Xian³ (which is administrated by Shanghai today). In the tenth year of Tian Bao, Hua-ting Zhen (the Fortress of Hua-Temple) was established in present-day Song-jiang Xian (another Xian administrated by Shanghai)(Yan, 1984, p.98). The establishment of Zhen marked the growth of this region and the recognition of its political and economic importance by the central government (Fig. 1.2a).

---
² Zhen: a county.
³ A Xian is also a county, but its size and administration domain are both larger than a Zhen.
In the seventh year of the reign of Xi Ning of the Northern Song dynasty (AD 1074), two important trading offices - Marine Office and Goods Control Bureau, were established to the north-west of Hua-ting Zhen, at about the location of today's old city of Shanghai. This location was chosen because a river channel, Shanghai Pu⁴, flowed northwards into the Song River (Su-chow Creek) to the east of Hua-ting Zhen, and many sailing vessels unloaded their goods there. Subsequently, the spot came to be known as Shanghai Zhen (Fig. 1.2b). During the 13th century, Shanghai Zhen replaced Qing-long Zhen and became the major port town of this region. Soon after, it was declared an official administrative Zhen, marking the first appearance of Shanghai as a city. Both its population and its commerce flourished rapidly.

In the 29th year of the Yuan dynasty (AD 1292), five villages were separated from Hua-ting Zhen to form a new Shanghai Xian which covered the present central area of the city(Yan, 1984, p.99). The newly formed Xian boasted a population of about 300,000, a large number of whom were engaged in shipping activities. Till this stage, Shanghai Xian, well-developing a system of commerce and trade, had gained its position as the leading port and economic center in the Yangtze Delta region.

TRADE PORT

After the establishment of Shanghai Xian, fishing and salt-extraction industry were the mainstays of the economy in this area, but they were gradually replaced by commerce and trade as navigation was further developed. Ocean trade started. But in the mid-16th century, Shanghai Xian had been frequently attacked by pirates along the coast and this led to the closing of the coastal areas to trade at one time, which resulted in an absolute decline of the port economy and the Xian's population. After years of fighting and finally annihilating the pirates' invasion, the ban on coastal trade was lifted in 1685. The following year, a Jiang-Hai (River and Sea) Customs Office was established along Huangpu River, collecting taxes on dutiable goods carried by ships passing-by. The

⁴ Later on, this river channel had gradually combined by Huangpu River.
economy and commerce of Shanghai became active once more. (Wang, 1989, p16). The mainstay of the economy during this period was local industry, e.g. cotton textiles.

In 1842, the year before Shanghai became a treaty port, it already had a population of 550,000. It had developed a number of important shipping routes: the northern routes to Yingkou, Shannon, and Yantai; the southern routes to Zhejiang, Fujian, Taiwan and Guangdong; the western routes to the ports along the Yangtze River; and numerous other routes which made use of the Su-chow Creek, the Huangpu River and the Grand Canal connecting Shanghai with other coastal provinces. Although Chinese foreign trade was at that time confined to Canton, overseas Chinese shipping lines were allowed to operate between Shanghai and Japan, Shanghai and Korea as well as Shanghai and Southeast Asia. The principle port area consisted of a semicircle along the Huangpu River, extending from the present South Pier to Shi-liu-pu (Yan, 1984, p.100). The commercial center, started in an area of 43 acres along the Huangpu River and demarcated by Su-chow Creek, was able to grow outward toward the west, south, and north if both political and economic factors provided conditions for metropolitan industrial development. Before it was open as a treaty port, Shanghai was already very active and prosperous in trade and commerce.

FOREIGN CONCESSIONS

In 1839, the Opium Wars (1839-41) started due to trade ban on foreign opium. Opium, exported mainly by the English through their manufactures in India, was shipped into China through port cities to exchange for Chinese silk, textile, etc. Known as "foreign mud", opium had poisoned the souls of many Chinese, and was used as an device for Europeans to control the Far East. At the close of the Opium Wars, foreign capitalists succeeded in forcing the Qing Government to sign the Treaty of Nanjing in 1842, which granted invaders with privileges to live and trade in China. These privileges included that: British subjects and their families, and those of countries like France and

5 The last feudal government in Chinese history.
America who signed similar agreements with Peking (Beijing), could live and work in the treaty ports, could own property, and could provide themselves with certain physical and spiritual amenities (Clifford, 1979, p16). In 1843, under the agreement of Nanjing Treaty, Shanghai became one of the five treaty ports. Shanghai was turned into a colonial city and was consistently under control of a compound of foreign countries, leading among them were Great Britain, France, America and Japan.

To their interest, the foreign capitalists took advantages and expanded the treaty as far as they possibly could. They manipulated Shanghai's industry and economy, established banks and financial institutes and used them as levers to control the economy and politics of China. The colonial situation of Shanghai lasted for about one century (1842 - 1949) until China was liberated by the Communist in 1949.

By Nanjing Treaty, foreign capitalists could establish their own jurisdictions and enjoy extra-territory rights within their land. Since the beginning of the open trade, foreign concessions and settlements were established in Shanghai in succession, occupying the major part of the old city. A Concession, known as Zu-jie in Chinese, was a piece of land granted or leased directly by Chinese government to a foreign government in return for the payment of a nominal ground rent; a Settlement, known as Ju-liu-di, was simply a place set aside where foreigners might live and deal directly with individual Chinese owners in buying or leasing land (Jones, 1939, p34). Article II of the Nanjing Treaty stipulated that:

*British subjects with their families and establishments shall be allowed to reside for the purpose of carrying on their mercantile pursuits, without molestation or restraint. ... ground and houses, the rent or price of which is to be fairly and equitably arranged for according to the rates prevailing among the people without exaction on either side...* (Jones, 1939, p3)

According to the stipulation, land was laid out in suitable lots for lease, and long-term lease was granted at the same time to the land owner - the foreign subjects. The subjects were allowed to lease their property to other foreigners as they wished, and later
on, even to Chinese. The land renters were to agree together about contributing towards the common expenses such as laying out and repair of roads, building of bridges and drains, and providing public markets and amenities, etc., (Jones, p4). From viewpoint of foreigners, they thought this system was beneficial to both sides and shouldn’t be regarded by Chinese as being in any degree an invasion of Chinese sovereign rights; on the contrary it was in complete harmony with the idea of the devolution of responsibility which lies at the root of all Chinese administration, since some public amenities such as good roads and clean surroundings were, at that time, that the Chinese government did not value or were not able to provide.

During the colonial period, four foreign countries had dominated the control over Shanghai, and each had established its own land and its independent administration. They were the French Concession, the English Concession, the America Concession, and the Japanese Concession, the last one appeared in very late stage. Later the English Concession combined with the American Concession and formed a common administrative district as the International Settlement (Fig. 1.2b). The provision of extraterritoriality in concessions and settlements had afforded a higher degree of security for life and property and offered more effective protection from excessive taxation or illegal exaction than was available in areas under Chinese control. Far more investments were made into the concessions and they were subsequently rapidly developed. Offices, banking and financial institutions were erected along the Bund, where the concessions were initiated. Even today, as a landmark of Shanghai, the Bund is still renowned for its European styles of architecture which indicates the past presence of foreign powers (Fig. 1.2d).

**COLONIAL ECONOMY**

Shanghai was used as a beach-head for further aggression into China by foreign capitalists. They controlled Shanghai’s customs offices, established banks, factories and trading houses, monopolized a large portion of its financial and import-export activities. Further more, they snatched the rights to navigation in the China seas and up the Yangtze
River. Shanghai was used as the center of a huge navigational network that included a number of international routes to Hong Kong, Japan, South-east Asia, India, Europe, the United States and Australia. It also became the dumping ground for excess foreign products and the exit point of raw materials and other supplies from China to their home markets (Yan, 1984, p101).

The annual range of ships calling at Shanghai climbed steadily, from 8,485 tones in 1844 to 37.65 million tones in 1936. The exports were mainly silk, tea, agricultural and mining products. The imports were dominated by cotton goods, woolen knitwear, luxury goods, and a fair proportion of opium. From the 1870s until liberation, Shanghai dominated China's foreign trade. It consistently accounted for about 50% of China's total foreign trade(Yan, 1984, p101).

Financial institutions of Shanghai were by-products of its trade. However, foreign capitalists made use of them as levers for controlling Shanghai and even the whole of China. Since the 1850s, a number of foreign countries opened a total of 68 banks in Shanghai. Later on, local banks with bureaucrat-capitalist and national-capitalist origins were also established. Most of these had their main offices in Shanghai (Yan, 1984, p102).

Shanghai had in consequence become the chief banking and financial center as well as the chief shipping, commercial and industrial center in China and ranked among the top ten important commercial ports in the world.

CULTURAL COMPLEXITY

Among China's foreign settlements, Shanghai was unique. It was far larger and far richer, and ultimately far more important to the home countries of its inhabitants. In other ports, though foreign settlements perched on the edge of great Chinese cities; they did not dominate their cities. Foreign Shanghai had started out this way too, but by the beginning of the twentieth century it had overpowered the city of which it was a part.
The International Settlements and the French Concession accounted for over a million of its inhabitants and included by far the greatest part of its wealth, commerce, and industry (Clifford, 1979, p7).

Compared to other colonial cities in the world like Hanoi or Bombay, Shanghai was also distinctive. Its foreign population was much more genuinely international than that of British India or French Indochina. Though the British dominated Shanghai, after the First World War they were outnumbered by the Japanese. The Americans were growing more important, and the French had always retained a significant stake. Other nationalities including Russians, Indians, Prussians, Portuguese, Italians, Spanish, and so forth also took a part in sharing the fruits of victory (Wakeman, 1992, p1). Since the first foreigners, traders and their diplomats had settled there in 1843, many others had followed as birds of passage, seeking adventure or quick fortune in what they called as “gold mine” of Shanghai. As Clifford has described:

"By the end of the First World War an increasing number of men and women had put down roots, invested both their energies and their money in the city, and saw it as their home (1979, p7)"...“Business and professional men came to work for houses engaged in the China trade or to cater to the needs of a growing foreign community. Soldiers who made up much of the International Settlement's police force, came because after the First World War Shanghai seemed to offer greater scope than did life in Europe. Americans came to be part of their country's expanding role in the Pacific. Missionaries came to save “souls” lost in the indulgence of modern wealth and glory. And many others came, lured by the excitement of life in a foreign country - a life conveniently lived among people of their own kind in a place where they did not need to learn a new language". (1979, p5)

These international expatriates brought with themselves their own social background, cultural values and religious beliefs. Having a nickname as "Paradise of Adventurers", Shanghai was unconstrained by the rules and conventions of more ordered societies and hence bounded only by the laws of human nature and human mortality.
"There was no other city in the country, no other city in the world, where foreigners wielded so independent a power in a land that was not theirs". (Clifford, 1979, p11)

**POPULATION ACCELERATION**

But Shanghai's complexity came not from the foreign presence alone. Its rapid growth meant that even its Chinese population made it a city of immigrants. The political disturbances in neighboring provinces since 1853 had caused a great influx of Chinese into Shanghai to seek life protection available in the International Settlements and the French Concession. Between 1855 and 1865, the initial stage of open trade, the population of the International Settlement and French concession had gained about 110,000 people (Wakeman, 1992, p2). These people, composed largely of gentrymen from leading *Jiangnan* cities such as Su-chow, Nanjing, and Hangzhou, brought their wealth and cultural tastes with them. New styles of life began to appear in Shanghai's concessions, and many of them had come to regard Shanghai as a new home.

Then, the development of light industry and commerce induced a second type of immigration from the countryside. Tens of thousands of able-bodied poor villagers from Jiangsu, Anhui and Zhejiang Province were drawn to the city in search of job opportunities. In the census taken by the new government in 1949, Shanghai employed at that time a total of 840,000 artisans and industrial, construction, and transportation workers in addition to 370,000 shop clerks and apprentices.

The third and most dramatic increase in Shanghai's population took place between 1937 and 1941, when Sino-Japan war broke out and Japanese troops occupied coastal China. The foreign concession, as "lone islets" in a sea of Japanese invading forces, became refuge camps for thousands of Chinese, no matter rich or poor. The population of the foreign concessions reached a total of 2,430,000, a gain of 780,000 from 1937.

---

6 The southeast part of China.
The push of social disturbances in surrounding area and the pull of economic attraction in concessions thus combined to alter the social geography and demographic profile of Shanghai in the century after the Opium War (1842-1949). While in the 1840s, less than 1 percent of Shanghai's population was to be found outside the old China town, in the 1940s no less than 65 percent population were residing and employed in the two foreign concessions, which together comprised less than 6 percent of the total geographic area of metropolitan Shanghai.

SUMMARY

Modern Shanghai was very much the product of the Western invasion of China in the nineteenth century. The manipulation by foreign capitalists made the city of Shanghai develop a character of extreme complexity among its various domains - economy, industry, society, culture and religion. The city's sophistication was further reinforced by its rapid urban growth accompanied by the arrival of thousands of immigrants from many parts of China, each group attached to another profound background. The complex background eliminated and denied the city itself an environment of cultivating a tradition which was naturally grown based on its own. In fact, "foreign Shanghai" has become the city's tradition and heritage. It is assumed that many facets of architecture and urban planning principles during this time (1842-1949) were open to the intense foreign influence.
Fig 1.1a  Map of China.
Sources: Shanghai Map Publication.

Fig 1.1b  The Regional Map of Chang-jiang (Yangtze River) Delta Area.
Fig. 1.2a  The Earliest Establishment of Shanghai Zhen.
First Source: Yan, 1984, p. 98.

Fig. 1.2b  The Establishment of Shanghai Zhen Municipality.
Original source: Map of Shanghai Municipality (Shanghai, People's Art Press. no date).
Fig. 1.2c The Distribution of Foreign Concessions in Shanghai.

Fig. 1.2d The Skyline of the Bund
Sources: Hauser Ernest O., *Shanghai: City for Sale*, 1940.
CHAPTER II:

URBAN DEVELOPMENT OF SHANGHAI
AND THE GENERATION OF LILONGS

2.1 URBAN DEVELOPMENT OF SHANGHAI

URBAN DEVELOPMENT IN THE LATE NINETEENTH CENTURY

Before 1845 (Open trade), the town of Shanghai was concentrated on a 2.04 km$^2$ piece of land, surrounded by cultivated fields, marshy soil, and Huangpu River at the east. The town center, a typical traditional Chinese town, was enclosed by fortified walls with a perimeter of 4.5 km, and accessed by seven guarded gates at the perimeter. The internal streets, basically running from south to north and from east to west, was a common pattern in most traditional Chinese cities, such as Beijing. But this town was in much smaller scale compared to the city of Beijing due to political and economical negligence by the central government. The streets were narrow, not wide enough for vehicles or carriages. Residents were only Chinese, engaged in fishing, local salt and textile trade. However, it was this small town, that had caught the imagination of foreign capitalists and been forced to open to international trades. Since then, Shanghai was on the way to head for a fast-growing modern city.

Between 1845 - 1849, when the English capitalists first came to demarcate the site for their concessions, they chose a land north to the old Chinese town and west to Huangpu River. They placed their first office and Embassy in a neglected fortress where only old ship manufactures, carpentry shops and cotton fields can be found in vicinity. All the roads around were muddy and earthy, even not in hard-surface. However, this site was of great importance due to its strategic convenience in sea and river transportation. Once an international port was established, it could operate a number of trade routes from
here that were all about 10,000 miles in distance from some of major ports in the world, such as London and New York. This site was also close to the old Chinese town, having convenience in communicating with the existing system and structure. The bond along the Huangpu River could be used as a natural defense line when there arose a coastal emergency, or to facilitate expansion of the foreign concessions westward into a much larger fields of inner mainland. For all these reasons, the English chose this site and developed it as the original concession - the English Concession. Soon after, the French chose a site to the south of the English Concession, which was called the French Concession, and the Americans developed a land to the west of English Concession (Fig. 1.2b). Later, the Americans and the English joined their lands and named it the International Settlement.

Ten years after establishment of the International Settlement and the French Concession, the countryside scenery around the bund was replaced by the scene of a booming city. Hard-surfaced roads 8 m in width were constructed and continuously expanded westward. The port was built along the Huangpu River within the English Concession, and had grown to be one of the biggest port in the nation. Clusters of foreign concrete-slab buildings in a variety of European styles were erected along the Bund.

Till 1914, the foreign concessions had obtained an area of 32.32 km², sixteen times of the old Chinese town. Within this area, the International Concession was 22.6 km², and the French Concession was 10.22 km² (Fig. 2.1a). Its advantageous geographic condition and rapid development imposed Shanghai an ever-increasing position. It soon replaced Guangzhou, an open port city in the southern coast, to be the new national center for trade, commercial, transportation and light industries, etc. Shanghai was also listed among the top ten international trade ports, and had established trade relationships with over one hundred countries all over the world. The original concession had turned out to be the commercial and financial headquarters of Shanghai. The Bond, with its grand foreign-styled architecture, became a symbol or landmark of the city.
2.2 URBAN CHARACTERISTICS OF SHANGHAI

TWO CATEGORIES OF MODERN CITIES

Review the development of modern cities all over the world, one can find out that they fall into the following two categories. The first category is the progressively formed cities, of which the internal social and economic transformation reshape the civic structure and gradually leads to the functional change of the city. The second category is the explosive (eruptive) cities, of which the external forces drive the cities’ function to change in a short period. Shanghai is one of the second category of cities. It did not naturally and progressively grow from a traditional Chinese city, but was built on foreign concessions and geared by foreign forces. Within one century, from a small fishing town it came up to be the biggest modern city in China (Fig. 2.2a).

STREET PATTERN OF SHANGHAI

Shanghai’s commercial prosperity brought about further expansion of foreign concessions. Unlike other Chinese port cities such as Guangzhou and Tianjing, where the foreign concessions only occupied a small portion in the old city and located far from downtown, the concessions in Shanghai were overwhelming in size and formed the core urban area in the city. Also differed significantly from other port cities, Shanghai’s concessions enjoyed complete administrative-autonomy. Chinese government can hardly interrupt any of their internal affairs. Therefore, foreign system, from political policies to economic measures, from urban planning strategies to construction technology, were given a free and full play here.

Streets were 6.6 m to 8 m wide, at 35 m to 45 m intervals. Chinese traditional pattern of street network, in which roads strictly complied with the four orientations - the south, north, east and west- and intersected perpendicularly, was somehow respected but not exactly followed. Though most of the streets were basically directed from south to north or from the east to west, there was no single major road that was perfectly straight and thus the street pattern derived was somehow crooked and spontaneous. The outcome
was random but organic. This was in reference to the existing numerous free-running water-ways of the delta which were taken into consideration when new roads were to be formed (Fig. 2.2b).

Shanghai’s street network was also lack of a well-formed grid system. The pattern of two series of parallel streets crossing at right angles to form a pattern of equally-sized square blocks dominating urban fabric of the Old City of Beijing, is not found here. The organic street pattern and the inconsistent grid system resulted in urban blocks varying in sizes and shapes.

However, there were still some urban characteristics which can be identified. 1). The street pattern of Shanghai is a variation or twisted one of traditional checker-board pattern (Fig. 2.2b). The urban grid system is a mixed patch of several of different types. The street pattern in the original concessions was comparatively regular and standardized, with a recognizable pattern of gridiron system. The street pattern in later developed areas seemed more random and casual, each area may be associated with a different grid system. 2). All streets and roads seemed to start off from the place of the earlier concessions- the area around the Bund, and radiate to the west, north and the south. The city grid in earlier concessions is much denser, and gradually decreased its density in the outer districts. This character once again demonstrated the decisive position of the earlier concessions in the process of urban development. It is predictable that the earlier concessions have become today’s Central Business District of Shanghai, because most of the financial and commercial institutions were built around these areas. 3). Finally, the overall organic pattern of street network associated with its mixed patch of city grid system, is unique to the city of Shanghai, differing from other traditional cities.

Two factors had an impact in shaping this street pattern and grid system. One is that the natural geographic conditions of this densely-navigated water-town was such that it was hard to bring up a clear-cut traditional checker-board pattern of street network. The other one is the subdivision of foreign concessions and assignment of their
development to different private owners and developers is hard to come up with a
standardized or uniformed pattern of city grid. These foreign developers came to
Shanghai to exploit a quick and short fortune, bearing no long-term prospect or plan in
management and civic plan. The foreign governments had done little to coordinate and
bring up all the parts.

To further explain, Shanghai was divided into three different zones politically at
that time - the International Settlement (owned by the English and the Americans), the
French Concession, and the Chinese Old Town. Each of them had its own government,
maintaining an independent administration, and applying separate strategies in city
planning. As Brian G. Martin wrote about: “Modern Shanghai was not a single city, but
three different cities.” The existence of the three, and their individual administrative-
autonomy, caused out-of-balance and non-integrity in the whole city’s development. In
the city’s planning, though there were orders in small patches, but the ensemble lacked a
carefully designed master-plan. This situation was a particular product of that semi-
colonial and semi-feudal society. However, it was this densely-intersected and
crookedly-composed pattern of street-network, combining with the water-ways, that
formed a dynamic circulation system conveying the commercial and trade activities of
this city.

AN INTEGRATION OF TRADING AND DWELLING ACTIVITIES

Accompanying the rapid development and commercial prosperity of the city,
population grew. Shanghai had attracted millions of migrants, most of whom were
manufacture workers, and some were petty bourgeoisie, high-rank clerks, educated
abroad and foreigners, etc. According to population census record, from 1885 to 1935
Shanghai’s migrants represented 80% of the city’s total population; and from 1910 to 1930
the whole population had tripled within twenty years, increased from the beginning one
million to three million. Reviewing the whole length of open trade (1852 - 1949) period,
the population increasing rate had reach 902%.
The whole city was geared to the open trade. Most of people engaged in commercial or business activities. The major roads like Nanjing Road, Sichuan Road and Jingling Road were mostly occupied by important foreign or national financial agencies, offices, large shops and restaurants. Entertainment such as theaters, clubs and parks were also mixed in. Other smaller roads were also abundant of small business which were essentially home-based. Shanghai’s prosperity was best expressed by its vast array of assorted shops and wide variety of recreation, no matter large or small or owned by Chinese or foreigners. The city was renowned for its “ten miles of commercial streets”. It got a nick named as “Paris of the East”.

Shanghai’s rapid development and its highly valued downtown land resulted in every street facade reserved for commercial activities. This can be expressed by an old Shanghainese saying: “An inch of space in the street frontage designates a life-time of fortune”. However, the prosperous commercial space was challenged by great influx of migrants as to where to allocate the huge population without interrupting the spatial continuity of commerce along the main street-facade? how to maintain Shanghai’s first appeal as “ten miles of commercial streets”? and how to find out an indigenous settlement pattern that could create a nice living environment within the constraints of technology but without sacrificing the high real-estate value? These were serious tasks for architects and planners to solve.

Hence, the first prototype of lilong housing, in the form of temporary wooden shacks, were generated exclusive to Shanghai. Later, after many years of experimenting, lilong housing were built in brick or brick-concrete mixed structures, and gradually became a mature pattern of housing prototypes that were widely constructed in Shanghai. Lilongs, in a pattern of placing commercial space along all street frontages of urban blocks, and residential space inside, not only met planning code and real-estate expectation, but also were highly appreciated by local residents. It was the only collective housing prototype ever applied in Shanghai before the Liberation. The urban
design principles and planning concepts of this indigenous settlement pattern of Shanghai had left many thoughtful ideas for posterity professionals.

Lilong housing had been integrated into urban street blocks in which shops occupied the street frontage, and the housing took the enclosed hollow space. Lilongs can be accessed from one to several of openings in the street facade, usually in the form of archways. Sometimes several of lilongs shared one hollow space and each of them had separate entrance from the street facade.

From urban design point of view, two types of urban spaces were thus formed. One was the outer belt-shaped space, composed of commercial streets and the shops along them. This space hold the busy commercial activities and traffic circulation, giving the city its outwards appearance. It was open, dynamic, and connected to every corner of the city's street network. The other one was the inner block-type space, which consisted of rows of low-rise housing. This space, separated from the first, was enclosed, quiet, and safe. Accessible from the urban streets, the entrances can be controlled. It was these two spaces that confined two differed daily activities. The outer one was used for commercial activities and urban traffic, the inner one was used for residential activities. Though there were several inner lanes in the residential area allowing vehicles, most of them were kept as residents' exclusive and intimate domain for neighborly gathering. The street shops defined the two different spaces, linked the two together, and most importantly, protected the inner residential space from the noise of the city.

2.3 THE GENERAL PATTERN OF LILONG HOUSING

"Li" means communities, "Long" means lanes. Simply put, lilong housing, is a type of lane-and-community based urban dwelling form.
The site of a lilong generally has one or two sides bordered by urban commercial streets, and the rest of shores given to other developments but enclosed by walls. Every lilong consists of housing and commercial units. The housing units, tightly attached in rows, except the later variation of Garden or Apartment lilong house models, are evenly aligned and distributed inside of the site in a Western row-housing pattern. Commercial units, in a similar layouts as housing's, occupy all street-front lots. The housing units are accessible from internal circulation lanes, and the commercial units are accessible from external commercial streets (Fig. 2.3a).

The internal circulation structure comprises of a couple of main lanes and a series of side lanes. The main lanes are directly connected with an entry gate-way, accessible from external urban streets. Located in the central positions of the site, they form the public circulation space of the community, and are often used as gathering place for socializing. The side-lanes, normally connecting to the main lanes perpendicularly but paralleling to each other, lead to housing units. Mostly dead-ended, they are used as extensions of homes since the high safety is assured within this space. The framework of main lanes and side-lanes, apart from its circulation function, is a part of residential living space.

The entrance, aligned among the busy commercial street facades, is recognizable with its unique arch-way form that bridges the main lane. It is constantly under the control of a social organization of the residents' committee, housed near the arch-way.

In Chinese, five families means a neighborhood, five neighborhoods a "Li", the number of housing units aligned in one row will be at least five. Each housing unit, occupying a narrow-front lot, gives access to one secondary lane at the front and another at the back. It usually retains south-north orientation - a design feature considered important in Chinese traditional philosophy.

Commercial and social type of small scale services - groceries, barber shops, newspaper and cigarettes stands - are integrated into the site, taking the space adjacent to
main lanes or entrance area. Not only do they provide for the daily needs of the residents but also enrich the community's life. Garage space is a design consideration in the New-type, Garden and Apartment lilongs. They were sometimes accommodated in the housing units, or placed in awkward-shaped or left-over space in the site, considered unsuitable for housing.

As one spatial and social entity in its urban setting, a lilong settlement may vary in size from 0.35 to 5.0 hectares.

2.4 THE DEVELOPMENT OF LILONG HOUSING

SOCIAL NEED FOR COLLECTIVE HOUSING

The fast development of the city's economy stimulated the growth of its industry. There were increasing number of Chinese coming to the foreign concessions. Thousands of able-bodied villagers were attracted to Shanghai by the promise of job opportunities, and some others came to seek protection from political disturbances in neighboring provinces. Land price increased sharply, there was a desperate need for large amount of collective housing to shelter the influx of population. The English subjects quickly recognized the profits in developing large-scale housing, and thus a hastily built great quantities of high-density wooden-shacks to sell or lease to Chinese. Till 1876, there were 105 collective housing named by "Li" in foreign concessions (Wang, 1989, p75).

PREDECESSOR OF LILONGS

Francoise Ged has described the earliest situation of housing development in Shanghai:

"The boggy ground on the outskirts of the Chinese city, which had been allocated to the British and French consuls and which their nationals had begun to occupy, was transformed into a potential 'gold mine'. Land and real-estate speculation took hold; very quickly, all the parcels were occupied. The Western landowners in the concessions divided their land into lots and hastily built
wood housing to be rented to refugees. According to official agreements, it was forbidden for Chinese to live in the concessions; given the profit for some and the interest of others, this directive was circumvented, and neither consuls nor the Chinese authorities did anything to respect their original commitments." (p. 173)

This type of housing, built in a similar pattern as the by-law housing that had once prevailed in London after the Industrial Revolution, was the predecessor of lilong housings. However, being in poor condition, they were more like temporary shelters for the rapid growth of population.

THE FIRST STAGE OF LILONG DEVELOPMENT - THE OLD SHI-KU-MEN

From 1869, onwards to improve housing conditions and for the sake of fire safety, the wooden-structure were abandoned. Brick-structures with a part wooden-structure were adopted to develop formal type of housing for traditional extended rich families who mostly came from neighboring provinces. This could be considered as the real beginning of lilong housing’s development in foreign concessions. Known as Old Shi-ku-mens, lilong housing opened the first page of its development.

THE SECOND STAGE OF LILONG DEVELOPMENT - THE NEW SHI-KU-MEN

With further development of local industry and establishment of national manufactures, thousands of poor villages were attracted to Shanghai. By the start of the First World War, the population of Shanghai had reached 2,000,000, comprising manufacture-workers.

Most manufacturers were built around the concessions. The owner of the plant would also develop a parcel of land in concessions and built houses to rent at cheap price to his workers. The increasing population in the foreign concessions as well as the demand for housing promoted the commercialization of lilong development. A number of foreigners quickly recognized the profits and established real-estate companies. Later this adventure was joined by national real-estate companies. With the continuous expansion of foreign
concessions in the late nineteenth century, lilong housing became a prevalent prototype for mass construction known as New Shi-ku-men lilongs.

At this stage, lilongs were modified to adapt to more compact urban lots and less demand for space. Besides manufacture workers, New Shi-ku-men lilongs were also made to shelter small-sized, non-traditional families which emerged after the disintegration of traditional extended families with the dismantling of the Qing Dynasty in 1911. Hence, as a result of social transformation, small-sized, low-income families made up the population of New Shi-ku-men lilongs.

THE THIRD STAGE OF LILONG DEVELOPMENT - THE NEW-TYPE & GARDEN LILONGS

The prosperity and glory of Shanghai introduced a new social class. They included entrepreneurs of large- or small-scale manufacturing who were attracted to the city by its growing economy; the elite of Shanghainese society, educated abroad - in Europe, the United States, Japan - were all coming back after the fall of Chinese Emperor, to engage in the development of a new nation; and a large numbers of Chinese clerks working in the foreign companies, intermediated between Western and Chinese societies. These groups of people sought a daily framework in the concessions that reflected their new social status ways of life.

At the same time of the development of concessions, public amenities were improved. The earliest gas, electricity and running-water facilities which were not possibly supplied in the areas under Chinese administration, had become a common welfare and were made in use in residential areas of concessions. Public roads and sewerage system were improved. Parks, race-course for horses and other amusement amenities were developed, adding delight to modern life-styles that were yearned for by the upper standard society.
The new social class accepted Western ways of life very quickly. Features like toilets, fireplaces, telephones and garages were required in dwellings. Complexity of rooms, magnificence of interiors, and standard of facilities represented the class and level of a family and hence were strongly admired. Under this circumstances, the New-type Lilongs were generated to provide a compact but upper standard living for a wide range of middle-class families, while the Garden Lilongs, as a luxurious type of living to cater for a few extremely rich, came into its prime.

**THE FORTH STAGE OF LILONG DEVELOPMENT - THE APARTMENT LILONGS**

The continuing increase of economy and booming construction of commercial building in Shanghai accelerated the real-estate value. Another type of lilong - the Apartment Lilong came into being. Built out of concrete-frame structure, they adopted contemporary building technologies. As a type of medium-rise pattern of lilongs, they offered off-the-ground living in a recognizable western way, and were advantageous in its efficient construction methods.

A land-use distribution map made in 1936 showed that the most parts of housing were developed in areas between the International Settlement and the French Concession, in another word, in today’s city center, and some were developed in the northern part of the International Concession, close to today’s West Train Station. The industry and the retail use were mainly distributed along the Huangpu River or on the eastern shore of it (Fig. 2.4a).

**SUSPENSION OF LILONG’S DEVELOPMENT**

At the end of 1941 the construction of lilong come to a halt since Shanghai fell under the control of Japanese conquerors. After the Sino-Japan War, Shanghai’s economy fell into depression. The real-estate development also stagnated. There were very few lilong housing constructed during this period. After the national liberation in 1949, lilong housing, though as a vernacular settlement form exclusive to Shanghai and that afforded traditional and socially cohesive pattern of living, was considered somehow non-
competitive or inefficient in its construction technologies and delivery methods compared to that of modern apartment buildings. The city was stormed by a prefabricated mass housing construction in its outskirts to shelter a new working-class society. Lilongs have never been built since then.

LILONGS AS A HOUSING HERITAGE IN SHANGHAI

The development of lilong housing lasted for about one century (from 1842 to 1949), coinciding with the Western presence in this port city. Though it was not specifically a product of Western culture, and Westerners rarely lived in it, a great part of its housing models and their evolution was influenced by the western thinking. Today lilong has become an traditional housing emblem of Shanghai.

2.5 CLASSIFICATION OF LILONG HOUSING

According to the condition under which they were conceived and developed, or the type of residents they served, but the most importantly, the layouts of the settlement’ basic unit - the houses, lilongs can be basically classified into five categories.

1). The Old Shi-ku-men Lilongs:

The development of the Old Shi-ku-men Lilong started from 1880. Its production ended approximately around 1915. They inherited most characteristics of the courtyard house models prevailing in the Jiangnan region. Intended for traditional extended families, there were few modification made to this rural form, when applied in an urban context. These lilongs essentially comprised attached courtyard houses, were two-stories high, and were built with brick or brick-and-wood mixed. Because of their structures, it is hard for them to survive to today.

2). The New Shi-ku-men Lilongs:
Similar in pattern to the Old Shi-ku-men, the New Shi-ku-men Lilongs were rows of attached courtyard houses, however the layouts of houses were modified to adapt to the needs of small-sized, low-income families. Being very dense and harshly built, the function of houses were not well considered, and their interior standard was restricted by the current technology. Developed in large quantities for manufacturing workers who made up the majority city population, the New Shi-ku-mens accounted for almost 50% of the total built areas of lilongs in 1949. Due to their crowded and poor conditions, most of them are already demolished and the rest are slated for renovation.

3). The New-type Lilongs:

The construction of the New-type Lilongs started in 1915. With development of building technologies, new models with considerable improvement in function and interior facilities were generated to satisfy a wide range of emerging middle class. Variations on unit-layouts enriched housing prototypes and provided a wide range of housing selection. Though houses were still attached to each other, courtyards and other traditional elements diminished, while open characters grew. Hence the New-type Lilongs gradually attained the similar characters as Western town houses.

Prevalently renowned for their favorable functions, the New-type Lilongs were built in tremendous quantities in the center city from 20s to 40s. Being in good structural conditions, most of them have survived until present and will be kept in use for the next several decades. Lilong housing found in the city today comprise mainly of this type.

4). The Garden Lilongs:

The Garden Lilong were detached or semi-detached luxurious houses in a lilong pattern. Having spacious gardens in the front or at the back, the houses often occupied large-sized lots in prestigious locations. Constructed in brick-, or brick-and-concrete mixed, they maintained sound shape and many still keep good exterior look. Attained a vivid international styles and exquisite structural decoration, the Garden Lilongs enriched
architectural forms of the city. They catered to extremely high-income families, and were developed in small scales from the 20s to the 40s.

5). The Apartment Lilongs:

The Apartment Lilongs generally consisted of five- to seven-storied, concrete-framed structures. Similar to contemporary apartment buildings, each structure had common lobbies, staircases and elevators shared by families using the same entrance. Each unit, accessible from a common corridor, displayed the whole suite - a living-room, a couple of bedrooms, a kitchen and bathrooms - on the same floor, unlike units in other types of lilongs in which every house had rooms spread on different floors. Intended for middle income, small-sized families, the Apartment Lilong were developed from the 20s to the 40s in small scale.

SUMMARY:

There were other garden houses and apartment buildings in Shanghai during this time, however, if they were developed individually and didn't embrace a group pattern featured in lilongs, will not be considered as lilong housing.

A land-use distribution map made in 1936 showed that the most parts of housing were developed in areas between the International Settlement and the French Concession, in another word, in today's city center, and some were developed in the northern part of the Common Concession. The industry and the retail use were mainly distributed along the Huangpu River or on the eastern shore of Huangpu River (see Figure 2.4a).
1. The original British Concession stipulated in 1846. Area: 55.36 ha. (unit: hectare)
3. Added patch of the American Concession in 1893. Area: 524 ha.
5. The original French Settlement stipulated in 1849. Area: 65.77 ha.
7. Added patch of the French Concession in 1900. Area: 68.63 ha.
9. Old Chinese City

Fig. 2.1a Distribution of Foreign Concessions and Road Construction in Shanghai from 1846 ~ 1914.
Fig. 2.2a  The Evolution of Shanghai During the Last One Century.

Fig. 2.2b  Urban Frame of the Shanghai Inner City
(before 1945)
Fig. 2.3a Site Plans of a Few Lilong Settlements Showing Circulation Framework & Land-use


1. Entrance
2. Main lane
3. Side lane
4. Residential units
5. Commercial units
Fig. 2.4a  Land Use in Shanghai Urban Area in 1936.
Source: Yan, 1984, p. 104.
CHAPTER III:
FIVE HOUSING MODELS OF LILONGS

The variation of five housing prototypes was an outcome of a specific social, historical and urban context, however, they were just different fruits that stemmed from the same planning principles. By comparison, the Old & New Shi-ku-men lilongs were the most ground-related, traditional courtyard pattern of dwelling. The New-type lilongs released houses from the traditional enclosing pattern, and integrated open characters into the new compact urban dwelling. The Garden lilongs, in semi-detached or detached form, were land-consuming and were special types made for special group. The Apartment lilongs recognized the high land value, and conformed to the modern multi-storied housing construction.

3.1 THE OLD SHI-KU-MEN LILONG HOUSE

The earlier style of the Shi-ku-men houses had adopted the general pattern of row-housing which originated in London, yet the layout and structure of each house unit derived spatial concept from traditional Chinese dwelling models of San-he-yuan\(^7\) or Si-he-yuan\(^8\) prevailed in the south-east China region. Hence as a variation, the basic housing prototype of Shi-ku-men lilong took the form of a main two-storied building body at the front enclosing a central courtyard and linked to a rear one-storied building body through a light-well (Fig. 3.1a).

\(^7\) Which means a three-sided courtyard - a compound with houses built on three sides around a central courtyard.

\(^8\) Which means a four-sided courtyard - a compound with houses built on four sides around a central courtyard.
layout (Fig. 3.1b)

On the ground floor, the house comprised: one spacious main room, known as Jian⁹, on the central axis facing towards a front courtyard; two secondary rooms, known as Shang¹⁰, placed symmetrically beside the main room. The central room was used as a drawing-room or ancestral room with detachable floor-to-ceiling French windows, while the secondary rooms were used as bedrooms or library. A stair-case, generally with one landing, was located at the back of the central room, and lead to the second-floor where more bedrooms were located. A lower building body, consisting of service rooms like a kitchen and storage-rooms, was located at the back of the two-storied main body and linked to the front by a narrow service courtyard. The service courtyard, 1.2m ~ 1.5m in width also functioned as a light-well. The house was accessible from side lanes respectively from the front and from the back. The front lane gave formal entry to the house; the rear lane, often called the service lane, was used for preparation of cooking and as playground for children (Sheng, 1987, p.332-340).

In some cases, there were three Jian-rooms instead of one Jian in the central space. The greater the number of jian, the more prestigious and wealthier the family was (Fig. 3.1c, Wang, 1989, p.47).

The courtyard was enclosed by a 5m-high brick wall at the front, having a stone-framed opening. In the Old Shi-ku-men Lilongs, slabstone was used as the door-frame, while traditional Chinese wood planks was used as door-leaves. This seems to provide some clue to the name used for this type of lilongs, since “shi” means stone and “men” means door, and “Shi-ku-men lilong” may imply that the buildings were featured with stone-framed doors. In reality, the most prominent impression one can conceive about this enclosing type of dwelling when viewing from outside, was its strong rhythm of stone-framed doors echoed in the side lanes (Fig. 3.1f, refer to exterior elevation).

---

⁹ Jian: traditional name for a complete main room. It is usually the space that spans between two or several of structural bays.
¹⁰ Shang: traditional name for a complete secondary room.
The lanes of the settlement were only 3m wide, but still ensured the interaction of outdoor activities, both familial and neighborly (Sheng, 1987, p.34).

**Fenestration**

The house was conceived to receive most of its light from the internal front and back court-yards controlled by the family rather than from exterior public space. The courtyard was conceived as a traditional way to individualize the house, and more importantly, to solve the problem of ventilation and sunlighting in the ground-floor space in long narrow lots. With the existence of courtyards, sunlight falling onto the internal surrounding walls can be moderated. The hotter temperature of outside open space and lower temperature of inside open space generated an air pressure gap which promoted a wind draught that can be trapped into the courtyards to ventilate every room (Zhang Jianmin, 1992, p. 104). Cross-ventilation through the house and a nice micro-climatic environment surrounding the house was thus attained (Fig. 3.1d).

Large screen of French windows in central room improved the sense of spatial transparency and visual fluidity in the interior space. The French windows can all be removed when there was a need for large space to accommodate the traditional ceremonies or family gatherings. In this way the drawing-room was united with the courtyard, allowing openness and commodity within the defined space (Fig. 3.1e).

The rear part of Jian- and Shang-rooms relied on the light-well for ventilation and lighting. Auxiliary rooms like kitchens received light from service lanes and light-well. The second-floor space has plenty of resources and means for lighting and ventilation.

**Exterior**

Seen from the outside, the house, enclosed by high wall, with few fenestrations, maintains its inward-looking character and sense of integrity (Fig. 3.1f). The appearance was delicate and rich in details. The repetition of stone-framed doors on gray-bricked
exterior walls added up a strong sense of rhythm to this enclosed pattern of living. Traditional architectonic elements were kept in the elevation.

**Structure**

The house plan was facilitated by the flexibility of structure, which was based on two bearing walls on the east and west ends of the unit lot, and wooden posts defining interior bays and partitions. The bays were generally 3.6m - 4.2m wide (Wang, 1989, p.45). The lot size was a multiple width of the structural bay (usually three or five times of the bay) and usually 16m deep. The traditional wooden-truss system was adopted for the building’s roof structure. The wall structure was a mix of brick-and-wood, with the wooden posts as bearing structure and the brick wall as an infill and partition (Fig. 3.1g).

**Interior Facilities**

The interior facilities were poor. Bathrooms were not conceived as an integral feature in the house. Every family used a night-stool (also known as a chamber pot), usually placed in the light-well, functioning as a toilet. These night-stools were emptied every morning by farmers who came to door to collect them. Electricity, heating and gas were not applied to the house yet (Xu Jingyou, 1983, p.21).

**Summary**

The climate in Shanghai is warm and humid for a good part of the year, part of daily life takes place outdoors. Apart from their functions as supplementing space for ventilation and sunlighting, the lanes and courtyards provide a hierarchy of transitional space from the most public to the most private. While the lanes promote communal and neighborly outdoors interaction, the courtyards assure privacy and personalization in familiar daily living (Zhang Jianmin, 1992, p.105).
3.2 THE NEW SHI-KU-MEN LILONG HOUSE

After the collapse of Chinese Empire in 1911, the traditional extended families started to disintegrate. Migrants from the countryside were attracted to Shanghai by the promise of jobs in its growing industry. Population grew sharply. Lilongs had to be adapted to suit the low income of families who would afford and required less space. Land speculation increased rapidly. Concern of land-use efficiency took hold. Under this circumstances, the Old Shi-ku-men Lilongs were modified into high-density scheme with reduced or minimum courtyards.

Layout (Fig. 3.2a)

The most obvious modification in plan was the abandoning of traditional layout which were one Jian and two Shangs enclosing a center courtyard. Instead, houses were mostly comprised a single Jian, facing on to a reduced size front courtyard (Fig. 3.2a-a). Only the end units of a housing row were exceptionally composed by two rooms as one Jian and one Shang, enclosing a courtyard at the front (Fig. 3.2a-b, Sheng, 1987, p.35-36). The composition of two building bodies for a house - living zone at the front and service zone at the back, still remained.

Besides the reduced number of rooms, another major modification was the reduced size and height of rooms. Some lilongs put up three-stories in the front building body, and the service space added up to two stories. The living and service zones were linked by 1.2m ~ 1.5m wide internal corridor, which supplemented light to the kitchen and rear part of living space. The house were still accessible from the front and the back (Fig. 3.2c). The size of the front courtyards shrank to 2m by 3m. (Wang, 1989, p.47-50)

Function of each room more or less remained as the same as before. However, with the change from a horizontal pattern of layout to a more vertical one, separation of different functional zones took place. The ground floor was used for public family activities, and the
second and third floors were used for family private activities. The staircase kept its location at the back of the central hall, but it had two landing due the reduced width of the Jian-room.

**Fenestration**

With the gradual shrinking of inward-looking atmosphere and diminished size of internal courtyard, windows on exterior walls increased to facilitate lighting and cross-ventilation throughout the house. The central hall had a full screen of detachable French windows giving to the courtyard.

**Exterior**

The idea of stone as the door-frame of the front entrance remained, so did the word of Shi-ku-men in the lilong’ name. However the houses were enclosed by lowered brick wall (Wang, 1989, p.50). The difference of building height between the front and back two bodies, more fenestration on exterior walls, conveyed a vivid look to this type of lilongs (Fig. 3.2c). Traditional ornamentation persisted.

**Structure**

The structure retained the mixed brick-and-concrete structure for walls and wooden truss for roofs. As the lot size shrank, the width of a bay reduced slightly from 3.6m - 4.2m to 3.2m -3.9m. The width of a lot was one bay’s width for a central house unit, and two bay’s width for a corner house unit. The length of a lot was also reduced to about 14m.(Wang, 1989, p.50-52)

**Interior Facilities**

Interior facilities did not changed.
**Summary**

The New Shi-ku-men lilongs had both advantages and disadvantages. The highly densified minimum-court scheme had recognized the high land value, and optimized the housing number in a given site, hence it was more appropriate for the dense to the compact urban context. By reducing the number of interior bays, or by diminishing their size, a maximum number of residences could be erected on a given site (Ged, 1994, p.174). The houses, usually occupying only one-fourth to one-third of the lot size of that Old Shi-ku-men houses, achieved highest density as 70% ~ 80% (Yu Minfei, 1992, p.148). The separate layers for private and public spaces, economic use of courtyard, and spatially compact layout, etc., reflected a new mode of life for small-size, low-income families.

The Shi-ku-men type of lilongs, no matter old or new, still favored a traditional way of living. Highly introspective, houses fostered an intense sense of privacy and tranquillity, which kept out the hustle and bustle of the city and the sight of the public. Within the enclosing wall, the houses also allowed an elastic way of utilization and personalization of one’s private domain (Xu Jinyou, 1983, p.24). However, poor sanitary facilities and interior utilities, were some of the severe problems existing in Shi-ku-men lilongs.

**3.3 THE NEW-TYPE LILONG HOUSE**

With the development of local economy, the housing had undergone profound changes. Polarization of the rich and the poor promoted the generation of lilongs in more styles to suit the needs and to favor the taste of different social class. Except the highly densified, minimum court schemes, there had developed an urgent housing need for a new emerging social class. The New-type Lilongs came into being in response to this need. Its three different modes of house models provide more choice and enriched the housing market (Wang, 1989, p.55).

---

11 Site coverage percentage.
The great flexibility and adaptability provided by variation of house models, the significant achievement in interior function and facilities, and consideration in livability and comfort, made the New-type the most favorable and successful type of lilong dwelling. Developed in large scale, they are the most important among all existing lilongs today. Most of them are to be upgraded under the municipal rehabilitation program, and will be kept in use for the next several decades after improvement (Yu Minfei, 1992, p.151).

**Layout**

The layout of a house could be composed basically in the one jian, one-and-half jian, or two-jian modes. The buildings were generally three-storied high. Rooms were more defined with their usage. Waste of space decreased. The three different modes of layouts in the New-Type Lilongs, with their wide variety of modification and combinations, provided a diverse range of house models different in sizes, layouts and standards.

1. **The One-jian Layout:** (Fig. 3.3a)

   The standard lot size of a one Jian house model was 4.2m by 12m. The layout was basically composed in this way: the Jian used as a living room containing dinning area facing to a front courtyard, a kitchen and a bathroom as the service area located at the back and linked to the front living zone by an internal corridor. The front courtyard, 2 - 5m in depth, were sometimes enclosed with brick walls, and sometimes fenced with steel-trellised frame or hollowed brick wall, in such cases the courtyard turned out to be a front garden. Small in size, the courtyard was considered more manageable. The house could be entered either from the front or from the back. The internal corridor also functioned as a light-well, 1.0 -2m wide, supplementing lighting for the bathroom and dinning area. (Sheng, 1987, p.38-40).

   On the second story, there were a master bedroom, bathrooms and a library. The third story was used as bedrooms for children and guest-rooms. As the idea of introspecting
and inward-looking atmosphere gradually dying out, off-ground open space such as balconies, roof terraces were added on upper floors to increase the sense of openness.

Compared to the other two models, the one-jian unit is lack of necessary space for circulation, which led to direct entry into living-room and resulted in disturbance between different activities. However, the direct entry into the kitchen allowed a more frequent use of service lanes, and promoted more social contact, since homemakers could do cooking preparation in service lanes while watching children playing. The side-lanes become an extension of service zone, very important in daily familial and neighborly activities (Zhang Jianmin, 1992, p.105).

This model had some disadvantages. The compact lot size lead to the most coverage of building mass except small void space for courtyards. The limited surface of exterior walls restricted ventilation and lighting, since they had to rely mostly on the one-spanned front and back exterior walls, as well as the internal light-well. The privacy of the house was not very good. The partition walls between every two units were not well insulated. Acoustic disturbance couldn't be prevented(Zhang, 1992, p.106).

**II. The One-and-half Jian Layout** (Fig. 3.3b)

Based on the one jian house model, a half jian was added to the house aiming at solving the problems of insufficient circulation and private open space. At the front, the half jian was converted to a circulation corridor which consisted of entrance and stair-case; at the back, it was used as a service courtyard located beside the kitchen.(Sheng, 1987, p.47-49)

The existence of corridor and side yard improved physical function of the house considerably. The front corridor eliminated traffic disturbance to living space and helped organize the horizontal and vertical circulation of the house more clearly. The side yard enhanced the efficiency of service activities as food preparation, cleaning and laundry areas. Both spaces also functioned as spatial insulation inserted between two dwelling units,
neighborly interference was thus reduced and better privacy attained (Wang, 1989, p.64). The diagonal location of the two, allowed more direction of ventilation throughout the house and more exterior walls for fenestration, for example, the side-yard enabled the kitchen to have west-facing windows.

In one and half-jian unit, the second story was used as sleeping & reading area for the master, and the third story was used as sleeping and playing area for children. A roof terrace was created on the third floor above the kitchen, offering spacious above ground semi-open space - terrace.

The simple but creative integration of half-jian into layout helped improve livability of a house within its compact urban lot. The house, occupying an average lot as 6.3m by 12m (Wang, 1989, p. 55-60), had double access and double yards, usable open space, separation of private & public zones, clearer spatial order, and better ventilation & lighting condition.

The use of side yard as extension of family’s living space, created a spatial fluidity running from one family’s side yard to the service lane, and into another family’s side yard. This also allowed a flexible way in conducting housework and neighborly social interaction (Xu Jinyou, 1983, p.23). Residents, living so close to each other, sharing their daily life, established a strong sense of friendship.

**III. The Two-jian Layout:** (Fig. 3.3c)

The two-jian house model basically comprised: two spacious rooms, - a drawing-room and a living-room - one recessing from the other; the service areas located at the back linking to the front building body by an internal corridor. The second and third story were not much changed from the previous models, except the number of bathrooms and standard of interior facilities were raised. The usage of rooms was more defined (Sheng, p.40, 1987).
A garage was integrated into the service zone as two-jian house model was created to cater to higher income families. Sometimes garages were put together at irregular-shaped area of the settlement site, wherever considered not good for housing. The width of side lanes were generally increased to 5 ~ 6m, assuring enough space for vehicles to pass (Sheng, 1987, p.40).

The normal lot size ranged from 7.2m by 9m to 8m by 12m. The building mass, having increased width and decreased depth, would naturally ensure better lighting and ventilation throughout the house(Wang, p.66, 1989).

The 3 - 5m deep front garden became a nice amenity of the house. It was ample and manageable in size, and protected with steel-framed fence or 1m high brick wall. It allowed much personalization, and enhanced the sense of ground-relatedness and openness of the house. Children could play in the garden under supervision of their parents sitting indoors. The interior space, having large windows facing onto the garden, could borrow views from the garden, without sacrificing much of its privacy. This visual and spatial permeation of interior and exterior expressed the new open way of living. Mezzanines and roof-top gardens, large bay-widows swarmed.

Circulation was concentrated and distributed on the service zone. The different location of stair-case in the service zone gave the house different advantages. 1). When the stair-case was located at the center of the service zone, rooms like the kitchen, storage, and bathroom could get direct access to it. This articulation shortened the routes of circulation (see Fig. 3.3c). 2). When the stair-case was placed at one end of the service zone, the circulation space became independent from other rooms. This placement was especially beneficial when a family divided from one unit into three different apartments, each occupying one floor. In this case, every family could enter from the back entrance, using the stair-case to access one’s apartment without disturbing the other two families (Fig. 3.3d). This arrangement provided more flexibility in using the house differently during the life cycle of a family.
Overall, compared to the previous two models in New-type lilongs, the most prominent features of this model, is its better functional layout, effective spatial organization, and high quality of interior finishes and facilities (Wang, 1989, p.64-66). However, this model was more land-consuming. The spacious two jian house model was suited to large-size and high income families.

**Exterior**

With the abandon of the exterior enclosure walls, features and elements of an open character increased. Exterior fenestration were increased to improve ventilation. Gardens, balconies and roof terraces appeared frequently. In some cases, the front gardens were fairly big, and these houses got another name: Row-Garden lilong houses (Sheng, 1987, p.42). Traditional details like brick carvings and meticulous decoration were replaced by simple western ornamentation. Differentiation of building bodies and creative spatial organization contributed to more vivid appearance of the New-type lilong housing. By this stage, traditional inward-looking character gradually disappeared. Lilong housing step by step attained the open character of Western town house.

**Structure**

Concrete-framed structure, brick-wall as partitions and wood-truss roof system were the common building components in New-type lilong houses. The lots of houses also underwent evolution. Freed from wooden bay, the width of rooms slightly increased. They were generally 3.6m - 4.8m (compared to previous 3.6m ~ 4.2m), with some even to 6m. On the other hand, the depth of lots were 10m -14m, decreased from 12m -16m due to a consideration for better physical function of the house, e.g., lighting and ventilation (Wang, 1989, p.66)\(^\text{12}\).

---

\(^{12}\) Some houses built after the Sino-Japan War were only 8m to 12m deep.
**Interior Facilities**

Large-scaled construction of New-type lilongs brought about profound changes to housing market. With the development of economy and technology, modern appliances and high quality of housing facilities, were considered an important mean to improve the physical function of houses and to produce comfortable dwelling. The adoption of bathrooms and gas-stoves in kitchens were two principle characteristics which distinguish the New-type lilong houses from the previous models. High level of interior furnishings & finishes also demonstrated profound housing revolution which was taking place during this stage.

1). Bathrooms:

For the first time in lilong’s history, bathrooms as standard sanitary facilities were integrated into houses. Normally a house in New-type lilong was equipped with two bathrooms, one on the ground floor serving the servants and visitors, the other one on the second floor serving the family. For high income families, bathrooms on each floor seemed not to be a luxurious facility. For low income families, there was at least one bathroom placed on the ground floor. The bathroom on the ground floor was usually furnished with a lavatory and a toilet. The bathrooms on the upper floors were furnished with lavatory, toilet and bath-tub (Wang, 1989, p.67-68).

2). Kitchens:

Kitchens discarded the traditional briquette stoves and adopted gas ones (Wang, 1989, p.68).

3). Telephones and Garages, etc.:

Heating systems were incorporated in most of the New-type homes. Domestic telephones prevailed. For higher income families, fireplaces appeared in the living room. Garages were necessary facility and were incorporated into the service area.

4). Lighting and Ventilation Techniques:
After high exterior walls were removed, the lighting and ventilation condition of houses improved. The appropriate building distance ratio\textsuperscript{13} (average as 1 : 0.7), assured sufficient sun-shine in the ground-floor rooms (Xu Jinyou, 1983, p.23). New devices like air-shafts were introduced in courtyards or light-wells to improve ventilation of the ground floor rooms which were adversely effected by an additional story which was added to those buildings.

**Summary**

Though the transformation in housing were comprehensive, the basic urban structure of a house in relation to the ensemble of the settlement wasn't affected. The maximum land coverage for housing, the most efficient way to optimize open space, had ensured a high density of 50% ~ 60%\textsuperscript{14} for New-type lilongs (Yu Minfei, 1992, p.147).

### 3.4 THE GARDEN LILONG HOUSE

From 1930, with the spread of western culture and values in Shanghai, with the development of economy and accumulation of wealth in hands of the rich community, the Garden lilongs came to its prime. Its sophisticated layout, vivid elevation, various international styles, and high quality of finish and furnishings, catered to the tastes and fancy life-styles of a few well-to-do.

**Layout** (Fig. 3.4a)

The volume of a house model was controlled by the number of stories in height and the number of Jians in layout. The average house volume was limited to two Jians in layout and three stories in height, because this spatial dimension could maintain an efficient circulation within the house, and avoid excessive use of space.

\textsuperscript{13} Building distance ratio = Building height / Distance between buildings.

\textsuperscript{14} Site coverage percentage = Building ground area / Site area.
The basic layout resembled that of the New-type lilong. However, the superiority were demonstrated by the grandness of space, comprehexity of different service rooms, and higher standard interior facilities. The function of each room was well designed. For example, between the dinning room and the kitchen, there was a meal-preparation area as transitional space used for high-standard food service; and the dinning-room also accommodated a lounge for guests to have casual chat.

The access towards the house embedded more meaning and thus additional entrances were required. The front entrance was used as formal access or for guest entry; a side entrance was added to garage and used as owner’s casual entry; the back entrance remained for servants’ entry. The front entrance was often emphasized in the form of a verandah, or a porch, displaying rich decoration, and was incorporated with the beautifully land-scape grand garden, to show off the wealth and privilege of the owners. The use of side entrance by owners avoided disturbance into living-room. (Sheng, 1987, p.43)

Benefited by spacious-sized lots, flexibility in site planning was achieved. Rooms were freed from restricted site-orientation often seen in a narrow-long type of lots. Windows could be put up on any side of exterior walls. With three or four orientation and more sides of exterior walls available for fenestration, ventilation and lighting condition of Garden house were greatly improved.

A good view into the garden could be intentionally designed, and exterior landscape or scenery could be guided into interior space. Visual privacy and acoustic insulation could be attained by taking advantages of the side walls of neighboring houses. For example, by staggering around, or recessing one unit from another in the general plan, a group of houses could achieve lively and organic relationship in their general environment, but maintain individuality and tranquillity in each private garden. (See Fig. 3.4b.)

The existence of abundant private open space eliminated neighborly contact. The side lanes, which used to be semi-public space for social interaction, were utilized only for
circulation. In fact, for lifestyles of well-to-do, a lot of social activities could be taken indoors - parties at home or entertainment in clubs. Telephones and cars were available for them when service and socialization were needed. Rich people living in the Garden lilongs didn't have the strong ties with their neighbors.

**Exterior & Structure**

The Garden Lilongs gathered a variety of European style house forms, from French, Spanish to English ranch. The exterior used many Western elements, front porches, bay windows, colonnades, to name a few. Their structure were concrete-frame(Wang, 1989, p.68).

**Interior Facilities**

The house interior were highly furnished and finished - full bathroom facilities, heating system, fireplaces, marble or wooden plank floors, high ceiling, and grand staircases, etc. (Wang, 1989, p.70).

**Summary:**

In terms of architectural form, quality of structure, physical function and interior furnishing, the Garden lilongs houses were much larger and more comfortable than other types of lilong houses. But, they required large lots and their density was very low.

**3.5 THE APARTMENT LILONG HOUSE**

**Layout**

According to their basic layout and spatial volume, the Apartment lilong houses were classified into three categories: I). the row-patterned building model; II). the dot-patterned building model; III). and the butterfly-patterned building model. They ranged
from four to six storied, and were similar to modern apartment buildings (Sheng, 1987, p.45-46).

I). The Row-patterned building model used a rectangular shape of layout. There were two to six units per floor, and two to three units per landing. Basically, each unit had living-rooms and bedrooms at the front (normally south), and service rooms at the back. Since service lanes were no longer available in use for each family, a secondary staircase, serving as service access or emergency exit, was added at the back of the building for every two units. (See Fig. 3.5a.)

II). The Dot-patterned building model had a more tight and compact layout and so slimmer volume. There were two units on each floor, sharing one front entrance and one back exit. Since each unit was free on three sides of exterior walls, orientation and ventilation were generally good. (See Fig. 3.5b.)

III). The Butterfly-patterned building model was a larger-scale dot-patterned building model. Instead of two units, there were four units on each floor, sharing one common staircase, usually located on the north. Modeled after the European point-block, each unit occupied one corner of the layout. All service rooms of four units were clustered in the center of the floor plan, where ventilation and lighting conditions were poor. The service rooms maintained lighting and ventilation by having openings towards common corridors. Secondary staircases were integrated into the service area, one for every two units. (See Fig. 3.5c.)

**Structure & Exterior**

Adopting concrete-framed structure, the structure of Apartment buildings were good. Being 4 - 5 storied, they had most characteristics of modern apartment buildings. The exterior were stone, brick, or stucco finish, with some ornamentation including modern and Westernized decoration (Wang, 1989, p.70-71).
**Interior Facilities**

The interior facilities were of high standard. Full bathroom facilities, heating system, gas and electricity supply, and even fireplaces were included in the apartments. Elevator in the common lobby of a building was considered a must.

**Summary**

In short, Apartment lilongs was a very compact and concentrated type of lilongs, embedded many features of modern apartment buildings. However, the ground-relatedness, socially cohesive atmosphere common in traditional lilong dwelling was sacrificed or lost.

3.6. EVOLUTION OF HOUSE FORMS

The coexistence of different house modes in the same pattern of lilong dwelling was an inevitable outcome of social and economic transformation. The complexity of social and economic gap between users' group required housing market to produce a wide range of option to satisfy various needs and to adapt to different contexts. As lilong houses went through all these changes, the method of construction, standard of facilities, and quality of finish also improved due to the improvement of modern technology.

Reviewing the change of house models, one can observe an evolution accompanying this settlement form. Except Garden Lilongs designed for a specific income group, lilong houses were transformed to become spatially more vertical than horizontal. During the whole evolution process, the number of stories of the house model increased, while the lot size decreased. Corresponding to this trend, was the transformation from ground-related pattern to concentrated pattern of building mass. Besides the spatial and volume evolution, architectural characteristics also changed. Traditional inward-looking character gradually dying out, Western open elements prevailed.
The evolution, however, did not profoundly affect the general pattern of a lilong parti, where organization of internal lanes, common entry (gateway) from the urban streets, and hierarchical distribution of open space from the most public to semi-public, then to semi-private and finally to the most private areas, still remained in the overall composition of the settlement form of lilong housing. The idea of street shops on the perimeter of the development sites, and small-scaled home business randomly placed around internal area of the neighborhood, persisted.

To summarize, traditional hierarchical principles sustained on the general urban structure of this settlement form where this pattern of dwelling was deeply rooted, while western ideas seemed to have more impact on individual house forms. For lilongs, its exterior outfit might have changed, but its inherited spirit didn’t.
1. Skywell
2. Verandah
3. Main Hall—room for ancestors
4. Bedroom
5. Kitchen

Fig. 3.1a  A Typical San-he-yuan (Three-sided Courtyard) with a large skywell(courtyard) in front and a smaller one behind.

1. Courtyard
2. Central Hall
3. Bedroom
4. Light-well
5. Kitchen
6. Storage
7. Storage or Servant room

Fig. 3.1b  Plan of an Old Shi-ku-men Lilong House (in one-jian and two-shang pattern)
Fig. 3.1c  A Comparison of Plans and Elevation of a Five-jian unit and a Three-jian unit
Fig. 3.1d  Cross-ventilation in a Shi-ku-men House

Fig. 3.1e  Airy Space and Openness Achieved in the Courtyard
Fig. 3.1f  Exterior Elevation

Fig. 3.1g  Wooden Frame Structure
Fig. 3.2a Plan of New Shi-ku-men Houses
Fig. 3.2b  Section of a New Shi-ku-men Lilong House

Fig. 3.2c  Rear Elevation
Fig. 3.3a  Plan of New-type Lilong House (One-jian Unit)

1. Courtyard
2. Central Hall (Living-room)
3. Bedroom
4. Light-well
5. Kitchen
6. Servant-room
7. Bathroom
8. Garage
9. Roof Terrace
10. Side yard

Fig. 3.3b  Plan of New-type Lilong House (One-and-half jian Unit)
Fig. 3.3c  Plan of New-type Lilong House (Two-jian Unit)

Fig. 3.3d  Source: Sheng, p. 41, 1987.

1. Courtyard
2. Living-room
3. Bedroom
4. Light-well
5. Kitchen
6. Drawing-room
7. Bathroom
8. Garage
Fig. 3.4a  Plan of a Garden Lilong House

Fig. 3.4b  Two Site Plans of Garden Lilongs
Fig. 3.5a Plan of Row-pattern Apartment Lilong Building

Fig. 3.5b Plan of Dot-pattern Apartment Lilong Building
Fig. 3.5c  Plan of Butterfly-pattern Apartment Lilong Building
CHAPTER IV:  
THE CASE STUDY

4.1 HONG-DE-LI  (SHI-KU-MEN LILONG)

Hong-de Li occupies the northeast corner of a busy block in northwest Huang-pu District, close to the Bond (Fig. 4.1a). The two intersecting streets - Xia-men Road and Zhe-jiang Road, are renowned for their many small-scale streetshops that sell metal fittings and a variety of electronics products. Buildings in surrounding area are mostly 2 - 3 storied old structures. The traffic on Zhe-jiang Road is heavy since this location is only four blocks away from the Nanjing Road - the major commercial street of Shanghai.

Hong-de Li, 0.43 hectare in total and built in two-storied brick-wood structure, is accessible from three entrances: one on Xia-man Road, and two smaller ones on Zhe-jiang Road (Fig. 4.1b). However, when viewing from outside, one can hardly realize the residential character inside (Fig. 4.1c).

Two street frontages were fully occupied by small shops, located on the ground floor, with residences above. All shops are backed up by small internal lanes. The total units built on site are fifty-seven. Inside the lot, the central two rows of houses are two-jian units, each having a small front courtyard. The perimeter houses in the western and southern two rows were three-jian units, each having a large central courtyard. All

---

15 This chapter contains information about 11 lilong communities which were surveyed by the author during field trip. Except the site plans and floor plans of each lilong which were referenced from existing information, the rest of the information was collected by the author. The drawings were made by the author. Each case study was followed at the end by a diagram (prepared by the author) to summarize the general quantitative data of that lilong.
16 Commercial & residential in total.
houses have south orientation. The main lane, in an L-shape, is 2.8m wide. The side lanes are 1.5m wide.

As Old Shi-ku-men lilong, houses in Hong-de Li have no toilet facilities, nor are there any public wash-rooms on site. Nowadays, there is a septic tank located near one entrance. Every family uses a nightstool. People can empty the nightstools in the septic tank by themselves, or they can, after paying some money to the municipality, leave the nightstools in front of their house every morning, the city has special service to empty the night stools.

When walking into the internal lanes, one immediately feels the calm. The inside residential area are very quiet, much different from the busy atmosphere of outer commercial space. This is because the street shops on the perimeter of the site block away the traffic and commercial noise from internal residential area.

In order to acquire further information, the author selected one unit (marked as A in site plan) for investigation (Fig. 4.1d). This is a large courtyard house. The original space designed for just one large extended family was subdivided several times, and now there are 13 families living here. Each family ranges from 1-5 members. Within the courtyard, there are lots of housewares, especially plastic bathtubs, packed in the corners. There are several water taps, each having different meter-readings, located beside the entrance. Each water tap is used by one family exclusively.

The front half part of the former reception-room\(^{17}\) was converted into a kitchen, used by thirteen families who now occupy the rooms around the front courtyard. Every family has a gas stove\(^ {18}\) in the kitchen but no storage space. Refrigerators are placed in the bedrooms.

\(^{17}\) The original ancestral room.

\(^{18}\) Facilitated after the Liberation.
When looking around the courtyard, the author discover some traces of carved beams and painted rafters. The sculpture on the lattice window, though dusty, remains delicate. The original space, though subdivided, was essentially grand. These details remind the author that the building was a richly ornamented house in its original shape. It still reflects a good construction standard from the time when it was built.

The residents were happy to be interviewed. When asked about: “What do you think about Shi-ku-men lilongs?” “Do you like to live here? and Why” They generally expressed that Shi-ku-men lilongs are very special to Shanghaineeses. They all like to live here for several reasons. One is that they like Shi-ku-men’s atmosphere, and have established a harmonious relationship with neighbors. Living here for long, meeting each others days and nights, every family gets to know and understand each other very well. When there arises a domestic or neighborly dispute, other neighbors will come forward to mediate between the two parties. Hence for long, residents have generally lived peacefully. The second reason is that both the family and the social lives are very convenient here. There are assorted shops nearby, ranging from fast-foods stands to formal restaurants, from grocery stores to electronic shops, thus residents can all consume or purchase locally. Also the well-known commercial street - the Nanjing Road is only 7 to 8 minutes walking distance away. Residents, especially young people, feel it is a good place for socialization. Finally, the residents added that it is faster and easier to get to their work place from here.

Regarding the last reason, the author wants to further illustrate. A large portion of Shi-ku-men residents form the service profession of Shanghai and find employment in downtown agencies. Due to the huge population and open policy for migration, Shanghai’s public bus lines are getting more and more overloaded. The city has heavy traffic in rush hours every day. Using only bicycles, the residents in Shi-ku-men lilongs

---

19 Shanghai is renowned for its light industry and commerce. People from all over the country, especially in neighboring region frequently travel to Shanghai to buy clothes and other home appliances. So the service profession in Shanghai is very active.
can commute in short time within downtown area (faster than taking a bus). If they lived in the outskirts and commuted to the city by bus, it would take them one to two hours to get to their work place.

When asked about if the residents would like to move out to a new development area, like Pu-dong\textsuperscript{20} or other area outside downtown to have a standard apartment suite, the residents generally express their reluctance. They said that if they lived in an apartment like that, they would feel “lost” or “isolated”. The pleasant living atmosphere they had long cherished in the Shi-ku-men lilongs would be missing. They hope the current condition could be improved, but if not, they are satisfied to stay here.

When asked about what they want most to be improved? The answer was unanimous: “Sanitary conditions”. The residents hope if not enough for every family, then at least for several families in one court-yard, to have a common washroom where summer showering may also be possible. Currently every family has a plastic bath-tub (what the author had seen in the courtyard). In summer, adults take their bath at home while children can take bath in the courtyard or in the lanes (Fig. 4.1e). In winter, they all use a local public bathhouse.

After improving sanitary conditions, they hope the living area can be increased by relocating part of the residents, like 30% of the Hong-de Li population. The current living area per person is 4 ~ 5m/person. Each family generally has two rooms.\textsuperscript{21} The original jian has been partitioned on its every structural post.\textsuperscript{22} For some families, their rooms are even not linked together.

\textsuperscript{20} East shore of Huang-pu River, now opened as the new economic development special zone.
\textsuperscript{21} The term of “room” here indicates a space which is a subdivision based on the original complete one-jian.
\textsuperscript{22} A jian has several of posts as structural support.
Stepping out of this courtyard, the author felt that the living condition here was very crowded, however there are something very special qualities that has attracted its residents, of different generation, to stay. As the author observed just in twenty minutes, the central courtyard is very busy and efficiently used, not only for housework, but also for socializing. For the residents, it is an enjoyable thing if they can relax and chat in the courtyard or lanes after work with neighbors with whom they are so tightly attached to. Even in weekends, neighbors can have conversation while doing housework. This is something you may find missing in contemporary apartment buildings. No matter where you walk in the Shi-ku-men lilongs, you can always find residents looking at you through their windows from inside the house, some would even walked out to ask: “Who are you looking for?” or “What are you here for?” This phenomena reflects that the residents here have a strong sense of community and responsibility.

Before walking out of Hong-de Li, the author took the last glance at the small lanes and the rhythmical doors, and saw a young man sitting in a chair and reading a book in the shadows in the main lane. For him, the hot weather and city noise seemed gone away. This piece of quiet space had allowed him to get lost in his own world. Turning back, the author started to ponder over the charm of Shi-ku-men Lilongs.
### DIAGRAM I:

**HONG-DE LI**

Type of Lilongs: Old Shi-ku-men Lilong.  
Built: 1907  
Land Coverage: 0.43 ha.

<table>
<thead>
<tr>
<th>Density</th>
<th>Land-use Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Built Area</td>
<td>5,762 m²</td>
</tr>
<tr>
<td>Built Unit Density</td>
<td>132.56 du/ha</td>
</tr>
<tr>
<td>Built Area Density</td>
<td>13,400 m²/ha</td>
</tr>
<tr>
<td>Open Space Density ²</td>
<td>201 m²/10²m²</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Building</th>
<th>Circulation</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Story</td>
<td>2</td>
</tr>
<tr>
<td>Bd. Distance &amp; Ratio</td>
<td>2.58m (0.5H)</td>
</tr>
<tr>
<td># of Units</td>
<td>57</td>
</tr>
<tr>
<td>Units Prototypes</td>
<td>2-jian &amp; 3-jian</td>
</tr>
</tbody>
</table>

**Open Spaces**

Type of Green Spaces: planters in court-yards

Usable Open Spaces: private court-yards & side lanes

**Garage**

<table>
<thead>
<tr>
<th>Units of Garage</th>
<th>Number of Entrances</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>3</td>
</tr>
</tbody>
</table>

**DIAGRAM II:**

**BUILT UNITS**

<table>
<thead>
<tr>
<th>Distribution of Commercial &amp; Residential Built Units</th>
<th>Distribution of Residential Unit Prototypes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Units</td>
<td>37</td>
</tr>
<tr>
<td>Residential Units</td>
<td>20</td>
</tr>
<tr>
<td>Commercial Ratio</td>
<td>37/57=64.7%</td>
</tr>
<tr>
<td>Residential Ratio</td>
<td>20/57=35.1%</td>
</tr>
</tbody>
</table>

²³ The sum of public, semi-public, private and some other open areas produced by every 1,000m² of built area. The same thing for diagrams of the next 10 cases.

²⁴ This percentage is included in the circulation land-use percentage. The same for diagrams of the next 10 cases.
Fig. 4.1a Urban Location of Hong-de Li
Reference: Shanghai Map Publication.
"*" - Indicate the location of the specified lilong settlement. Same for the rest of lilongs.

Fig. 4.1b Site Plan of Hong-de Li
Fig. 4.1c  View from Exterior
- Commercial Units at Urban Block Front

Fig. 4.1d  Plan of Unit A
Source: Sheng, p.82, 1987.
Fig. 4.1e  Scene in the Courtyard

Fig. 4.1f  View to Two Side Lanes
Fig. 4.1g  Busy Activities Happened in the Lilong
4.2 ZHUN-DE LI (SHI-KU-MEN ILONG)

Zhun-de Li, 1.56 ha in area, is located at the northwest corner of Xia-men road and Zhe-jiang Road, just opposite of the Hong-de Li (Fig. 4.2a). Its urban surroundings are the same as that of Hong-de Li. The site is a square-shaped one. The main lane, 4.5m wide, extends northward from the south entrance, and splits the site into two. Side lanes, 3.3m wide, are all dead-ended and orthogonally connected to the main lane (Fig. 4.2b).

There are ninety-seven units in total built on site. Among them, forty-seven are single-jian units, thirty-one are two-jian units, and nineteen are three-jian units. Most of the single-jian units were built along the two commercial streets, which have shops on the ground floor and residences above. These streetfront units forms a continuous wall that blocks most of the traffic noise on the busy Zhe-jiang Road.

Built in 1930, Zhun-de Li is a good standard Shi-ku-men lilong. Compared to other Shi-ku-men lilongs, its unit sizes are larger; its main lane and side-lanes are wider. Every unit has a courtyard in the front and a light-well in the middle. Its daylighting and ventilation conditions are better. The building exterior, though have been renovated several times after the Liberation, retains traditional style and decoration. Looking from the lanes, one can only see 5m exterior wall with entry gate linking to gabled-walls on two sides. The structure is in good shape.

This lilong has a quite civilized social order. An overall control is initiated from the entrance, where a resident’s committee office can check on visitors. A number of food-stands selling little eating, and a couple of key-chain and shoe-repairing counters

\[25\] All are home business.
group of people. Hence the entrance provide a strict security control for the whole community (Fig. 4.2c).

Once inside the entrance, the internal environment seems to be in order and harmony. The site layout deploys a hierarchy of spaces from the most public to semi-public and then to semi-private, and so allows a wide range of outdoor activities taking place safely in the yards and lanes. Benches are set along the main lane with lushly planted vines. Elderly could sit on the benches to enjoy the cool shade in summer, while watching children play (Fig. 4.2d). Children seemed to be more energetic and run everywhere. In the middle passage of the main lane, a newspaper bulletin is placed where recent social and economic news are available for residents to read. A chess-room and a library are housed nearby, offering more types of entertainment activities. A couple of barber and tailoring shops are opened as home business to facilitate daily living.

There are almost no vehicles passing by, except one or two of them are found parked in the main lane. Residents generally use bicycles to go to work, and stack their bicycles in front of their house in the side-lanes. At the time of investigation - 11:00am, working adults can be rarely seen in the lilong. Only children and elderly were left home to enjoy their way of life. Zhun-de Li, by its self-administrative and social-control system, provides a comfortable and safe environment for its residents and their families.
### ZHUN-DE LI

**Type of Lilongs:** New Shi-ku-men Lilong.  
**Built:** 1930  
**Land Coverage:** 1.56 ha.

<table>
<thead>
<tr>
<th>Density</th>
<th>Land-use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Built Area 21,185 m²</td>
<td>Building Coverage 67.9 %</td>
</tr>
<tr>
<td>Built Unit Density 61.54 du/ha</td>
<td>Circulation 18.8%</td>
</tr>
<tr>
<td>Built Area Density 13,580 m²/ha</td>
<td>Private 9.8%</td>
</tr>
<tr>
<td>Open Space Density 147 m²/10^3 m²</td>
<td>Semi-public 10.2%</td>
</tr>
<tr>
<td></td>
<td>Communal Greenery 0.8%</td>
</tr>
<tr>
<td></td>
<td>Others 2.7%</td>
</tr>
</tbody>
</table>

### BUILDINGS

<table>
<thead>
<tr>
<th>Number of Story</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Dist. &amp; Ration</td>
<td>96</td>
</tr>
<tr>
<td>Number of Units</td>
<td>1, 2, 3-jians</td>
</tr>
<tr>
<td>Units Prototypes</td>
<td>1, 2, 3-jians</td>
</tr>
</tbody>
</table>

### CIRCULATION

<table>
<thead>
<tr>
<th>Number of Main Lanes</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width of Main Lanes</td>
<td>4.5 m</td>
</tr>
<tr>
<td>Number of Side-lanes</td>
<td>12</td>
</tr>
<tr>
<td>Width of Side-lanes</td>
<td>3.3 m</td>
</tr>
</tbody>
</table>

### OPEN SPACES

**Type of Green Spaces:** belt-shaped greenery space in public area  
**Usable Open Spaces:** sub-lanes & main lanes

### GARAGE

<table>
<thead>
<tr>
<th>Units of Garage</th>
<th>none</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Entrances</td>
<td>2</td>
</tr>
</tbody>
</table>

### BUILT UNITS

<table>
<thead>
<tr>
<th>Distribution of Commercial &amp; Residential Built Units</th>
<th>Distribution of Residential Unit Prototypes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Units</td>
<td>46</td>
</tr>
<tr>
<td>Residential Units</td>
<td>50</td>
</tr>
<tr>
<td>Commercial Ratio</td>
<td>46/96=47.9%</td>
</tr>
<tr>
<td>Residential Ratio</td>
<td>50/96=52.1%</td>
</tr>
</tbody>
</table>
Fig. 4.2a   Urban Location of Zhun-de Li

Fig. 4.2b   Site Plan of Zhun-de Li

Source: From Shanghai Municipal Building Survey Institution

1. Entrance
2. Main lane
3. Side lane
4. Residential units
5. Commercial units
6. Courtyard
Fig. 4.2c  Activity at the Entrance

Fig. 4.2d  View of the Side Lane
4.3. TONG-FU LI (SHI-KU-MEN LILONG)

The 0.78 ha Tong-fu Li, occupies a narrow-long site in the western part of Huangpu District (Fig. 4.3a). The site has one major road - Nanjing Road bordered on the south, and a smaller road - Feng-yang Road on the north and west (Fig. 4.3b). Buildings along Nanjing Road are mostly medium-rise (4 - 6 storied) commercial buildings. Building inside the urban blocks are mainly low-rise housing. There is a theater on the east side of Tong-fu Li, and a major downtown park - People’s Park - across the street.

Its two entrances are set respectively on the south and north edge of the site. Its main lane, 5m wide, runs from south to north, and splits the site into two. All side lanes, 3m wide, are orthogonally connected to the main lane. Among the total forty-six units, seventeen of them are commercial one-jian units, built on the southern and northern perimeter of the site. The internal units are two-jian and three-jian wide. Since all the housing units are enclosed with a high exterior wall, one can only see from the lanes is the rhythmical gable walls echoing along the main lane and exterior entry doors repeating in side lanes. However by counting the number of entry doors between every two gabled walls, one can figure out what kind of house model was used for this particular house inside. When there is one entry door between two gabled walls, the house inside is a three-jian unit. When there are two entry doors between two gabled walls, then there are two houses inside, each of them is a two-jian unit with their courtyards attached together. The more jians a unit has, the more prestige and wealthier the owner was (Fig. 4.3c).

In Tong-fu Li, there are twenty two-jian units, and nine three-jian units. However, none of them have retained their original complete one-unit space. Investigation in a three-jian house showed that the original space for a large extended family was subdivided among thirteen small families. Even so, Tong-fu Li is a good standard lilong. It is one of the best Shi-ku-men lilongs in Shanghai, hence is well preserved by the municipality. Except some vendors around the entrance, there are some
home business such as a barber shop, tailoring, and copy service integrated into houses. Residents interviewed by the author all feel happy to live here. The lanes are wide and neat. The daylighting and ventilation conditions are superior to other Shi-ku-men lilongs. Building structure is in good shape. Walls are painted red, setting-off the dark old stone doors. Vines and hedges are lushly planted in the lanes, on the windows, above the balconies and on roof terraces. Residents, living in a good-standard neighborhood, seem to have more happier mood and aesthetic sense to personalize their private space.
### DIAGRAM I:

**TONG-FU LI**

<table>
<thead>
<tr>
<th>Density</th>
<th>Land-use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Built Area</td>
<td>Building Coverage</td>
</tr>
<tr>
<td>9,561 m²</td>
<td>61.2 %</td>
</tr>
<tr>
<td>Built Unit Density</td>
<td>Circulation</td>
</tr>
<tr>
<td>58.97 du/ha</td>
<td>25%</td>
</tr>
<tr>
<td>Built Area Density</td>
<td>Private</td>
</tr>
<tr>
<td>12,258 m²/ha</td>
<td>13.8%</td>
</tr>
<tr>
<td>Open Space Density</td>
<td>Semi-public</td>
</tr>
<tr>
<td>233m²/10⁴m²</td>
<td>14.8%</td>
</tr>
<tr>
<td></td>
<td>Communal Greenery</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

**Buildings**

<table>
<thead>
<tr>
<th>Number of Story</th>
<th>Number of Main Lanes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**Circulation**

<table>
<thead>
<tr>
<th>Building Dist. $$ Ratio</th>
<th>Width of Main Lanes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2m (0.48H)</td>
<td>5m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Units</th>
<th>Number of Side-lanes</th>
</tr>
</thead>
<tbody>
<tr>
<td>46</td>
<td>15</td>
</tr>
</tbody>
</table>

**Units Prototypes**

| 1, 2, 3-jian |

### Open Spaces

- **Type of Green Spaces**: private court-yards
- **Usable Open Spaces**: court-yards, main lanes and sub-lanes

### Garage

| Units of Garage | none |

| Entrance | 2 |

### DIAGRAM II:

**BUILT UNITS**

<table>
<thead>
<tr>
<th>Distribution of Commercial &amp; Residential Built Units</th>
<th>Distribution of Residential Unit Prototypes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Units</td>
<td>One-and-half-jian Units</td>
</tr>
<tr>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>Residential Units</td>
<td>Two-jian Units</td>
</tr>
<tr>
<td>29</td>
<td>9</td>
</tr>
</tbody>
</table>
Fig. 4.3a  Urban Location of Tong-fu Li

Fig. 4.3b  Site Plan of Tong-fu Li

Source: From Shanghai Municipal Building Survey Institution
One 3-jian Pattern Courtyard House

Two 2-jian Pattern Courtyard Houses

Fig. 4.3c       Exterior Elevation Configuration
4.4. **CHANG-LE VILLAGE (NEW-TYPE LILONG)**

*Chang-le* (meaning: happy forever) Village, 1.91 ha, is located at 39 - 45 south Shan-xi Road in the center of Jing-an District, one block south of Nanjing Road (Fig. 4.4a). Though not in a busy block, the neighborhood has all the life conveniences a city can offer. The surrounding streets are full of assorted small-scale shops, restaurants, fashions stores and grocery, while more active and busy street life can be searched in Nanjing Road, which is only five minutes walk distance away.

The site is a rectangular-shaped, two hectares of land, having 129 built units (Fig. 4.4b). The main lane is absent from the site, leaving seven side lanes all directly accessible from the street. There are five entrances in total on the west end of the site, each entrance serving two rows of houses. The east end of the site is enclosed by wall, so the side lanes are all dead-ended (cul-de-sac). The northernmost row of units is commercial.

All houses are one-jian units, oriented north-south. Their gardens on the south side are beautifully landscaped with hedges, trees and flowers, which provide lively and pleasant views to the internal space (Fig. 4.4c).

The houses were skillfully designed in elevation. In two story, the houses are featured with open gardens, sloped roofs, bay-windows and curved balconies in the southern facade, and one-storied service yard at the back. Finished in white stucco and red tiles, the architecture looks very exquisite in shades of green (Fig. 4.4d).

The standard of this lilong is very good, enabling Chang-le to be one of the best New-type lilong in Shanghai. The interiors were well-furnished, having full equipped master bath-rooms on the second floor and small bath-rooms on the ground floor. Gas is provided in all kitchens. The building distance is wide (1 : 1.5), offering a good
sunlighting and ventilation to the houses. Shops and a number of home commercial outlets to sell soft drinks, flower are set along the entrances, whose owners usually keep an eye on incoming visitors. Since the side lanes are very secure and wide, residents often use them to display and sun-dry clothes, foods, and other belongings. The side lanes foster an atmosphere for a humane and elastic residential life (Fig. 4.4e).

The negative points of Chang-le Village are two. The westernmost units, adjacent to Shan-xi Road, is disturbed by the street noise. The northernmost two rows of units have a shorter building distance (1 : 0.7), therefore they are not so favorable as the other five rows of houses.
## CHANG-LE VILLAGE

**Type of Lilongs:** New-type Lilong.  
**Built:** 1925  
**Land Coverage:** 1.91 ha.

<table>
<thead>
<tr>
<th>Density</th>
<th>Land-use Distribution</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Built Area</td>
<td>19148 m²</td>
<td>Building</td>
</tr>
<tr>
<td>Built Unit Density</td>
<td>64.5 du/ha</td>
<td>Circulation</td>
</tr>
<tr>
<td>Built Area Density</td>
<td>9574 m²/ha</td>
<td>Communal Green Space</td>
</tr>
<tr>
<td>Open Space Density</td>
<td>387 m²/10³ m²</td>
<td>Defined Semi-public Space</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Private Open Space</td>
</tr>
</tbody>
</table>

### Building

<table>
<thead>
<tr>
<th># of Story</th>
<th># of Main Lanes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Building Distance &amp; Ratio</th>
<th>Width of Main Lanes</th>
</tr>
</thead>
<tbody>
<tr>
<td>12m (1.5H)</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th># of Units</th>
<th># of Side-lanes</th>
</tr>
</thead>
<tbody>
<tr>
<td>129</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Units Prototypes</th>
<th>Width of Side-lanes</th>
</tr>
</thead>
<tbody>
<tr>
<td>one-jian</td>
<td>4-5m</td>
</tr>
</tbody>
</table>

### Open Spaces

- **Usable Open Spaces:**
  - gardens as private open space;
  - side lanes as semi-public open spaces;

- **Type of Greenery Space:**
  - private gardens

### Garage

- **Units of Garage:** none

### Entrance

- **# of Entrances:** 5

## DIAGRAM II:

### BUILT UNITS

<table>
<thead>
<tr>
<th>Distribution of Commercial &amp; Residential Built Units (129)</th>
<th>Distribution of Residential Unit Prototypes (104)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Units</td>
<td>One-jian Units</td>
</tr>
<tr>
<td>25</td>
<td>104</td>
</tr>
<tr>
<td>Residential Units</td>
<td></td>
</tr>
<tr>
<td>104</td>
<td></td>
</tr>
<tr>
<td>Commercial Ratio</td>
<td></td>
</tr>
<tr>
<td>25/129=19.8%</td>
<td></td>
</tr>
<tr>
<td>Residential Ratio</td>
<td></td>
</tr>
<tr>
<td>104/129=80.6%</td>
<td></td>
</tr>
</tbody>
</table>
Fig. 4.4a  Urban Location of Chang-le Village

Fig. 4.4c Plan of Two Corner Units
Fig. 4.4d  House Elevation

Fig. 4.4e  View to the Lanes
4.5. JING-AN VILLA (NEW-TYPE LILONG)

Jing-an Villa is located in the central location of Jing-an District, in a most busy commercial area of Shanghai (Fig. 4.5a). It is bordered by two streets - Nanjing Road on the north and Wei-hai Road on the south. Its only main lane, running north-south across the whole neighborhood, connects to twenty-four side lanes, which are all dead-ended (Fig. 4.5b).

Jing-an Villa occupies an area of 2.35 hectares, and remains to be the largest-scaled New-type lilong in Shanghai. It has 183 units in total, twenty of them along commercial streets, and 163 built internally. The northernmost row of building is commercial units, maintaining street-shop continuity along Nanjing Road. Nanjing Road is made up by four to five-storied fashion stores, restaurants, and assorted housewares shops, most of them have very modern finishes. Jing-an Villa, accessible from a gateway which is only 4m wide, can hardly be recognized by passers-by when one is entangled in the bustling crowd and commercial excitement occurred on Nanjing Road. The other street, Wei-hai Road is not busy, and the southernmost row remained as residential units.

Within the 163 internal units, forty-seven were two-jian units, mostly built beside the main lane, forty-nine were 5.4m wide one-jian units, and sixty-seven were 4.5m wide one-jian units (Fig. 4.5c).

Built in 1928, Jing-an Village was a good standard New-type lilong, and it has been well-maintained after the Liberation. The buildings were constructed with fine materials in good quality. Though the exterior was refinished recently, the structure still appeared sound, no trace of deterioration. The lanes are wide - 7.0m for main lane and 5.0m for side lanes, straight and clearly organized, providing an efficient framework for internal circulation and emergency transportation. All the units, south and north double oriented, has a courtyard in the front and a light-well at the back. Toilets and gas are
found in the houses. All houses are built in three stories - 9.6m in height. Building distance between the front and the back row is 8.25m. Building distance ratio has reached 0.85 H, - a fairly good sunlighting and ventilation condition in lilongs.

Housing units, aligned in rows in identical distance, optimize the land coverage. A left-over odd-shaped space on the western part of the site is taken by five units of garages. The land-use of the development is efficient.

Connecting two major roads such as Nanjing Road and Wei-hai Road, the main lane seems active and busy. It allows vehicular traffic, but the residents and passers-by, mainly bicyclists and pedestrians, compose the major internal traffic.

Compared to the main lane, the side lanes are much quieter. They are mainly utilized by residents that live in houses fronting on them. Vehicles are not permitted in side lanes, hence children can exercise freely (Fig. 4.5d).

Some two-jian units along the main lane have combined home based business activities. Among them, are fresh fruit sales counters, cigarette-selling-windows, fast-food stands, and tailoring shops. The courtyards and side lane spaces have been used to accommodate the home businesses.

In Jing-an Village, there is hardly any public green space. However, greenery can be found lushly planted in every courtyard, and some grown in concrete planters along the main lane.

There are some negative aspects for Jing-an Village. One is that the main lane, being convenient link between two major roads, attracts many passers-by. Many people have use it as a shortcut from Wei-hai Road to Nanjing Road. Hence it introduces strangers and has evoked safety concern from residents. If the access to Jing-an Village through both entrances are well controlled, this problem can be solved. Another negative
aspect is that there are too many small businesses inside the lilong. On one hand they provide convenient daily service for the community and have provide opportunities to gain extra income for families; on the other hand, they have disturbed the quietness and messed the clean public environment.
### DIAGRAM I:

#### JING-AN VILLAS

**Type of Lilongs:** New-type Lilong.  
**Built:** 1928  
**Land Coverage:** 2.35 ha.

<table>
<thead>
<tr>
<th>Density</th>
<th>Land-use Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Built Area</td>
<td>Building</td>
</tr>
<tr>
<td>Built Unit Density</td>
<td>Circulation</td>
</tr>
<tr>
<td>Built Area Density</td>
<td>Communal</td>
</tr>
<tr>
<td>Open Space Density</td>
<td>Defined Semi-public Space</td>
</tr>
<tr>
<td></td>
<td>Private Open Space</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Building</th>
<th>Circulation</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Story</td>
<td>3</td>
</tr>
<tr>
<td>Building Dist. &amp; Ratio</td>
<td>8.25m (0.85H)</td>
</tr>
<tr>
<td># of Units</td>
<td>183</td>
</tr>
<tr>
<td>Units Prototypes</td>
<td>1-jian &amp; 2-jian</td>
</tr>
</tbody>
</table>

#### Open Spaces

- **Usable Open Spaces:** courtyards as private open space; side lanes as the main semi-public space for neighborly interaction;
- **Type of Greenery Space:** small green area in private court-yards, and belt-shaped greenery space in public main lane.

#### Garage

- **Units of Garage:** 5
- **# of Entrances:** 2

### DIAGRAM II:

#### BUILT UNITS

<table>
<thead>
<tr>
<th>Distribution of Commercial &amp; Residential Built Units (183)</th>
<th>Distribution of Residential Unit Prototypes (163)</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Commercial Units</td>
<td>20</td>
</tr>
<tr>
<td># of Residential Units</td>
<td>163</td>
</tr>
<tr>
<td># of Comm.-units Layouts</td>
<td>3</td>
</tr>
<tr>
<td># of Res.-units Layouts</td>
<td>3</td>
</tr>
<tr>
<td># of 5.4m-wide One-jian Units</td>
<td>49</td>
</tr>
<tr>
<td># of 4.6m-wide One-jian Units</td>
<td>67</td>
</tr>
<tr>
<td># of Two-jian Units</td>
<td>47</td>
</tr>
</tbody>
</table>
**Fig. 4.5a** Urban Location of Jing-an Villa

**Fig. 4.5b** Site Plan of Jing-an Villa

Fig. 4.5c  Sample Unit Plan

Fig. 4.5d  View of Side Lanes
4.6. HUAI-HAI VILLAGE (NEW-TYPE LILONG)

Huai-hai Village is located at northwest corner of Lu-wuan District, at the crossing node of three districts of downtown - Lu-wuan, Jing-an and Xu-hui (Fig. 4.6a). It can be accessed at 927 Huai-hai Road - a very renowned major commercial street of Shanghai, and Mao-ming Road at its intersection with Nan-chang Road. Buildings on Huai-hai Road are mostly four to six-storied, some of them are grand multi-functional shopping malls. Buildings on Mao-ming Road are two to three-storied. There are a few high-rise developments erected in vicinity.

The site is long narrow and L-shaped. Its main lane is L-shaped consequently, extending from the north entrance at Huai-hai Road to the south-east entrance at Mao-ming Road. Side lanes have different longitude, with some having over thirty units aligning in one row (Fig. 4.6b).

There are altogether 183 units built on the site. Sixteen of them, located on the north and east street frontage, were converted to shops on their ground floor.

Lined with a series of modern shops and grand malls on Huai-hai Road, the formal access to Huai-hai Village is only a passage with a board carving this village' name hanging on the overhead building. If you are not attentive, you may not be aware of the entrance, especially when your attention might be distracted by commercial activities going on around the entrance (Fig. 4.6d). Though congested and noisy, this entrance controlled by the residents' committee office, demarcates the boundary between the public space of the city and the semi-public space of Huai-hai Village, and separate the commercial and the domestic activities. Several of public phones are available at the entrance for internal and external use.

The other entrance is less busy, but is also supervised by a few home businesses which have grow up after the economic reforms were introduced. There are restaurants
and a morning food market nearby, and assorted small shops along Mao-ming Road and Nan-chang Road, providing sufficient and economic choice to local residents.

Since there are abundant shops nearby, there are only a few home businesses within Huai-hai Village. The lanes are kept clean and neat. The inside traffic is light. Though situated in a noisy location, this lilong enjoys a harmonious and peaceful internal living atmosphere.

Basic social service is provided inside the lilong. On location A (marked on site plan), a small deposit bank (serving the residents only) and a library are housed in one courtyard, and a kids’ playing-room in its neighboring courtyard. Residents visit this spot very frequently (Fig. 4.6e).

All the units are one-jian units, north and south oriented. Each has a courtyard on the south, enclosed with a 2m brick wall, and a light-well on the north (Fig. 4.6c). Greenery are flourishingly planted in every courtyard. The buildings are three story high constructed in concrete-brick mixed structure. The exterior is featured with sloped roof, gray tiles and red brick wall. Roof terraces can be seen in some of the third floors. The interior had toilet and gas appliances. Some families have newly assembled air-conditioners in their rooms. Generally, the summer weather in Shanghai is hot and humid. The three-story buildings and lots of trees cast shadow on half area of the ground at most of the time, hence residents like to sit in side lanes and enjoy the cool during the day. The side lanes become very usable semi-public open space (Fig. 4.6f).

There are some negative aspects in Huai-hai Village. Some side lanes seem too lone, this has not only caused inconvenience in internal circulation, but also block diagonal ventilation which is essentially driven by southeast wind. The long walking route, though good for safety control, result a dry and dull architectural appearance. In the interior, there are no toilets in the third floor of every unit, hence the residents in the third floor have to come down to use toilets in the second floor.
**DIAGRAM I:**

### HUAI-HAI FANG

- **Type of Lilongs:** New-type Lilong.
- **Built:** 1924
- **Land Coverage:** 1.73 ha.

#### Density

<table>
<thead>
<tr>
<th>Density</th>
<th>Land-use Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Built Area 27,619 m²</td>
<td>Building 53.2%</td>
</tr>
<tr>
<td>Built Unit Density 105.8 du/ha</td>
<td>Circulation 33.2%</td>
</tr>
<tr>
<td>Built Area Density 15,965 m²/ha</td>
<td>Communal Green Space 0</td>
</tr>
<tr>
<td>Open Space Density 143m²/10m²</td>
<td>Defined Semi-public Space 12.1%</td>
</tr>
<tr>
<td></td>
<td>Private Open Space 10.8%</td>
</tr>
<tr>
<td></td>
<td>Others 2.8%</td>
</tr>
</tbody>
</table>

#### Building

<table>
<thead>
<tr>
<th># of Building Story</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Distance Ratio</td>
<td>8.6m (0.9H)</td>
</tr>
<tr>
<td># of Total Built Units</td>
<td>183</td>
</tr>
<tr>
<td>Basic Unit Prototypes</td>
<td>one-jian</td>
</tr>
</tbody>
</table>

#### Circulation

- # of Main Lanes: 3
- Width of Main Lanes: 4.5m, 7.0m, 7.5m
- # of Side-lanes: 12
- Width of Side-lanes: 5m (mainly)

#### Open Spaces

- **Usable Open Spaces:**
  - Courtyards as private open space;
  - Side lanes as the main semi-public open spaces;
  - The entrances used as public open spaces sometimes.

- **Type of Greenery Space:**
  - Trees and plants in private court-yards

#### Garage

- # of Garage Units: -

#### Entrance

- # of Entrance: 2

**DIAGRAM II:**

### BUILT UNITS

<table>
<thead>
<tr>
<th>Distribution of Commercial &amp; Residential Built Units (183)</th>
<th>Distribution of Residential Unit Prototypes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Units</td>
<td>One-jian Units</td>
</tr>
<tr>
<td>16</td>
<td>167</td>
</tr>
<tr>
<td>Residential Units</td>
<td></td>
</tr>
<tr>
<td>167</td>
<td></td>
</tr>
<tr>
<td>Commercial Ratio</td>
<td>16/183=8.7%</td>
</tr>
<tr>
<td>Residential Ratio</td>
<td>167/183=92.3%</td>
</tr>
</tbody>
</table>
Fig. 4.6a  Urban Location of Huai-hai Village

Fig. 4.6b  Site Plan of Huai-hai Village

Fig. 4.6c  Sample Unit Plan

Fig. 4.6d  View from Urban Streets
Fig. 4.6e  Local Community Service Program
- a deposit bank and a kindergarten housed in courtyards

Fig. 4.6f  Shady Area of the Side Lanes in Summer
4.7 **LI-YANG GARDEN (GARDEN LILONG)**

Li-yang Garden is located at 1156 Li-yang Road in the center of Hong-kou District, bordered by Chang-chun Road on the west (Fig. 4.7a). Not in a busy district, the surroundings are dominated by convenient stores, food markets, small-scaled social service and low-rise housing. As a large-scaled garden lilong, Li-yang Garden has seventy semi-detached garden houses aligning in four rows. Every row of houses is north-south oriented and broadly distanced. There are no commercial units in this lilong (Fig. 4.7b). Main lanes seem not apparent in the overall plan. The side lanes are wide and straight, and allow vehicular traffic. However, being heavily protected by dense woods along the exterior walls, the living space of houses are not disturbed.

Every house is placed in a generous-sized lot and enclosed with 4m high exterior brick walls. A luscious garden is placed in front of the house and a service yard placed at the back. The grand front garden and the service yard is attached, generating an openness and spaciousness throughout the internal courtyard.

A security office and a residents’ committee room are set in one entrance, making it the only control of this lilong. The rest entrances are left open. There are assorted small shops along Chang-chun Road, and a local free-market in the vicinity. Vendors and strangers from the market places can freely walk into the internal lanes. On the contrary, residents are seldom seen in the lanes. The side lanes are not designed in a human scale, hence unsuitable for intimate neighborly interaction. The residents have withdrew their social activities from public space of lanes to semi-private spaces of interior gardens, especially when these gardens are very attractive due to their generous size, lusty plants, and well-enclosed character. Hence the lanes have gradually lost their functions as supplementary space for housework and public ground for social interaction.
Every house has double access. In the original idea, the southern entrance served as formal entry to the house, the northern entrance provided convenient access for service activities. However, since every house has been subdivided by several of families, these different functions of entrance have gradually lost. Now each entrance is used for separate entry by different families. The front garden and backyard are also assigned to different users. The service yard is advantageous in preparing cooking and conducting housework. The front garden is available for gardening or sun-drying clothes. Sometimes these courtyards can still be shared in use for certain purpose, for example, as playground for children or as sitting area for elderly.

The architecture reflect a beautiful decoration and skillful design. The volume of each house is composed as a higher main body (three stories) connecting to a lower wing (one-storied kitchen). Its southern exterior is characterized by a series arch-framed windows trimmed in red brick lintel and tiger-room (attic) mounted on the four-sided sloped roof (Fig. 4.7c).

Residents living here belong to the prestigious social class, or whose predecessors had originally own a property here. They are admired by ordinary Shanghaineses, since it’s increasingly more difficult to find a house with enclosed private garden in a location not far from downtown today.

For the negative side, the lanes are not efficiently used by residents individually or neighborly. The strong socially interacting attitude spread out in the in Shi-ku-men type of lilongs is diminished.
# DIAMON I:

## LI-YANG GARDEN

<table>
<thead>
<tr>
<th>Type of Lilongs: Garden Lilong.</th>
<th>Built: 1914</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Coverage: 3.94 ha.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Density</th>
<th>Land-use Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Built Area</td>
<td>Building Coverage 22.4 %</td>
</tr>
<tr>
<td>Built Unit Density</td>
<td>Circulation 19.8%</td>
</tr>
<tr>
<td>Built Area Density</td>
<td>Private 38.7%</td>
</tr>
<tr>
<td>Open Space Density</td>
<td>Semi-public 0</td>
</tr>
<tr>
<td></td>
<td>Others 19.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Buildings</th>
<th>Circulation</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Building Story</td>
<td>Number of Main Lanes</td>
</tr>
<tr>
<td>Building Dist. &amp; Ratio</td>
<td>Width of Main Lanes</td>
</tr>
<tr>
<td># of Total Built Units</td>
<td>Number of Side-lanes</td>
</tr>
<tr>
<td># of Unit Layouts</td>
<td>Width of Side-lanes</td>
</tr>
<tr>
<td>Unit Prototypes</td>
<td>Number of Main Lanes</td>
</tr>
<tr>
<td></td>
<td>Width of Main Lanes</td>
</tr>
<tr>
<td></td>
<td>Number of Side-lanes</td>
</tr>
<tr>
<td></td>
<td>Width of Side-lanes</td>
</tr>
</tbody>
</table>

## Open Spaces

- Usable Open Spaces: private gardens & back-yards.
- Type of Greenery Space: private gardens

## Garage

<table>
<thead>
<tr>
<th># of Garage Units</th>
<th># of Entrances</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>
Fig. 4.7a  Urban Location of Li-yang Garden

Fig. 4.7c  Exterior Elevation of the Garden House - (View from the Side Lane)
Fig 4.7b Site Plan of Li-yang Garden

1. Entrance
2. Main lane
3. Side lane
4. Residential units
4.8 **SHANG-FANG GARDEN (GARDEN LILONG)**

Shang-fang Garden, 2.66 ha, is located at 1285 Huai-hai Road in the northern part of Xu-hui District (Fig. 4.8a). Its surrounding environment are quiet, dominated mostly by garden lilongs, government agencies, and institutions. Some local shops and restaurants can be found in small scale nearby.

Shang-fang Garden consists of sixty-eight garden houses aligning in five rows (Fig. 4.8b). All garden houses are south-north oriented, facing to private south gardens. There is one entrance on Huai-hai Road. One main lane starts from the entrance and runs southward, connecting to side lanes in a T-pattern. In the middle of the site, there is a secondary lane paralleling to Huai-hai Road, and is now converted to a belt-shaped public garden. It divides the whole community into two different user’s groups.

Houses were designed in two different standards. The northern three rows of garden houses had more spacious standard and higher quality of facilities. The thirty-six units occupied larger lots, confronted with grand gardens. There are five floor plans applied on them. Generally, each house had a living-room, a dining-room and a kitchen, a library, and seven to eight bedrooms. High furnished bathrooms were placed on every floor. A garage space was also included in the house (Fig. 4.8c).

For the southern two rows of garden houses, there are thirty-two units and four floor plans, more or less similar to that of northern houses. However, garages and libraries were not included in the houses, the bedrooms diminished in size and number, and bathrooms were not provided on every floor (Fig. 4.8c).

Beside the garden houses, there are one four-storied apartment building, six three-storied New-type lilong units, and a one-storied garage for three parking stalls built on the northernmost edge of the site.
Beautifully landscaped and lustily planted, the belt-shaped public garden provides a nice open space for residents, and enriches the clearly structured environment. The garden houses, abundant of natural light and ventilation, equipped with high standard utilities and facilities, have enabled Shang-fang Garden to be one of the best residential neighborhood in Shanghai.
### SHANG-FANG GARDEN

**Type of Lilongs:** Garden Lilong.  
**Built:** 1938

**Land Cover:** 2.66 ha.

<table>
<thead>
<tr>
<th>Density</th>
<th>Land-use Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Built Area</td>
<td>Building Coverage 31.3%</td>
</tr>
<tr>
<td>Built Unit Density</td>
<td>Circulation 23.0%</td>
</tr>
<tr>
<td>Built Area Density</td>
<td>Private 28.0%</td>
</tr>
<tr>
<td>Open Space Density</td>
<td>Semi-public 0</td>
</tr>
<tr>
<td></td>
<td>Communal 4.8%</td>
</tr>
<tr>
<td></td>
<td>Others 12.9%</td>
</tr>
</tbody>
</table>

#### Buildings

<table>
<thead>
<tr>
<th># of Building Story</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Dist. &amp; Ratio</td>
<td>16m (1.7H)</td>
</tr>
<tr>
<td># of Total Built Units</td>
<td>68</td>
</tr>
<tr>
<td># of Unit Layouts</td>
<td>9</td>
</tr>
</tbody>
</table>

#### Circulation

<table>
<thead>
<tr>
<th># of Main Lanes</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width of Main Lanes</td>
<td>9.5m</td>
</tr>
<tr>
<td># of Side lanes</td>
<td>8</td>
</tr>
<tr>
<td>Width of Side-lanes</td>
<td>6m</td>
</tr>
</tbody>
</table>

#### Open Spaces

- **Usable Open Spaces:** private gardens for private activities; the belt-shaped communal garden used for public interaction.
- **Type of Greenery Space:** private gardens & the communal garden

#### Units

**the Northern Units**

<table>
<thead>
<tr>
<th># of Units</th>
<th>36</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Prototype</td>
<td>7, 8-room detached home</td>
</tr>
<tr>
<td># of Unit Layouts</td>
<td>5</td>
</tr>
<tr>
<td>Area per unit</td>
<td>150 m²</td>
</tr>
<tr>
<td># of Garage Units</td>
<td>36</td>
</tr>
</tbody>
</table>

**the Southern Units**

<table>
<thead>
<tr>
<th># of Units</th>
<th>32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Prototypes</td>
<td>7, 8-room semi-detached</td>
</tr>
<tr>
<td># of Unit Layouts</td>
<td>4</td>
</tr>
<tr>
<td>Average Area per unit</td>
<td>70 m²</td>
</tr>
<tr>
<td># of Garage Units</td>
<td>2</td>
</tr>
</tbody>
</table>
Fig. 4.8a  Urban Location of Shang-fang Garden

Fig. 4.8b  Site Plan of Shang-fang Garden

House Plan for the Northern Three Rows of Houses

House Plan for the South Two Rows of Houses

Fig. 4.8c House Plan
4.9 **SHAN-NAN VILLAGE** (APARTMENT LILONG)

Shan-nan Village is a cluster of sixteen point-block buildings built on an irregular-shaped site. It is located at the northeast intersection of Shan-nan Road and Fushing Road in the far west of Lu-wuan District, and is only two blocks away from Huaihai Road, where dynamic shopping activities foster an exciting urban ambiance (Fig. 4.9a). Built in 1940, it was invested by a Christian Church and had once named as Royal Apartments. After Liberation, its name was changed to Shan-nan Village. The traffic in the intersection seems busy. The local streets contains some flavor restaurants, grocery stores and a few fashion shops.

The only entrance of Shan-nan Village is set on the west side between the first and the second row of buildings, where a gas station nearby occupies the streetfront (Fig. 4.9b). The internal lanes, none of them straightforward, keep arbitrary routes as this was an idea permeated in the overall plan. All buildings, in four-storied high in concrete-framed structure, were designed in a same “butter-fly” layout, and were integrated with patches of organic pattern of green space. The ensemble of sixteen buildings maintains its general orientation towards the south, however each individual building may twist a little angle to respond to the incoming route and the overall spatial composition.

Each floor plan contains two 3-bedroom suites. Each suite has windows on four orientation and receives cross-ventilation (Fig. 4.9c). There are eight apartment suites for every building and that amounts to one hundred and twenty-eight apartment suites for this entire lilong. Parking space of eighty-six stalls are placed dispersally, taking the odd-shaped or left-over land of the site. The building distance is not wide (the building distance ratio is 1 : 0.5 - 1 : 0.8), but by having an organic organization pattern and by fully using the building gap, the actual building distance ratio is no less than 1:1.
The great flexibility and elasticity permeated in the overall spatial organization allow sixteen buildings to take full advantage of a compact, irregularly-shaped site, and to create a vivacious and pleasing ambiance throughout it. The meandering lanes draw one’s attention forward as the undulating visual sequence deal with turns of direction, change of views, opening up and closing down of space, and the succession of buildings that pass along-side. The contrast of texture, bright colored materials, plenty supply of daylighting, and integration of landscape, all come into play of one’s perception of the place. This fascinating experience adds to the Specialness and identity of the built structure of Shan-nan Village (Fig. 4.9d). The beautifully landscaped greenery space enriches the sloped-roofed architecture, and provide different scales of open spaces for the residents to socialize. A group of elderly has been observed doing Tai-ji (a Chinese slow-paced body exercise) in one of the open space, and clothes displaying in the open area.

Constructed in concrete-frame, furnished in wooden plank floors, highceilings, and equipped with full bath, gas, electricity, fireplaces and some other supplies, Shan-nan Village is one of the upper standard apartment lilong of Shanghai. Residents are happy to live in such a tranquil environment and still enjoy the convenience of daily life since public transportation and a variety of shopping choice can be found in proximity.
### DIAGRAM I:

#### SHAN-NAN VILLAGE

<table>
<thead>
<tr>
<th>Type of Lilongs:</th>
<th>Apartment Lilong.</th>
<th>Built Year:</th>
<th>1940</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Coverage:</td>
<td>1.62 ha.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Density

<table>
<thead>
<tr>
<th>Density</th>
<th>Land-use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Built Area</td>
<td>22,680 m²</td>
</tr>
<tr>
<td>Built Unit Density</td>
<td>79.01 du/ha</td>
</tr>
<tr>
<td>Built Area Density</td>
<td>14,100 m²/ha</td>
</tr>
<tr>
<td>Open Space Density</td>
<td>458 m²/10² m²</td>
</tr>
</tbody>
</table>

#### Land-use

| Building Coverage       | 35.4% |
| Circulation             | 17.8% |
| Private                 | 0     |
| Semi-public             | 0     |
| Communal & Public       | 25.2% |
| Others                  | 21.6% |

#### Buildings

<table>
<thead>
<tr>
<th>Number of Rows</th>
<th>Number of Main Lanes</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Building Distance Ratio</th>
<th>Width of Main Lanes</th>
</tr>
</thead>
<tbody>
<tr>
<td>14m (0.95H)</td>
<td>5m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Units</th>
<th>Number of Side-lanes</th>
</tr>
</thead>
<tbody>
<tr>
<td>128</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Unit Layout</th>
<th>Width of Side-lanes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.2 - 5m</td>
</tr>
</tbody>
</table>

#### Open Spaces

**Usable Open Spaces:** communal green space & side-lanes used for neighborly leisurely activities;

**Type of Green Spaces:** communal greenery

#### Garage

<table>
<thead>
<tr>
<th>Units of Garage</th>
<th>Number of Entrance</th>
</tr>
</thead>
<tbody>
<tr>
<td>86</td>
<td>1</td>
</tr>
</tbody>
</table>

### DIAGRAM II:

#### BUILT UNITS

<table>
<thead>
<tr>
<th>Distribution of Commercial &amp; Residential Built Units</th>
<th>Distribution of Residential Unit Prototypes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Units</td>
<td>Two-jian Units</td>
</tr>
<tr>
<td>Residential Units</td>
<td>Three-jian Units</td>
</tr>
<tr>
<td>Commercial Ratio</td>
<td>Two-jian Ratio</td>
</tr>
<tr>
<td>Residential Ratio</td>
<td>Three-jian Ratio</td>
</tr>
</tbody>
</table>
Fig. 4.9a  Urban Location of Shan-nan Village


Fig. 4.9b  Site Plan of Shan-nan Village

Fig. 4.9c  Apartment Building Plan

Fig. 4.9d  View Along Internal Lanes
4.10 GARDEN APARTMENT (APARTMENT LILONG)

Garden Apartment Lilong, 0.90 ha, is located at 1173 west Nanjing Road in the southeast of Jing-an District (Fig. 4.10a). Located in a rectangular-shaped site, its surroundings is a very flourishing and busy commercial area. The street facade on Nanjing Road are commonly four to six-storied buildings for a variety of stores.

Garden Apartment comprised of four four-storied concrete-slab buildings, all paralleled to Nanjing Road. There is only one entrance from Nanjing Road. The main lane is placed at the west end, connecting to four side lanes. Each side lane has integrated large communal green space in the center, lustily planted (Fig. 4.10b).

The northernmost building has commercial space on the ground floor, accessible from the north, while apartment suites are placed on the upper three floors, accessible from the south. The other three buildings consist of only apartment suites and all are accessible from the north. There are sixty apartment suites in total for the whole site, twelve 3-bedroom suites, thirty 4-bedroom, suites, twelve 5-bedroom suites, and six 6-bedroom suites. The great variety of suite types provides a wide range of choice to the tenants. Every apartment building has three entrances, and each entrance serves two suites per landing (Fig. 4.10c). All suites enjoy cross-ventilation. Basements are found in all buildings. The basements in the northern two buildings are attached together and are used as a underground coffee shop and kitchen, accessible from the commercial street. The basements in the southern two buildings are used as depository space for the internal business or as storage-room for residents.

All buildings are concrete-framed structure. Their exterior display a rich western ornamentation. The three entrances on the ground floor are highlighted with Greek-styled columns with gabled roof above. The interior of the apartments are furnished in high standard, with wooden-floor and full bathroom facilities.
Beside the four apartment buildings, there were two rows of parking lots built on the southernmost part of the site, intended for thirty-six garage spots. These parking lots were removed after Liberation and housing were erected instead.

There are several of small business such as a dry fruit sale window, groceries, and a cloth shop, clustered around the entrance and along the main lane. While maintaining a commercial continuity with Nanjing Road, these shops, owned by residents, also provided surveillance to the inside environment. Public phones are provided at the entrance. A game-room and a reading-room for tenants to use are houses nearby.

There are several of negative aspects of the Garden Apartment. 1). The apartment suites along the commercial street, though have good views towards the most flourishing district of Shanghai, are somehow disturbed by street noise. 2). The congestion around the entrance and along the main lane caused by small-scaled home business, has somehow blocked traffic. 3). The traditional ambiance of busy activities in intimate scales of lanes cultivated in Shi-ku-men type of lilongs seems missing from this apartment lilong due to large-sized building mass and westernized off-ground pattern of apartment living. The rectangular-shaped communal green spaces in the center of lanes are not humane and hence are seriously under-used.
### GARDEN APARTMENT

**Type of Lilongs:** Apartment Lilong.  
**Built Year:** 1931  
**Land Coverage:** 0.90 ha.

<table>
<thead>
<tr>
<th>Density</th>
<th>Land-use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Built Area 10,461 m²</td>
<td>Building Coverage 33.21%</td>
</tr>
<tr>
<td>Built Unit Density 66.67 du/ha</td>
<td>Circulation      35.1%</td>
</tr>
<tr>
<td>Built Area Density 11,623 m²/ha</td>
<td>Private         0</td>
</tr>
<tr>
<td>Open Space Density 468m²/10^3m²</td>
<td>Semi-public     0</td>
</tr>
<tr>
<td></td>
<td>Communal         19.3%</td>
</tr>
<tr>
<td></td>
<td>Others           12.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Buildings</th>
<th>Circulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Story 3.5</td>
<td>Number of Main Lanes 1</td>
</tr>
<tr>
<td>Building Dist. &amp; Ratio 16.7m</td>
<td>Width of Main Lanes 7m</td>
</tr>
<tr>
<td>Number of Units 60</td>
<td>Number of Sub-lanes 6</td>
</tr>
<tr>
<td>Number of Unit Layout 4</td>
<td>Width of Sub-lanes 3.5m</td>
</tr>
<tr>
<td>Units Prototypes 2,3,4,5-room unit</td>
<td></td>
</tr>
</tbody>
</table>

### Open Spaces

- **Type of Green Spaces:** private gardens & communal green space  
- **Usable Open Spaces:** communal gardens for social interaction, side lanes and entrance for small-scale commercial activities.

### Garage

<table>
<thead>
<tr>
<th>Units of Garage</th>
<th>36</th>
</tr>
</thead>
</table>

| Entrance       | Number of Entrances | 2 |
|----------------|---------------------|

Fig. 4.10a  Urban Location of Garden Apartment

Fig. 4.10b  Site Plan of Garden Apartment

Ground-floor Plan

Fig. 4.10c    Apartment Building Plan
4.11 SHING-KANG GARDEN (MIXED TYPE OF LILONG)

Shing-kang Garden is built on a long narrow site between Huai-hai Road and Fu-shing Road in the north of Xu-hui District (Fig. 4.11a). It is located in the east neighborhood of Shang-fang Garden (case 4.8). As described before, the surrounding area is mostly high-standard housing neighborhoods (garden lilongs), and work unit compounds. Commercial activities are one or two blocks away.

Consisting of two pattern of living, Shing-kang Garden is a mixed type of lilong. The southern part of the site is given to four four-storied apartment buildings, situated quadrangly facing to a central communal green space. The northern part of the site is occupied by eleven two-storied detached garden houses, each confronted with a spacious private garden. A garage space containing twenty-three parking stalls intended for the apartment suites, is placed in the middle of the site (Fig. 4.11b).

A main lane runs from the north to the south and divides the site into two. Provided with two entrances, the garden houses can be mainly accessed from the northern entrance at 1273 Huai-hai Road, and the apartments building can be accessed from the southern entrance at 1360 Fu-shing Road.

Shing-kang Garden is a high standard lilong in Shanghai. The garden houses, south-north oriented and widely distanced, face to grand gardens and enclosed with partially-hollowed exterior walls. Each house contains two 4-bedroom suites placed at two levels, and accessible from separate entrance. The ground floor suite has a generous verandah, and the second floor suite has a spacious balcony. A garage room for both two suites is placed at the far end (from the main lane) of the house. An exterior staircase is anchored in front of the garden, leading to a roof terrace (used for drying clothes and foods, etc.) above the garage (Fig. 4.11).
The house is characterized by its Spanish-style architecture, with two-sided sloped roof atopped with a chimney and an arch-framed colonnade projecting onto the front garden (Fig. 4.11d).

In the southern part of the site, each apartment building contains two 2-bedroom suites on the first three stories, and two split-level 4-bedroom suites on the top two stories (Fig. 4.11e). There are twenty-four 2-bedroom suites and eight 4-bedroom suites in total in the four apartment buildings. The building’s exterior is similar to a modern apartment building (Fig. 4.11f).

Both houses and apartment buildings applied concrete-framed structure and are featured with green-trimmed decoration on the exterior. The integration of two different types of house models has enabled an merge of two different life styles and thus promote social interaction between the two different user’s group. The separate entrance benefit a convenient administration and safety control over the entire environment. The display of low-rise and middle-rise buildings in one neighborhood increases the enticing character of this environment.

Residents living in the garden houses are generally prominent figures of government agencies, just like its original users. A few luxurious cars are observed parking along the main lane. It is hard for the author to have a dialogue with residents, since they seldom appeared in the outside open space, nor could the author enter the private gardens since they are heavily guarded.

Shing-kang Garden is featured with generous spatial standard, large greenery space, tasteful layout and high quality of interior finish and utilities. There are no small business and venders in this lilong, but it is in close proximity to a vast array of convenient stores and shopping centers, as well as a diversity of entertainment facilities. Though vehicles are allowed in, the traffic on the lanes is mostly internal, since the entrances are gated. Lustily treed and well maintained, the internal environment of
Shing-kang Garden cultivates a pleasing and tranquil ambiance, enabling residents to tuck away from the intensity of a bustling city. The architecture along with the historic value of Shing-kang Garden is considered as a cultural heritage of Shanghai and hence preserved as an important estate by the municipality.
**DIAGRAM I:**

**SHING-KANG GARDEN**

<table>
<thead>
<tr>
<th>Density</th>
<th>Circulation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Built Area</strong> 9318 m²</td>
<td># of Main Lanes</td>
</tr>
<tr>
<td><strong>Building Coverage</strong></td>
<td>Width of Main Lanes 7m</td>
</tr>
<tr>
<td><strong>Built Unit Density</strong> 41.54 du/ha</td>
<td># of side-lanes</td>
</tr>
<tr>
<td><strong>Built Area Density</strong> 7168 m²/ha</td>
<td>Width of side-lanes 4.8m</td>
</tr>
</tbody>
</table>

**Open Spaces**

- **Usable Open Spaces**
  - private gardens for private and neighborly activities;
  - side-lanes used as semi-public open spaces.

- **Type of Greenery Space**
  - private gardens and communal green space

**Units**

<table>
<thead>
<tr>
<th>Apartment Units</th>
<th>Garden Units</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Units</td>
<td>32</td>
</tr>
<tr>
<td>Unit Prototype</td>
<td>2, 4-bedrm unit</td>
</tr>
<tr>
<td># of 4-room Units</td>
<td>8</td>
</tr>
<tr>
<td># of 2-room Units</td>
<td>24</td>
</tr>
<tr>
<td># of Garage Units</td>
<td>23</td>
</tr>
</tbody>
</table>
Fig. 4.1a Urban Location of Shing-kang Garden

Fig. 4.1b Site Plan of Shing-kang Garden


1. Entrance
2. Main lane
3. Side lane
4. House
5. Apartment
6. Garage
Fig. 4.11c  Garden House Plan

Fig. 4.11d  Garden House
Fig. 4.11e  Apartment Building Plan

Fig. 4.11f  Apartment Building
CHAPTER V

PLANNING FEATURES OF
LILONG SETTLEMENTS

5.1. STREET PATTERN

As has elaborated in earlier chapters, the street network in Shanghai was derived from traditional checker-board pattern, but had changed and twist to a high degree. The overall street pattern was quite organic and random by the first look, but there still exist order and regularity.

The city-grid and street pattern in the old city especially the earlier concessions is comparatively regular and standardized, with a recognizable pattern of gridiron system. Two series of roughly paralleling streets connect to each other in a cross-intersection, forming square-shaped urban blocks. This pattern of urban streets has the benefit of being strongly connected, openly accessible and readily expandable. It offers a wide variety of possible routes of movement through the urban blocks and accessing nodes in and out. The gridiron pattern can also maximize the number of streets, the number of streetfront lots (thus the number of commercial units), as well as the number building rows and lots inside blocks. The open type of cross-intersection allowing fluent circulation through blocks, thus cause fewer traffic jams.(Fig. 5.1a)

5.2. LAND-USE PATTERN

Generally speaking, a lilong settlement contains housing, circulation and commercial land-use.(Fig. 5.2a)

1). The Circulation Land-use

The circulation land-use is composed by the network of main lanes and side lanes. The main lane is used as major public passage allowing pedestrian movement or vehicular traffic. They are usually 4 ~ 7m wide, being appropriate for small scale neighborly interaction.

The side lanes are used by every two rows of housing facing onto them as walkways and semi-public open space. From here, residents can access their home. They can also use the side lanes to conduct household activities or neighborly interaction. The side lanes are generally 2 ~ 4m wide. Their intimate scale in relation to the surrounding building mass and their exclusive use by a few residents, make them a quiet and safe open space. The main lanes and side lanes form a clearly structured and evenly distributed circulation network.

2). Commercial Land-Use:

Strip-pattern of commercial land use in periphery of urban blocks, decreases the consolidation of land for large-scale commercial development, and to promote the integration of commercial development with other type of developments. Parks, leisure facilities, education and other public service organization, can be maintained in an appropriate scale in associating with commercial streets, and hence a well-balanced multi-function relationship can be established. Pedestrian accessibility in or out of blocks is improved. Waste or excessive use of open space is diminished.

The randomly-distributed home businesses such as groceries, barber & tailoring shops, cigarette-, newspaper-stands, and fast food sale counters in the circulation and open areas of lilong settlements, have increased the mixed-use character of urban fabric in a given block. This promotes stronger social and economic interweaving within the built environment.
3). Housing Land-use:

Housing land-use is optimized within the block. Protected by surrounding commercial buildings, a self-enclosed, semi-public space appropriate for domestic activities is formed within the given block. The access to it can be positively controlled. Pedestrians inside the block are safe. This improves vitality and frequency of residents’ outdoor activities.

4). Other Land-use:

Garages take the left-over, irregular-shaped space, where considered not good for housing.

To summarize, the evenly-distributed commercial development has established a fine grained pattern of urban land-use fabric, in which commercial, residential, circulation, leisurely and other land-use are intensely integrated. The spatial structure of lilong settlement forms along with their surroundings can be kept in reasonable balance. Housing are maximally unitized within the given urban lots, therefore under-used open land can be minimized. Pedestrian accessibility throughout the blocks is improved, and a humane and anti-mobile atmosphere belonging to residential environment can be achieved inside the urban blocks. Furthermore, mixed pattern of commercial and residential land-use has established mutually-supportive relationship between different activities. In this sense more dynamic character can be established in the residential settlements.

5.3 A COMPARATIVE STUDY OF DENSITY & OTHER QUANTITATIVE ASPECTS OF LILONGS WITH CONTEMPORARY HOUSING PROJECTS:

A significant feature about lilongs is its land-consuming and low-rise pattern. The great degree of ground-relatedness had surely contributed to many good qualities of the settlement form of lilongs. But one must question about the planning goals of lilongs, and how much density it can achieve?
Only by studying the quantitative data of lilongs, and by comparing them with that of common contemporary housing developments, can we achieve a better idea about its capacity of density, the advantages and disadvantages lying within its planning features, and how much price it had paid for its low-rise pattern.

The lilongs chosen for this comparative study consists of the Apartment Lilongs, Garden Lilongs, New-type Lilongs and Shi-ku-men Lilongs. Among them, the New-type and Shi-ku-men Lilongs are prime components and are most representative.

The type of projects chosen to compare with lilongs is a group of medium-rise walk-up apartment buildings. It represents the most common housing practice undertaken from 50s to 70s in the outskirts of Shanghai. The author selected An-shan Village II, An-shan Village IV, and Yiou-dian Village. They are located in the northwest of Yang-pu District or Hong-kou District, an area where these type of projects prevailed (Fig. 5.3a).

The basic information of these projects are described as follow:

1). An-shan Village II:
- **Land Coverage**: 2.66 hectare; **Building Coverage Percentage**: 15.5%; **Built Area Density**: 7760 m²/ha; **Open Space Density**: 1.88 m²/1000 m².

An-shan Village II is located in the west end of Yang-pu District in the northeast outskirts of Shanghai, covering a land of 2.66 ha. The surroundings are similar pattern of housing projects, work units’ compounds, and a few manufacturers. Some commercial land-use is integrated in the streets. This project is mostly used by employees in the nearby work units, or workers in adjacent manufacturers.

---

27 These information are provided by Deng Jilai, Master Thesis, 1965.
28 Open Space square meters generated by every 1000 m² Built Area.
Buildings are four to five-storied concrete structures in a same rectangular layout, with two large communal spaces in the center area (Fig. 5.3b). Distance between buildings is 17m. Every building can be either accessed from the south or the north. No private gardens were initiated in the design stage, however there are some converted ones developed by owners themselves in later stage.

An-shan Village has three categories of roads for circulation, organized in a hierarchical manner - the first one, 6m wide road is the main vehicular passage; the second one is 3~4m wide bicycles pass; and the third one is 1~2m wide pedestrian. See Fig. 5.3a.

The village almost has no social or economic daily service run by residents after the completion of projects. National social environment had changed, since 1949 privatization was considered as seeds of Capitalism and should be diminished by Socialism. It was after the beginning of 80s, under the open policy, home business are once more encouraged by municipality. However, due to its large-scale building mass and rigid spatial structure, there is less friendly atmosphere in the open space. Small scale commercial activities inside the neighborhood are never active. Other information refer to Diagram. 5.3a & b.

2). An-shan Village IV:

Land Coverage: 1.67 hectare; Building Coverage Percentage: 24.6%; Built Area Density: 4000 m²/ha; Open Space Density: 1,891 m²/1000m².

An-shan Village IV, 1.67 ha, is located in a neighboring site of An-shan Village II. Buildings, two-storied in average, has rectangular layout, and are accessible only from the north. Concentrated greenery space is set in the center. Circulation system were clearly structured.(Fig. 5.3c) Two categories of roads are involved, one is 3~4m wide vehicular roads, the other is 1.2 ~ 1.8m wide pedestrian walkways. No home businesses are operated inside the project. Other information refers to Diagram. 5.3a & b.
3). You-dian Village:

**Land Coverage**: 1.12 ha; **Building Coverage Percentage**: 30.5%; **Built Area Density**: 9160 m²/ha; **Open Space Density**: 758 m²/1000 m².

You-dian Village, 1.12 ha, is located in the east of Hong-kou District, not far from An-shan Village. The surroundings are mostly work units’ compounds, educational institutes and their residential areas. The project comprised of three-storied, concrete-slab apartment buildings, aligning in four rows (Fig. 5.3d).

Buildings, accessible from the northwest, keeps an identical 11m distance in between. Two categories of roads were constructed - one is 4–5.5m wide vehicular roads, with trees along both sides; the other one is 1.2m pedestrians, paved with prefabricated concrete floor tiles. A few social services have been integrated into the ground floor. Other information refer to Diagram 5.3a & b.

The above three housing development all have mono-residential character. There were no official commercial land-use involved in the original planning and design stage. Very few public facilities have been integrated.

Diagram 5.3a lists the Building Coverage, Average Story and Built Area Density of all selected projects. Diagram 5.3b lists the land-use distribution in each category of the public, semi-public, private open space, circulation, and building (housing & commercial, etc.) of the concerned projects.

By comparatively studying the data in Diagram 5.3a, it is found that the Built Area Density of lilongs, especially that of Shi-ku-men Lilongs, are quite high, but their Open Space Density is very low in comparison to new walk-up housing development.
From Diagram 5.3a we can assume that the argument of higher buildings producing higher density is not necessarily right. When the buildings go higher, the building distance has to be kept wider in order to assure appropriate sunlighting condition. Hence a larger proportion of open spaces are created, so are the open space land-use percentage. The question is: how much of these Open Space can be efficiently used? Higher buildings mean lower building coverage percentage, which might hint the waste of open space also increase.

A further study on the land-use pattern of each project in Dia. 5.3b can indicate whether or not a balance between each category of land-use is achieved, and can show us where the problems lies. The medium-rise walk-up housing projects have a large proportion of land distributed in the communal greenery and undefined public open space categories, and have no private land. However these large proportion of public open space may not have sufficient or meaningful function to fulfill, and are not secure and friendly enough to encourage residents to use them efficiently. Hence the undefined open space is, in another words, no-man’s land that are seriously under used.

On the contrary, lilongs have very low communal greenery land-use and have no undefined public open space. There is a clear indication in this diagram that, while a large percentage of land were distributed for public use (defined or undefined) in the medium-rise contemporary projects, a significant portion of land-use are identified in the semi-public and private categories in lilongs. Psychological studies tell us that human beings prefer private, secured or humane open space for neighborly interaction, thus an efficient utilization of open space can take place. Also there should be a balance between each category of land-use, thus each category can be better associated and a real efficiency can be achieved. A large portion of public open space permeated in a development can be under-used, but also, a lack of public open space is out of balance.

Contemporary development of placing high buildings in large open land, or modern theory as “Tower in the Park” concept, may not achieve real efficiency since they
produce large proportion of open space that are not really used. While the traditional pattern of lilongs, by maximizing the land for building use, had eliminated the waste of open space to a minimum.

Another interesting finding from this diagram is that, the defined semi-public open space of lilongs are used partially as their circulation space. This means their semi-public land-use percentage and their circulation land-use percentage has some overlap in numbers. Since most side lanes in lilongs have dual function, one as circulation walkway and one as semi-public open space. The intimate scale of open space in side lanes enable themselves been positively used for neighborly interaction. Lilongs, by this particular way, optimize its existing limited open land resources, and create extra bonus to its semi-public land-use percentage. However, lack of communal greenery and public open space are shortcoming of lilongs, since these attributes is positively valued by modern standard.

Through the comparative study of density and land-use data of lilongs with mainly contemporary medium-rise walk-up housing developments in Shanghai, we can have a quantitative understanding about what density capacity lilong housing has.

Much more profoundly than merely a density issue, a project has effects on our lives and our cities. The type of contemporary developments bring many issue into debate - Is this a real good way to cultivate our dwelling environment? Is this a real efficient urban form to a city?

In 80s, the municipality of Shanghai had recognized a large shortage in existing housing stock and since then began to launch large housing development comprising mainly high-rise buildings. Built in the outskirts of Shanghai, these kind of development represent the large-scale, comprehensive housing projects prevailed in late 80s and can commonly attain a density of 14,000 m²/ha or even higher.
The large type of high-rise & medium-rise residential developments can be rapidly built under modern construction technology, and generate efficiently large quantity of standardized apartment suites. But there are many side effects of them. The dominating large-scale buildings mass often fail to create a friendly environmental character, or an active street life. It's also found hard to conduct a volunteering safety control by the users themselves. The expenses of cleaning, security and management of these large projects have to be laid on to the duties of the municipality, hence it's more costly. Lack of street life or humane scale of shopping streets also cause stagnation to the social dynamics of a district.
### DIAGRAM 5.3 a: DENSITY, BUILDING HEIGHT, AND BUILDING COVERAGE:

<table>
<thead>
<tr>
<th>Medium-rise Walk-up</th>
<th>Land Coverage (hectare)</th>
<th>Building Coverage (%)</th>
<th># of Building Story</th>
<th>Building Distance (m) &amp; Ratio (H)</th>
<th>Built Area Density (m²/hectare)</th>
<th>Open Space Density (^1) (m²/1000m² Built Area)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AN-SHAN VILLAGE IV</td>
<td>2.66</td>
<td>15.5%</td>
<td>4.6</td>
<td>17.0m (1.14H)</td>
<td>7,760</td>
<td>1,088</td>
</tr>
<tr>
<td>AN-SHAN VILLAGE II</td>
<td>1.67</td>
<td>24.6%</td>
<td>1.4</td>
<td>-</td>
<td>4,000</td>
<td>1,891</td>
</tr>
<tr>
<td>YIU-DIAN VILLAGE</td>
<td>1.12</td>
<td>30.5%</td>
<td>3.0</td>
<td>11.0m (1.22H)</td>
<td>9,160</td>
<td>758</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Apartment Lilongs</th>
<th>Land Coverage (hectare)</th>
<th>Building Coverage (%)</th>
<th># of Building Story</th>
<th>Building Distance (m) &amp; Ratio (H)</th>
<th>Built Area Density (m²/hectare)</th>
<th>Open Space Density (^1) (m²/1000m² Built Area)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHAN-NAN VILLAGE</td>
<td>1.62</td>
<td>35.4%</td>
<td>4.0</td>
<td>14.0m (0.95H)</td>
<td>14,100</td>
<td>458</td>
</tr>
<tr>
<td>GARDEN APARTMENT</td>
<td>0.90</td>
<td>33.2%</td>
<td>3.25</td>
<td>16.7m (1.56H)</td>
<td>11,623</td>
<td>468</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>New-type Lilongs</th>
<th>Land Coverage (hectare)</th>
<th>Building Coverage (%)</th>
<th># of Building Story</th>
<th>Building Distance (m) &amp; Ratio (H)</th>
<th>Built Area Density (m²/hectare)</th>
<th>Open Space Density (^1) (m²/1000m² Built Area)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHANG-LE VILLAGE</td>
<td>1.91</td>
<td>53.5%</td>
<td>2.0</td>
<td>12.0m (1.70H)</td>
<td>9,574</td>
<td>387</td>
</tr>
<tr>
<td>JIAN-AN VILLAGE</td>
<td>2.35</td>
<td>48.7%</td>
<td>3.0</td>
<td>8.25m (0.85H)</td>
<td>14,596</td>
<td>245</td>
</tr>
<tr>
<td>HUAI-HAI FANG</td>
<td>1.73</td>
<td>53.2%</td>
<td>3.0</td>
<td>8.60m (0.9H)</td>
<td>15,965</td>
<td>143</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shi-ku-men Lilongs</th>
<th>Land Coverage (hectare)</th>
<th>Building Coverage (%)</th>
<th># of Building Story</th>
<th>Building Distance (m) &amp; Ratio (H)</th>
<th>Built Area Density (m²/hectare)</th>
<th>Open Space Density (^1) (m²/1000m² Built Area)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HONG-DE LI</td>
<td>0.43</td>
<td>67.0%</td>
<td>2.0</td>
<td>2.58m (0.43H)</td>
<td>13,400</td>
<td>201</td>
</tr>
<tr>
<td>ZHUN-DE LI</td>
<td>1.56</td>
<td>67.9%</td>
<td>2.0</td>
<td>3.3m (0.51H)</td>
<td>13,580</td>
<td>147</td>
</tr>
<tr>
<td>TONG-FU LI</td>
<td>0.78</td>
<td>61.2%</td>
<td>2.0</td>
<td>3.0m (0.48H)</td>
<td>12,258</td>
<td>233</td>
</tr>
<tr>
<td>BAO-KANG LI</td>
<td>0.94</td>
<td>64.9%</td>
<td>2.0</td>
<td>7.0m (1.06H)</td>
<td>11,200</td>
<td>314</td>
</tr>
<tr>
<td>GAO-FU LI</td>
<td>0.59</td>
<td>67.0%</td>
<td>3.0</td>
<td>5.76m (0.64H)</td>
<td>18,090</td>
<td>182</td>
</tr>
</tbody>
</table>

\(^1\) Open space square meters produced by every 1000m² built area.
### Diagram 5.3b: Land-Use Distribution (%)

<table>
<thead>
<tr>
<th>Medium-rise Walk-up</th>
<th>Buildings Land-use</th>
<th>Communal Greenery</th>
<th>Undefined Public Space</th>
<th>Circulation Land-use</th>
<th>Semi-public Space</th>
<th>Private Open Space</th>
<th>Other Land-use</th>
</tr>
</thead>
<tbody>
<tr>
<td>AN-SHAN VILLAGE IV</td>
<td>15.5%</td>
<td>11.7%</td>
<td>49.8%</td>
<td>14.8%</td>
<td>8.2%</td>
<td>0</td>
<td>2.0%</td>
</tr>
<tr>
<td>AN-SHAN VILLAGE II</td>
<td>24.6%</td>
<td>12.9%</td>
<td>38.6%</td>
<td>13.7%</td>
<td>9.2%</td>
<td>0</td>
<td>1.2%</td>
</tr>
<tr>
<td>YIU-DIAN VILLAGE</td>
<td>30.5%</td>
<td>0</td>
<td>36.5%</td>
<td>25.0%</td>
<td>8.0%</td>
<td>0</td>
<td>2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Apartment Lilongs</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SHAN-NAN VILLAGE</td>
<td>35.4%</td>
<td>25.2%</td>
<td>0</td>
<td>17.8%</td>
<td>0</td>
<td>0</td>
<td>21.6%</td>
</tr>
<tr>
<td>APARTMENT GARDEN</td>
<td>33.2%</td>
<td>19.3%</td>
<td>0</td>
<td>35.1%</td>
<td>0</td>
<td>0</td>
<td>12.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>New-type Lilong</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CHANG-LE VILLAGE</td>
<td>53.5%</td>
<td>0</td>
<td>2.0%</td>
<td>20.0%</td>
<td>0</td>
<td>22.8%</td>
<td>1.7%</td>
</tr>
<tr>
<td>JIAN-AN VILLAGE</td>
<td>48.7%</td>
<td>0</td>
<td>0</td>
<td>26.1%</td>
<td>18.9%*</td>
<td>16.9%</td>
<td>0</td>
</tr>
<tr>
<td>HUAI-HAI FANG</td>
<td>53.2%</td>
<td>0</td>
<td>0</td>
<td>33.2%</td>
<td>12.1%*</td>
<td>10.8%</td>
<td>2.8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shi-ku-men Lilongs</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HONG-DE LI</td>
<td>67.0%</td>
<td>0</td>
<td>0</td>
<td>12.5%</td>
<td>8.9%*</td>
<td>18.0%</td>
<td>2.5%</td>
</tr>
<tr>
<td>ZHUN-DE LI</td>
<td>67.9%</td>
<td>0</td>
<td>0</td>
<td>18.8%</td>
<td>10.2%*</td>
<td>9.8%</td>
<td>3.5%</td>
</tr>
<tr>
<td>TONG-FU LI</td>
<td>61.2%</td>
<td>0</td>
<td>0</td>
<td>25%</td>
<td>14.8%*</td>
<td>13.8%</td>
<td>0</td>
</tr>
<tr>
<td>BAO-KANG LI</td>
<td>64.9%</td>
<td>0</td>
<td>0</td>
<td>18.4%</td>
<td>9.2%*</td>
<td>14.7%</td>
<td>2.0%</td>
</tr>
<tr>
<td>GAO-FU LI</td>
<td>67.0%</td>
<td>0</td>
<td>0</td>
<td>15.6%</td>
<td>7.4%*</td>
<td>12.1%</td>
<td>5.3%</td>
</tr>
</tbody>
</table>

* These percentages are derived from circulation percentage since the semi-public space in lilongs are part of circulation space.

---

2 Including housing, commercial and public facilities land-use.
Fig. 5.1a  Gridiron Pattern of Streets in Downtown Shanghai

Fig. 5.2a  Typical Land-use Distribution of a Lilong Settlement
Fig. 5.3a  Urban Location

Fig. 5.3b  Plan of An-shan II Village
Source: Deng, 1965.
Fig. 5.3c  Plan of An-shan IV Village  
Source: Deng, 1965.

Fig. 5.3d  Plan of Yiu-dian Village  
Source: Deng, 1965.
CHAPTER VI:
LILONG HOUSING
AS AN URBAN FORM

6.1 LILONG AS AN URBAN FORM

6.1.1. THREE URBAN DESIGN THEORIES

To clarify the generic pattern of lilong housing and to explore its urban characteristics, three urban design theory could be utilized: (1) figure-ground theory; (2) linkage theory; and (3) place theory. These theories differ significantly from each other, but taken together can provide with comprehensive understanding of integrated spatial design of a built environment.

I). The Figure-ground Theory

Roger illustrated in his book, that, *The figure-ground theory is founded on the study of the relative land coverage of buildings as solid mass (figure) to open voids (ground)... Each urban environment has an existing pattern of solids and voids, and the figure-ground approach to spatial design is an attempt to clarify the structure of urban spaces and the generic patterns of mass and voids in a city or district...* He also added that, *The figure-ground drawing, a two-dimensional abstraction in plan view, is a graphic tool in revealing these relationship* (p.97).

II). The Linkage Theory

Roger explained about Linkage Theory: *Unlike the figure-ground theory, which is primarily based on patterns of solid and void, the linkage theory tries to organize a system of connections, or a network, that establishes a structure for ordering spaces* (p.97). These linking elements can be streets, pedestrian ways, and linear open space,

---

etc., that physically connect the parts of a city. It places emphasis on the circulation diagram rather than the spatial diagram of the figure-ground theory.

III. The Place Theory

The place theory goes one step beyond figure-ground and linkage theories in that it adds the components of human needs and cultural, historical and natural contexts (Roger, 1986, p.98). It gives physical space additional richness by incorporating unique forms and details indigenous to its setting. In place theory social and cultural values, visual perceptions of users, and an individual control over the immediate public environment are important principles.

Each of these approaches has its own values, but are interrelated. Combining the three, it can give a comprehensive evaluation on various facets of a particular structures within a built environment - the mass-void relationship, organization pattern, and its sensitivity to human needs.

6.1.2. SPATIAL FEATURES - STUDYING LILONGS IN THE FIGURE-GROUND THEORY:

Reviewing the general plan of a lilong settlement, it can be seen that the building coverage is denser than the open space, thereby giving shape to the public opening - in other words, creating positive voids, or "space-as-object". The open space in a lilong settlement has a well-defined shape. They seems to be carved out of the building mass as a continuous flow linking interior and exterior spaces. Without the critical coverage of housing mass, this spatial continuity would be impossible. Void here is conceived as a positive entity in an integrated relationship with surrounding solids. The void space are the vessel containing human beings social activities, represent the tension between the individual and the collective. They also represent transitions between the public and the

30 A term used in Finding Lost Space, p98.
private, and arenas for discourse and interaction. A predominant field of solid (mass housing) and voids (open space) created in this way are often called as urban fabric (Roger, 1986, p.99). This relationship of solids to voids can reveal the generic spatial pattern of a lilong settlement.

To further clarify the spatial pattern of lilong settlements, several types of solids and voids have to be examined. The solids in lilongs is formed by a mixed pattern of mass determined by their usage, in which commercial mass take the street front and residential mass occupy the internal urban block, with appropriate spacing, bulk and vertical dimension. A repetition and a predominant field of this mass pattern establish a continuous urban fabric, setting up a vocabulary that governs building volumes and facade styles in old districts of the city.

Like urban solids, there are certain definable urban voids. 1). The first is the entry foyer space that establishes the important transition from common territory to semi-public domain. Security surveillance by the randomly dispersed small business or vendors, and the fact of residents peering out their windows forming “eyes on the street”, are significant social consideration of the entry. The entry space is also a semi-public gateway visible to a selected few from the streets and announcing the arrival of individuals to their own space (Roger, 1986, p.99). 2). A second type of voids is the primary network of lanes and squares, a category that corresponds to the predominant field of building mass and that contains the active semi-public life of the settlement (Roger, 1986, p.103). As extensions of the home and places for discourse among neighbors, they formed a systematic hierarchy of order from citywide routes to locally controlled space for communication. They are places to be - to spend time in as well as corridors through which to move.

By using figure-ground theory, we can identify the basic spatial pattern of a lilong settlement is its clear-structured mass-void relationship and finely integrated urban fabric. We can also comprehend the functional meanings of voids which are usually found vague
in contemporary urban development. In lilongs, mass and voids are structured more in balance, hence they coexist effectively. With the large land coverage of housing mass, space left out are still enjoyable and meaningful. Lilongs, in low-rise pattern, achieved land-use efficiency by optimizing the use of every inch of space.

Contrary to lilong settlements, recent housing estates, where the buildings are more figural, or as free-standing objects, produce unconfined voids. The relationship of solids to voids is poorly balanced, fragments became disjointed. Urban space is frequently interrupted or weakened and sometimes lost. As in the “Tower in the Park” concept, the attempts to place vertical elements over a large ground plane result in vast open spaces difficult to maintain or control and hence seldom used or enjoyed (Schoenauer, 1994, p.117).

6.1.3. ORGANIZATION PATTERN- STUDYING LILONGS IN THE LINKAGE THEORY:

In linkage theory point of view, the basic linking elements in lilong settlements are their networks of main lanes and side lanes. They form the circulation and primary organization structure of this settlement. A basic house form resolving upon the linking elements generates the settlement from. The individual house can be added or subtracted from the linking elements without changing the settlement form of a lilong.

The main lanes are usually placed in the center or busy location of a site, with their intersection with commercial streets as entrances of a lilong. They are usually 6m wide at least, allowing vehicles and bicycles to pass. Varying in numbers, they form the first level of circulation network, introducing the public space of a city into the semi-public space of a settlement.
The side lanes are to link the main lane to the entry gate of each dwelling unit. There are several types of side lanes - one connects the main lanes on both ends; the second one connects the main lane on one end, while the other end remains as a cul-de-sac; and the third one connects the main lane on one end, while the other end is left open to a commercial street. The side lanes, as pedestrians, are usually 2.5m wide at least, however some are only 1.5m. Since many families tend to use their back entrances to access their houses, or to remove part of their housework from kitchens to side lanes, the function of side lanes are getting complicated. The side lanes are the secondary level of circulation network connecting the semi-public space of the settlement to the private domain of dwelling activities. They also function as the semi-private open space of the settlement. The linking pattern of side lanes with main lanes can be in T- or Cross-shaped, with some in a more organic pattern.

The hierarchical order of organization network from public to semi-public, to semi-private, and to private, can not only maintain a circulation efficiency on main lanes, but also ensure the children’s safety, and protect the intimacy of dwelling life on side lanes. This hierarchical pattern of circulation network decreases the disturbance of trespass traffic, and help to establish a sense of order, or unit identity (e.g. unit number), for all houses within the settlement. The cul-de-sac pattern of linking elements are advantageous to safety, control, self-management by residents, thus a tranquil environment for dwelling activities can be achieved within the bustling location of commercial area.

The study of linkage element of lilong settlements is important to the understanding of their urban structure.

6.1.4. THE SENSE OF PLACE - STUDYING LILONGS IN THE PLACE THEORY:

In abstract, space is a purposeful void with the potential of physical contents. It only becomes a place when it is given a contextual meaning derived from cultural or
regional background (Roger, 1986, p.112). While types of space can be defined by categories or typologies based on physical properties, each place is unique, taking on the character of its history and surroundings. A place is a space which has a distinct character, and a stable system in which people can develop their social, cultural and political values and behaviors (Roger, 1986, p.113).

In order to give space an emotional content - a presence that is more than physical, some aspects need to be taken into account in spatial design: the local history, the feelings and needs of the populace, the tradition of craftsmanship and indigenous materials, and the political and economic realities of the community.

The good things about lilong housing is that it has many attributes which are devoted to the creation of meaningful places, hence their residents are very proud to call it as home.

The spatial enclosures of the settlement form, clear boundary formed by streetfronts, unique form of entry gateway, and a gradual spatial declaration from the public space of the city to a semi-public space for residence, demonstrate a strong presence of a community. The definable urban edge, or boundary is, as Martin Heidegger had described, "not that at which something stops, but that from which something begins its presenting". The unifying architectural characteristics which derived from a repetition of a single or several of house models, increases lilongs' environmental identity and unifying character. Each lilong, as a spatial and social unit, has its own distinctiveness.

Local vitality based on a mixed pattern of urban land-use, and small business or vendors springing up in and around the settlement, activates residents' lives. Safety, control, local administration and small scaled community activities, enriches social, cultural and political contents of the physical space.
Possibility for personalization allows residents to experience and exert control over their immediate outdoor space. The inherited humane scale, usable open space for each family, and safe ground for children and elderly, all add up to the feeling of being at home. Traditional ornamentation, craftsmanship and local materials depict the history of locale and deliver the continuity of time.

6.2. LILONG AS A COMMUNITY

6.2.1. FOUR COMMUNITY DESIGN PRINCIPLES

The study of lilong housing is not about an individual house form, or groups of houses. It is about a pattern of urban form in which a complex interplay of physical, social, economic and political forces had come to form and shape the places. The physical form of this settlement shelters a community in association with its self-administrated organization, social structures and economical services. In order to address the comprehensive design issues involved in generation of this urban form, or to examine the livability of the settlement environment, one must first consider the interaction between two essential components of community - the physical environment and the user. Only by adopting an interdisciplinary system in evaluation and by examining both components, can we achieve a comprehensive understanding of the functional, environmental and psychological living qualities within the built structure of the settlement.

Reviewing prominent urban design theories in recent years, the "Four Principles of Community Design" by Sherwin Greene has encompass the broad range of design considerations involved in evaluating the quality of places and the quality of living. They represent distinct and vital attributes, significant enough to have universal application to all environment, and broad and flexible enough to be utilized and explored in any given

condition (Sherwin, 1992, P.180). Following is a brief outline of the four concerned principles associated with its corresponding qualities or sub-criteria.

FUNCTION requires that the design work effectively for the convenience and comfort of all its users.
1). Linkage
2). Security
3). Comfort
4). Diversity

ORDER assures that users can become oriented to the environment and understand it.
1). Coherence
2). Clarity
3). Continuity
4). Balance

IDENTITY denotes a visual image of the environment that reflects special or unique qualities.
1). Focus
2). Unity
3). Character
4). Specialness

APPEAL characterizes a design that gives pleasure to its users over time.
1). Scale
2). Appropriateness
3). Vitality
4). Harmony

The above Four Principles will be used as a reference in the following illustration, in which the author will elaborate the major concerned features that have made lilong settlements a meaningful place. Some drawbacks observed in lilongs will also be elaborated at the same time.

The principle and qualities involved in community or urban form design are broad, the number and type of lilong settlements are numerous. It is hard to cover the broad range
of issues or to conduct a generalized assumption to all lilongs, whose qualities may vary one from another. An accurate evaluation will have to build on more accurate and profound information. Hence the following analysis can only be used as a reference, or viewed as experience drawn on from the cases that the author had surveyed.

6.2.2. THE QUALITY OF LIVING IN LILONG SETTLEMENTS

**Linkage**

The linkage of a lilong to its urban setting is established by its entrances. An entrance is usually set among its commercial units at streetfront, taking on the space of one unit in the plan. The entrances are the only horizontal connection the lilong settlement has with its urban surrounding, and through which the internal society can communicate with the rest of the city (Fig. 6.2.2a).

The idea of using the entrances as the exclusive linking element from lilong settlement to its urban setting has three basic functions. 1). The simple architectural articulation of entrance intends to maintain the spatial continuity of streetscape. It is interesting that streetshoppers may sometimes even unable to notice the entry way is an access towards a residential community. 2). The economic land occupancy of entrances also intends to save urban land. It is observed that all the streetfront urban space is taken by shops, stores and other commercial activities. Even the entry way is sometimes partially filled up with small-scale businesses. 3). The limited number of entrances is advantageous for safety control over the internal environment, and to maintain administration towards all the passers-by.

**Security**

The limited entrances, the efficient use of open space and lanes, and residents’ self control over their immediate environment, have combined to establish a hierarchical surveillance system which assure the community strong sense of security (Fig. 6.2.2b).
This character is more apparent in Shi-ku-men type of lilongs, where neighbors have higher socially responsible attitude, and spaces were conceived in more intimate scale.

Throughout the built environment, there is rarely a patch of no-man’s land. Every space is conceived positively or in an economic sense. The space in a side lane is kept in very intimate scale, 2 ~ 4m wide, allowing 2 ~ 3 person to pass at one time, and most side lanes are cul-de-sacs. Even though when no residents is out in open area to watch, strangers still can’t escape the eyes from indoors. People sharing one side lane is like a big-family. They care for each others. After all, the small shops or home-base businesses scattered around the public domain are voluntarily in watching of passers-by in the main lanes. This amenity is especially beneficial to children (Fig. 6.2.2c).

**Comfort**

Once stepped inside the entrance of a lilong, one will be impressed by the sharp contrast of internal peace with external turbulence. This physical ease fostered in lilongs is mainly attributed to the continuous shops at streetfronts acting as a spatial acoustic buffer that blocks out the street noise. Though located in busy district, and surrounded by traffic and commercial activities, the internal residential spaces are set free from the exterior urban noise. The daily living zones of dwelling units are further protected from noise generated in main lanes by high gabled-walls featured in corner buildings of every housing row (Fig. 6.2.2d).

The hierarchical spatial sequence of circulation network assure a sense of order to the internal environment, as different dwelling activities are distributed at different levels.

Functional comfort was generally achieved in the New-type, Garden and Apartment type of lilongs. Their housing units usually have upper or high standard interior facilities and finishes, such as several of bathrooms, separate kitchen and dinning-room, a library, gas & electricity (utilities), marble or wooden flooring (finish), and even a garage and a
fireplace. However, the Shi-ku-men type of lilong didn't even have basic sanitary facility - the bathroom, and most kitchens didn’t use gas.

Visual comforts was also better achieved in the New-type, Garden or Apartment type of lilongs. There are two successful examples in forming pleasing places by skillful integration of greenery with architecture. One is Chang-le Village - a New-type lilong (Case 4.4), where beautifully landscaped open gardens create a delightful scenery and embellishes the white walls, red tiles of the traditional architecture. The other one is Shannan Village - an Apartment lilong (Case 4.9), where the dense woods in organic and vibrant layouts has set off the solid structures and concealed their big scale. It also creates ever-changing vista along the meandering lanes. Garden lilongs often have generous greenery space and beautifully landscaped gardens to achieve visual sense of vitality (Case 4.8 & 4.11).

On the contrary, the Shi-ku-men type of lilong generally has a very compact space. Therefore they have to rely on innovative articulation of greenery to create visual asset. As in the case of Tong-fu Li (Case 4.3), vivacious vines and plants, sprawling along the gabled walls or growing on the wooden frames, has generated a delightful natural green pavilion in the main lane, under which groups of children and elderly love to stay (Fig. 6.2.2e).

However, the quality of comforts and visual ease is not well achieved in some lilong settlements, especially the earlier-built Shi-ku-men lilongs due to a shortage of space and a lower standard condition (Case 4.1). Some have suffered from extremely narrow lanes, small unit space, lacking of communal greenery. Due to these factors, comforts had failed to be achieved in the built environment. However, even though it is hard to find a well-defined greenery space in common area of a Shi-ku-men lilong, it is not hard to discover many mini scale of visual pleasure or delight of green in the courtyards, on windows, and balconies, created by their dwellers.
To summarize, though the level of physical comforts might vary in different lilongs, the emotional sense of tranquillity and order cultivated in the build environment is a common achievement to all lilongs, no matter old and new.

**Diversity**

Dwelling activities are based on two environments. One is physical environment, consisting of physical form, building type and structures; the other one, is social environment, comprising amiable atmosphere of community, relationship between neighbors, shopping conditions, education & health-care facilitates, and public service convenience, etc. (Bao, 1992, p.59). The first one may contains the “standard of living”, but the second one represent the “quality of living”, which is more fundamentally appreciated and increasingly pursued by modern dwellers.

Chinese people living in the city habitually go to food market early morning. For them, they have to first purchase daily food necessity such as meat, vegetables and fruits before going to work. They also have to purchase breakfast on their way back home. The morning in Shanghai is vibrant and busy, often referred as “battling morning”. It is a common phenomenon that people rush to work while eating their breakfast. Hence the shopping conditions must be made favorable to them in a good settlement.

Preschool education and health-care is another consideration for families. Kindergartens, elementary schools and hospitals should be a short distance away, or easily accessible, since parents normally have to send their kids to kindergartens or schools on their way to work. The mixed pattern of social program and facilities can bring along more daily convenience to dwellers.

In this respect, lilongs’ mixed pattern of dwelling forms creates high degree of social diversity to urban mechanism and have made the urban living convenient, dynamic and pleasurable. Morning shopping can be undertaken in food market in proximity.
Breakfast can be bought from refreshment stores at adjacent alleys or streets. This life convenience contrast to the scarcity of choice in mono-residential districts dominated by concrete-slab prefabricated high-rise buildings, built in late 70s or 80s.

There are many elementary and secondary schools in downtown area, so preliminary education can be easily pursued in adjacent areas of lilongs. Teachers also prefer to stay in economic and socially dynamic districts. Hospitals is within convenient accessible range, or it will be economically more affordable by taking a cab to get to hospitals should an emergency occur.

Downtown Shanghai offers the most dynamic night life in the world, where shopping, theaters, and night bars have woven a vivid and colorful pictures of urban amusement. Even today, window-shopping along major commercial streets (e.g. Nanjing Road, & Huai-hai Road) has been taken as a modern type of pleasure, especially enjoyed by young. To enrich people’s life, municipality of Shanghai recently stipulated that the major commercial streets in downtown such as Nanjing Road and Huai-hai Road be opened as pedestrian walkway exclusively after 6:00 pm on weekends. This is another thing favorable to residents of Old Residential District (ORD), since they are all close to these prosperous streets. This pleasurable and delightful amenity available for people to enjoy today is something that had deeply rooted in the initial urban land-use patterns, application of settlement forms, scales, intensity and their relationship with streets. Not doubtful, the integration of living and commercial activities within one urban block, and the disposition of human-scaled commercial streets have contributed to generation of the excitement and charming character of the old residential districts.

The broadest possible mix of residential, commercial, social and cultural variety, promotes city vitality. The street-life created by the built structures is something that can make a city identifiable and exciting. Jane Jacob has commented that: "City streets must constantly be active and controlled by people who live, work, and relate to them in housing
For her, the hustle and bustle of crowded sidewalk life in the corridor streets generates the excitement, interaction, and beauty that form the essence of what makes central areas of great cities around the world so appealing.

Lilong is a mutually-supportive and socially and vice versa controllable pattern of urban form. Prosperity in commercial streets enrich residents' life. Populace of residential area in the old city form the strength that can assure safe walking in downtown streets. Space behind commercial units can be used as workplace or storage. Extra heat and electricity generated in large shopping stores can be utilized for residential use over nights. Home business in lilongs facilitate convenience of daily living and create opportunity for self-employment. Social organization and public service within the settlement provide residents especially the elderly an chance to exert their energy and enthusiasm. Children and the old, spending time together, have established an understanding and mutually supportive relationship when working parents are out. Within the built structure, “functional integration is matched by a degree of social integration.” As Kevin Lynch has stated, this quality is “surely a legitimate feature of good settlements, within which one can organize politically when the need for control arises. ... For certain age groups, particularly the young and old, a place-based social community is quite important in maintaining self-protection and self-consciousness (Lynch, 1981, p.248-249).

In short, this type of settlement, decreases the noise and danger of fast traffic, and increases the possibility of local organization and control, all without major cost (Lynch, 1981, p.248). Apart from that, the fact of being in an identifiable settlement which has quiet, safe internal lanes, easily accessible daily services and vital street-life in close proximity, has make the living so pleasurable. Everyone is aware of the diversity around him or her, and is in visual contact with other ways of life (Lynch, 1981, p.303).

32 Source: David R. Hill, Jane Jacob's Ideas on Big, Diverse Cities, - a Review & Commentary.
Clarity

Clarity is, *in a small place the sense of how its parts fit together, and in a large settlement the sense of orientation* (Lynch, 1981, p.134).

Applying to all lilongs, a clear sense of entrance and closure, and hierarchical spatial structure, make the settlement more comprehensible and improve its response to the quality of clarity (Fig. 6.2.2f).

All side lanes stem orthogonally from main lanes, or parallel to urban streets. This help the residents, even the new comers, to be easily oriented in the internal environment of lilong settlements. Buildings are generally north-south orientated.

The dramatic visual rhythm formed by a repetition of buildings, their court-yards and entry gates, convey the sense of continuity and emphasize the principle of order.

Balance

The urban space of lilongs is conceived horizontally rather than vertically, having large land coverage. Its solids (building mass) consisting of primarily low-rise buildings, spatially define a series of intimate scale urban voids (internal open space). The shape of space carved out of the mass are clear and identifiable, hence appropriate usage in them can be assumed. This relationship between the dominated mass coverage and positive use of open space help to establish a sense of spatial balance within the built structure.

The predominate coverage of low-rise housing development in central city generates a fine-grain pattern of urban fabric, differing from a rather rough-grain pattern of urban fabric in the city outskirts.
Identity

"Identity is the extent to which a person can recognize or recall a place as being distinct from other places - as having a vivid, or unique, or at least a particular, character of its own (Lynch, 1981, p.131)."

Lilong settlements were usually built by small developers using traditional construction methods. Unlike contemporary prefabricated housing developments constructed in the city outskirts of Shanghai where mono character dominates the urban fabric, the lilong settlements usually have more individuality and specialty. The variety of lilong types bestowed architectural richness to the physical form of lilongs. The unifying character of a settlement derived from repetition of its basic components and order strengthened the settlement’s identity and the sense of a place.

Focus

A focal point as a place of assembly, or social intercourse, is very important in community design. It is noticed that a fixed object acts as a magnet to movable objects (Gordon, 1961, p.103). In the case of human settlements, meaningful or functional fixed elements can attract the most movable objects - human beings. A tree provides shade and shelter; a bench allows people to sit; a shop solicits people to linger; and a newspaper-board attracts people to stay and read. People themselves, for different reasons, also need anchorage in their various outdoor activities of trade, recreation and social life. Hence lands of greenery, pieces of sitting area, groups of shops, and nodes of public service, turn the dissociated stream of people into groups, and become identifiable rallying points. These features have all been skillfully integrated in most of lilongs (Fig. 6.2.2g).

Scale

Appeal is an intuitive human feeling response to aesthetic appreciation of objects. Whilst cultural factors will have a profound influence upon the manifestation of aesthetic
perception, the fundamental mechanisms seem to be universal which had transcend time and culture. It (appeal) may deal with pattern of rhythm, state of balance, degree of harmony, and sensitivity of scales, etc., to include all, the pleasure of sensation, especially the visual, authentic and emotional pleasure received in the process of experiencing the objects.

Scale is also an attribute of the “Appeal”. Human scale can make a space inviting and friendly and thus arouse a person intense sense of familiarity and comfort while walking through it. The amiable atmosphere attained in side lanes of lilongs adds to the friendly feeling of the places. Given the sub-tropical condition of the region, the city is hot in summer and cold in winter. The appropriate building distance arrangement assures sufficient sunshine in the ground-floor rooms, but also maintains a large portion of shady area in side lanes. Hence in summer, the direct radiation into side lanes only lasts for two hours at noon. The busy social life lead by residents at mornings and afternoons won’t be effected by the hot sun, and many people have taken it as the best place to enjoy the cool. The side lanes are also protected from wind flow in sever winter. The nice micro-climatic environment ensures frequent use of side lanes, forming a vivid and charming scene of dwelling activities of the most ordinary people (Fig. 6.2.2h).

Attributes of appeal is hard to be briefly concluded here. True qualities of an aesthetic place can only be comprehend when all circumstance of a project are given. Generally speaking, for lilong settlement as a whole, their sense of order and rhythm, quality of harmony and conformity, and intimate-scale streetscape, are part of the elements that make lilong’ space appealing.

6.3. LILONG HOUSING AS AN EMBODIMENT OF DWELLING CULTURE

There is one factor that the author wants to specifically point out as a more fundamental and essential point to understand of the life in lilong. The cultural and
behavioral habits of a nation, or a certain region, has played an important role in the way of using their shelters.

Lilong housing was firstly introduced from Western row housing. It bears many similar characteristics such as aligning in rows, and many similar advantages such as cost-efficiency in terms of economic use of infrastructure and initial site development expense, or energy-efficiency by sharing the common walls. However, differed significantly from row housing, lilong settlements had created an unique type of atmosphere which is indigenous to Chinese dwelling culture and behavior - a frequent and strong social interaction allowed by the built form. Chinese people have long developed an ethic habit and behavior in their dwelling activities. People like to spend time together. They consider social activities and neighborly interaction to be pleasurable experience or fun. They like to eat together (making dumpling), playing games ("ma-jiang" or "poker") in a group, sitting around to chat, or talking about legendary stories ("long-men-zhen") in courtyards, etc.

Lilong housing has taken into account the cultural background of Chinese dwelling and integrated the concerned issues in the process of design. By allocating at least one courtyard and a portion of usable open space for each family, and by allowing a spatial fluidity through them, the daily communication can be conducted while doing housework, and socializing pleasure can take place in an elastic way in the courtyard, in the lanes, and enjoyed by all (Fig. 6.3).

Living so close to each other, sharing experience and amusement every day, the families inside the lilong become one big family. Strong sense of belongings, social esteem are aroused in the built structure and grow in every day life. The local residence's committee, comprised of warm-hearted senior citizens, represent the local political power, under whose leadership, the whole community make efforts to construct a pleasant and civilized living environment.
As Amos Rapoport (1969, p.28) has elaborated, "The house is an institution, not just a structure, created for a complex set of purposes. Because building a house is a cultural phenomenon, its form and organization are greatly influenced by the cultural milieu to which it belongs. ... if provision of shelter is the passive function of the house, then its positive purpose is the creation of an environment best suited to the way of life of people - in other words, a social and cultural unit of space."

The idea of a settlement as a social control mechanism, so strong in traditional cultures at least, may no longer apply with as much force in a society with the formalized and institutionalized control systems of today...... The link between culture and form is weakened due to the fast development of technology and widely application of them without particular concerns to a given context ...... As a result, housing forms and patterns are internationalized, neglecting the local culture that have accumulated indigenous customs and habits. (Rapoport, 1969, p.22-44)

Only by understanding that houses or settlements are not only physical containers of a group of dwellers but also psychological embodiments of dwelling activities, dweller’s culture and religious belief, etc., which are more fundamentally rooted in life than the architectural forms, can humane and appealing residential environment be constructed. The designers of Lilong projects understood this very well.
Fig. 6.2.2a Entrance as the Transition Between the City and the Community

Fig. 6.2.2b Hierarchical Security System
1. Entrance: Control Node
2. Side Lanes: Cul-de-sac
3. Main Lanes: Small-scaled Home Business as Eyes on the Streets
Home-business & Committee Office at the Entrance

Safe Play-Ground for Children

Fig. 6.2.2c

Separation of Public, Semi-public and Private Zones

Fig. 6.2.2d
Fig. 6.2.2e  Planting Along Lanes in Shi-ku-men Lilongs

Fig. 6.2.2f  Clarity in Spatial Organization
Fig. 6.2.2g  News bulletin and Sitting Area as Focus in Public Area

Fig. 6.2.2h  Intimate-scaled Streetscape & Micro-climatic Environment Inside Lanes
Fig. 6.3 The Lanes on Sunday
Household Activities Promote Neighborly Interaction
POSTSCRIPT

Lilong housing, being of the most prevalent mass housing and exclusively built before 1949, had once taken on 60% ~ 70% of downtown land. Currently they account for 38.65% of gross floor-area of Shanghai housing (old and new), and their occupants make up more than a half of the city’s population.(Yu, 1992, p.148)

As a key player in urban tissue and crucial components in housing package, lilong housing encounter intense challenge in contemporary urban renewal, which has stormed big cities of China during the new economic development era. A large part of lilongs (mainly Shi-ku-men type) are equipped with crude, backward facilities that needs major and fundamental upgrading. The problem exposed are categorized below:

First, the congestion due to subdivision (in post-design stage) of the original space, cause the living condition improper and the living area per capita too low for the modern standard. The subdivided rooms are often separated only by wooden panels or plywood planks, thus the interference of noise between neighbors are imaginable.

Second, the living facilities in lilongs especially Shi-ku-men type are not complete. According to a sample inspection conducted in Shi-ku-men lilongs, 56.2% families have no private kitchens; 72.5% families have no gas supplying appliances and have to depend on briquette stoves which cause serious pollution; and over 99% families are not equipped with toilet facilities and thus have to use nightstools (Yu, 1992, p.149-150).

Third, the aging structure and low maintenance & repair have resulted in deterioration or collapse of many lilongs. The majority of existing Shi-ku-men buildings have being existence for more than sixty years, with some exceeding seventy years.
Some lilong buildings have been observed to suffer from leaking, slanting, cracking and eroding problems (Yu, 1992, p.150).

Currently, the urban renewal programs of the municipality contains rehabilitation (adaptation) and regeneration of houses in the old district, both includes tasks of relocating residents from their original communities and construction of large amount of stereotyped buildings in the city’s outskirts. Though the physical part of living condition including floor-area standard per person is improved in the newly built multi-storied or high-rise housing developments, the emotional appeal and living qualities fostered in the old residential districts fade away. Difficulties in transportation arises. Inconvenience in shopping accompanies. People are deprived of their opportunities from ground-related living and hence lose their frequent ground-related pattern of social interaction. Residents more often meet in elevators but seldom greet to each other. The sense of security and social cordiality, and the idea of being a collective and helping each other when difficulties occurs, so strong in the traditional pattern of lilong settlement, are diminished.

On the other hand, land developers in downtown strive to exploit every inch of transferred land, by putting up expensive, multi-functional high-rise towers or point-blocks of offices, residence or the combined, to pursue the utmost profit. If this trend continues, the downtown Shanghai will be utilized to operate for commerce, finance and business, and to accommodate those privileged or rich who can afford to stay. The city’s demographic profile will change. The city’s urban tissues will be reorganized. Evenly-distributed, linear pattern of commercial streets will be gradually engulfed by the concentrated mega-structured commercial shopping centers. The active street life based on humane scales and relying on sufficient numbers of downtown dwellers will thus dry up. The cultural tradition and social values so distinctive in this trade city will vanish, and Shanghai will follow the mistake in its urban development history that many North American cities had made in their fast urbanization.
The decentralization and suburbanization once prevailed in North American has caused, to some degree, the segregation of residential and commercial activities, the dull atmosphere of downtown street life, and large waste of urban infrastructure, etc. However, living standard and vast national resources of land in these countries can still enable people living in suburb to commute to downtown more easily than people living in a developing country, as automobiles in North America is an affordable and common means for daily transportation. But in China, the huge population has placed automobiles an undependable transportation means for ordinary people due to the scarce land for parking, let alone to say, people can’t afford them except a few extremely rich. Under this situation, people in Shanghai will be more unwilling to commute to downtown once they are relocated far from city center, and thus the segregation of different activities and zones, and the under-used city service and infrastructure will have more devastating effects.

The study of lilongs as an urban form aims at, apart from clarifying its design concepts and ideas, exploring its positive factors which have made this pattern of dwelling pleasurable and appealing. By stressing some sensitive issues involved in the contemporary housing development in Shanghai in a comparison with valuable experience drew from lilong dwelling, this thesis wish to contribute to a comprehensive understanding of real qualities of urban dwelling, and to call on architects and planners, to apply the essence of lilong concepts in new housing design, and to heighten their sense of social responsibility in making our cities and dwelling environment, not only physically but also socially, culturally and environmentally, more livable.
REFERENCES


Deng Jilai, *The Relationship of Residential Outdoor Area and Housing Density in Shanghai Based on Field Survey of a Number of Residential Districts*, M. Arch. Thesis, Tongji University, P. R. China, (1965).


