华南理工大学

South China University of Technology

专业学位硕士学位论文

形态类型学视角下的历史文化街区更新研究
-以广州洪德巷为例

作 者 姓 名	杨维桐
学 位 类 别	建筑学硕士
指 导 教 师	导师组
所 在 学 院	建筑学院
论文提交日期	2023 年 7 月

Renewal of Historic Districts Based on the Perspective of Typo-Morphology-Taking Hongde Lane in Guangzhou as an Example

A Dissertation Submitted for the Degree of Master

Candidate：Yang Weitong

Supervisor: Mentor Group

South China University of Technology

Guangzhou, China

分类号：TU98 **学校代号：10561**

学　号：202121006782

华南理工大学硕士学位论文

Renewal of Historic Districts Based on the Perspective of Typo-Morphology-Taking Hongde Lane in Guangzhou as an Example

作者姓名：杨维桐　　指导教师姓名、职称：　导师组

申请学位级别：硕士学位　　学科专业名称：建筑学

研究方向：城市设计

论文提交日期：2023 年 7 月 24 日　论文答辩日期：2023 年 9 月 4 日

学位授予单位：华南理工大学　　学位授予日期：　年　月　日

答辩委员会成员：

主席：王世福

委员：周剑云、王擎、刘铮、Mauro Berta

华南理工大学

学位论文原创性声明

本人郑重声明：所呈交的论文是本人在导师的指导下独立进行研究所取得的研究成果。除了文中特别加以标注引用的内容外，本论文不包含任何其他个人或集体已经发表或撰写的成果作品。对本文的研究做出重要贡献的个人和集体，均已在文中以明确方式标明。本人完全意识到本声明的法律后果由本人承担。

作者签名：[signature]　　日期：2023年 9月 4日

学位论文版权使用授权书

本学位论文作者完全了解学校有关保留、使用学位论文的规定，即：研究生在校攻读学位期间论文工作的知识产权单位属华南理工大学。学校有权保存并向国家有关部门或机构送交论文的复印件和电子版，允许学位论文被查阅（除在保密期内的保密论文外）；学校可以公布学位论文的全部或部分内容，可以允许采用影印、缩印或其它复制手段保存、汇编学位论文。本人电子文档的内容和纸质论文的内容相一致。

本学位论文属于：

□保密（校保密委员会审定为涉密学位论文时间：___年__月__日），于___年__月__日解密后适用本授权书。

☑不保密，同意在校园网上发布，供校内师生和与学校有共享协议的单位浏览；同意将本人学位论文编入有关数据库进行检索，传播学位论文的全部或部分内容。

（请在以上相应方框内打“√”）

作者签名：[signature]　　日期：2023年9月4日

指导教师签名：[signature]　　日期：2023年9月4日

作者联系电话：18149200975　　电子邮箱：1653981081@qq.com

联系地址（含邮编）：陕西省西安市新城区东城墙南北（710000）

摘　要

近40年来，随着中国城市的城市化和国际化进程不断加速，中国城市正发生着显著变化。由于传统建筑的大量拆除和现代新建筑的大量出现。历史悠久的文化古城逐渐失去自身特征，地域趋同化逐渐明显。如何在高速发展中继承传统并建立新形态与传统形态的联系是解决该问题的重中之重。形态类型学对于形态的历史演变极为关注，其在欧洲的应用证明形态的发展是循序渐进，和历史有着紧密的联系。但要证明形态类型学的方法是否可以对症下药的解决中国城市面临的问题，有必要建立针对中国城市的形态类型学方法，为后续中国城市设计及城市管理提供借鉴。

本文以广州洪德巷案例遭遇的现实问题出发，探索历史街区保护更新中形态类型学的“本土化”应用；并将该方法应用到实践中。本文主要内容由以下几个方面构成：（1）广州洪德巷历史文化资源和现状环境的对比，及其保护更新问题与形态类型学方法之间的联系；（2）形态类型学理论梳理及相应方法总结；（3）通过实例分析总结该方法具体应用流程环节；（4）通过对广州洪德巷的具体调研和调整形态类型学元素层级序列，提出“本土化”的形态类型学应用框架，并运用形态类型学分析方法对广州洪德巷进行分析；（5）在此基础上应用该研究方法进行城市设计导则制定，并进一步推进具体城市设计；（6）在结论部分对整体研究进行总结，并提出研究的不足和展望。

本文希望通过对于形态类型学的研究，补充国内对形态类型学研究的不足，同时希望在本土化研究中提供思路，为我国历史文化街区的保护更新提供一定建议。

关键词：形态类型学 城市更新 历史文化街区 广州洪德巷

Abstract

Over the past 40 years, Chinese cities are undergoing remarkable changes as urbanization and internationalization continue to accelerate. Due to the massive demolition of traditional buildings and the emergence of modern new buildings. Historic cultural cities are gradually losing their own characteristics, and regional homogenization is becoming obvious. How to inherit the tradition and establish the connection between the new form and the traditional form in the midst of the rapid development is the top priority to solve the question. Typo-Morphology pays great attention to the historical evolution of forms, and its application in Europe proves that the development of forms is gradual and closely related to history. However, in order to prove whether the Typo-Morphology approach can be the right remedy to solve the questions faced by Chinese cities, it is necessary to establish a Typo-Morphology approach for Chinese cities, which will provide a reference for the subsequent urban design and urban management in China.

Based on the practical problems encountered in the case of Hongde Lane in Guangzhou, this paper explores the ' localization ' application of Typo-Morphology in the protection and renewal of historical streets， and the method is applied to practice.The main contents of this paper are composed of the following aspects : (1) The comparison between the historical and cultural resources and the current environment of Hongde Lane in Guangzhou, and the relationship between the protection and renewal problem and the Typo-Morphology method; (2) Theoretical combing of Typo-Morphology and summary of corresponding methods; (3) Through case analysis, the specific application links and processes of this method are summarized; (4) Through the specific investigation of Hongde Lane in Guangzhou and the adjustment of the hierarchical sequence of Typo-Morphology elements, the application framework of ' localization ' Typo-Morphology is proposed, and the Typo-Morphology analysis method is used to analyze Hongde Lane in Guangzhou ; (5) On this basis, the planning method is applied to formulate urban design guidelines and further promote specific urban design; (6) In the conclusion, the overall research is summarized, and the shortcomings and prospects of the research are put forward.

In this paper， it hopes that through the theoretical study of Typo-Morphology, it can supplement the domestic research on Typo-Morphology, and at the same time, it hopes that provide ideas in the localization research, and provide certain suggestions for the renewal and protection of China's historic cultural districts.

Keywords: Typo-Morphology, Urban Renewal, Historic Cultural District, Guangzhou Hongde Lane

Content

List Of Figures

Chapter 1 Introduction

1.1 Raise question

1.1.1 The value of historic cultural districts

Historic cultural districts are important from historical, cultural, social and economic perspectives. It carries the memory of the local past, shows the development of the area, records the building style and social culture of a particular period, and the cultural heritage in the historic cultural district can be a source of collective identity for the community. At the same time, historic cultural districts have an important impact on the economic development of the urban, and can be an important resource for the tourism industry, as well as an important source for people to learn more about the accumulation of the urban.

Historic cultural districts have the important research value as they normally express the style of a specific period, or preserve the building tissue and urban form of a certain period, and accommodate the lifestyle of local residents. At the same time, historic cultural districts are usually located in the urban centre, surrounded by convenient transportation, and have obvious location advantages; however, due to historical factors, most of their current situation is characterized by building decay, poor living conditions, poor infrastructure, population loss, declining community cohesion, and lack of cultural and educational heritage. At the beginning of the 21st century, during the stage of rapid urban development, a large number of historic cultural districts and buildings were demolished due to their inability to meet the needs of life and the low awareness of preservation at that time, and the history and local cultural characteristics disappeared.

Nowadays, China's urban development model has gradually shifted from the previous model of large-scale demolition and construction to the model of stock renewal, which is of great significance for the renewal of historic cultural districts, improving the lives of residents and enhancing the vitality of communities.

1.1.2 Protection and Renewal

Around the 1960s, specific charters and opinions gradually defined the concept of historic cultural districts and the basic principles and methods of preservation. *The Venice Charter*, adopted in 1964, stated that the sites on which historic buildings were located also needed to be protected, and *The Washington Charter*, adopted in 1987, refined *The Venice Charter* by defining the urban historic cultural district in a more refined way, encompassing both the natural and the built environment in cities, towns and historic centre or settlements；to specify the principles, objectives and methods of protection, making clear the need to protect, firstly, the local population and, secondly, the character of the historic cultural district and the various material and spiritual elements that express that character.[1][2][3]

As for the protection of historical and cultural cities in China, although it started late, it has paid enough attention to it to make appropriate amendments and additions at different times.

In 1982, a mechanism for the protection of cultural relics, the National Historic and Cultural Cities, was established on the proposal of Mr Hou Renzhi of Peking University, Mr Zheng Xiaoxie of the Ministry of Construction and Mr Shan Shiyuan of the Palace Museum. National historical and cultural cities identified and announced by the State Council of the People's Republic of China are cities that are particularly rich in preserved cultural relics, have significant historical value or commemorative significance, and are in continuous use. The Chinese Government has always attached great importance to the protection of famous historical and cultural cities, towns and villages, *The Protection of Cultural Relics Law* and *The Urban and Rural Planning Law* establish a system for the protection of famous historical and cultural cities, towns and villages, and explicitly stipulate that the State Council shall formulate measures for their protection.

On 1 October 2005, *The Norms for the Protection Planning of Famous Historical and Cultural Cities* came into force, defining the principles, measures, contents and priorities of protection.

On 1 July 2008, *The Regulations on the Protection of Famous Historical and Cultural*

Cities, Towns and Villages came into force, regulating the declaration and approval of famous historical and cultural cities, towns and villages. If the layout, environment and historical features of a national historical and cultural urban are seriously damaged, the State Council shall revoke its title as the historical and cultural urban.

In November 2021, the Ministry of Housing and Urban-Rural Development and the State Administration of Cultural Heritage issued *The Circular on Strengthening the Special Assessment of the Protection of National Famous Historic and Cultural Cities*. It is required to comprehensively and accurately assess the situation of the protection work of the famous cities and the protection status of the protection objects, and to timely discover and solve the outstanding questions of the historical and cultural heritage such as repeated destruction and demolition.

Corresponding to the three scales of cities, districts and buildings, China's historical and cultural heritage protection system consists of three levels: historical and cultural cities, historical and cultural, and cultural relics protection units, which are composed of macroscopic, mid-scale and microscopic systems. The protection of historical and cultural districts has an important role in connecting the upper and lower levels of the mid-scale level.

"Renewal" originally means a situation in which something is replaced, improved or made more successful. After the introduction of the discipline of urban planning, it mainly refers to the renewal of old industrial areas, old commercial areas, old residential areas, urban villages and other areas of the urban that are no longer adapted to the social life of a modern urban, with the aim of perfecting the functions of the urban, optimizing the industrial structure, improving the living environment, advancing the economical and intensive use of land, energy and resources, and promoting the sustainable development of the economy and the society.

The development of urban renewal in the West in the last century has undergone great changes, and its course and characteristics are broadly characterized by four phases,pre-1960s（knock-down redevelopment）, 1960s-1970s（community renewal）, 1980s-1990s（old urban development）, and late 1990s（organic renewal）.

From the above background, it is easy to see that urban renewal includes not only the

renewal of the physical space of the urban, but also the consideration of "people". In the process of urban regeneration, the government's unilateral participation is broken down, and the emphasis is placed on joint participation, contribution of ideas and suggestions, and a combination of "top-down" and "bottom-up" approaches to solving the comprehensive questions of urban development.

Therefore, in normal, the protection and renewal of historic cultural districts requires the protection of existing historical remains, as well as the improvement of the quality of life of the residents, and the introduction of resources through a variety of channels, with the cooperation of many parties, to jointly carry out the protection and renewal of historic cultural districts.

1.1.3 Typo-Morphology

The word "type" comes from the Greek word typos, which translates as "Figure". The idea of type has been around since the time of Vitruvius and Alberti, and the study of typology has its roots in the French Enlightenment movement of the mid-18th century, when Abbe Laugier considered the primitive thatched hut to be the origin of architectural typology, and in the 19th century, when Quatremere de Quincy and Jean-Nicolas-Louis Durand developed the idea of typology in a comprehensive way, making it a more systematic approach to architectural theory and design. In the 19th century, Quatremere de Quincy and Jean-Nicolas-Louis Durand worked together to develop the idea of typology in a complete and comprehensive way, making it a more systematic approach to architectural theory and design. However, there are certain differences; the former regards the type as an essential normalization of architectural abstraction, which not only emphasizes its essential unchanging features in urban and architectural forms, but at the same time leaves room for the architect to create new architectural forms, while Dillon's approach is to use a categorization that makes architectural design easier to teach.

In the mid-20th century to resist the modernist movement and to restore the humanized space of the traditional European towns and cities, typological theories were newly developed. G.C.Argan reinterpreted de Quincey's definition of typology as an abstraction of the use and

form of a series of buildings, the intrinsic formal structure of a house or a series of buildings. Saverio Muratori and Gianfranco Caniggia use the typological approach to understand the built environment and urban development, stating that the urban is an organism that constructs bridges between tradition and modernity, the urban and architectural monoliths, and research and design. Inheriting Muratori's method of urban research and Argan's redefinition of type, Aldo Rossi proposed a more subtle and indeterminate conception of type, drawing on Carl Jung's ideas of analogy and the concept of archetype, he developed the concepts of Analogical Architecture, Analogical Cities, and brought this method of work, which translates history into design, to Switzerland. Miroslav Sik proposed archetype architecture and insisted on using it for teaching and practical work. Alan Colquhoun and Rafael Moneo sorted out and analysed the development process and important concepts of typology through articles such as *Typology and Design Method and On Typology* respectively.[4] In addition, R&L.Krier inherited Dillon's idea of classification and researched classical architectural and urban types for use in the design of urban public space scales. Morphology concept also comes from biological disciplines, the English word comes from the Greek Morphe and Logos, which means the form of the composition of the logic, mainly concerned with the morphological characteristics and structural composition of organisms. In the late 19th century to the beginning of the 20th century, the concept of morphology was introduced into the analysis of the urban in the discipline of historical geography in Germany, and further developed and improved by the British scholar M.R.G.Conzen, establishing a relatively complete Urban Morphology theoretical system. Later on, J.W.R.Whitehand and other scholars from the University of Birmingham inherited the theory and promoted it to more countries and regions. In 1987, the American scholar A.V.Moudon cited Typo-Morphology, a term coined by the Italian architect C.Amonino, to define the new framework of research resulting from the fusion of the two schools of thought. She argues that the study of Typo-Morphology reveals the material and spatial structure of the urban, both typologically and morphologically, because this approach interprets urban form based on a careful categorization of types of buildings and open spaces, and that Typo-Morphology's study of urban form derives from typological spatial and structural studies.[5] From the 1990s ,

the British scholar K.S.Kropf compared and integrated the core theories in the the theories of Conzeyne K.S. Kropf, a British scholar, compared and integrated the core concepts and terms of Conzen and Caniggia's theories, and proposed a comprehensive Typo-Morphology research framework. With the establishment of the International Seminar on Urban Form, the exchange between the two schools of thought has become closer, with morphology and typology interpreting and perceiving urbans, districts and buildings from different perspectives, and exerting significant influence and guidance on design and practice.

1.1.4 Linkage of research subjects

The research object of this paper is the theoretical method of Typo-Morphology and the protection and renewal work of Guangzhou Hongde Lane, in order to solve the real questions by finding the theoretical method of Typo-Morphology suitable for China. After summarized the theoretical framework and related terminology, practical cases, and adapting the renewal according to the special characteristics of Guangzhou Hongde Lane , a specific approach suitable for traditional Chinese urban districts is formed.

1.2 Literature review

1.2.1 Typo-Morphology study

（1）Foreign related research results

The two most important schools of thought recognized in the field of Typo-Morphology research at present include the Conzen school, which originated in Germany and developed in the discipline of historical geography in the UK, and the Muratori - Caniggia school, which is based on traditional Italian typological theories. Both theories were founded in the European urban environment in the 1950s and 1960s, and they share a common concern for the historical evolution of traditional cities and buildings and the motivation behind them, which is a theoretical approach starting from history and pointing to the future, and has basically formed a relatively stable theoretical and methodological system after experiments in different regions and cultures, and is the main theoretical basis of the research in this paper.

The former was mainly established and developed by the British scholar M.R.G.Conzen, who established the main theoretical structure and terminology system of morphological research in his book *Town Plan Analysis: A Case Study of Alnwick, Northumberland*. He argued that the historic landscape of towns and cities is an important part of traditional memory, but that their historical, cultural and morphological characteristics are not immutable. M.R.G.Conzen used urban maps and survey maps of different eras to re-conceptualize the structural relationships between the whole and the parts of the urban, as well as the sequence of the historical evolution of streets, plots and buildings.[6] J.W.R.Whitehand systematically describes the origin, development and main features of the Conzen school of urban morphology in his article *British Urban Morphology: The Conzenian Tradition*.[7]

The Italian school of research has its roots in the traditional concept of typology, which was extended to the study of historic urban centres by Saverio Muratori and others, who in *Studi per una operante storia urbana di Venezia* and *Studi per una operante storia urbana di Rome* established methods and tools for interpreting the process of evolution of buildings and built spaces in historic cities over time. Gianfranco Caniggia, following in the footsteps of his mentor and working to create a scientific system that can be used to interpret any urban settlement, in *Interpreting Basic Building* applies the concept of typology to a continuum of scales ranging from material components and architectural monoliths to cities, towns, and regions, with the new design at each level blending with valuable history and existing forms. Each level merges with valuable history and existing forms, thus building bridges from tradition to modernity and from the urban to the monolith, an approach also known as design typology.[8][9] Nicola Marzot shows the relationship between urban form and urban design in the Italian research tradition in *The study of urban form in Italy.*

After the 1980s, the two schools of thought gradually converged due to the similarity and complementarity of their research ideas. A.V.Moudon, an American scholar, initially established a new research framework after the fusion of the two schools of thought in her article *Urban morphology as an emerging interdisciplinary field.*[10] while K.S. Kropf, in his doctoral paper *An Enquiry into the Definition of Built Form in Urban Morphology*, and *Ambiguity in the Definition of Built Form in Urban Morphology*, has also established a new

research framework after the fusion of the two schools of thought. K.S.Kropf compared and integrated the core concepts and terminology of the two schools, and put forward a comprehensive framework for the study of Typo-Morphology.[11][12] With the establishment of the International Seminar on Urban Form in 1994, the communication and interaction between the two schools of thought became more frequent and in-depth, and Brenda Case Scheer summarized the views of the major schools of thought in the field of morphology in *The epistemology of urban morphology*, starting from the basic data collection, pattern recognition, and the identification of patterns. In the epistemology of urban morphology, Brenda Case Scheer summarized the views of the major schools in the field of morphology, and establishes an epistemology for the study of urban morphology from four aspects: basic data collection, pattern recognition, evolutionary theory, and the relevance of non-morphological elements.[13]

（2）Domestic related research results

The concept of typology was introduced into China in the late 1980s, and the main research focuses on the introduction of Aldo Rossi and the theory of Urban Architecture (Shen Kening, *Typology in Design*)[14], the concept of typology and its application in architectural design (Wei Chunyu, *Research on Architectural Typology*, Wang Lijun, *Architectural Typology*, Ni Yuehong, *Study on the Typology of Beijing's Hutongs*). [15][16][17] There are also discussions on the application of typology to the renewal of traditional cities and settlements in the theses of graduate students in some universities (Wang Lijun, *A Study of Architectural Typology in a Broader Sense--Typological Reflections on and Analysis of Contemporary Western Architectural Forms*, Zhou Shaowen, *A Study of the Typology of Traditional Settlements in Yunnan Province*, Fan Jingyi, *Research on the Design Configuration of Traditional districts of Guanzhong Villages and Towns under the Perspective of Typology*).[18][19][20] In recent years, a number of articles and papers introducing the Muratori - Caniggia school have also been published (Deng Hao, *Operable Urban History - Reading the Type Morphological Thought of Italian Architecture Muratori and Its Design Practice*, Jiang Zhengliang, *Muratori, the Pioneer of the Italian School of Urban Morphology*, Zhu Peiyi, *Actionable History - Reading the Type Morphological Ideas of the Italian*

Muratori School and the Initial Exploration of Design Practices Based on the Analysis of Urban Morphology, Qi Wenju, *From Housing Types to Urban Morphology--Reading Caniggia's Type Morphology Thought*).[21][22][23][24]

During the same period, many different research methods and results have appeared in domestic studies on urban morphology. For example, Duan Jin and Qiu Guochao， *An Introduction to Foreign Urban Morphology* systematically compiled an overview of western morphology research[25]; Gu Kai's *Theory and Methods of Urban Morphology--Exploring a Comprehensive and Rational Research Framework* provided a comprehensive account of the definition, research content and methodology of urban form[26]; Liang Jiang and Sun Hui's *Patterns and Motivations: The Morphological Evolution of China's Urban Centre* used urban morphology to analyse the morphological evolution characteristics and motivations of urban centre and summarized their developmental patterns[27]; Ding Wowo et al. in *Cognitive Scale Analysis of Urban Physical Spatial Morphology* constructed the concept of urban spatial morphology on two scales: the macroscopic and the microscopic. In *Cognitive Scale Analysis of Urban Physical Space Morphology*, Ding Wowo and others constructed the cognitive system and operational elements of urban space morphology from both macro and micro scales, and explore the relationship between urban morphology and microclimate in *Correlation Study of Urban Morphology and Urban Microclimate*[28][29]; Han Dongqing, *The Position and Role of Urban Morphology in Urban Design*; Tian Yinsheng, *Urban Morphology Research and Urban Historic Preservation Planning*; and Zhang Jiantao, *Theory of Urban Morphology in Historic Landscape Planning*. *The application of urban morphology theory in the planning of historical landscape protection area*, and other articles elaborated the position and role of urban morphology theory in urban design and historical protection planning from different angles.[30][31][32]

Research on integrated morphological typologies has also begun to gradually increase in recent years, with Shen Kening's *Architectural Typology and Urban Morphology* sorting out the history and interaction of the two disciplines[33]; Chen Fei also emphasized the value of this integrated discipline in his article *Western Architectural Typology and Urban Morphology - Integration and Application* and proposed a research framework for Chinese

cities with seven elements in *A New Research Framework: The Application of Urban urban morphology in China*.[34][35] In *The Theory of Morphological Typology and the Exploration of Localization*, Chen Jintang summarizes the theory and application of Western morphological typology and explores the questions and challenges faced in the localization of the theory.[36]

1.2.2 Questions in the field of research

The above research results provide basic information, methodological guidance and practical reference for this paper from a variety of perspectives, but there are still certain questions and deficiencies in the current research results for the Guangzhou Hongde Lane Renewal Project.

First of all, although the Typo-Morphology approach fits with the renewal of historic cultural districts in terms of concerns, research methods, and has accumulated a large number of theoretical literatures and cases in the long-term practice of western countries, which proves its feasibility. However, the political systems, living habits and urban construction backgrounds of cities in the East and the West are very different, and the direct application of the Typo-Morphology methodology will create many questions that are not suitable for the local background, such as the differences in the cultural backgrounds of the times, the construction methods, and the social systems, and so on. Although some scholars have attempted to raise these issues, they lack the ability to analyse their essence and propose their own specific enhancement solutions.

Secondly, in recent years, domestic scholars have only done the introduction of theory and overall combing of the Typo-Morphology method, and although they have begun to try to analyse the rural settlements, most of the research has only focused on the introduction of the method, and there are not many methodological strategies that can really form a guide to practice.

1.3 Research significance

1.3.1 The importance of historic cultural districts to central development

Historic cultural districts have preserved the morphological characteristics and building tissue of traditional cities to varying degrees, or have concentrated the overall appearance of a certain period, or have accumulated the material and cultural remains of different historical stages, and have also accommodated a rich and diversified life behaviour, with important cultural connotations and research value.

In recent years, as China's urbanization level increases and land resources are in short supply, many large and medium-sized cities are gradually getting rid of the mode of large-scale sprawling and large-scale demolition and construction, and are turning to stock renewal and environmental quality enhancement. As an important part of the renovation of the old urban areas, the protection and renewal of historic cultural districts are of great significance and value in presenting the characteristics of the city's style and features, improving the living standards of the residents, and stimulating the vitality of the community.

1.3.2 Research significance

Through the study of Typo-Morphology theory, this paper researches the organizational pattern and evolutionary process of the original building component materials, building type, street scale, plot type, plan tissue, public space and other intrinsic order elements of the Hongde Lane, proposes urban renewal guidelines suitable for the Hongde Lane s in Guangzhou, and on the traditional Bamboo building residences in Guangzhou, to explore the urban microclimate and urban morphology, and its specific application to the urban design of Hongde Lane. This approach not only reveals the historical evolution of the historic cultural district and its essential characteristics, but also the design of the "new Bamboo building" is derived from the regional characteristics of Guangzhou, which meets the modern needs of the residents. This has a positive impact on the renewal of the Hongde Lane in Guangzhou.

1.4 Research methodology and paper structure

1.4.1 Research methodology

The development of the city is a long process, with China's urban development into the stock renewal link, and the concept of "sustainable restoration" put forward, the old city renewal and protection has become the priority of today's sustainable urban development. Therefore, this paper focuses on historical development and theoretical approach in the overall research method. Inspired by the reality of specific questions to the study of relevant theories, as well as through the analysis of relevant excellent cases, the theory and based on the local natural environment and social development, to explore the local Typo-Morphology method, the establishment of a complete methodological system. And carry out the corresponding urban regeneration design for specific plots.

This paper takes Hongde Lane as a case study to explore the Typo-Morphology approach applicable to the renewal protection of Guangzhou's historic cultural districts. First of all, the questions faced by Hongde Lane represent the common questions in the renewal and protection of historic cultural districts in Guangzhou as well as other cities in China, thus triggering the investigation of reasonable and effective methods for the renewal of historic cultural districts. In this case, because the Typo-Morphology method has the potential to provide a comprehensive understanding of the historic cultural district and guide the design, it becomes an important method for this research and practice. Furthermore, through the Typo-Morphology process of combing the elements of the Hongde Lane and summarized its development process, the district is divided into zones, some basic strategies and urban guidelines are proposed, and finally some special plots are selected to carry out specific urban design.

The specific research methods mainly include the following:

1.Historical data search: to find out the development trajectory of Hongde Lane and its area in the evolution of Guangzhou's urban historical form, in order to pave the way for the subsequent development of its historical evolutionary process.

2.Theoretical sorting: through the study of the theoretical method of Typo-Morphology, to establish a basic methodological system for the overall cognition of historic cultural districts.

3.Case study: to analyse the construction background and renewal form of the relevant excellent cases, in order to provide some reference for the subsequent construction of localized Typo-Morphology application methods and renewal design.

4.On-site research: mainly on-site mapping and interviews with residents, to fully understand the current material space of the historic cultural district and the living conditions of the residents, and to establish the connection between drawings and real life.

5.Illustrative Design: One of the basic forms of expression of architectural subject, and also the most intuitive form of expression of Typo-Morphology, which also provides a basic medium for the later shift from theory to design.

1.4.2 Structure of the paper

The research in this paper starts from some questions encountered in the study of urban tissue, where it begins to systematically sort out the Typo-Morphology method and analyse the relevant cases, and then summarized the development process by sorting out the Typo-Morphology process of Hongde Lane element, and puts forward some basic strategies based on the above analysis and urban design guidelines, and construct a Typo-Morphology application method adapted to localization. The background introduction, Typo-Morphology methodology research and the morphological evolution process of specific elements of the Hongde Lane, as well as the final specific urban design constitute the main components of the thesis.

Chapter 2, "Hongde Lane Renewal Question", introduces the background of the site. Firstly, it explains the history and current situation of Guangzhou Hongde Lane in urban development, showing the gap between its historical value and urban development. Secondly, it classifies the questions faced in the renewal of Guangzhou Hongde Lane, and points out the relevance of the questions to the Typo-Morphology method, so as to stimulate the study of related theoretical methods.

Chapter 3, "A Compendium Of Theoretical Approaches To Typo-Morphology", is the theoretical background of this study. It introduces the theoretical foundations and methodological systems of urban Typo-Morphology in European countries, including the main theoretical systems and interpretative tools of the M.R.G.Conzen School in the UK and the Muratori-Caniggia School in Italy, as well as the progress of Typo-Morphology research in normal. Morphology research progress. And the research methods of the above theories are summarized.

Chapter 4, "Case Studies", analyses the restoration design of San Leonardo C (1973) in Bologna's "Economic and Popular Construction Plan", and the urban planning of Palermo (1990), which fully reflect the idea of Typo-Morphology, while the planning techniques are relatively mature and inspiring for subsequent designs. These cases fully reflect the idea of Typo-Morphology and the planning techniques are also relatively mature, which is an inspiration for the subsequent design.

Chapter 5, "An Applied Approach To Localized Research Planning Based On Typo-Morphology", according to the theory and the specific situation of Hongde Lane, the research elements and the application technology of Typo-Morphology of Hongde Lane are determined. The evolution process and characteristics of Typo-Morphology elements of the main elements of Hongde Lane are analyzed and summarized.

Chapter 6, "Urban Design in Guangzhou Hongde Lane as an Example", based on the summary in Chapter 5, relevant strategies and urban design guidelines for different zoning tissues are formulated, master planning for site roads, plots and related functions is carried out, and microclimate passive energy-saving is explored for the tissue unit building of the area, the Bamboo building, and relevant urban renewal designs are carried out for the specificities of the different plots.

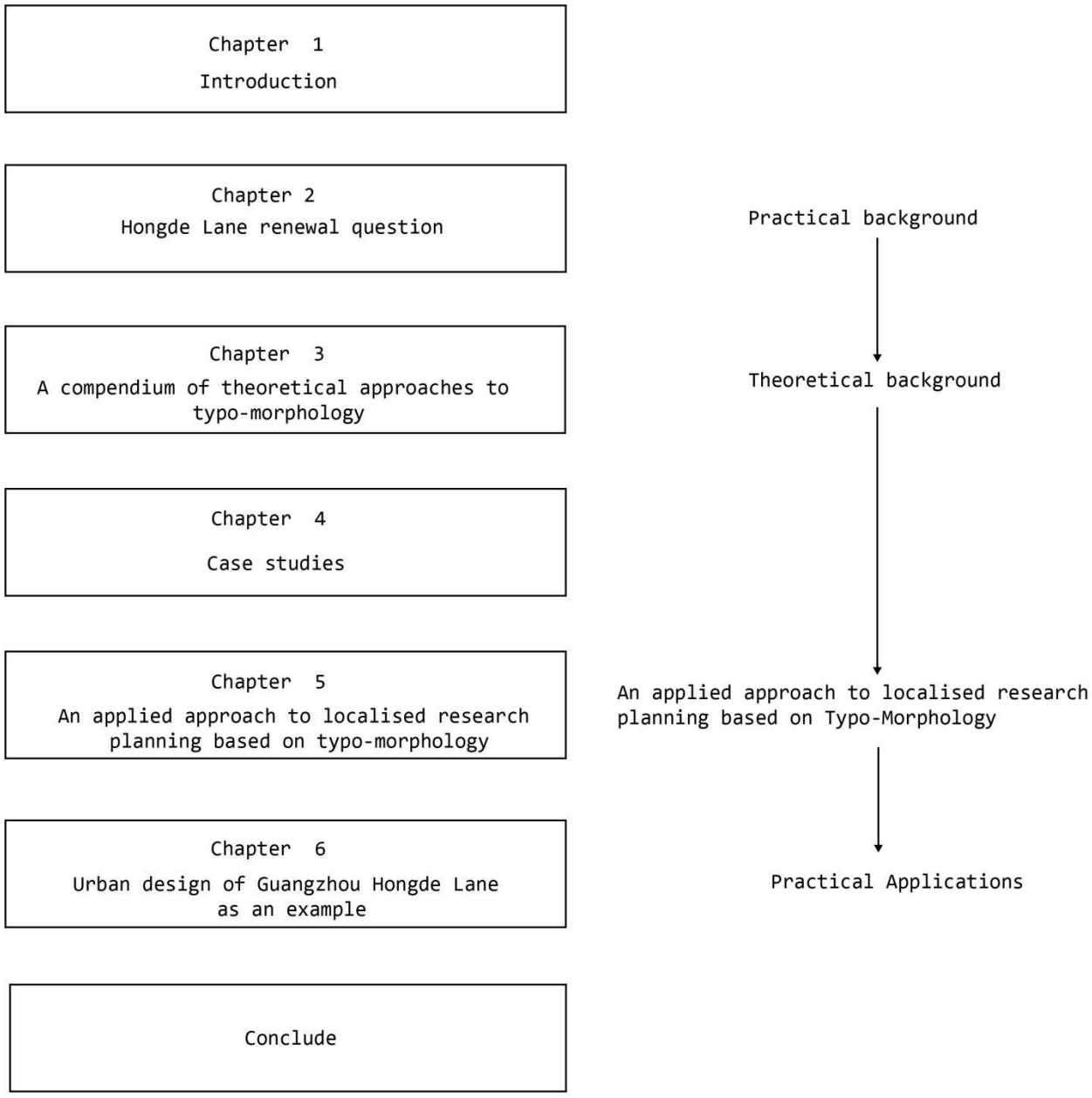


Fig. 1-1 The Structure of paper (Source：the author）

Chapter 2 Hongde Lane Renewal Question

2.1 History and cultural resources

As early as in the Southern Han Dynasty has appeared hall altar temple garden; Song Yuan to the early Ming and Qing Dynasties, to Lingnan traditional water village settlement; in the Qing Dynasty, has become the thirteen rows of merchants living area, relying on the development of Shuzhu Yong along the prosperous, there are many restaurants and entertainment venues; in the Republic of China, the infrastructure construction (Nanhua Road, Tongfu Road, Hongde Road) as a basis for the formation of the basic pattern of the modern urban, modern housing, the arcade building style characteristics of highlighting; after the founding of the State to the early reform and opening up of the historic urban basically maintain the original pattern.In the 1960 s, due to severe siltation, the gargle surged and sealed. After the reform and opening up, the construction of the area accelerated and a large number of high-rise residential buildings were built. Its development is closely related to two main lines, one of which is the spatial development vein of "born because of water and prospering because of water", and the other is the close relationship with the Thirteen buildings of Guangzhou.（Fig. 2-1）

Also because of its long history and culture, there are a large number of buildings with historical and cultural values and characteristics.

1. The traditional residential area characterized by bamboo buildings and big buildings in the Republican period.

In the middle of the Qing Dynasty, the area around Hongde Lane developed into a residential area of Guangzhou, forming several residential areas such as Zhou Touju Street, Baoshu Street and Hongde Street. In each of these areas, bamboo buildings were the main constituent units of the residences, and there were some big buildings, and most of the residents were buyers and traders in the history. A large number of traditional settlements characterized by bamboo buildings have survived with their tissue and style intact, and are of high historical value.

2. Witness to the development of ethnicity and religion in Henan.

The former site of Hongde Christian Church within the scope of protection is a witness to the development of ethnic religion in Henan.

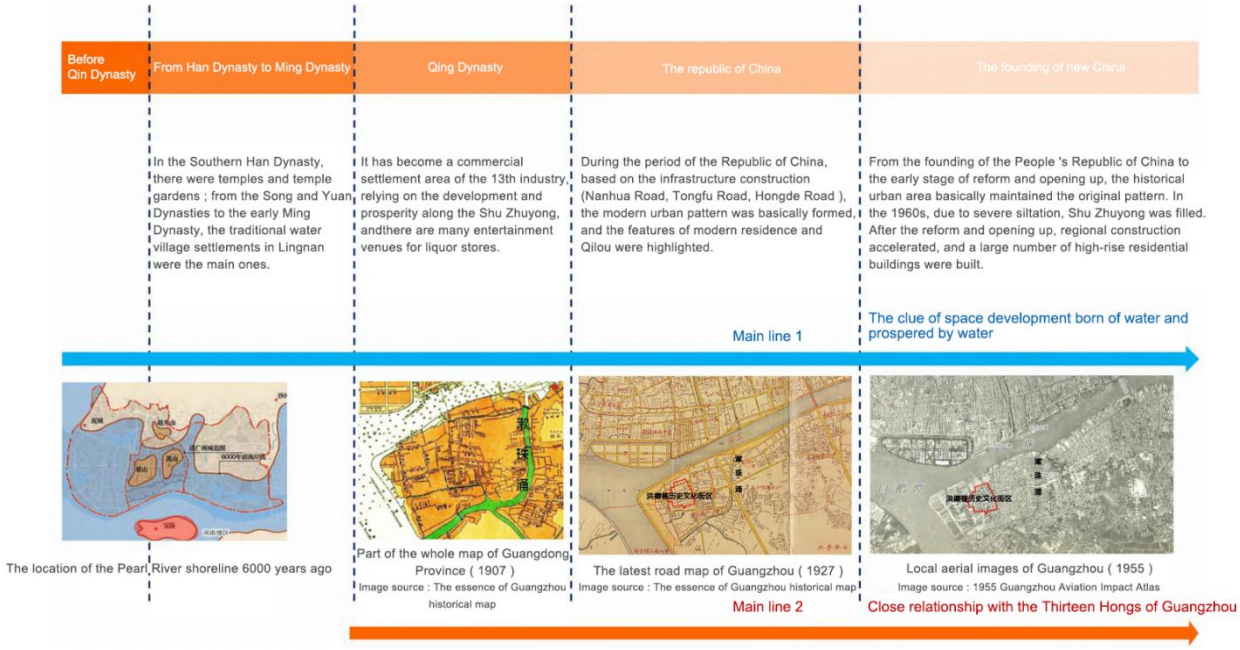


Fig. 2-1 Analysis chart of historical evolution of Hongde Lane (Source：the author）

2.2 Current situation

Hongde Lane is located in Haizhu District, Guangzhou, and its planning scope is consistent with the protection scope of Hongde Lane historical cultural district delineated in the *Protection Plan for Famous Historical and Cultural Cities of Guangzhou*,south to Hou Leyuan Street and Hongde Seven Lanes, north to Haitian Siwang, west to Baozhu Street and Hou Leyuan Street, and east to Renmin Bridge and Hongde Road, and the protection scope covers an area of 8.23 hectares, of which the area of the core protection scope is 5.64 hectares, and the area of the construction control zone is 2.59 hectares. 5.64 hectares and 2.59 hectares of construction control zone.

Detailed historical data research and supplemental updating of the current research results: firstly, to clarify the protection object within the Hongde Lane lot, the protection object of Hongde Lane consists of two parts, material elements and non-material elements.

1. Material elements

(1) Natural environment, including the Pearl River, traditional street greening and public space.

(2) Immovable cultural heritage, including one immovable cultural relic (the former site of the Christian Hongde Tang), four historic building clues, 42 traditional style building clues and other traditional buildings.

(3) Historical environment elements, including the tissue and appearance of four traditional streets and lanes, including Tongfu West Road、arcade building Street and Hongde Lane, as well as the overall pattern of the traditional residential area.

2. Intangible elements

The intangible cultural heritage includes the legend of the names of the places in the sea and the sky, folklore such as Hou Le Yuan, traditional theatre such as Cantonese Opera, traditional skills such as Cai Zha (the art of making the head of the Guangzhou lion), celebrities such as the merchants of the Thirteen buildings of Commerce, and historical events such as the anti-British movement in Zhou Touju.

2.3 Specific questions

The area of Hongde Lane is not only densely populated and seriously aging, but also has a narrow living environment, decayed buildings, complex site environment and some illegal additions, which not only reduces the living quality but also destroys the environmental tissue of the site. For the specific design research, it is not only necessary to carry out precise research in the early stage, to repair, upgrade, renovate, remediation, rebuild the existing buildings in order to deal with the importance of the building from big to small, and fully understand the material space within the site and the lifestyle of the residents, and at the same time, it is also necessary to timely consult with the residents about their specific needs and suggestions, based on their own research results. At the same time, it need to consult with the residents in a timely manner about their specific needs and suggestions, and propose the optimal solution for the site based on our own research results and the requirements of all parties.

2.4 Link between protection renewal questions and Typo-Morphology

The protection and renewal of Guangzhou's Hongde Lane involves a number of tasks, including policy formulation, architectural design, urban planning and other aspects. From the existing European cases, all of the above questions are related to Typo-Morphology and can be reasonably explained. The fundamental reason is that Typo-Morphology is a combination of urban morphology and architectural typology, which focuses on the intrinsic characteristics of urban morphology and architectural typology, and its specific material space development with the changes in urban functions and the wishes of the citizens, and has a strong adaptability.

2.5 Summary of the chapter

This chapter provides an introduction to the Hongde Lane and a preliminary understanding of it, as well as a preliminary explanation of the link between protection and renewal questions and Typo-Morphology, paving the way for the subsequent study of the beginning of Typo-Morphology theory.

Chapter 3 A Compendium Of Theoretical Approaches To Typo-Morphology

3.1 The British Conzen School

3.1.1 Theoretical framework and terminology

Based on the analysis of urban form in the German discipline of historical geography, M.R.G.Conzen established and developed the British school of urban form, and *Plan Analysis of Towns: A Case Study of Alnwick, Northumberland* is one of his most important works. In this monograph, he builded up the basic theoretical framework and terminological system of urban morphology research through the plan analysis of Alnwick, a historical and cultural town in England. He argued: "From the perspective of morphology, the geographical characteristics of a town can be reflected in the townscape or townscape. The so-called townscape or townscape is a comprehensive reflection of town plan, pattern of building forms and pattern of urban land use. In this background, the town plan pattern included all those elements of the physical character of the built-up area that can be seen on Ordnance Survey 1:2500 maps. It consisted of the following three basic elements:

(1) Streets and layout in the street-system;

(2) plots and aggregation in street-blocks;

(3) buildings, or the block-plan of buildings.[37]

Following this, M.R.G.Conzen proposed an evolutionary approach to the study, in which he argued that cities leave their own unique material remains in different periods of their development, and that different morphological periods of urban development can be identified through historical evidence and on-site research, and that by interpreting the organization of the three elements mentioned above, and their historical evolution, it is possible to classify different plan units. The interpretation of the above three elements and their historical evolutionary process can be divided into different plan type units, and based on the plan type units, superimposed with the architectural forms and land use modes, we can get the

morphological region of towns and cities, which was not a simple superposition of the three elements, but a comprehensive manifestation of the city's historical information, space characteristics and use modes, and an important basis for the classification, understanding and control of the townscape. It is also an important basis for understanding and controlling the classification of urban landscape. (Fig. 3-1)

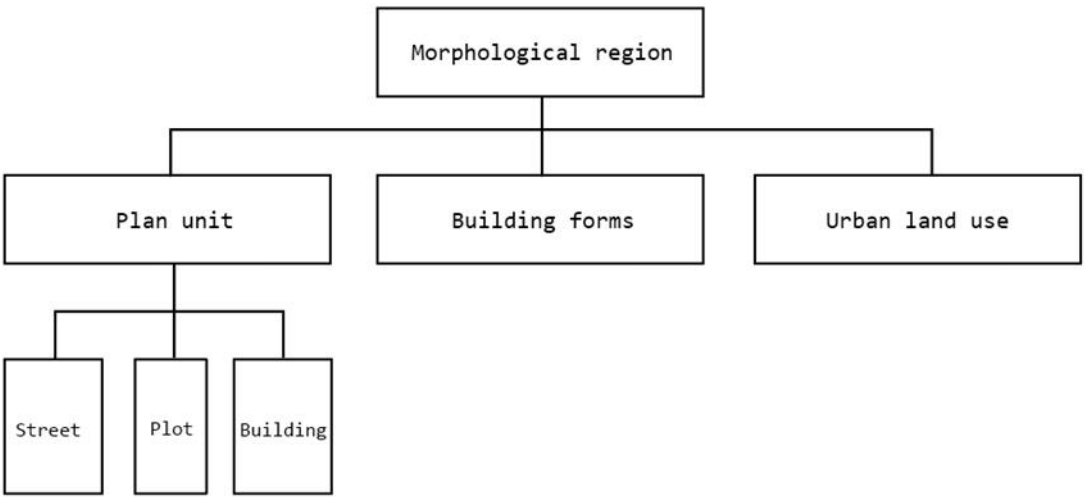


Fig. 3-1 Townscape Components (Source：the author）

3.1.2 Interpretation tools - plan type units and morphological regions

Plan type units and morphological regions are the main interpretative tools used by Conzen in his town plan analyses. In the case study of Annick, he identified plan type units left over from different historical periods in the town and differentiated them on the map with various colours and fill patterns as a response to the morphological characteristics of urban patches formed in different periods as well as the process of historical evolution (Fig. 3-2). Following this, in the study of the Anglo-Welsh border town of Ludlow, Conzen demonstrated in detail the method of delineating morphology zones: firstly, based on historical maps and on-site research, three maps of the distribution of plan type units, the distribution of building forms, and the distribution of land use were drawn, each of which contained five layers, differentiated by different line patterns; Then, the information in the three drawings is integrated and superimposed to get the morphological zoning map (Fig. 3-3), which also

contains five levels, is broken down into units of different sizes and collaged together, and each unit contains roads, land plots and buildings, and the boundaries between the different units may be the line of land plots or the centre line of roads. This urban form zoning map provides a basic framework for understanding the evolution of the urban form of Ludlow and identifying areas for protection. Conzen's theory and methodology of morphological zoning has played an important role in the protection planning of historic towns and cities in the UK, especially in heritage protection planning, and its influence has gradually expanded to other European countries. For example, Bienstman, in his case study of the central area of the Dutch city of Bromsgrove in 2007, based on Conzen's methodology, delineated the boundaries of the urban morphology area and compared them with the boundary lines of the protection area determined in the local protection plan (Fig. 3-4). [38]The morphology zones obtained using urban morphology theory integrate information on plan type units, building forms and land use, which can effectively integrate buildings and plots into the surrounding environment and dynamically record the evolution of urban development.

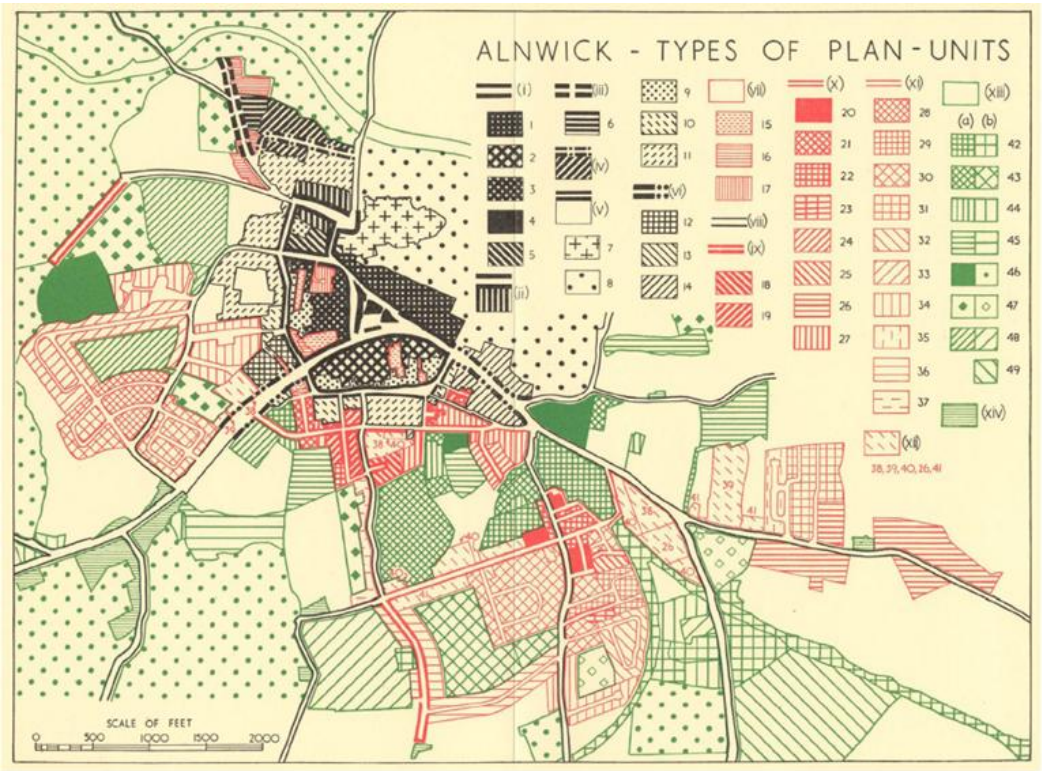


Fig. 3-2 Annick Plane Type Unit Classification (Conzen, 1960)

(Source: M.R.G. Conzen. Alnwick, Northumberland- a study in town-plan analysis.London: Institute of British Geographers. 1969)

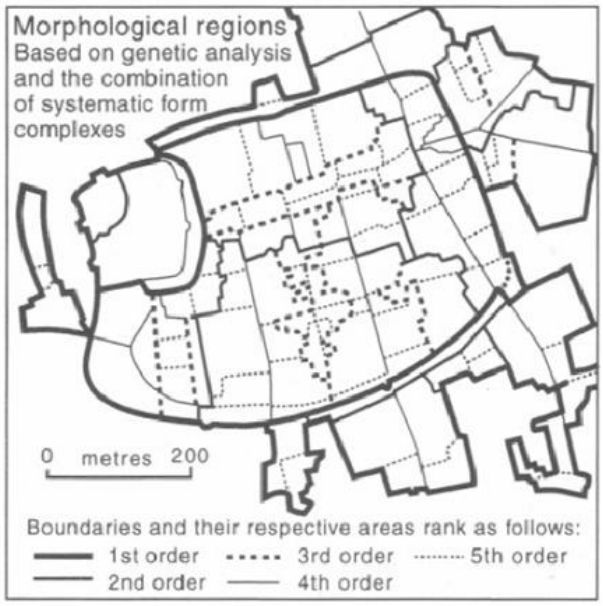
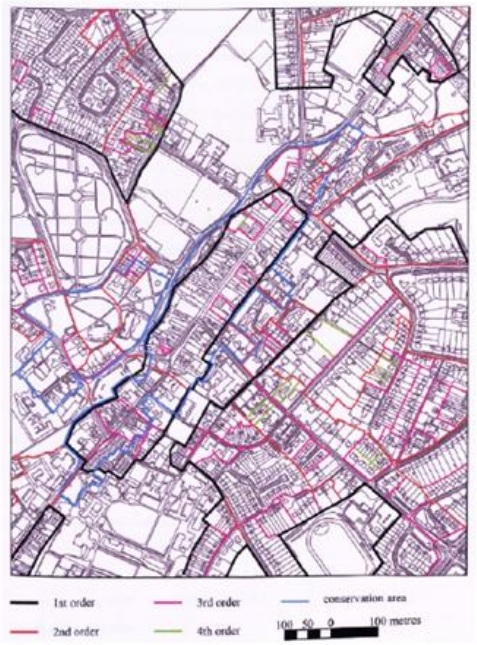


Fig. 3-3 Radlow Morphological Area Delineation (Whitehand, 2001) (Source: J.W.R.Whitehand, British Urban Morphology: The Conzenian



Tradition[J]. Urban Morphology,2001, (2): 103-109.)

Fig. 3-4 Bromsgrove Morphological and protection Areas (Bijnsman, 2007) (Source:Bienstman H. Morphological Concepts and Urban Landscape Management: the Cases of Alkmaar and Bromsgrove [D]. University of Birmingham. PhD thesis, 2007).

3.1.3 Analysis of research methods

In summary, the collage of different morphological areas to explain the complex and diversified townscape is one of the main research methods of the Conzen School. The

prerequisite for the application of this method is the analysis of the evolution of elements such as urban morphology, architectural layout and land use, which requires informative historical maps, literature and on-site research as a basis. The specific research process includes: firstly, the historical research of the study area, especially the collection and comparison of historical maps of the city; secondly, the site research, focusing on the layout of streets and plots, building types and functions, and land use; thirdly, based on the results of the historical research and the site research, the distribution map of the plan type units, the distribution map of the building forms, and the distribution map of the land use modes of the study area are drawn; Finally, the above three maps are superimposed to form a comprehensive map of urban morphology area distribution (Fig 3-5). The goal of this study is to recognize the traces of construction and urban development in different periods of time through the division of morphology areas, and then set up control and guidance methods for future construction and renovation based on the historical evolution and current characteristics of different morphology areas, which will become the basis for spatial classification of urban morphology management.

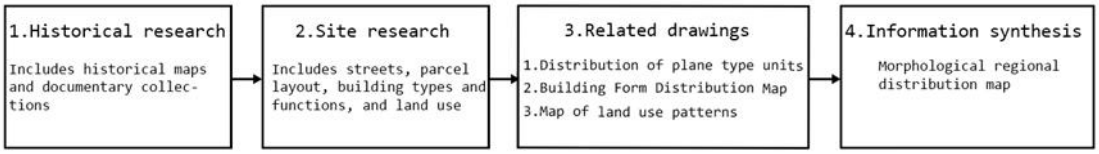


Fig. 3-5 Main Research Methods of the Conzen School (Source：the author）

3.2 The Italian Muratori - Caniggia School

3.2.1 Theoretical framework and terminology

After the Second World War, Italy, devastated by the war, quickly and efficiently embarked on a reconstruction campaign that came to be known as the "Italian Miracle", in which industry and manufacturing played an important role, and the development of productive capacity and job creation attracted a large number of people from the countryside to the cities, while the devastation of the war and population growth brought enormous urban questions. The destruction of the war and the population explosion created enormous urban

questions, and many of the city's historic centre became slums. By the end of the 1950s, the protection and rebuild of historic city centre was put on the agenda, and in this historical background, Italian architects initiated the study of urban form based on the concept of typology put forward during the Enlightenment. The pioneer of this school, Muratori, extended the concept of type to the urban scale through his studies of cities such as Venice and Rome, not only limiting it to architectural monoliths, but also paying more attention to the urban environment in which it is situated - the "urban organism". He believes that the urban organism is in a process of continuous development and evolution, and therefore must be studied from a historical and holistic perspective to develop new designs. He sets up a series of historical periods in his research, so as to understand the evolution of urban morphology and building types, and uses them as important basic information to provide guidance for new designs, an "actionable " historical research method. In addition, Muratori emphasises the concept of scale, which suggests that building construction is interconnected by a sequence of different levels, where the upper level is a collection of the lower level, where there is a relationship between the whole and the parts, from the smallest material components and building units to the largest towns and regions, and that new design should be integrated with the valuable history and the existing form at each level. Thus, the research methodology proposed by Muratori connects the dimensions of tradition to modernity and city to architecture.

Inheriting the main ideas of his mentor Muratori, Caniggia developed the concept of typology process based on which he classified buildings in the city into basic building and special building, and pointed out that all kinds of architectural activities originated from the joint action of spontaneous consciousness and critical consciousness. Typology is a priori existence, when faced with similar construction conditions, the builder will "spontaneously" choose similar forms, the abstraction and conceptualization of these similar forms is typology. However, each construction process is unique, with the designer and builder adapting to different site conditions, economic circumstances, the intervention of 'critical consciousness' leads to different results.[39]

The interaction between spontaneous and critical consciousness leads to the evolution of

cities and buildings, which is more clearly expressed in the basic typology. Therefore, Caniggia studied the basic types of architecture across history and geography, and he believed that there is some kind of source for the development of types, the so-called leading type, and that the leading type develops with geography and time in synchronic variations and diachronic variations. The former refers to the evolution of the same type in different geographical areas during the same period, while the latter refers to the evolution of the same type in the same geographical area over time (Fig. 3-6).That is to say, the same dominant type will generate different sub-types in different regions and different historical periods, the same type of plots and buildings will be combined according to certain rules to form urban tissue, and different urban tissues will be put together to form the town form. Caniggia believes that by maintaining a relationship of continuity with the 'dominant type' in new designs, it is possible to establish a relationship of inheritance between old and new cities, and between old and new buildings.[36]

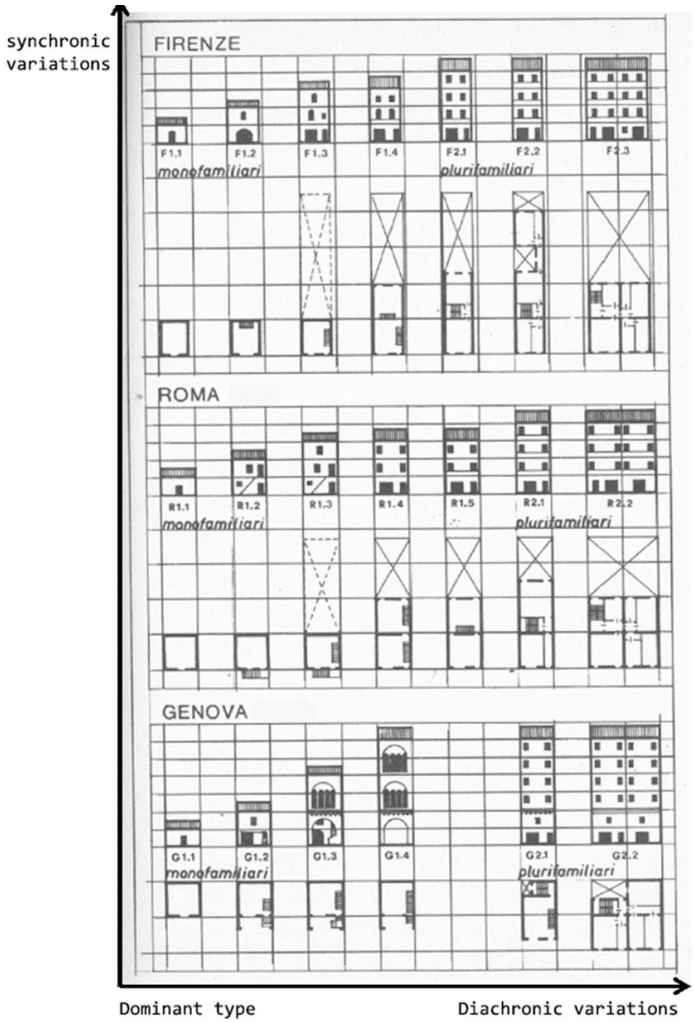


Fig. 3-6 synchronic variations and diachronic variations（Caniggia，1979）

(Source: Gianfranco Caniggia, Gian Luigi Maffei. Composizione Architecture a Tipologia Edilizia.I: Lettura DellEdilizia di Base [M]. Venezia, Italy: Marsilio,1979.)

Caniggia also developed Muratori's concept of scale into a system of morphological subdivision by creating a hierarchical sequence of four levels: element, element structure, systems of structures and organism of systems, by increasing order of complexity, and applying it to buildings and cities. According to this hierarchy, the building sequence is subdivided into four levels of "material - element - room - building ".The third level, room, refers to a recognizable combination of relatively independent elements, including stairs, corridors, etc. Finally, all rooms, stairs and corridors are combined to form an organism, the building. Similarly, towns are sequentially subdivided into "building - tissue - district - town".In which building, as a point of convergence between the two sequences, becomes the most basic element in the sequence of the town; tissue is the combination of a series of

buildings of the same type, where Caniggia emphasises the notion of type, and a group of random buildings is put together to form an organism--building. A group of randomly assembled building can only be called an aggregate[39]; different tissues are assembled together to form a district, and ultimately an urban organism.In this way, Caniggia constructs a system of morphological subdivisions from materials to cities as the main object of study for the analysis of typological processes. (Fig. 3-7)

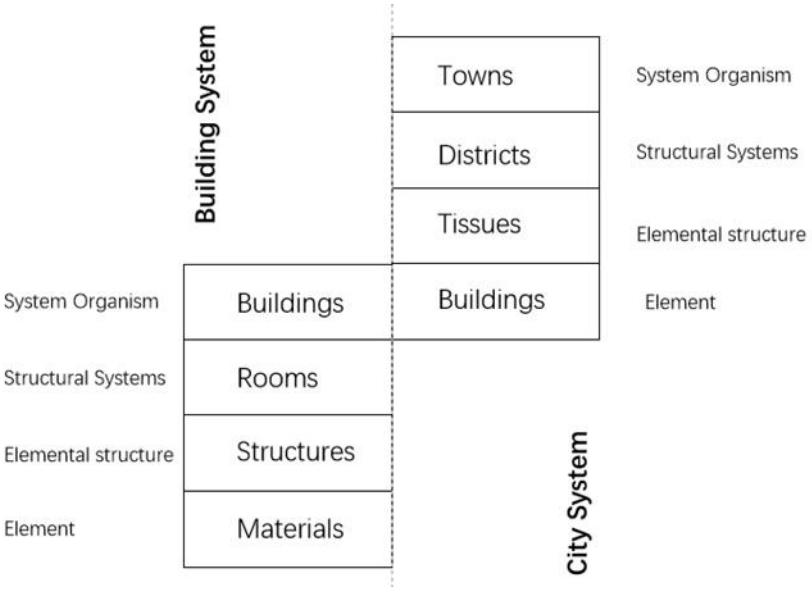


Fig. 3-7 Caniggia morphological subdivision system (Source：the author）

It is important to emphasise that Muratori and Caniggia's goal was not only to study and document the evolution of urban morphology and architectural typology, but more importantly they wanted to explore how the essential characteristics of the established typology could be continued in new urban and architectural design projects, which could be both inherited and adapted to the needs of new life. When Muratori participated in the urban design competition for the Barene di San Giuliano in Venice in 1959, he submitted a proposal for a new urban area that was directly and closely related to the morphology and typological characteristics of the traditional Venetian settlements (Fig. 3-8). More than 20 years later, based on his morphological and typological study of the traditional mountain settlements in the Genoa area, Caniggia designed and built a new mountain settlement, with new dwellings derived from the traditional Genoese "rowhouse" type, which were arranged in accordance with the contours of the mountain, and became a kind of newly built traditional settlement

(Fig. 3-9). Based on the concept of typology, the Italian School constructed a complete methodology of "design typology" from urban design to concrete construction.

Fig. 3-8 Competition programme for the Barene di San Giuliano sandbar (Muratori, 1959) (Source:www.google.com)

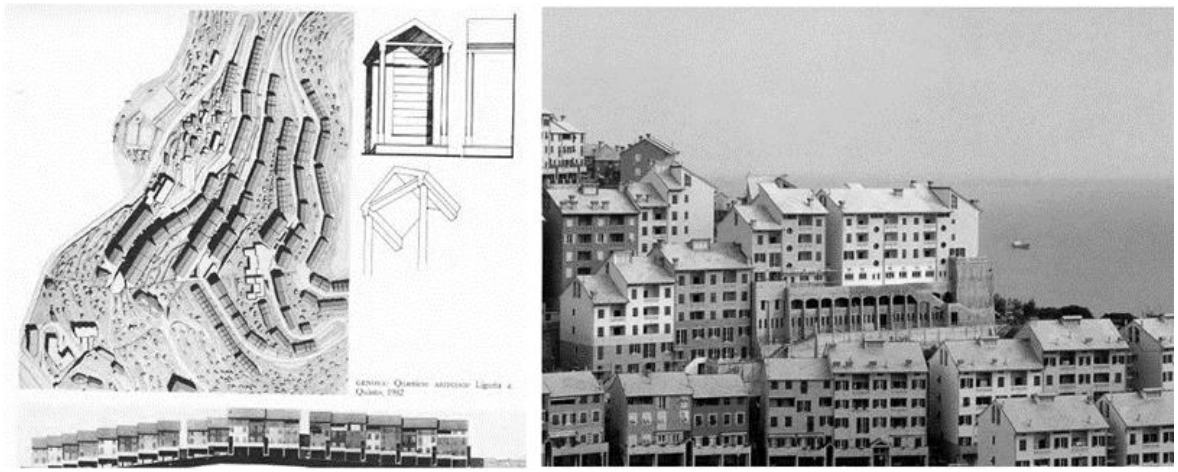


Fig. 3-9 Residential area of Costa degli Ometti, Genoa (Cagginia, 1980) (Source:www.google.com)

3.2.2 Interpretive tools - typological maps

In contrast to the "morphological region maps" often used in urban morphology studies by the Conzen school, which originated from the discipline of historical geography, the Italian school, which has a background as architects, favours the creation of "typological maps" (ground floor plans of all the buildings in a city or region) of different historical periods.

Typological maps, that is, the ground floor of all the buildings in a city or a region, are similar to the maps of ruins drawn by archaeologists, which not only express the morphological structure of the city, but also allow the study of specific types of buildings by means of analytical methods, displaying the overall morphology of the city and the floor plan of the buildings on the same drawing. The drawing of typological maps can be traced back to Italy more than two hundred years ago. In 1748, Giovanni Battista Nolli drew "La Nuova Pianta di Roma" (The New Map of Rome) in accordance with the requirements of Pope Benedict XIV. La Nuova Pianta di Roma" (The New Rome) was produced at the request of Pope Benedict XIV, a set of twelve linked maps detailing the construction of the city and its suburbs at the time (Fig. 3-10). This set of maps depicts the entire public space of the city in the form of a "ground plane", with the difference that the Noli maps express only the public space of the city, including streets, squares, public buildings, and the foyers and courtyards of residential buildings, while the other private parts are all blacked out (Fig. 3-11). This map, with its precision and completeness, became the basis for later generations' understanding of Rome's historic city centre and was the original archetype for the typological maps used by the Italian school.

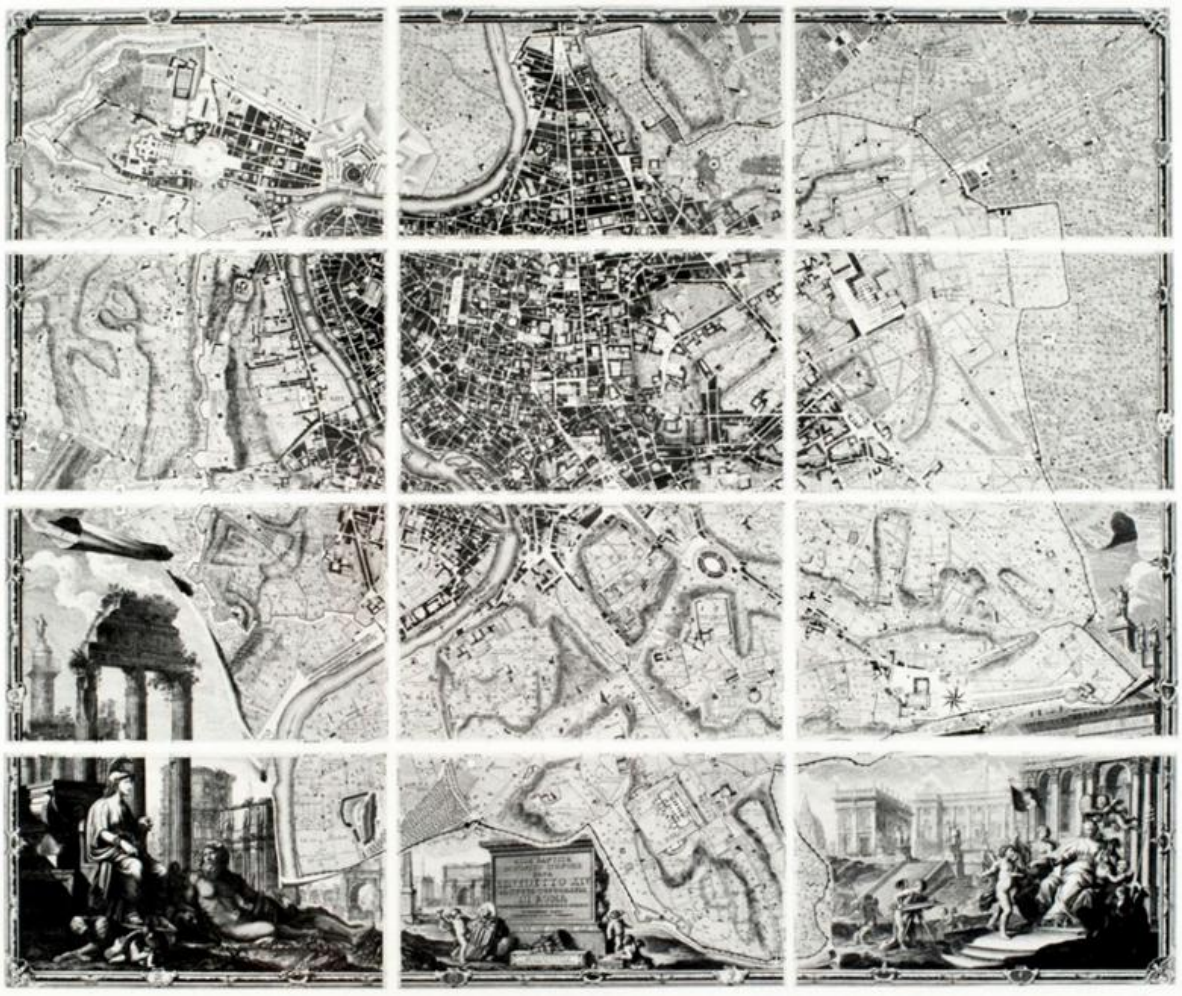


Fig. 3-10 Noli's Map (Noli, 1748) (Source:www.google.com)

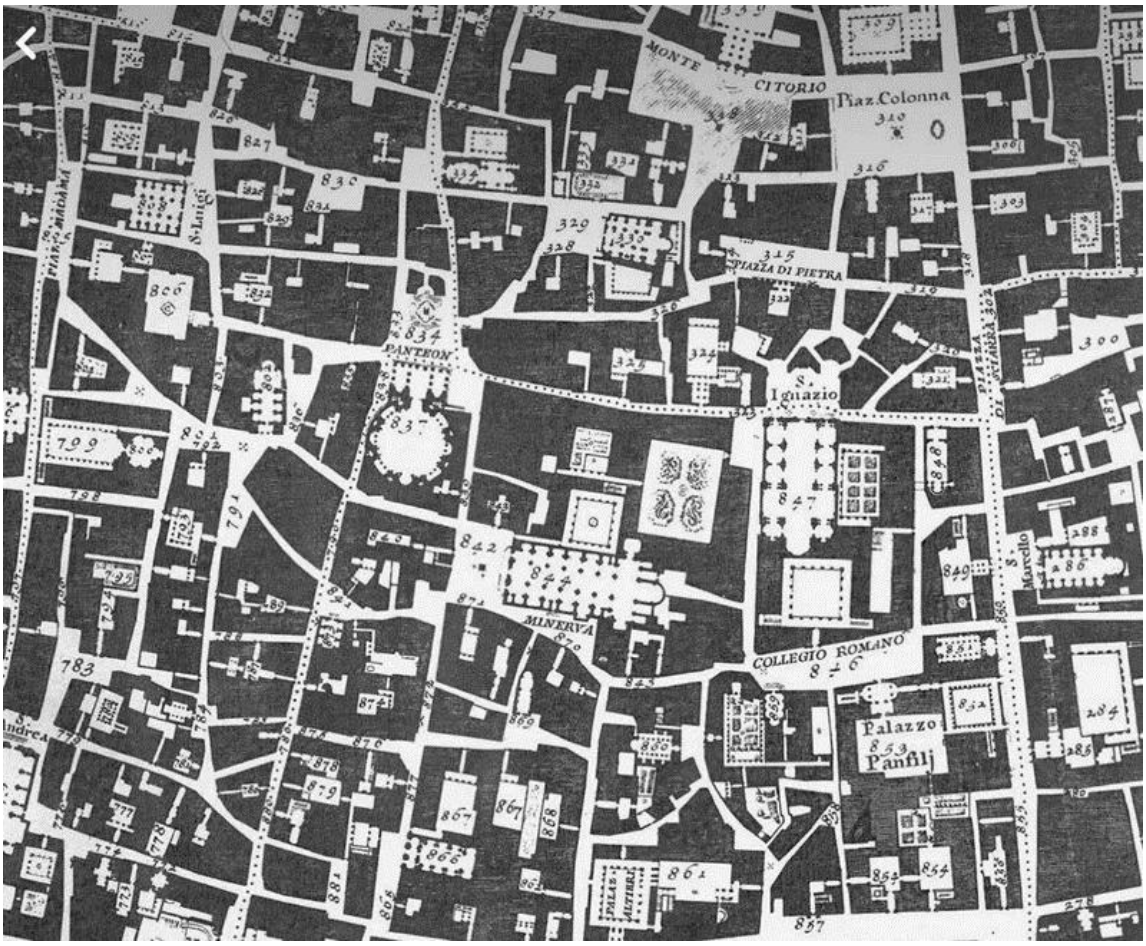


Fig. 3-11 Partial Map of Noli (Noli, 1748) (Source:www.google.com)

In 1958, Muratori taught a course on "Architectural Space Typology" at the University of Architecture in Venice, where he led his students to meticulously measure all the buildings in a selected part of the city and to draw a ground floor plan of the whole area, a typological map (Fig. 3-12); they then drew a Gothic plan of the same area based on documentary and archaeological maps, a "Conjectural Typology Map"(Fig. 3-13). In Muratori's view, the two maps provide a clear picture of the urban morphology and architectural types of the different historical periods and allow for a further study of their development and evolution through comparison.

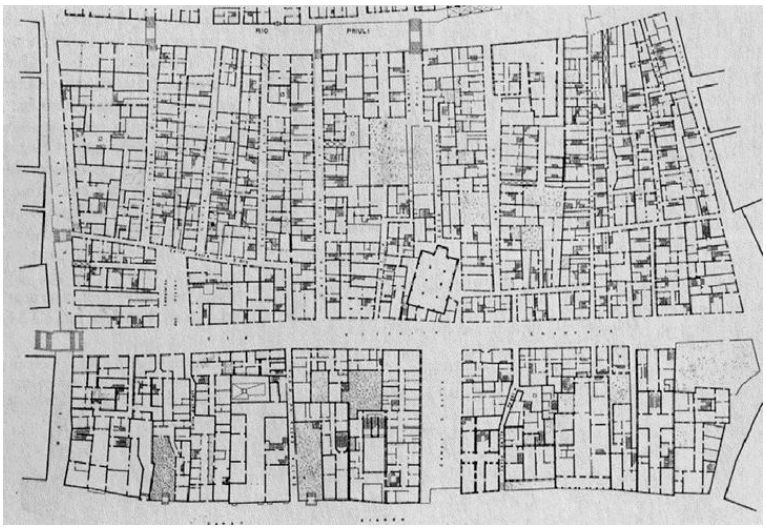


Fig. 3-12 Typological map: 20th century Venice's San Sofia district (Muratori, 1959) (Source:Saverio Muratori. Studi per una operante storia urbana di Venezia. 1959)

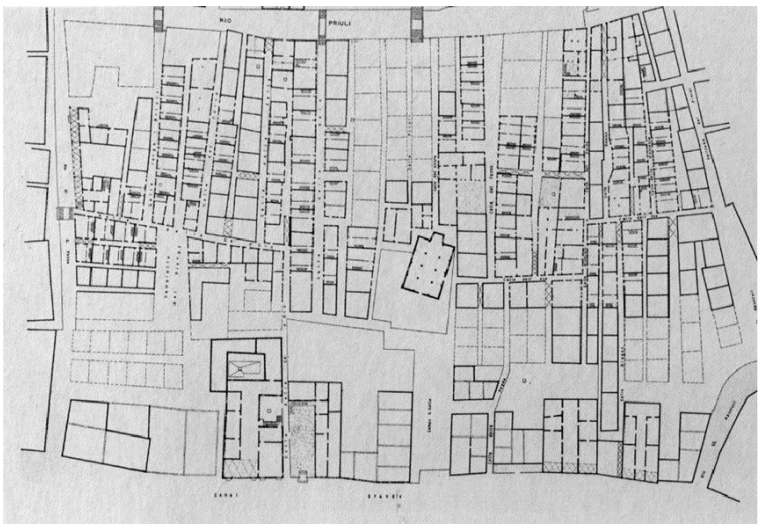


Fig. 3-13 Map of speculative typology: St Sophia's Going, Venice (Muratori, 1959) (Source:Saverio Muratori. Studi per una operante storia urbana di Venezia. 1959)

Caniggia, as a student and assistant of Muratori, transformed his theories and experiments into a set of methodologies dedicated to the creation of a scientific system that could decipher any urban settlement. This endeavour was first demonstrated in his study of the ancient city of Como, which resulted in a huge, detailed ground-level plan of the 19th-century centre of Como (drawing at a scale of 1:200), and which, by overlaying it with archaeological maps of the Roman period, showed that the new urban constructions still bore some relationship to the ancient imprints of those that had existed (Fig. 3-14). Following this, he draws typological maps and "Conjectural Typology Maps" (Fig. 3-15) of Italian cities such

as Rome, Como, Genoa and Florence in different historical periods, comparing synchronic variations with diachronic variations of the basic building types. diachronic variations of basic building types. These drawings are documented in two sets of works, *Lettura di una città: Como* and *Architectural Composition and Building Typology.*

Based on these studies, Caniggia, in *Basic building design/Il progetto nell' edilizia di base*, the second in a series of *monographs on architectural composition and building typology,* published in 1984, establishes a step-by-step derivation of, under certain environmental conditions. The four stages of the building design programme at different scale levels are: tissue design - for controlling the scale of the building type, the choice and adaptation of the building type, the type of building components, and the type of building materials. The four layers of system, type, component and material serve as direct and indirect architectural languages that communicate the entire process from research to design.[40] He then designed the restoration of a medieval district in the San Frediano district of Florence. Although the design is only a research case and is not fully implemented, it shows how Caniggia has constructed a complete methodological system from research to design. The district of San Frediano is located on the south bank of the Arno River, with a section of the city wall built in the 13th century and a gateway defining its western boundary, and the medieval district that Caniggia researched and designed is situated close to the city wall (Fig. 3-16). He begins by analysing and speculating on the evolution of streets, plots and building forms over time: in the mid-13th century, before the construction of the wall, the main plots and buildings grew along the Via dell'Orto on the north side; after the construction of the wall, several streets were built leading to the gate, and new plot divisions and architectural layouts appeared in line with these streets; With the construction of the Castle of Cosimo I, the southern side of the district was also plotted and built, a morphological feature that was maintained until the 20th century (Fig. 3-17). Next, Caniggia researched and mapped the plot divisions and building layouts within the existing districts, and in his typological maps, it is clear that most of the preserved medieval plots are regular rectangles, and that since the medieval Italian population paid the city building tax according to the dimensions of the widths of the buildings along the street and the number of openings towards the street, the

plots are normally divided into narrower widths and deeper depths. The plots were normally narrower in width and deeper in depth. Later on, three different trends of tissue evolution emerged:

(1) Basically maintaining the medieval plot division and architectural layout, with local additions;

(2) Architectural destruction, plot consolidation and idleness;

(3) Plot consolidation, with the emergence of large-opening building types. Finally, in the specific restoration design, in order to restore the characteristics of the medieval urban tissue and building types in the new design, Caniggia re-divided the damaged tissue of the site with reference to the cadastral map of 1833, and filled in the blank plots with buildings that corresponded to the tissue of the medieval plots, based on his earlier studies of the various "row house" building types in the Florentine area. He filled in the blank plots with new buildings in line with the medieval districts tissue (Fig. 3-18).

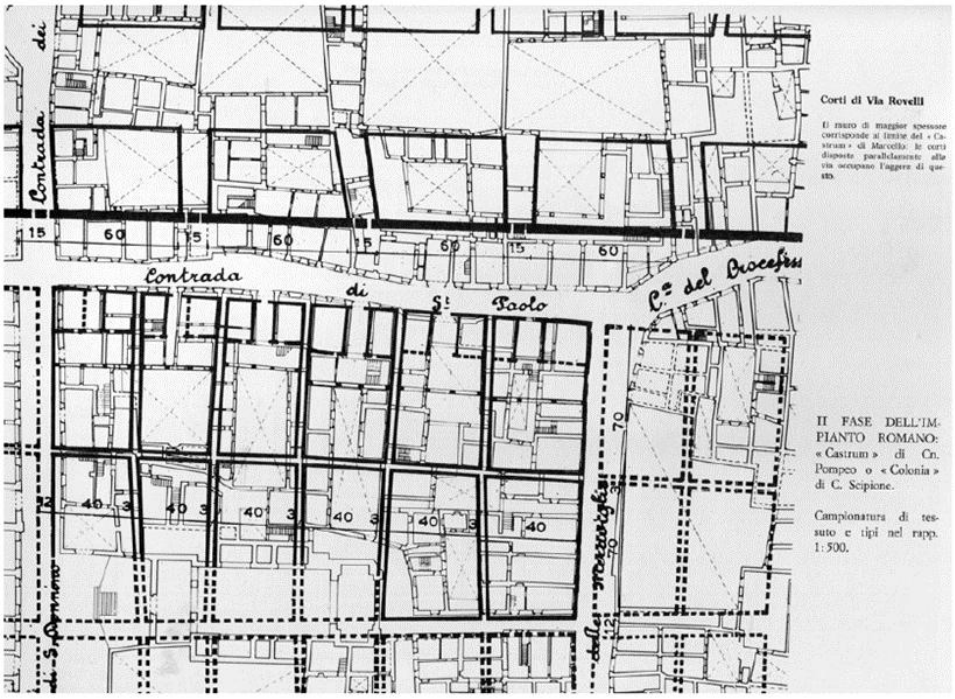


Fig. 3-14 Como, archaeological map of the Roman period superimposed on a map of modern urban types (Caniggia, 1963)

(Source: Gianfranco Caniggia, Lettura di una città: Como, Centro)

Fig. 3-15 Example of typological map, A Genoa B Lucoli C Como (Caniggia, 1979) (source:Gianfranco Caniggia, Gian Luigi Maffei.

Composizione Architecture a Tipologia Edilizia.I: Lettura DellEdilizia di Base[M]. Venezia, Italy: Marsilio,1979.)

Fig. 3-16 San Frediano district, Florence A Ground level plan (Caniggia, 1984) B Aerial view (2018) (Source: Google earth)

Fig. 3-17 Morphological evolution of the district of San Frediano, A - before the construction of the walls in the middle of the 13th century, B - after the construction of the walls, C - after the construction of the castle, D - cadastral map of 1833 (Caniggia, 1984) (Source: Google earth)

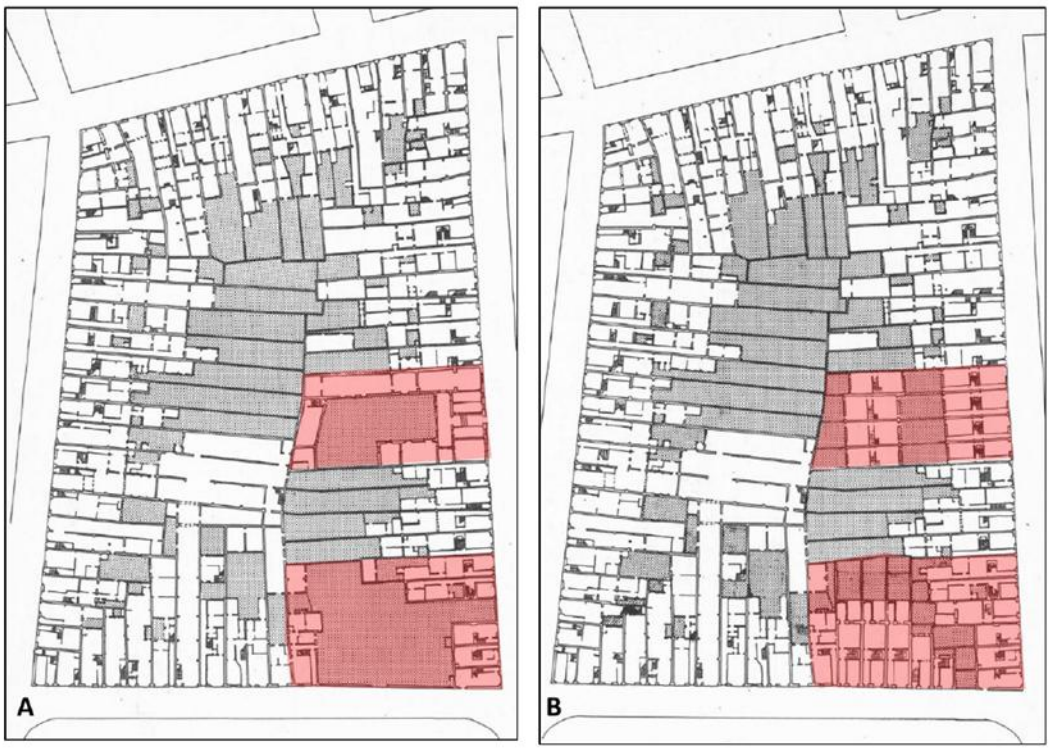


Fig. 3-18 San Frediano District A Status Quo Typology Map B Design Results (Caniggia, 1984) (Source:Gianfranco Caniggia, Gian Luigi Maffei, Composizione architettonica e tipologia edilizia. II. Il progetto nell'edilizia di base, Marsilio, Venezia, 1984）

3.2.3 Analysis of research methods

Compared to the urban morphology approach of the Conzen School, the Italian School focuses more on the hierarchical system of research and the transformation from research to design. Similarly, the relevant research bases come from archaeological maps, historical maps, literature and field research, but the typological mapping is more precise and visualizes the relationship between the built monolith and the urban environment. The methodological system constructed by Muratori and Caniggia uses the typological map as a basic tool to read and interpret the "urban organism" from the city to the material level, and more importantly, they hope to develop new designs through the understanding of the city. The research process includes: firstly, drawing typological maps and presumed typological maps through on-site research and historical information; secondly, sorting out and summarized the cadastral information and the evolution of the building types according to the drawings; thirdly, re-demarcating the land plots according to the new urban environment and functional needs and designing the conversion of the building types; and finally, filling in the re-demarcated land plots with new building types, and designing new building types at the component and material levels. the level of components and materials for the inheritance and conversion of traditional style features. (Fig. 3-19)

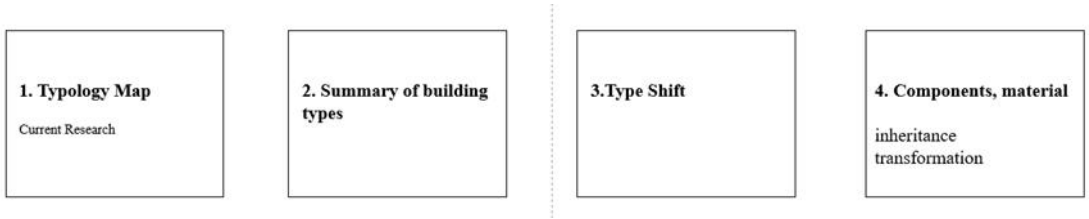


Fig. 3-19 Main Research Methods of the Muratori - Caniggia School (Source：the author）

3.3 An integrated Typo-Morphology approach

From the above discussion, we can see that the two schools of thought were born in the disciplines of historical geography and architecture, so there are differences in research scale and entry point: the British school is more concerned about the macroscopic townscape, and most of the research results are analyses of the evolution of the urban morphology and

morphology of the regional division; whereas the Italian school is from a more microscopic building, through the typological mapping, trying to establish a complete scientific system that can decipher the smallest materials, the largest to the city, and to guide the design of the new.

Nonetheless, there are many similarities and complementary possibilities between the two in terms of research objects and basic concepts. First of all, they both make a hierarchical division of the complex research object of the city. Conzen starts from a macro historical geographic perspective and breaks down the plan pattern of towns and cities into three elements: streets, plots and buildings, and then superimposes architectural forms and land use patterns of towns and cities to delineate the urban form areas together; whereas Caniggia starts from the house, and then subdivides it downward into rooms, components and materials, and then upward to form the tissue in order of combination, districts and towns, with the building as the element that unites the two sequences. Secondly, they both pay attention to the evolution of urban form and various elements in the dimension of time, which is expressed in the concept of morphological period proposed by Conzen and the typology process of Caniggia. Thirdly, they both draw city maps of different eras as an interpretative tool, the former mainly using normal plans to study morphological zoning, while the latter uses typological maps and pays more attention to the relationship between architectural layout and urban structure.

In 1987, the American scholar Mouton defined a new research framework resulting from the fusion of the two schools of thought, citing the term "Typo-Morphology" coined by the Italian architect Emmolenon, and from the 1990s onwards, the British scholar Kropf, in his doctoral dissertation and in a series of articles, compared and integrated core concepts and terminology from the theories of Conzen and Caniggia, and redefined a hierarchical sequence of interpretations. core concepts and terminology, and redefined the hierarchical sequence of Typo-Morphology interpretations.

Kropf argues that there is a certain ambiguity in the hierarchical sequences established by both Conzen and Caniggia. For example, Conzen explicitly states that there is a containment relationship between streets, plots and buildings, with streets containing plots

and plots containing buildings; but these two containment relationships are not the same: usually buildings are within the boundaries of plots, but plots are not within the boundaries of streets. In fact, the crux of the matter is the definition of a street: does it refer to the part of a road that we usually think of as being within the red line, or does it also include a series of plots on both sides of the road? Caniggia's definition of a street goes some way to answering this question: a street consists of a route and a series of plots on either side of it, which expands the concept of a street by dividing it into a physical plot and an imaginary route, which is more easily understood by the name of simple tissue, where different types of single tissue fit together to form an Similarly, Caniggia argues that the plot consists of both a physical building and an imaginary associated private open space. But Kropf also points out that although Caniggia notes the containment relationship between the different layers, there is clearly some element missing in his sequence of layers from the house to the tissue.

Kropf synthesises the hierarchical sequences of Conzern and Caniggia and introduces three types of void - the room, the courtyard and the street space - to form a more complete hierarchical system in which the elements of each level are in a mutually inclusive relationship. The three types of void are distinguished from each other by tangible or intangible boundaries, with rooms being indoor, private spaces, courtyards being outdoor, private or semi-private spaces, and street spaces being fully public outdoor spaces. This iconography on the one hand completes the hierarchical relationship between the urban tissue to the building materials, where the elements of the upper levels are constituted by the elements and voids of the lower levels; on the other hand, the joined system of voids also reflects the range and path of human actions.[41]

Kropf's research promotes the fusion between the British and Italian schools and builds up a clearer research hierarchy, while in concrete operation, more often than not, the plan-type unit of the Conzern school is still used as the main interpretative tool. Taking the land use planning of Mennecy, a town in the south of Paris, as an example, he started from the study of urban morphology, completed the morphological zoning on the parcel distribution map, and then stipulated the forms and sizes of the plots in different areas, the location and coverage of buildable areas, and the building forms that can be selected, and prepared the planning control

guidelines. (Fig. 3-20).[42]

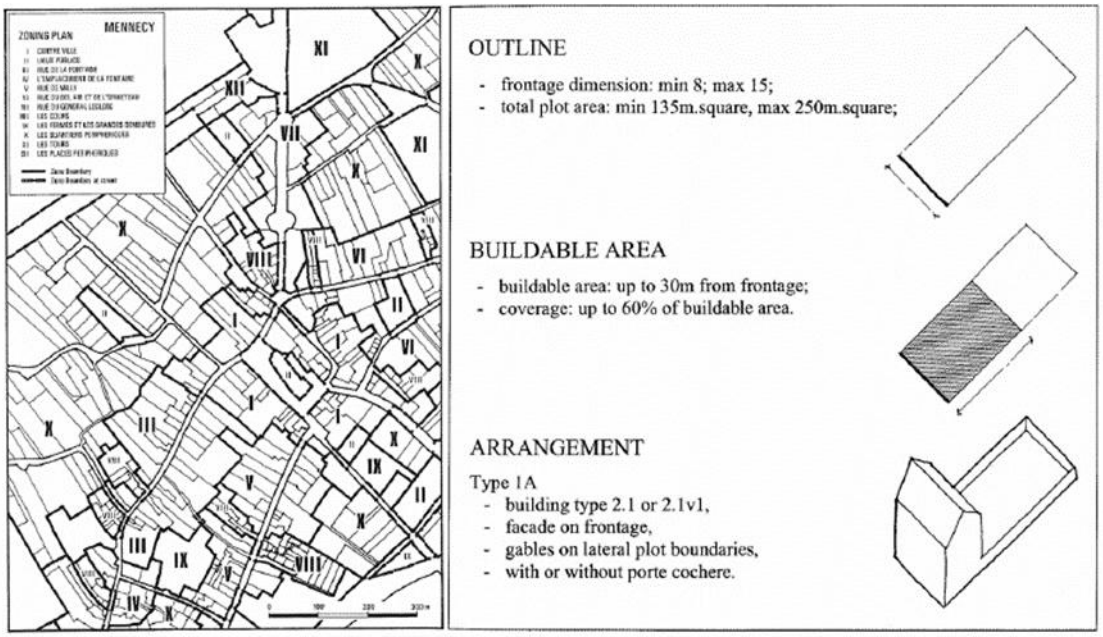


Fig. 3-20 Mennecy Morphological Zoning Plan and Parcel Guidelines (Kropf, 1998)(Source：Kropf K S. Typological Zoning[M]. Attilio Petruccioli (ed.) Typological Process and Design Theory. Cambridge, Massachusetts: Aga Khan Program for Islamic Architecture. 1998: 127-140.）

3.4 Summary of the chapter

This chapter briefly introduces the main theoretical systems, interpretative tools and research methods in the study of urban urban morphology in Europe. Although there are big differences between the British Conzen School and the Italian Muratori - Caniggia School in terms of disciplinary backgrounds, geographical areas and languages, the research ideas and the technical methods used are still similar and complementary. complementary, Kropf proposes a comprehensive Typo-Morphology research framework and hierarchical sequence by comparing the main concepts of Conzen and Caniggia.

These theories and methods have played an important role in the study of the evolution of the historic centre of western cities and the design of their renewal. They also serve as a reference for the subsequent construction of a Typo-Morphology research framework and hierarchical sequence suitable for China.

Chapter 4 Case Studies

This chapter analyses practical examples of the Typo-Morphology approach to urban planning and design, the urban planning of Palermo (1990) and the restoration of San Leonardo C in the Bologna "Economic and Popular Construction Plan" (1973).

These two cases were selected on the basis that: (1) the urban plan of Palermo fully reflects the idea of Typo-Morphology, while the planning techniques are relatively mature and can be used as a reference for subsequent research. (2) the restoration of San Leonardo C is a study of the renewal of a building type and can be used as a reference for the restoration of a specific site in the background of Typo-Morphology planning techniques.

4.1 Urban planning of Palermo (1990)

4.1.1 Planning background

Palermo is an ancient city located on the Italian island of Sicily with a long history and an illustrious cultural heritage. As the capital of Sicily, Palermo has been the cultural, economic and artistic centre of Southern Italy during the Middle Ages and the following centuries (Fig. 4-1).

Over the last millennium, Palermo has accumulated a rich historical heritage, the most striking of which is the historic centre area. This area covers an area of approximately 240 hectares and concentrates on the preservation of more than 200 churches, chapels and other buildings representing different periods of architectural style, demonstrating the highest level of architectural and artistic achievement of the different periods. The presence of these buildings makes the historic centre of Palermo a unique and historical cultural heritage.

However, after the 20th century, the splendour of Palermo's historic centre faded. During the World War II, the city suffered severe damage and the destruction of many historical buildings, which caused a great loss to Palermo's historical heritage. In addition, the development of the city centre began to shift towards the modern areas in the north, resulting in a sharp decline in the status and influence of the historic centre. Many buildings were

neglected and negligently maintained, leading to their gradual dilapidation and decay.The historic centre of Palermo plan, carried out in 1990, clarified from the outset the historic value of the historic centre area and stated that the historic centre area, as a historic place, not only relies on the historic heritage buildings, but also on the historical development of the city as a whole, as well as on the social, political, economic, and cultural dimensions, and that it should equally deserve to be subjected to a specific protection and development planning. At this stage, the Typo-Morphology techniques are already well developed and there are many successful cases of actual planning for reference. The main goal of the application is to redefine the great value of the city through a detailed study of the architectural typology and the development of the urban tissue, and to determine the process of its typological evolution for the overall restoration of the city.

Fig. 4-1 Satellite Map of Palermo (Source: Google earth)

4.1.2 Planning application methods

The present planning in the historic centre of Palermo is mainly based on the analysis of urban morphology and architectural typology. The architectural typology study takes as its object all the architectural types in the historic centre area, and forms a classified collection of architectural typologies by means of a detailed normalization.

The study of Typo-Morphology takes as its main object the urban tissue of the historical centre as a whole, including elements such as specific building types, streets, public spaces,

plots of land, carrying out the various stages of its evolution and summarized the process of change, in order to obtain information on its development as a whole. This is the first time that a typological map of the urban has been considered as a project in the Italian tradition of urban morphology research.

By specific categorization of existing buildings, e.g. building types including simple single-family dwellings (so-called catoio), multi-storey single-room building, small palaces, multi-family small palaces, palaces, churches and chapels, convents and boarding schools, special public buildings, productive special buildings, buildings planned at the end of the 19th century, post-war buildings, buildings that have not yet been categorized, ramparts, towers, extensions, green spaces. The typological classification of each city and the definition of its own urban tissue resulted in an accurate and detailed map of building types and urban tissue. The main interventions include restoration, regeneration, linguistic reconstruction, typological reconstruction, archaeological sites, demolition and wall restoration. The precise delineation of the typology and the interventions are targeted separately, defining the way architects will interpret and design the historic centre of Italy (and the rest of Europe) in the coming decades, providing important references for the planning of the city's future development.

The specific plan for Palermo also establishes detailed guidelines for intervention patterns for the specific building type forms of the city (Figs. 4-2 and 4-3) and for the various types of planimetric tissue maps (Fig. 4-4), which provide the rules for the restoration or reuse of each building, explaining what architects can or cannot do, and providing a design reference for future generations.[43]

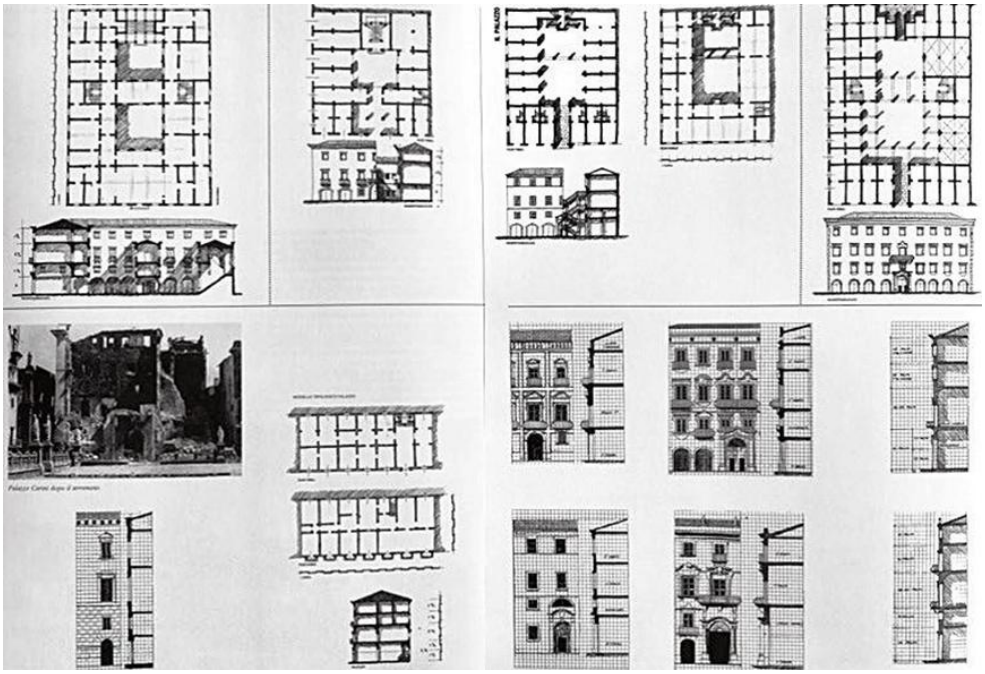


Fig. 4-2 Architectural typology of the historic centre of Palermo (Source: Google earth)

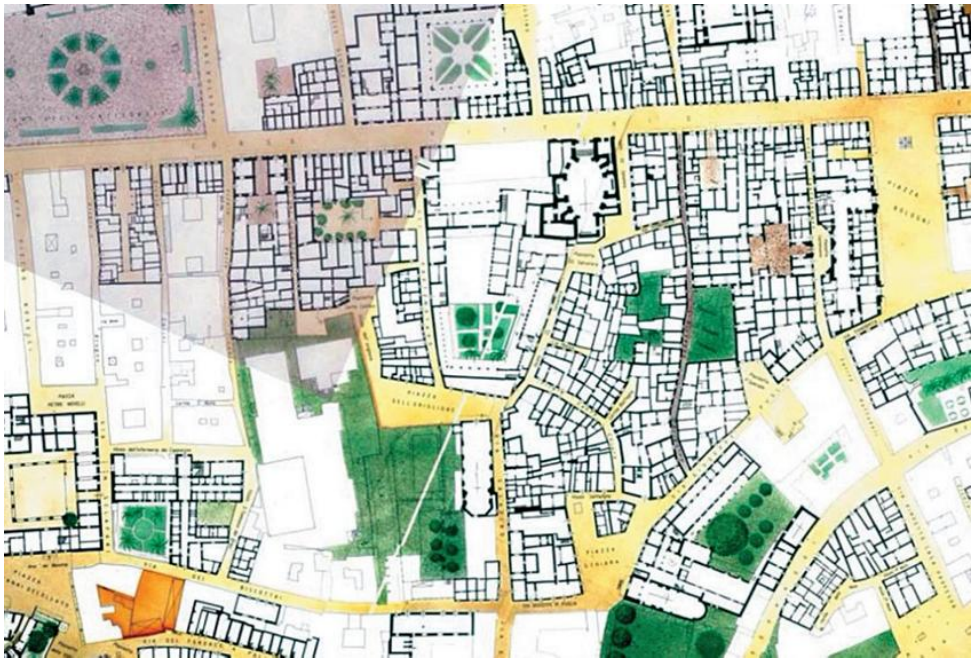


Fig. 4-3 Partial ground floor plan of Palermo's historic centre area (Source: Google earth)

Fig. 4-4 Plan tissue of the historic centre of Palermo (Source: Google earth)

4.2 Restoration design for San Leonardo C, Bologna (1973)

4.2.1 Planning background

Located in northern Italy between the Po River and the Apennines, Bologna is the capital of the Emilia-Romagna region, where there have been signs of human activity since the third millennium B.C. After the Second World War, Bologna quickly became an important railway hub and a newly industrialized city in Italy, where the working class made up the bulk of the population, mostly in dilapidated but low-rent, easy-to-commute, historic city centre. In many other important European cities and towns of the same period, the preservation and renovation of the historic city centre brought huge economic benefits, and the working class and low-income groups that had been living there were forced to move to the outskirts of the city because they could not afford to pay the soaring prices of land and rents, and the city centre became the territory of the higher-income groups once again, so-called Gentrification phenomenon.As one of the classic cases of historical heritage protection, the government of

Bologna was the first to propose "holistic protection", i.e., to "conserve the people and the buildings together", to preserve not only the city's historical buildings, but also, and more importantly, the original inhabitants, so that their collective memory could be preserved. Between 1962 and 1965, Leonardo Benevolo, an Italian urban planner and architectural historian, was invited by the government to carry out a typological study of Bologna's urban and architectural heritage, the results of which were adopted in the 1966 Bologna Town Planning Act, and which greatly influenced and contributed to the approval of a typological study of the city's urban and architectural heritage, approved in 1973, under the responsibility of P.L. Cervellati, who was the main architect of the study.Cervellati.[44]

4.2.2 Planning application methods

In this programme, Cervellati counts the types and permutations of typical public and residential buildings (including workers' dwellings, courtyard buildings, and special arrangements of dwellings, etc.) from the seventeenth century onwards, based on the results of Bennaiolo's typological research (Fig. 4-5), and concentrates his main attention on the residential buildings that form the base of the historic city, arguing that it is precisely these seemingly less important residential buildings that constitute the universal value of the historic city centre. The results of the research led to the identification of 13 regeneration zones in the old town of Bologna, containing more than 15,000 dwellings, which were divided into two phases, with about 600 dwellings to be rebuild and newly built in the first phase.

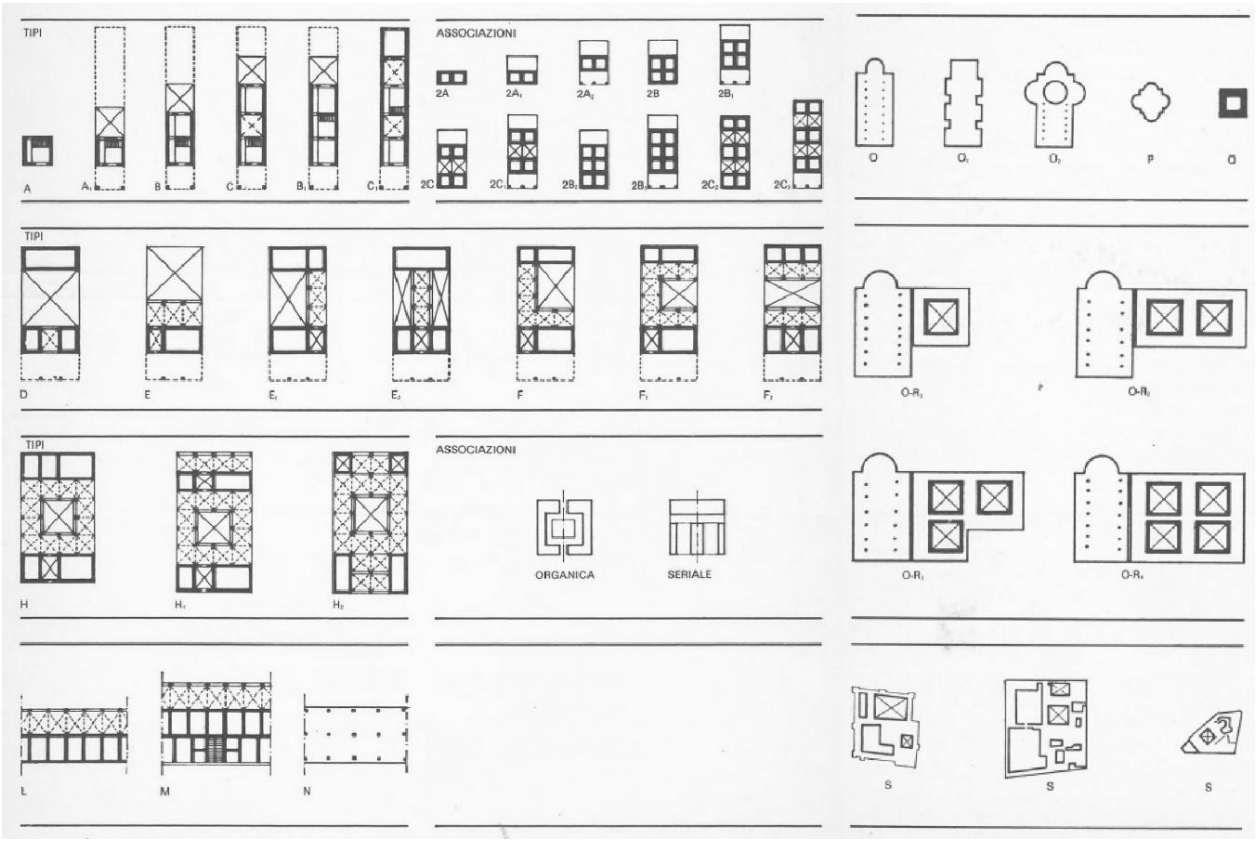


Fig. 4-5 17th Century Building Types A-C Workers' dwellings with 4-7 metre face widths and combined patterns、D-F Courtyard dwellings with 10-20 metre face widths and combined patterns、H Courtyard dwellings with 21-50 metre face widths and combined patterns、L-N Special arrangements of patterns of dwellings、O-Q Public buildings with simple nodes R Public buildings with complex nodes S Distinctive nodes (Chevillati, 1973) (source：Pier Luigi Cervellati. Bologna, politica e metodologia del restauro nei centri storici. Società editrice il Mulino, Bologna, 1975）

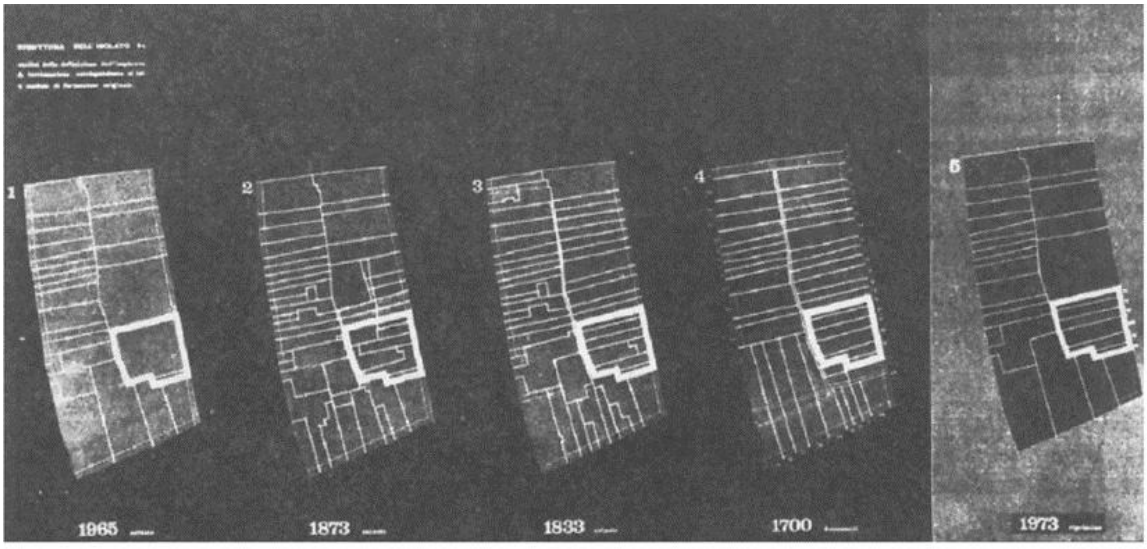


Fig. 4-6 Evolution of the San Leonardo C-plot (Chelvirati, 1973) (source：Pier Luigi Cervellati. Bologna, politica e metodologia del restauro nei centri storici. Società editrice il Mulino, Bologna, 1975）

For the design of the restoration of Area 9, San Leonardo C, Cervellati began by

comparing the cadastral maps of the district from 1700, 1833, 1873 and1965. Again, due to the city's construction tax, it is clear that most of the plots preserved from the Middle Ages have a rectangular form with narrow sides and large depths. Subsequently, with a series of amalgamations and subdivisions, a large number of irregularly formd plots appeared, and their organizational pattern became increasingly unclear. By the 1960s, as a result of war damage and shifts in land ownership, a number of small plots were merged into larger plots, with the two largest plots along the eastern side of the block, on San Leonardo Street, being vacant. In order to restore the medieval urban tissue and building types characteristic of the city in the new design, Cervellati first re-subdivided the large plots by adhering to the pattern of plot divisions in the 1700 cadastral map (Fig. 4-6).

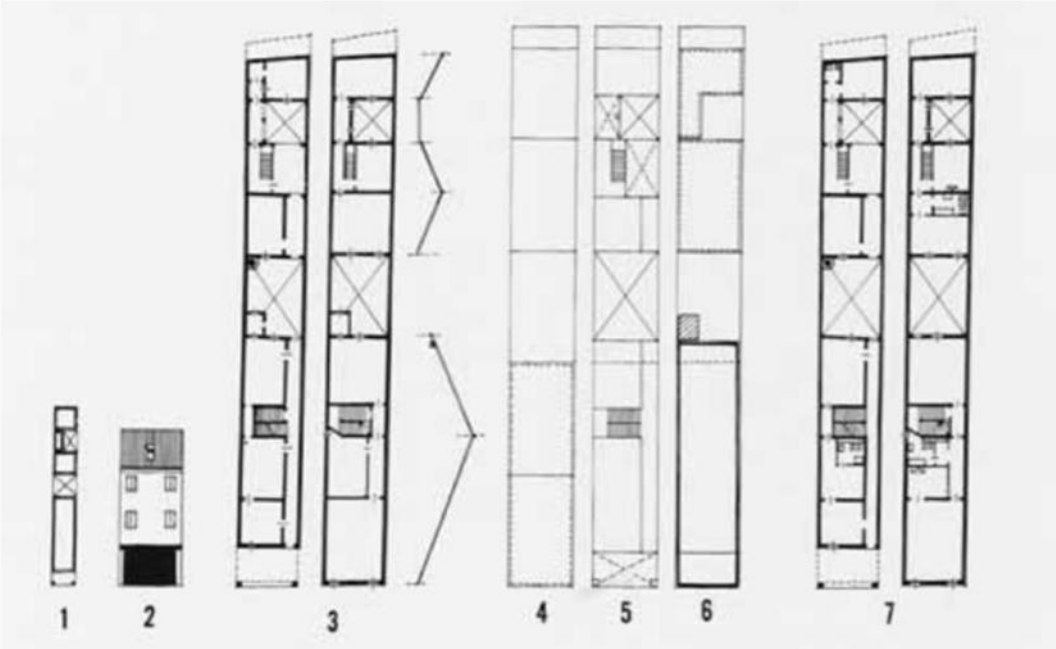


Fig. 4-7 Type Analysis and Design 1.Abstract archetype 2.Elevation 3.Ground Floor, Standard Floor, Roof 4.Land Use Module 5.Type Elements 6.Attachment Areas 7. Design results (source：Pier Luigi Cervellati. Bologna, politica e metodologia del restauro nei centri storici. Società editrice il Mulino, Bologna, 1975）

Next, according to the layout characteristics of different types of traditional buildings, roof forms, land use modes, etc., he incorporated new functional modules to obtain a new building layout (Fig. 4-7). Several different types of layouts are appropriately adjusted according to the width and form of the site, and placed into the open space along San Leonardo Street, effectively stitching and supplementing the missing traditional tissue on the site. On the west side of the site, along San Apollonia Street, several flat-roofed buildings and

unauthorized structures have been partially removed, and the facade have been refurbished to restore continuous colonnades along the street. In addition, a number of low-rise buildings in the centre of the site were cleared and separated by walls to form internal gardens in accordance with the plot boundaries. (Fig. 4-8, 4-9, 4-10)

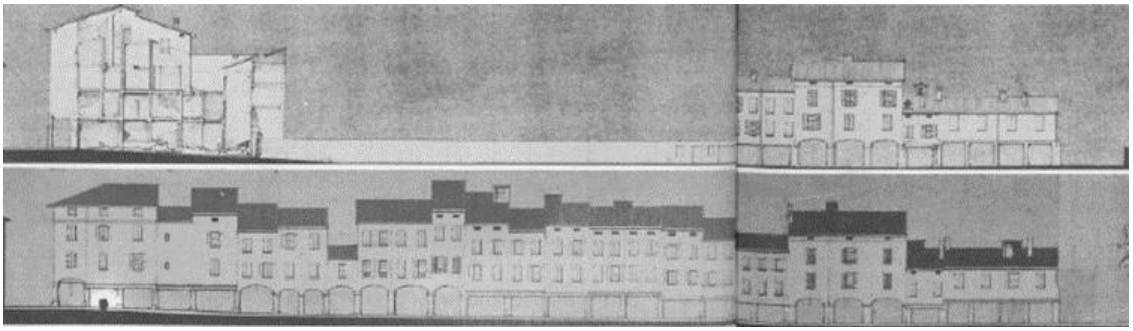


Fig. 4-8 Existing and Designed Elevations Along San Leonardo Street (Cervellati, 1973) (source：Pier Luigi Cervellati. Bologna, politica e metodologia del restauro nei centri storici. Società editrice il Mulino, Bologna, 1975）

Fig. 4-9 San Leonardo Area C Ground Floor Plan 1. Existing Conditions 2. Design (Chervilardi, 1973) (source：Pier Luigi Cervellati. Bologna, politica e metodologia del restauro nei centri storici. Società editrice il Mulino, Bologna, 1975）

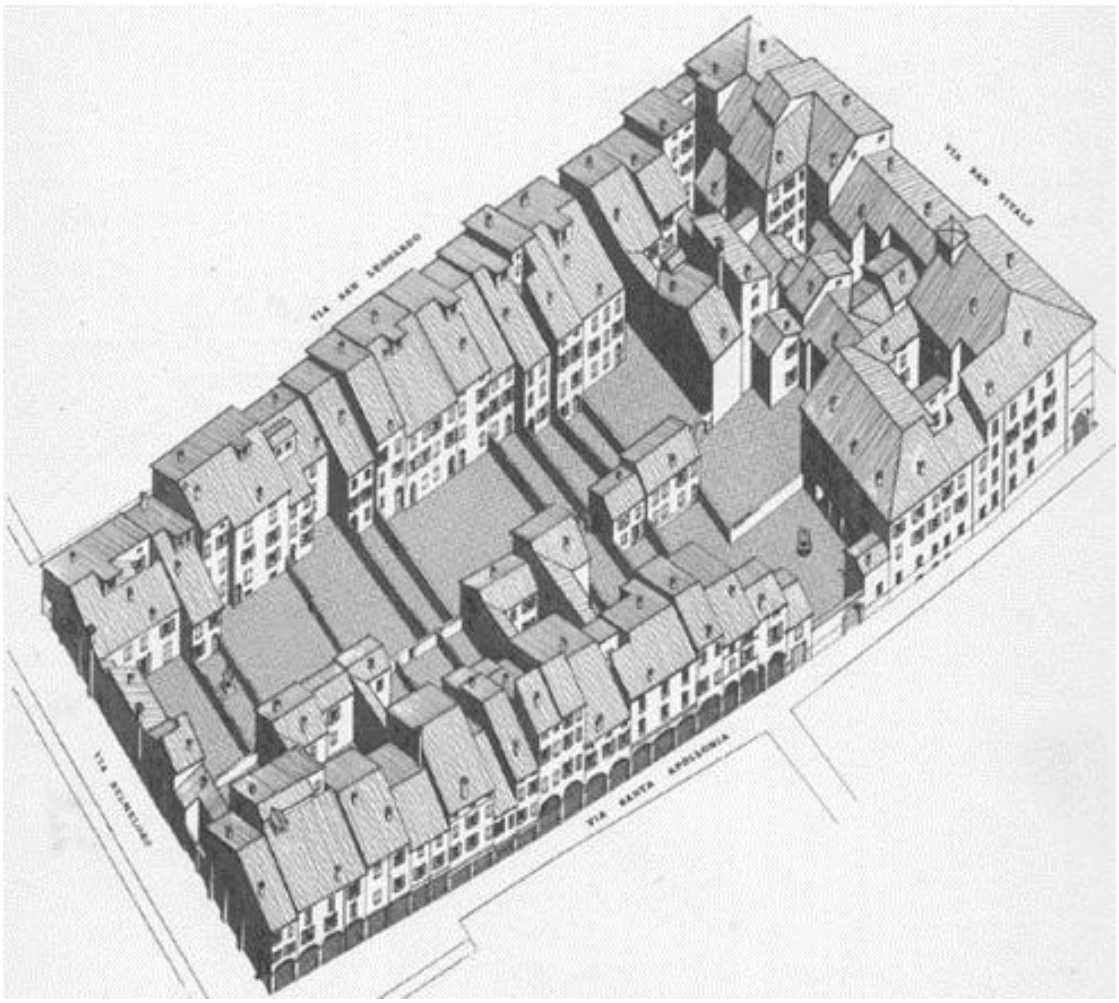


Fig. 4-10 Axonometric drawing of the San Leonardo C design (Chervilati, 1973)(source：Pier Luigi Cervellati. Bologna, politica e metodologia del restauro nei centri storici. Società editrice il Mulino, Bologna, 1975）

4.3 Summary of the chapter

In this chapter, two case studies are analyzed to summarize the background and the technical approach to the planning process:

1. The urban plan for Palermo, which takes the urban tissue as its object of study, summarized the process of change in the successive phases of the elements, and classifies the existing buildings in terms of specificity and variety of interventions, resulting in detailed design guidelines and forms of intervention, which are important references for future urban planning.

2. In the restoration of Bologna, the exploration of the housing archetypes is summarized, the plots of land are redrawn according to their evolution, the different types of buildings are

summarized and new functions are incorporated, resulting in new housing buildings with archetypes that can effectively stitch the area together.

Based on the understanding of the theory, the feasibility of the case study for specific planning operations is investigated to pave the way for the subsequent research on the application methods of Typo-Morphology suitable for China.

Chapter 5 An Applied Approach To Localized Research Planning Based On Typo-Morphology

The renewal of historic cultural districts has multiple meanings such as improvement of residents' quality of life and continuity of landscape, so the specific knowledge of the form of physical space and residents' living conditions is the most important thing for subsequent research and design. Han Dongqing, in *The Position and Role of Urban Morphology in Urban Design*, suggested that "understanding is the prerequisite for creation". Morphological design must be based on the prerequisite of morphological understanding, and the content and method of morphological understanding must be linked to the questionatic objectives of design.[45]

In this chapter, the Typo-Morphology process of Hongde Lane is sorted out and summarized through the Typo-Morphology process of the building structure and materials, building types, streets, tissue, plot and public spaces. The determination of these elements is mainly based on the adjustment of Caniggia 's morphological subdivision system of the scale concept and the comprehensive consideration of the specific investigation of Hongde Lane. (Fig. 5-1), and at the same time, according to the research methodology of the Conzen School, the Hongde Lane was meticulously researched and drawn (including the distribution map of the current protection objects, the architectural age analysis map, the architectural morphology distribution map, and the architectural functional tissue map), which provided the basis for judging its overall typology process, and then analyzed and summarized the process of the Typo-Morphology of the various elements.

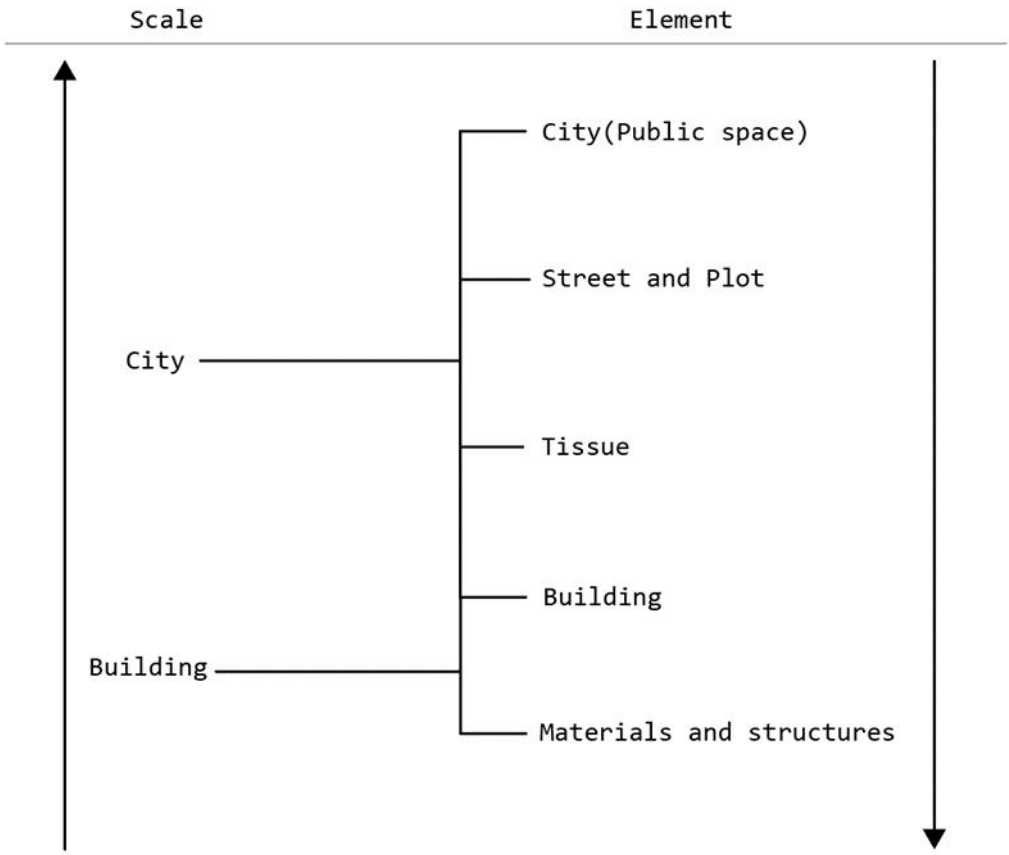


Fig. 5-1 Morphological Study Element Map for the Hongde Lane (Source：the author）

5.1 Element Introduction

5.1.1 Building components and materials

For this element, buildings from different areas and eras were constructed from different materials and construction methods, which is a specific reflection of the landscape character of the historic location.

5.1.2 Building type and layout

The building elements mainly include residential buildings and public buildings, and Hongde Lane is mainly residential buildings, so the research object is mainly residential buildings. The deepening part of its research mainly includes: plan, facade form, storey height and main function. This study mainly combines different construction periods and types of layouts to be analyzed.

5.1.3 Tissue

Tissue consists of a continuous sequence of district forms (open spaces, buildings) and functions (human activities). Districts exhibit recognizable patterns in the ordering of buildings, spaces and functions (themes), where shifts reinforce a set of organizational principles.

5.1.4 Street and Plot

Streets and plots are inseparable from each other in the drawing, where streets define the boundaries of the historical lot and establish the inner district structure, while the organization of plots constitutes the hidden order of the district tissue, which together expresses the boundary form and structural order of the historical lot.

5.1.5 Public Space

Public space refers to the open space body that exists outside the building and between the building objects, and is an open place for urban residents to have public interactions and hold various activities, with the purpose of serving the normal public.

5.2 Methodology for planning applications of the Typo-Morphology of the Hongde Lane

The application method is divided into four steps on the basis of six elements, namely: 1.Detailed research on the site to draw relevant type maps. 2.Typo-Morphology analysis of the Hongde Lane. 3.Typo-Morphology zoning based on the above analysis. 4.Specific planning guideline formulation and its design practice.

Firstly, drawings related to the plan type units and morphology areas within the site, for the next step in the elemental study, to provide a reference basis.

Secondly, each research element is analysed according to the three phases (1912-1949 in the Republic of China, 1950-1980 after the founding of the Republic of China, and after the 1980s after the reform and opening up), and the Typo-Morphology of each element is

summarized in conjunction with the morphological characteristics, and then Typo-Morphology analysis is carried out in order to judge the continuity of the morphological evolution process, which will provide a certain reference basis for the urban design guidelines formulated later on.

Then, the overall zoning of the morphology area for each study element is carried out.

Finally, based on the above analyses and zoning, specific urban design guidelines and urban design for the Hongde Lane were developed. The guidelines are mainly for the overall restoration of the urban tissue and the addition of architectural interventions. The specific urban design mainly focuses on the renovation of the public space that destroys the site as a whole. (Fig. 5-2 Hongde Lane Typo-Morphology Planning Application Method)

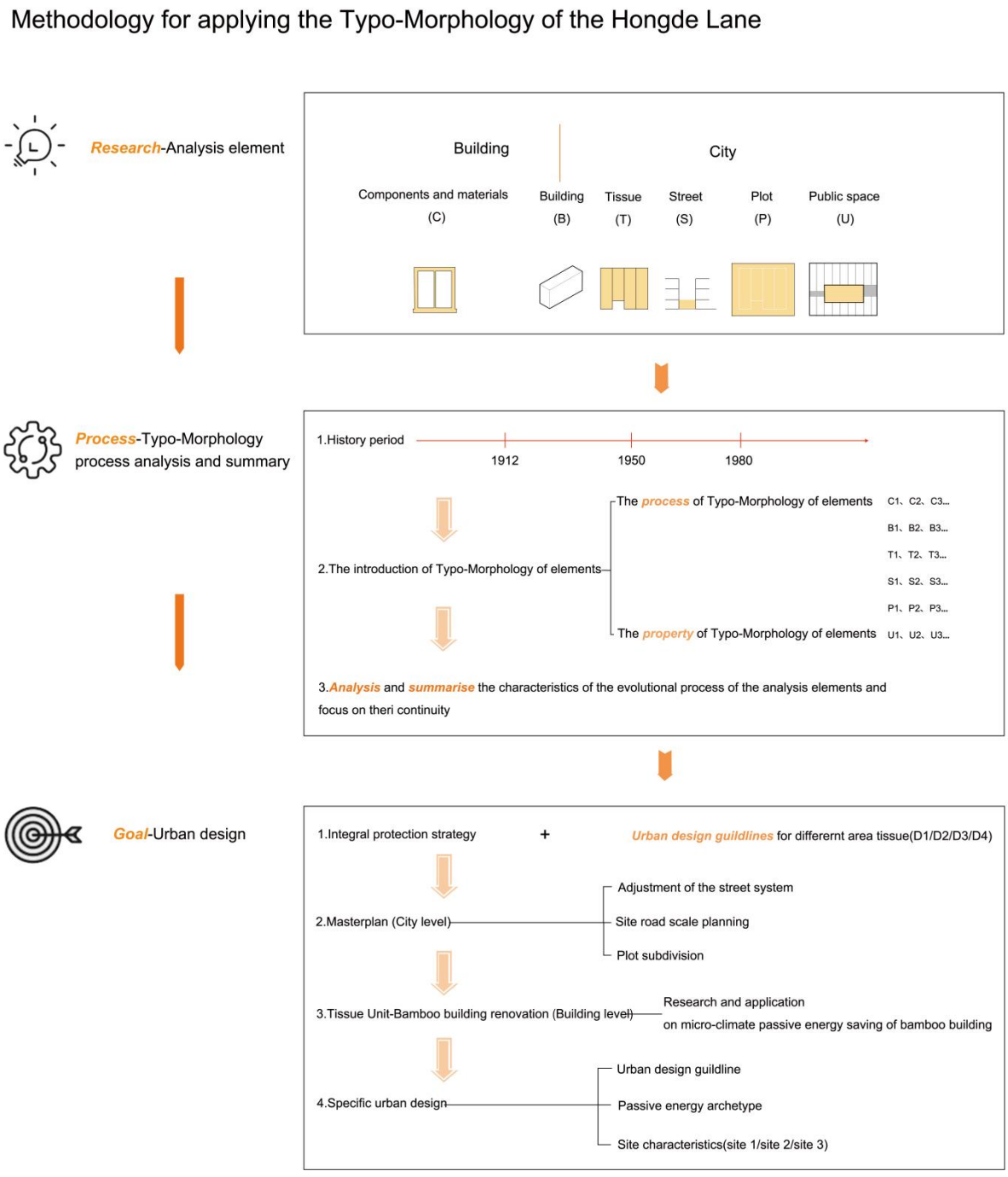


Fig. 5-2 Methodology for applying the Typo-Morphology of the Hongde Lane (Source：the author）

5.3 Hongde Lane plan type unit and morphological area

Conduct a detailed research on the Hongde Lane , focusing on its streets, building

heights, ages, types and functions, etc. Based on the results of the historical research and on-site research, draw a map of the current building heights (Fig. 5-3), a map of the current functional tissue (Fig. 5-4), a map of the distribution of the protection objects (Fig. 5-5), a map of the classification of the protection and remedial planning of the buildings and the environmental elements (Fig. 5-6), and a map of the analysis of the age of the buildings (Fig. 5-7), so as to pave the way for the subsequent research on the history of its evolution.

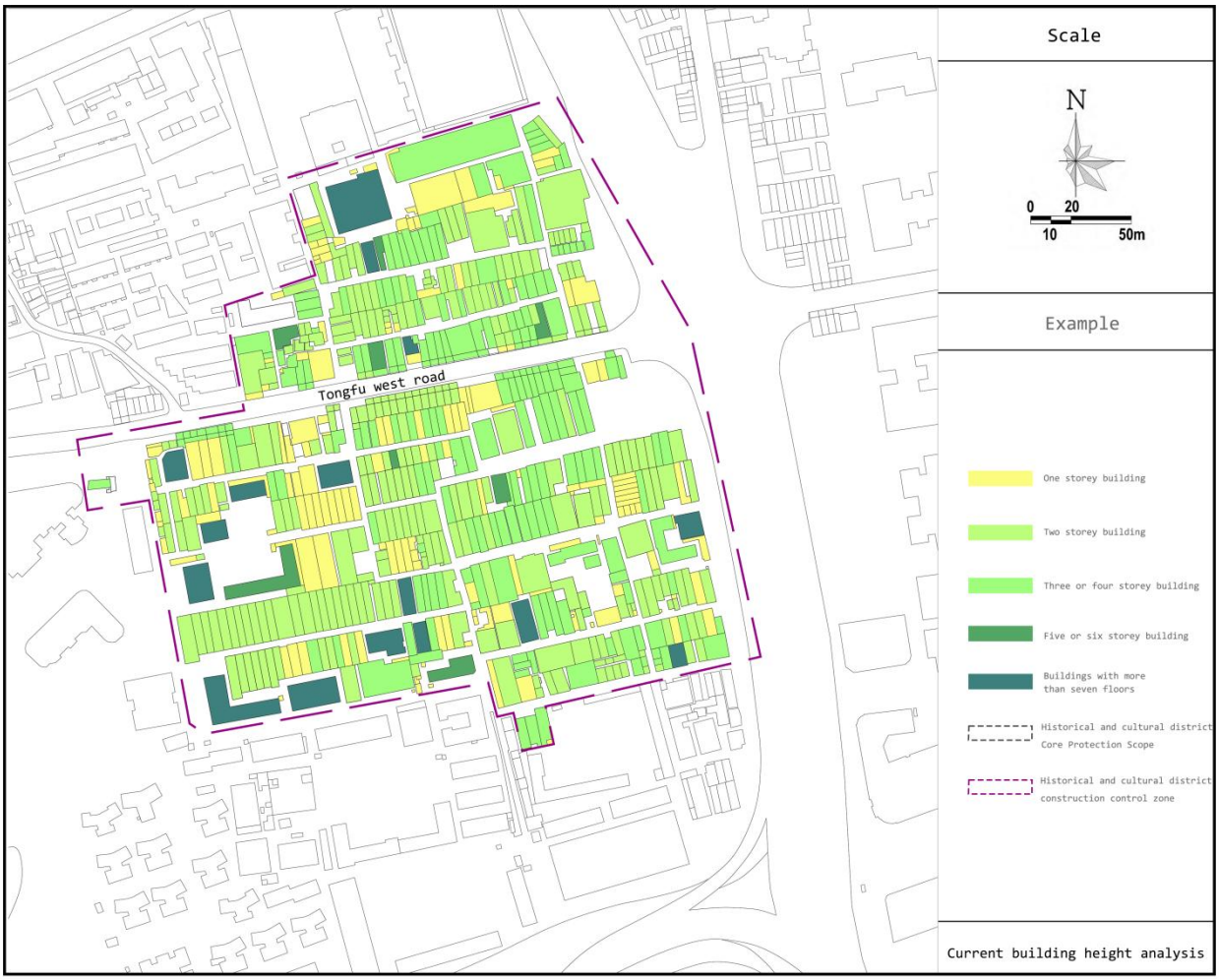


Fig. 5-3 Current building height map (Source：the author）

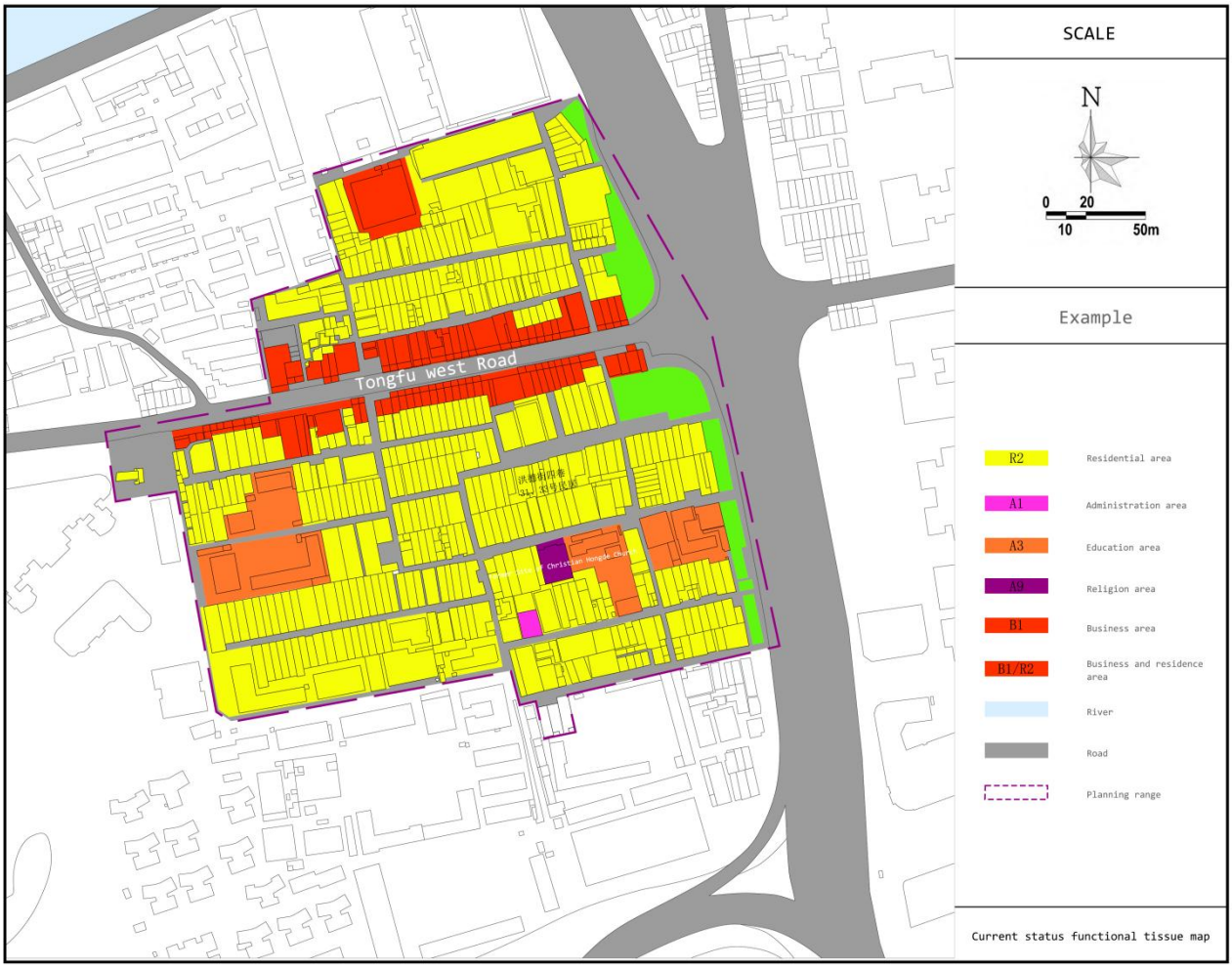


Fig. 5-4 Current status functional tissue map (Source：the author）

Fig. 5-5 Distribution map of protection objects (Source：the author）

Fig. 5-6 Architectural chronology map (Source：the author）

5.4 The process of Typo-Morphology of elements in the Hongde Lane

5.4.1 Building components and materials

In the sequence of buildings in Caniggia, materials correspond to elements and components correspond to elemental structures. Specifically, a material is a comprehensive product of the combination of a natural substance and the construction behaviour of different cultures and territories, including bricks, tiles, wood, etc; a component is a combination of one or several elements, such as floor slabs, walls, partitions, roofs, etc. Due to different cultural and regional conditions, traditional Chinese building uses wood and masonry as the main materials to combine a series of unique components, while the traditional buildings in Lingnan, Guangfu, are typical representatives of the Cantonese school of building. There are

still some well-preserved traditional residential buildings in the Hongde Lane, and some of the renovated dwellings have also preserved the traditional features to a greater or lesser extent. Analysing the characteristics of the components and materials as well as the process of their evolution in different periods will help to grasp the construction method and landscape features of the historical lot and provide inspiration for new designs.

5.4.1.1 Republic of China (1912-1949)

(1) Typo-Morphology evolution

Residences of this period, which are clearly identifiable in the Hongde Lane plots by their continuous ramparts (Fig. 5-7), are of significant grid significance to the overall form and tissue organization of the lots.

(2) Typo-Morphology property

Mostly one to two storeys, the structural form for the brick and wood structure, the roof form for the whole continuous slope roof, and has a continuous structure of the mountain wall, according to the interface of the eave wall of the different properties of the real and virtual present two states, in normal, the interface of the real wall does not eave, or eave is very small, and often show the front and rear of the eave is not symmetrical state (Fig. 5-8).

Fig. 5-7 Continuous gable interface (Source：the author）

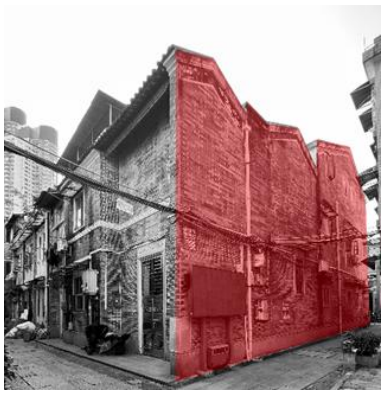


Fig. 5-8 Front and rear gable forms (Source：the author）

5.4.1.2 The 1950s-1980s period

(1) Typo-Morphology evolution

During this period, the buildings inherited the Republic of China's form as a whole, but they were simplified to a certain extent in terms of materials and roof forms, with simple facade decorations, and in addition, many of the roofs of the buildings erected were made of

asbestos tiles, colourful steel sheets, sunshine canopies, and other modern materials. These materials are relatively cheap, and as the area of unauthorized structures continues to expand, the proportion is also gradually increasing, causing great damage to the overall appearance of the historical lot.

(2) Typo-Morphology property

Proportion of the size of the form of the continuation of the Republic of China form, but in the form and materials to simplify the decoration, the roof form appeared flat roof or sloping roof, facade decoration is mostly stucco or paste brick treatment.

5.4.1.3 Post-1980s period

(1) Typo-Morphology evolution

In the late 80's, due to technological development and the need for rapid manufacturing, the overall building form was mainly minimalist, and due to structural advances, the number of floors was normally higher, without excessive decoration and simplified roof forms, all of which served rapid manufacturing.

(2) Typo-Morphology property

After the 80's, the overall residence is mainly brick structure and frame structure, and the roof form is mostly flat roof, and the wall decoration is mostly painted or pasted mosaic tiles.

5.4.2 Building

5.4.2.1 Republic of China (1912-1949)

(1) Typo-Morphology evolution

The Republican Bamboo building is a type of Bamboo building built during the Republican period. Although it is very different in appearance from the traditional Bamboo building, it is actually an evolution of the traditional Bamboo building through the process of "self-adaptation". The floor plan of the Republican Bamboo building is based on that of the traditional Bamboo building of the Qing Dynasty (Fig. 5-9A), without much evolution: single-roomed, with the various functional rooms connected one after the other in the depth direction. The number of storeys of the R.O.C. Bamboo building is usually 2 to 3, and there

are also apartment-style buildings. Most of the new dwellings have flat roofs, and the facade uses terrazzo brushing, reinforced concrete elements, and Western decorative elements such as columns, Western lineal footings, and arch vouchers. It can be seen that the Republican Bamboo building is a type of "variation" of the traditional Bamboo building adapted to some social and economic characteristics of the Republican period. The floor plan of the traditional Bamboo building was originally designed to fit into a small, narrow and long plot of land, so the Republic of China Bamboo building could directly inherit this floor plan to cope with the living needs of the time. The traditional Bamboo building also had 2 floors, but it was basically used by the same family, so the staircase was placed in the middle or the end of the house, and there was no separate entrance (Fig. 5-9B). Bamboo building buildings in the Republic of China are basically in the form of one floor and one suite. In some cases, several families built their own buildings together (in reality, there were also private shared buildings), and each floor needed to have an independent entrance and staircase to the ground level. The staircase is therefore moved from the centre or rear position to the front of the building, set to the side. In order to save area, interrupt the integrity of the first floor street interface as little as possible, and take up as little as possible of the already narrow width of the openings, the staircases are narrow and straight-running. The buildings would have separate entrances to the stairwells, with those on the first floor entering through the front door, and those on the first floor and above entering at the resting platforms on each level of the staircase (Fig. 5-9C). Sharing stairwells in this way allows each floor to be undisturbed by the other, while improving space utilization. In some cases, to be even more space-efficient, two symmetrical dwellings share a staircase at the centre, which is also a narrow, straight run (Fig. 5-9D). In this case, it may be a joint construction by two neighbouring plot owners, or both are under the same owner for overall construction.

(2) Typo-Morphology property

Since the beginning of the 20th century, the Bamboo building townhouse settlements have evolved from those of the late Qing Dynasty. At the space level of the buildings, the building types are modelled on the traditional bamboo buildings fixed in the Ming and Qing dynasties. The plan form remains basically unchanged, with only changes in the number of

storeys, building structure, facade form and decoration, and materials. Such changes reflect the construction technology and aesthetic bias of the era. In the spatial level of the street profile, i.e. the ground plane, as the form of the plot and the organization of the plot series remained unchanged, and consequently the form of the street profile also remained unchanged, the characteristics of that time were those of the late Qing period.

The form of the plot is the decisive element in the situation of constraint between various elements. Because the form of the plot could not be changed, the old building plan form could continue to be used, while the form of the building produced changes with the economic and social changes. The two-dimensional spatial characteristics are mostly 4 to 5 metres wide, and the width of the plots is fixed to this standard size. When plots are grouped into plot series and street profiles, the length of the effective boundary becomes a multiple of this standard size.

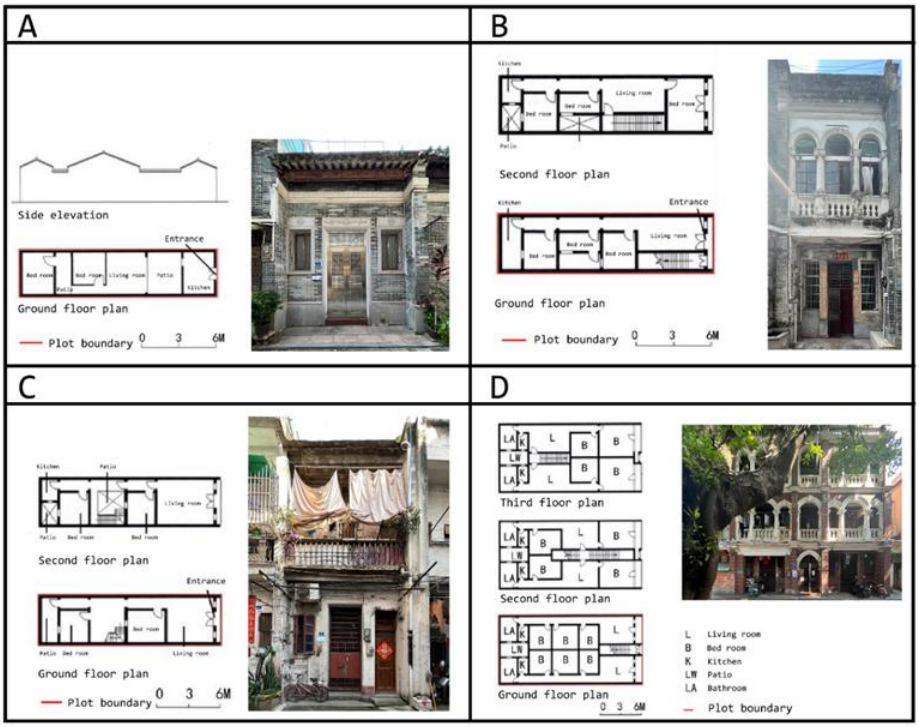


Fig. 5-9 Plan of different types of Bamboo building (Source：the author）

5.4.2.2 The 1950s-1980s period

(1) Typo-Morphology evolution

The situation of Hongde Lane is different from other redevelopment areas after the 1950s. According to the actual research on the site, most of the residential areas of the buildings in the 1950s-1980s within the site still retained the traditional forms of bamboo huts and brick

Fig. 5-10 Other forms of additions

Fig. 5-11 Multi-storey Bamboo building

Fig. 5-12 Multi-storey residential building

(Source：the author）

mansions (with the existence of a collection of residential forms in some areas), but there were some differences in which the levels of the facade began to be simplified, retaining only the basic forms, and the use of materials gradually became more and more diverse, ranging from the use of colourful plasters to ceramic tiles, and the late additions of other forms to the roofs of the houses (Fig. 5-10), and at the same time, due to the increase in the number of population, the number of residential floors gradually became higher and higher (Fig. 5-11).

(2) Typo-Morphology property

Residential buildings of this period continue the similar architectural volume and spatial organization pattern of the Republican period and make adaptive adjustments in the layout of different forms of plots, showing a harmonious and rich overall urban tissue. However, the facade and roof forms are simplified, and a new type of board-type multi-storey residential building (Fig. 5-12) has also emerged, which is of the exterior porch type and is similar in facade proportions to the proportions of the traditional Bamboo building.

5.4.2.3 Post-1980s period residential building

(1) Typo-Morphology evolution

After the reform and opening up, the population of Guangzhou city increased a lot, in order to accommodate more people, this stage also began to appear from the original multi-storey buildings based on part of the high-rise buildings (slab-type housing and point-type housing), high-rise centralized housing was constructed within the site (Fig. 5-13), the overall brick structure is mainly brick and concrete structure, the external stucco or brick, the average size of the household is about 50-60 m^2. Unlike the modular construction of traditional residential buildings, the overall form of the houses became diverse.

Fig. 5-13 High-Rise Residential on Site (Source：the author）

(2) Typo-Morphology property

This stage of the building layers increased significantly, the overall majority of frame structure, normally more than 8 floors, and the specific plan form more diverse, but the facade is normally more simple, the number of its Hongde Lane in the overall less, but covers a larger area, and in the facade style and the traditional residential buildings are very different, appearing to be very abrupt.

5.4.2.4 Post-1980s period public building

(1) Typo-Morphology evolution

Public buildings in the site are mostly constructed in the late 80s to serve the local residents, such buildings are fewer in number in the Hongde Lane, but the overall scale is larger, among which there are existing office factories in the northern boundary area (Fig. 5-14), and a newly built office building, a senior citizen's activity centre and the Electricity University of Haizhu District at the western edge of the site (Fig. 5-15), and a religious building in the middle side of the site, the former site of the Christian Hongde Church (which has not been registered immovable cultural relics that have not yet been approved and declared as cultural relics protection units) (Fig. 5-16), and a kindergarten serving the local community at the eastern edge of the site (Fig. 5-17). These public buildings are mostly horizontal rectangular or L-formd in plan.

Fig. 5-14 Old Factory Building (Source：the author）

Fig. 5-15 Elderly Activity Centre (Source：the author）

Fig. 5-16 Kindergarten (Source：the author）

Fig. 5-17 Hongde Christian Church (Source：the author）

(2) Typo-Morphology property

The overall building area is large, normally paved over the plot on which it is located, located in the fringe area of the site, the overall continuation of the facade along the street, but the lack of inheritance of the traditional architectural organization of the site makes the site boundaries cluttered and disordered at the same time destroying the overall site tissue, and the lack of unity and continuity of the site.

5.4.3 Tissue

The concept of a single tissue comes from Caniggia's definition of a street as a whole composed of the same path and a sequence of identical or similar plots on either side of it, meaning that both a consistent relationship between the plots and the street and a similar pattern of building layouts within the plots must be met in order to constitute the same single tissue. From this point of view, this concept is very similar to the definition of plan-type unit proposed by Conzen, which covers the whole collection of elements such as streets, plots and buildings. The collage of different types of single tissue or plan type units together will form a

more complex district and urban tissue, and the division of single tissue will become an important basis for the preparation of guidelines for the protection and regeneration of land plots in the future planning and design of the classification.

5.4.3.1 Republic of China (1912-1949)

(1) Typo-Morphology evolution

In this period, the main plane tissue is composed of bamboo tube house, its individual openings 4-6m, depth 20-25m, tightly arranged, can be a single-storey row also two-storey rows, can be horizontal rows and horizontal and vertical combinations of rows, constituting a rich variety of plane tissue, the building density is greater, the normal short-side for the entrance, and sometimes there is a slight gap with the neighbouring buildings, resulting in a number of small courtyards, and then there are two sides of the city road arcade building street, resulting in a new form of tissue.

(2) Typo-Morphology property

The morphological character of the period as a whole is delineated by the traditional residential or shophouse buildings and streets, collectively referred to here as the traditional residential tissue and the shophouse district tissue.

5.4.3.2 The 1950s-1980s period Combined Tissue

(1) Typo-Morphology evolution

During this period, the emergence of new building types provided a change in the site's assemblage tissue, which were normally located within or juxtaposed to the traditional residential tissue, with larger footprints, creating a clear conflict with the surrounding traditional housing.

(2) Typo-Morphology property

The modern sprawling tissue is relatively independent and regular in form, so its relationship with the road is relatively clear, but it is very different from the traditional residential tissue, and the intervention of the modern sprawling tissue breaks the relationship with the original traditional residential tissue.

5.4.3.3 Post-1980s period Combined Tissue

(1) Typo-Morphology evolution

In this period, in order to adapt to the development of the layout of the modernization of the building, high-rise buildings were mostly constructed at the boundaries of the site, and the forms were normally richer, but with the traditional residential tissue to produce obvious conflicts and contrasts.

(2) Typo-Morphology property

The overall demolition of the area normally produces large buildings (office buildings, etc.), which can be regarded here as new tissue, the creation of new tissue, the destruction of the traditional tissue can not be restored.

5.4.4 Street

5.4.4.1 Republic of China (1912-1949)

(1) Typo-Morphology evolution

In 1918, due to the establishment of the Guangzhou Municipal Office, the construction of roads in the modern sense began, and the construction of urban roads in this period determined the basic pattern of the Hongde Lane district. arcade building buildings appeared on both sides of Tongfu West Road, and a new type of street, the arcade building street was created.

(2) Typo-Morphology property

With the improvement of road construction during this period, the overall street network system hierarchy of the district became clearer and gradually produced roads of different hierarchical scales. They can be roughly divided into four categories, namely: city roads (Fig. 5-18), internal main streets (Fig. 5-19), internal alleys (Fig. 5-20), and lanes (Fig. 5-21). The city road is mainly the carriageway in the city, located in the right side of the block and the middle of the crossing, the width of the middle is between 12-16m, the right side of the 20-25m. The internal main street are mainly Baojiu Street, Hongde four lane, Dehe New Street, the width of 5-10m. The internal lanes extend in the north-south direction of the main streets, with a width of 3-4 m. The alleys are small islands between the buildings, which are

only accessible to people and are few in number, with a width of less than 2 m. The internal lanes are the main streets, with a width of 12-16 m in the middle and 20-25 m on the right.

5.4.4.2 The 1950s-1980s period

(1) Typo-Morphology evolution

During the period 1950-1980, road development in the city continued, and Tongfu West Road between the blocks was converted into a city carriageway, thus dividing the entire Hongde Lane into two, north and south. Inside the district, due to the construction of a large number of residential houses after 1950, many narrow-scaled lanes appeared.

(2) Typo-Morphology property

The road structure system of the whole district has basically taken form in this stage, and the overall street network within Hongde Lane, which consists of main streets, lanes and alleys, is stable as a whole. However, due to the demolition of some buildings, the number of lanes within the district has been reduced, and the other types have not changed much overall.

5.4.4.3 Post-1980s period

(1) Typo-Morphology evolution

After 1980, Guangzhou increased the overall pace of urban construction in terms of building construction, and the Hongde Lane underwent partial demolition after 1980, mainly for the construction of high-rise residential buildings of slab or point type, and in the late 2000s, a relatively large-scale demolition was carried out on the fringe plots for the construction of high-rise complexes. During this period, some lanes were demolished and the road system was further regularized.

(2) Typo-Morphology property

The overall core street order has not changed much, with some changes at the edges and internally, characterized mainly by wider road widths and more regular boundaries.




Fig. 5-18 urban Roads Fig. 5-19 Internal Main Streets Fig. 5-20 Internal Alleys Fig. 5-21 Lane

(Source：the author）

5.4.5 Plot

5.4.5.1 Republic of China (1912-1949)

(1) Typo-Morphology evolution

During this phase, the street network of main streets and lanes within the Hongde Lane district divided the district into clearer plots, and the overall plot scale was larger and predominantly horizontally distributed.

(2) Typo-Morphology property

There is little overall change in plot demarcation in this phase and the new construction and demolition of some of the buildings on the site has created a number of internal alleyways, making the plot boundaries within the site more visible. This phase is dominated by traditional plots.

5.4.5.2 The 1950s-1980s period

(1) Typo-Morphology evolution

Hongde Lane has seen a more obvious change in plot form during this period, which is due to the fact that after 1950, Guangzhou City carried out a better road system planning for urban roads, and the horizontal Tongfu West Road divided the block into two, and due to the gradual increase in the number of internal lanes, the plots within the site were refined.

(2) Typo-Morphology property

There were 2 main types of plots in this period, traditional plots and special plots, when the gradual division of traditional plots produced many smaller but relatively regular formed

plots, while special plots differed in form and proportion from traditional plots due to the splitting and merging of traditional plots.

5.4.5.3 Post-1980s period

(1) Typo-Morphology evolution

After 1980, there were some changes in plot demarcation, with some slab dwellings being built on the edge of the site, normally on larger plots, and there was a gradual tendency for larger plots to be subdivided.

(2) Typo-Morphology property

The traditional plots do not change much in this phase, and even if some public buildings are built in them, they are built within the plots as a whole, and the complete plot boundaries can be seen. The specialized plots are more finely delineated, more regular in form and defined in such a way that they take the form of squares in addition to streets.

5.4.6 Public space

This section will conduct a Typo-Morphology study on the formation of public space in relation to the specific space form and the enclosing relationship of the surrounding buildings, and make some reasonable speculations on the development trend of public space in the Hongde Lane.

5.4.6.1 Republic of China (1912-1949)

(1) Typo-Morphology evolution

Since the Ming and Qing Dynasties, the Hongde Lane has been developed along Shuzhu Yong, which has become the settlement area of the Thirteen Houses of Commerce, with a high density of traditional residential buildings. The density of traditional residential buildings is high, and there is a clear relationship of land rights between one household and one house, and there is no planning for public space in this period, so the public space in this period is normally generated spontaneously due to the relationship between land rights and the street, but the overall number and area are relatively small.

(2) Typo-Morphology property

Public space in this period can be broadly classified into two types, namely internal local enlarged space (Fig. 5-22) and open areas within the district (Fig. 5-23). Due to the lack of overall planning in the early period, the interface within the district was normally uneven, and buildings within the street were partially set back to produce a localized open space, which has now become a daily recreational area for the people in the district. This space, although small in size, is a public space with a relatively wide gathering of people within the district. The open space in the district is normally a site boundary planning area with a larger overall scale. Its number of species in the Hongde Lane is small, and it is not used as frequently as the local amplified space. Both types of public space are generated with a certain degree of spontaneity.

5.4.6.2 The 1950s-1980s period

(1) Typo-Morphology evolution

After the founding of the People's Republic of China, Guangzhou carried out planning for the roads in the city, and carried out a certain amount of renovation and demolition of some of the old buildings in the Hongde Lane, at which time some of the internal partial enlargement of the space became larger. And in this period, the open space of the district was paved with certain hardened pavement, becoming a small community park in the district.

(2) Typo-Morphology property

During this period, the scale of public space gradually increased, and the construction of the Christian Hongde Tang, a public building of a religious nature, provided residents with a certain social place, in normal, during the period 1950-1980, public space is still dominated by the internal district enlargement space and open space, with an increase in scale, but the number of them is still relatively small.

5.4.6.3 Post-1980s period

(1) Typo-Morphology evolution

After the reform and opening up, the regional construction accelerated, built a large number of multi-storey residential and public buildings (elderly activity centre), and thus the overall building density of the site is reduced, and gradually provide a larger area of public

space in the district, the space between the border area and the traditional residential and the internal area of the public building, gradually become a shared space between the residents, and with a number of fitness facilities, it becomes a place of fitness and communication for the residents.

(2) Typo-Morphology property

The number and area of internal partially enlarged spaces and open spaces in the district are gradually increasing, and different spatial styles of open spaces are generated due to different plan forms of public buildings.

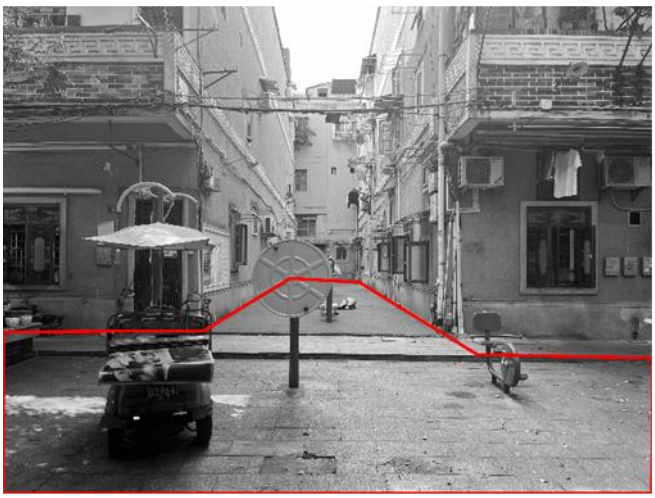


Fig. 5-22 Internal localized enlarged space

Fig. 5-23 District open areas

(Source：the author）

5.5 Summary of research elemental evolution

This section focuses on summarized and evolutional summaries of the study elements, and provides a cognitive understanding of the formation and evolutionary cycle of the material space within the site, while the continuity of the evolutional pattern can be inferred from the elemental content, paving the way for the urban guidelines and interventions that follow.

5.5.1 Building components and materials

The types of buildings and materials in the site vary according to different ages. The interpretation of the morphological types of the main components and materials of the

traditional houses in Guangzhou should start from the structural system, the roofs, the walls, and the three components, which are of great significance to the shaping of the overall pattern and landscape features of the historical site. Firstly, as a structural element of tissue control, the hill wall forms the overall order of the district with its continuity and direction; secondly, the basic living units and courtyard spaces defined by the structural system are distributed at intervals to form a unified and rich tissue under the control of the continuous sequence of hill walls; and thirdly, the structural practices and materials of the hill wall and the roof also show the constructional features and landscape characteristics of the traditional residential houses of the Guangzhou area.

In the renovated houses and new public buildings after 50 years, a series of changes have occurred in the traditional components and materials, among which the structural system has gone through the transformation from mixed brick and wood, brick-cement to frame structure; with the changes in the structural system, the roof pattern has been simplified from a sloped roof to a plane sloped roof and a flat roof, and the roofing materials have been changed from the small green tiles to the more economical and durable flat tiles, or even the colourful steel plates; the continuity of the walls has gradually disappeared, and the door and window facades have been changed to the flat tiles and even the colourful steel plates. The continuity of the hill wall gradually disappeared, and the different interface types of the window and door elevations were replaced by modern door and window openings of standard specifications. Overall, it appears that the evolution at the component and material level has contributed to the disorganization of the pattern and appearance of the historic cultural district. (Fig. 5-24)

5.5.2 Building

There are four types of existing buildings on the site, namely, traditional residential buildings, arcade building, public buildings constructed after the 1950s and multi-storey houses after the 1980s. Among them, the evolution of traditional residential buildings has not been interrupted, and they have evolved in their original forms in different periods, preserving the origin of the types. arcade building mainly appeared in the Republic of China period, with

a certain degree of continuity, but the existing part has been damaged and lacks part of the continuity. There are two types of public buildings, one is the Christian Church of Henan, which is a religious antique building, and the other is the elderly activity centre, kindergarten and office building that serve the district. These lack overall continuity for reasons of time and policy. (Fig. 5-25)

5.5.3 Tissue

There are four types of tissue in the site, namely traditional residential tissue, the tissue of the arcade building street, the tissue of the modern sprawling building and the tissue of the new building. The traditional residential tissue has appeared since the earliest Qing Dynasty, and because of the differences in the direction and number of arrangement, the combination of tissue in different plots has produced rich and varied forms. The residential tissue is mainly distributed along the urban arterial streets with continuous interface, but it has been eroded to different degrees by some modern building additions in the process of development. The modern sprawling of the architectural tissue mainly appeared after 1950, for the demolition and reconstruction of the traditional residential tissue, normally exists between the traditional tissue, has a certain possibility of restoration. New construction tissue appeared after 2000, normally the construction of new types of tissue, its damage to the traditional tissue of the site can not be repaired, only in the plan and elevation to make up for the transformation. (Fig. 5-26)

5.5.4 Street

There are four types of streets in the site, from the largest to the smallest, namely city roads, main roads in the historic cultural district, internal alleys and lanes. In the process of historical development of these roads, the overall development of a more stable form, the different levels of its own scale and form of the uniqueness of the streets in the district of the overall hierarchy, in the alley, there are man-made obstacles to the phenomenon of impeding the site traffic, so it can be opened up to enhance the convenience of site traffic. (Fig. 5-27)

5.5.5 Plot

There are 2 types of land plots in the site, namely traditional land plots and special land plots, and the Hongde Lane is mainly dominated by traditional land plots, and there are a small number of special land plots, which mainly exist in the boundary of the core protection scope area, and erode the boundary plots and normally have a large volume, so it is necessary to follow up with a certain form of its division. (Fig. 5-28)

5.5.6 Public space

There are two types of public space existing in the site, namely, the partially enlarged space of streets and lanes, and the open area formed by the enclosure of public buildings in the site. Among them, the partially enlarged space of streets and lanes has a certain degree of spontaneity, and the open public space enclosed by public buildings is consciously planned and developed under the leadership of government planning. (Fig. 5-29)

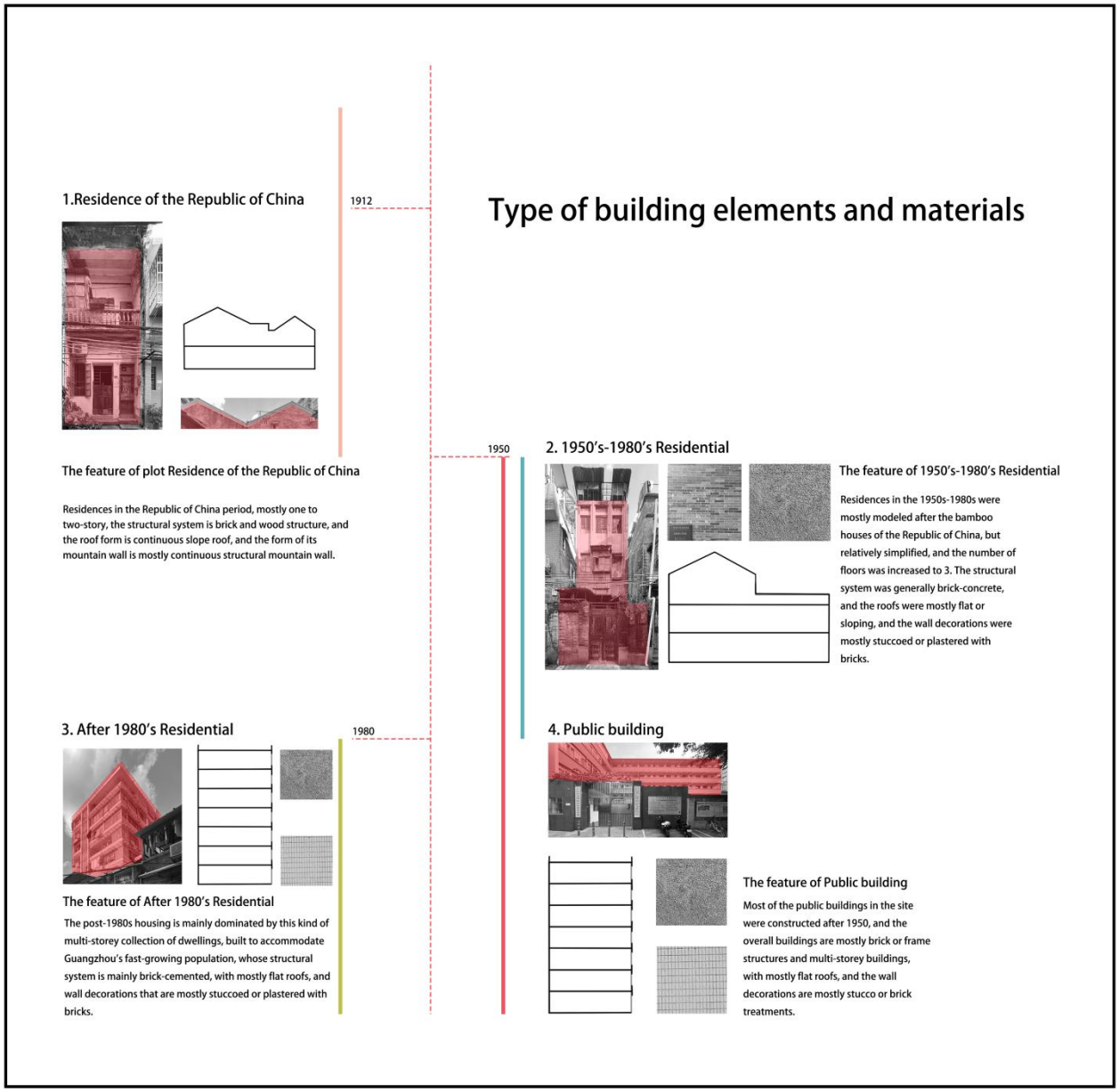


Fig. 5-24 Building components and materials development process (Source：the author）

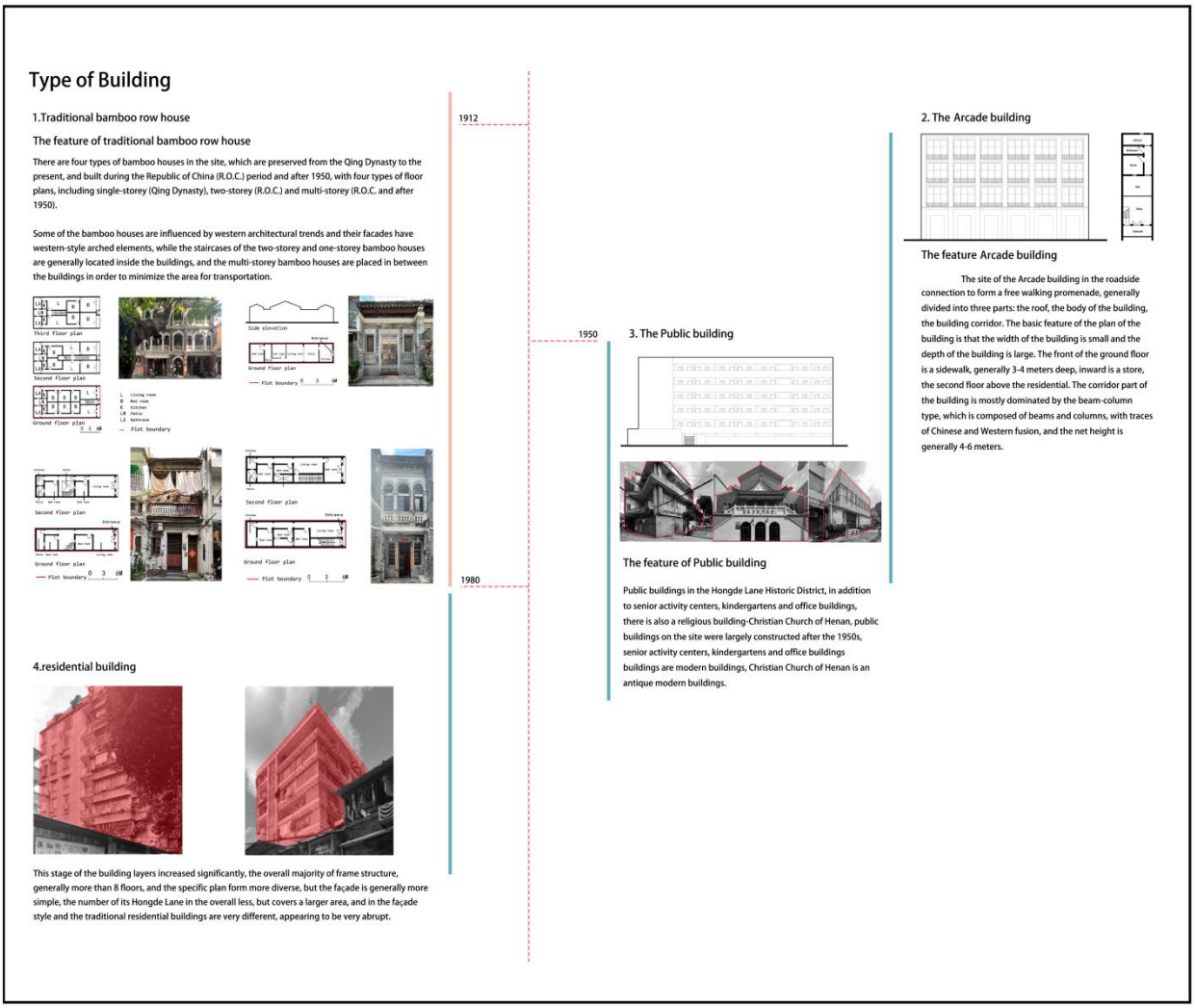


Fig. 5-25 Building development process (Source：the author）

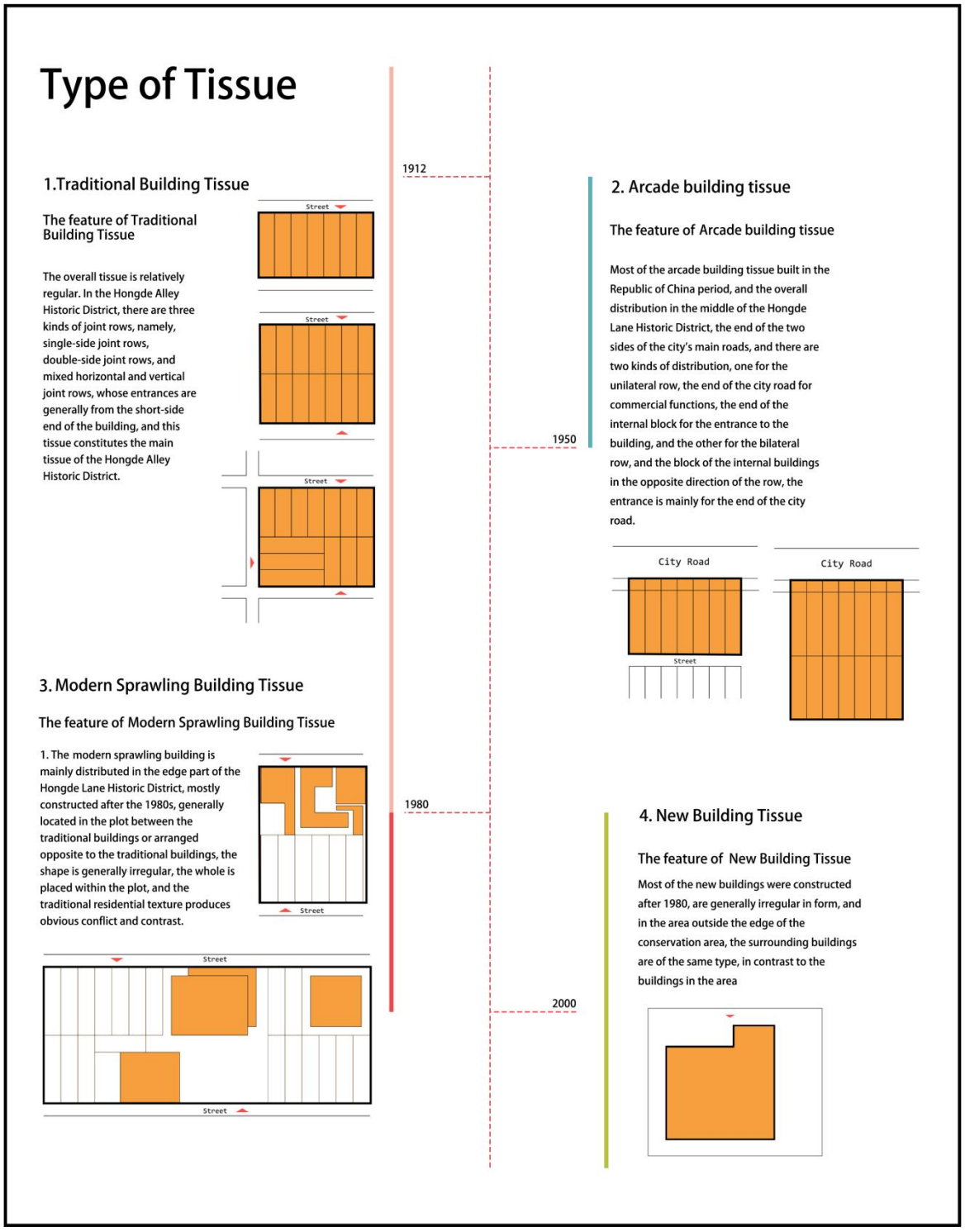


Fig. 5-26　Tissue development process (Source：the author）

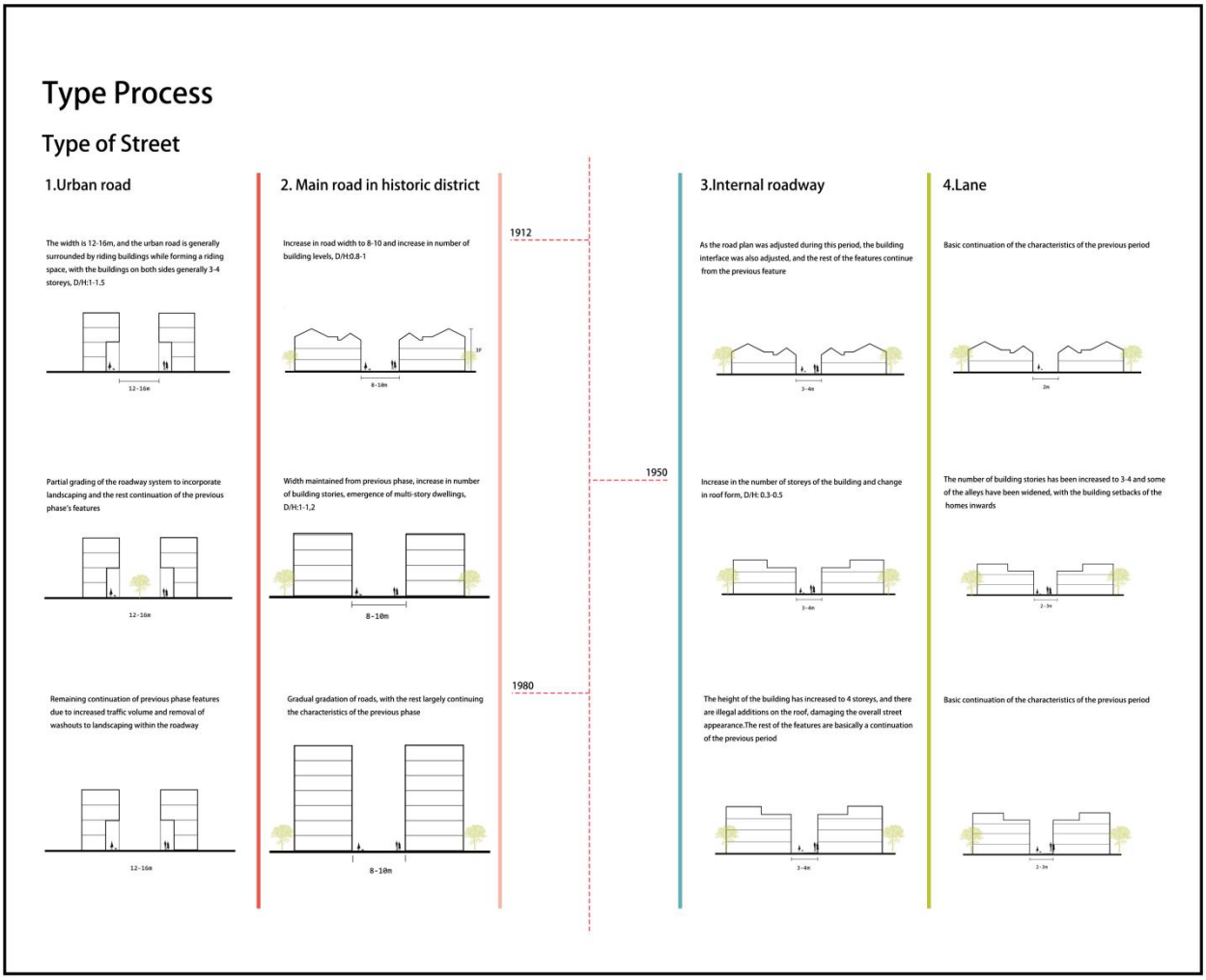


Fig. 5-27　Street Development Process (Source：the author）

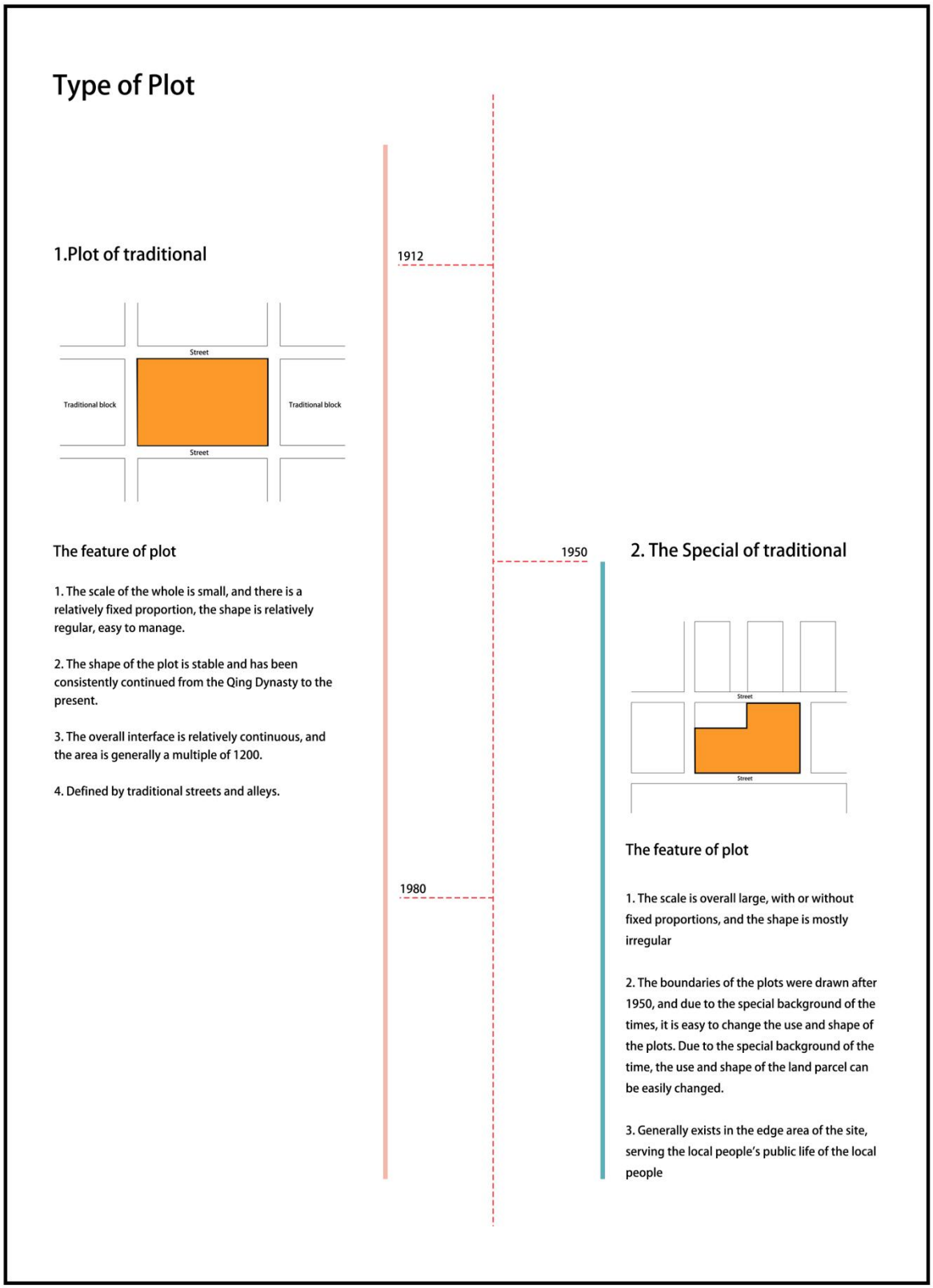


Fig. 5-28 Plot Development Process (Source：the author）

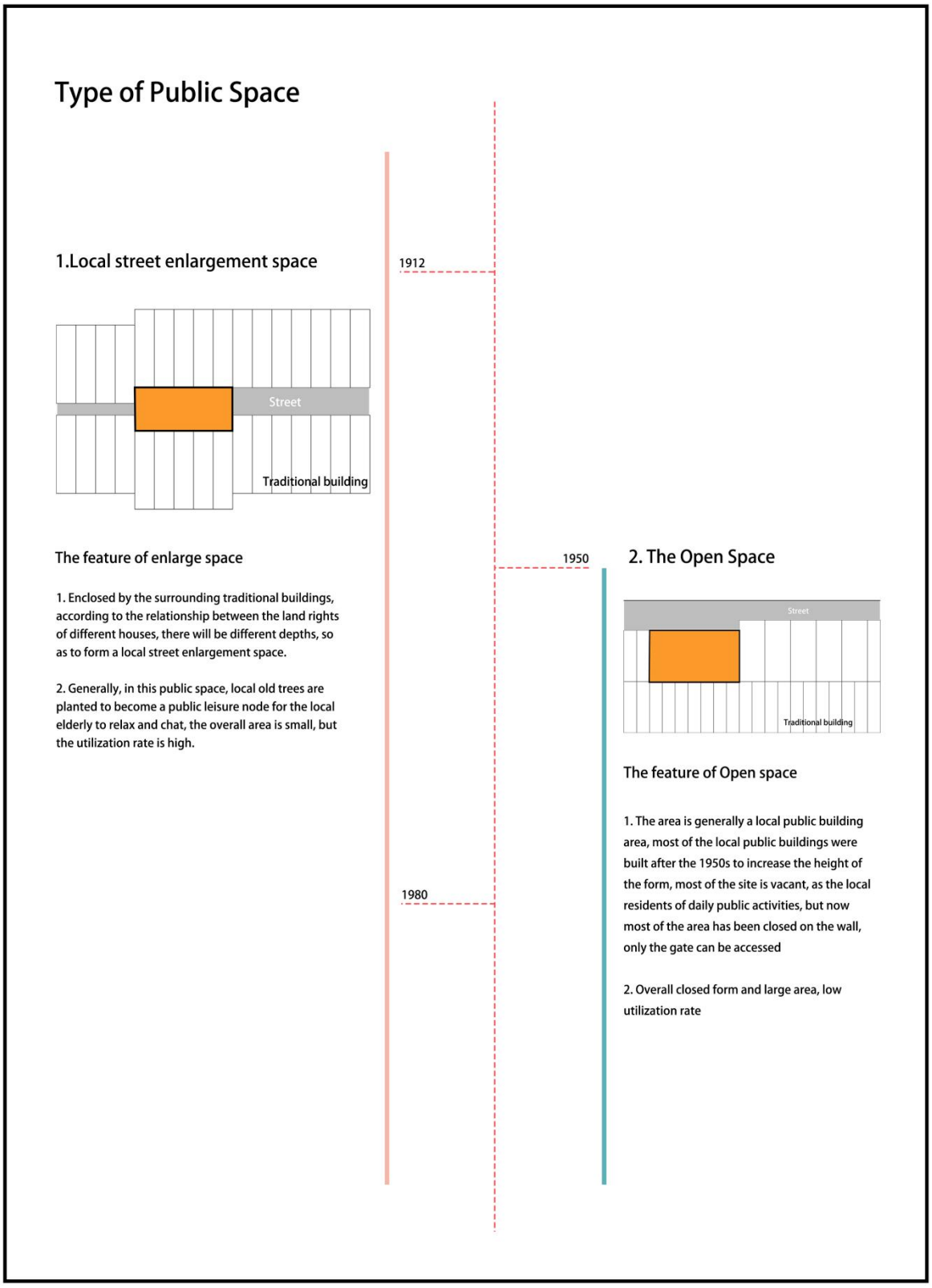


Fig. 5-29 Public Space Development Process (Source：the author）

5.6 Summary of the chapter

This chapter analyzes the Typo-Morphology evolution process of each city and architectural element in the Hongde Lane and summarizes its characteristics, focusing on the continuity of its development process, in order to provide a reference basis for the subsequent development of detailed urban design guidelines for the Hongde Lane in Guangzhou.

Chapter 6 Urban Design Of Guangzhou Hongde Lane As An Example

This urban design firstly proposes the design strategy based on the summary of the elemental evolution process in the previous chapter and formulates the design guidelines for different areas, and secondly, through the adjustment of the roads in the site, the division of the overall plot and the related functional delineation, and after operating on the urban level, in the building level, the microclimate passive energy saving is explored in the area's tissue unit building - Bamboo building, and the specificity of the different plots (building types, site conditions) to carry out the relevant urban renewal design.

Within the core protection scope of the Hongde Lane, most of the residences are well-preserved, with intact historical tissue, and only some of them need to be refurbished to a certain extent, while the public buildings within the site have suffered from a lack of planning in the last century, which has led to the destruction of the site's planar tissue by the construction of public buildings, and they are mainly located between the construction control zone of the historical and cultural district and the core protection area of the historical and cultural district, which are more complicated, cover a larger area, are mostly surrounded by walls, have lost its publicity, and some of them have been destroyed. Therefore, this kind of site will be chosen as the starting point of this renewal design.

6.1 Design strategies

6.1.1 Integral protection

The concept of "Integral protection", introduced in 1973 in the background of Bologna's "Programme for the Economy and the Construction of the Population", is now "internationally recognized as the only valid criterion for the protection and development of historic urban areas, and is widely used in the protection and development of historic areas". It is now "internationally recognized as the only effective guideline for the protection and development of historic urban areas, and is widely used in the protection and development of

historic areas".[46]

The renewal of the Hongde Lane has similar questions, such as the low quality of life of the residents and the decay of the historic buildings, etc. The results of the new Typo-Morphology not only analyse the changes in the space form of the historic cultural district, but also pay attention to the changes in the local demographic structure and the climate impact on the architectural form and typology. Therefore, based on the new Typo-Morphology, the design of historic cultural districts needs to take the idea of comprehensive preservation of "people and buildings together" as a criterion for subsequent research and design.

1. Firstly, top-down planning and design, which used to be led by professionals only, should be broken down, and "top-down" planning and design should be combined with "down-up" participatory renewal.

2. On the basis of enhancing the quality of life of the residents, focusing on the local life of the residents, improving the living quality of the local community, and at the same time increasing the space for public activities to enhance cohesion. While upgrading the local council's infrastructure and street space, it guides residents and the community to participate and make improvements on their own, stimulating the vitality of local districts while meeting the needs of modern life.

3. Protecting both tangible and intangible cultural heritage. From the specific analysis of Hongde Lane, it can be seen that the superposition of buildings of different periods, local customs and culture, and lifestyles have jointly formed a unique historical form of the local landscape. This uniqueness also determines the historical and cultural value of the area. Therefore, the renewal and protection of historic cultural districts is not simply to restore the original appearance, but should be regarded as a dynamic process of development and change, respecting the cultural heritage retained in different periods and injecting new contemporary vitality to meet new functional needs.

6.1.2 Urban design guidelines based on different tissues area

Through the overall Typo-Morphology analysis of the six basic elements in the Hongde

Lane, the district is carefully divided into six areas, and its characteristics and evolutionary process are investigated. According to the Typo-Morphology characteristics, a planning division is carried out, and urban design guidelines are given to each different tissues area to adapt to the area. The guidelines are designed to limit and control the elements and to guide the future design. The guidelines are divided into two parts, one for specific principles, which details the special conditions of the site (such as the form of the arcade building and the Bamboo building), and the other for normal principles, which gives normal and universal requirements for the use of the elements.

Firstly, it is necessary to establish the overall protection objectives.

(1) To sort out the historical and cultural resources, comprehensively and thoroughly excavate and scientifically assess the value and characteristics of the Hongde Lane .

(2) Establish a comprehensive protection system by focusing on the protection of the traditional residential historical lots and the arcade building street.

(3) Delineate a reasonable scope of protection and formulate effective control measures.

(4) Protect and continue the traditional patterns and styles, and revitalize and make use of all kinds of historical and cultural heritage. Integrate and link important historical and cultural fragments, activate regional development, and provide important support for the strategy of Guangzhou as a world cultural city.

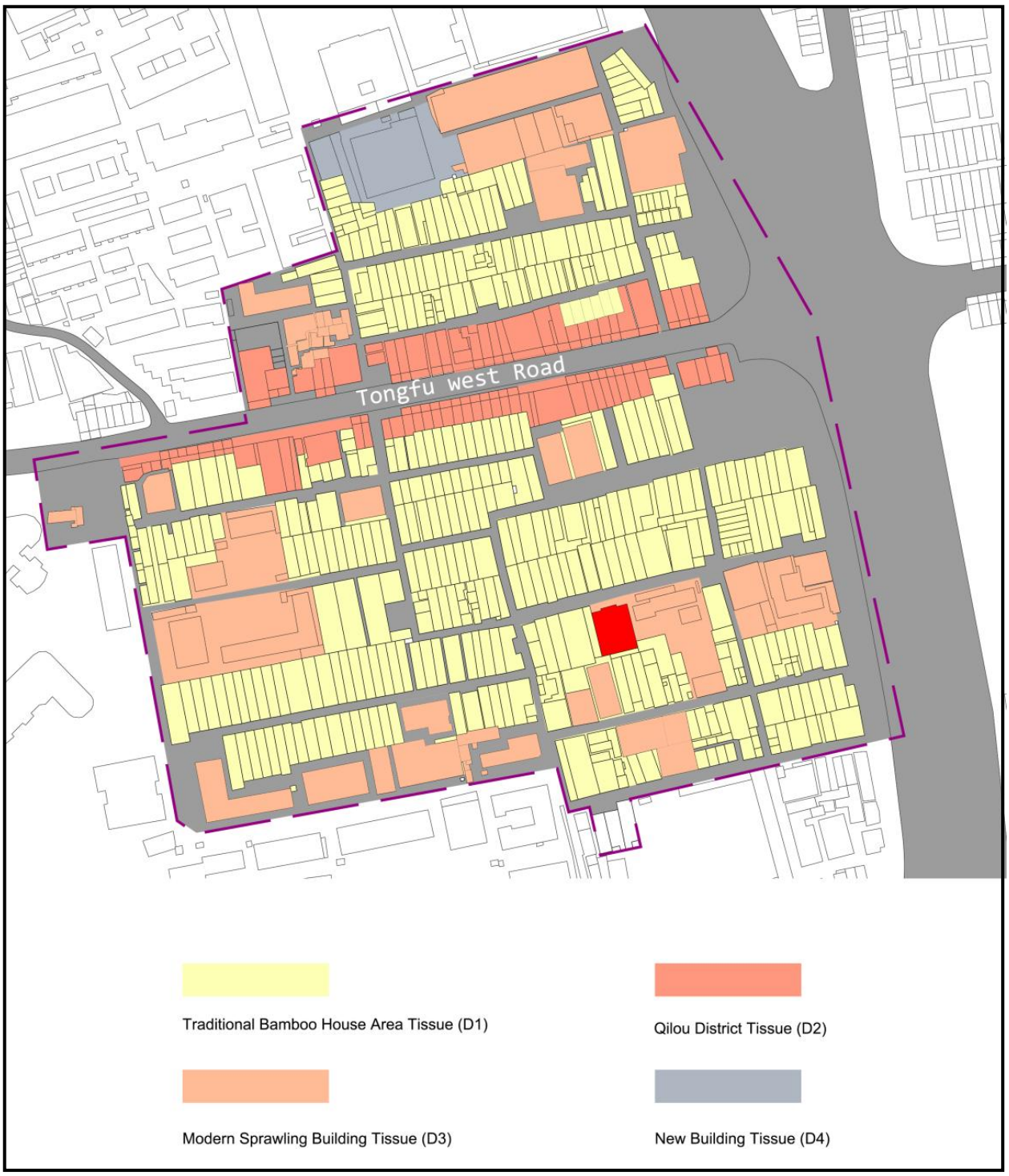


Fig. 6-1 Tissue map of different areas （Source：the author）

Zoning of four different building tissues within Hongde Lane，and formulate urban design guidelines for different tissue areas.

6.1.2.1 Urban design guidelines for traditional Bamboo building area tissue (D1)

Fig. 6-2 Traditional Bamboo building Area tissue Map (Source：the author）

The tissue of this area is a major part of the tissue of the Hongde Lane , and needs to be targeted and controlled on a case-by-case basis when guidelines are being developed.

(1) Forms of control

Bamboo building buildings of the Qing Dynasty and the Republic of China period should be protected and repaired as much as possible, and some renovation measures should be given to the residences of Bamboo buildings inherited from the 50's to the 80's. Rebuilding of the related residential buildings with serious damages and no value can be considered.

Fig. 6-3 Traditional bamboo building area tissue remediation forms (Source：the author）

(2) Building control requirements

Normal Requirements:

1. Building facade renovation and rebuild forms need to be in the proportion of the colour with the traditional architecture of the street as far as possible harmony and consistency, the necessary new construction, alteration activities, its architectural scale, height should be matched with the traditional spatial tissue of the region.

2. New buildings should have a clear vertical division on the facade, normally 4-6m.

3. The overall height of the building should be in accordance with the requirements of the core scope of protection planning, and should not be higher than 12m, in order to meet the overall height of the area.

4. The building plane can be adjusted according to its own needs, but should not destroy the overall plane tissue.

Specific requirements:

1. The construction of new dwellings in the area needs to be built to certain specifications (including the necessary architectural elements).

2. At the first floor, as far as possible, the height is the same, and there is some separation on the facade to maintain the continuity and consistency of the overall tissue.

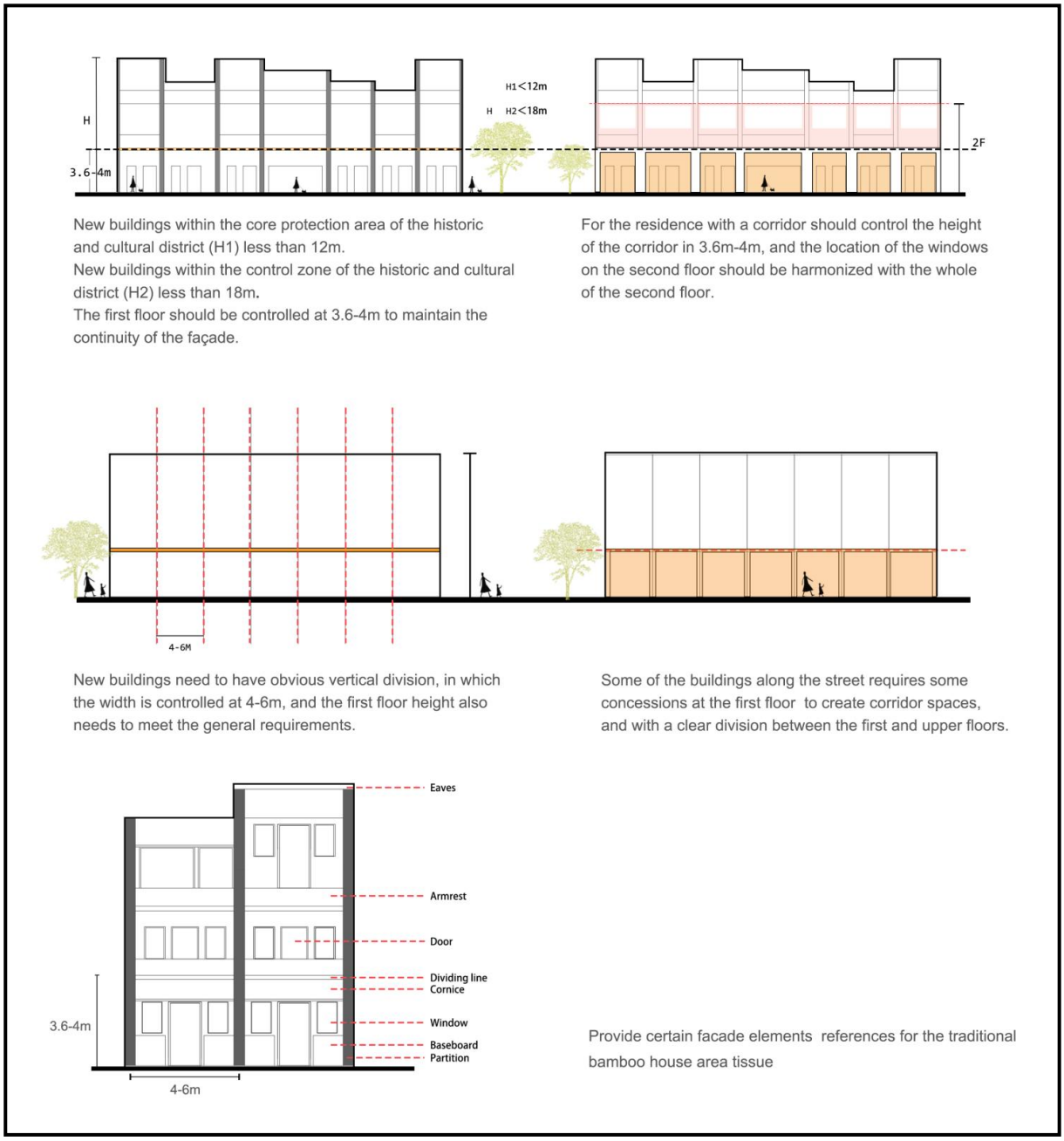


Fig. 6-4 Guidelines for the control of building facade in the traditional Bamboo building area (Source：the author）

(3) Tissue (layout form) control requirements

Normal requirements:

Renovation and new buildings need to maintain the original building tissue, for the long strip-like body, and entrances and exits are normally placed on the short side of the building location, the scale of the single body needs to be controlled to a certain extent.

Specific requirements:

For the new building control face width of 4-6m, depth of 15-25m, it should be noted

that the specific size needs to be adjusted according to the building within the plot of land, a certain degree of front yard design, but the overall should be in line with the distance of the plot of land. (Fig. 6-5)

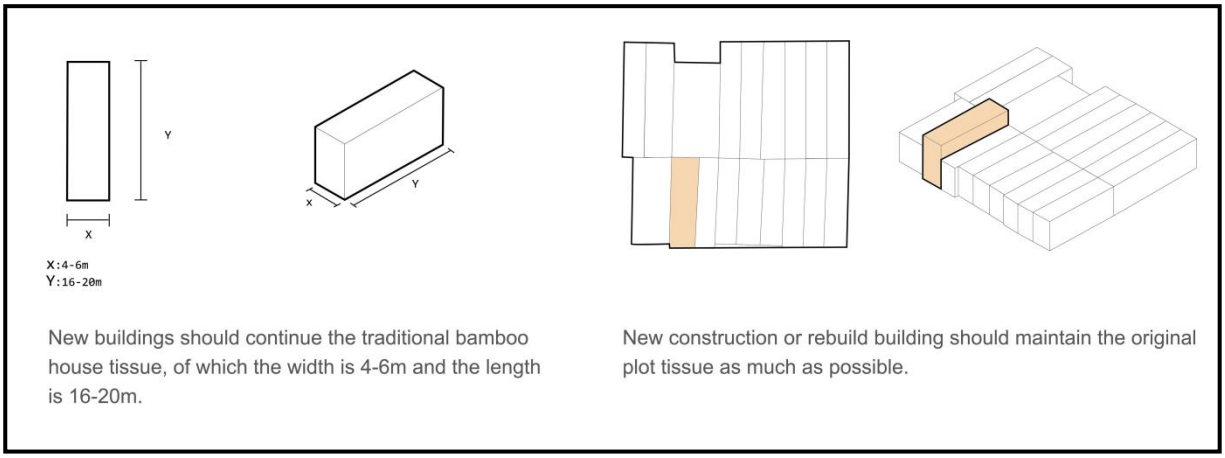


Fig. 6-5 Guidelines for tissue (layout form) control (Source：the author）

(4) Street control requirements

Normal Requirements:

1. dredge under the original street structure system and open up some streets to improve the connectivity of the area.

2. consolidate uneven areas so that they remain consistent overall, but may have some variation within them.

Specific requirements:

1. Widening of Hongde 4 Lane and Baojiu 4 Lane (main streets) within the site, with some planting for road subdivision.

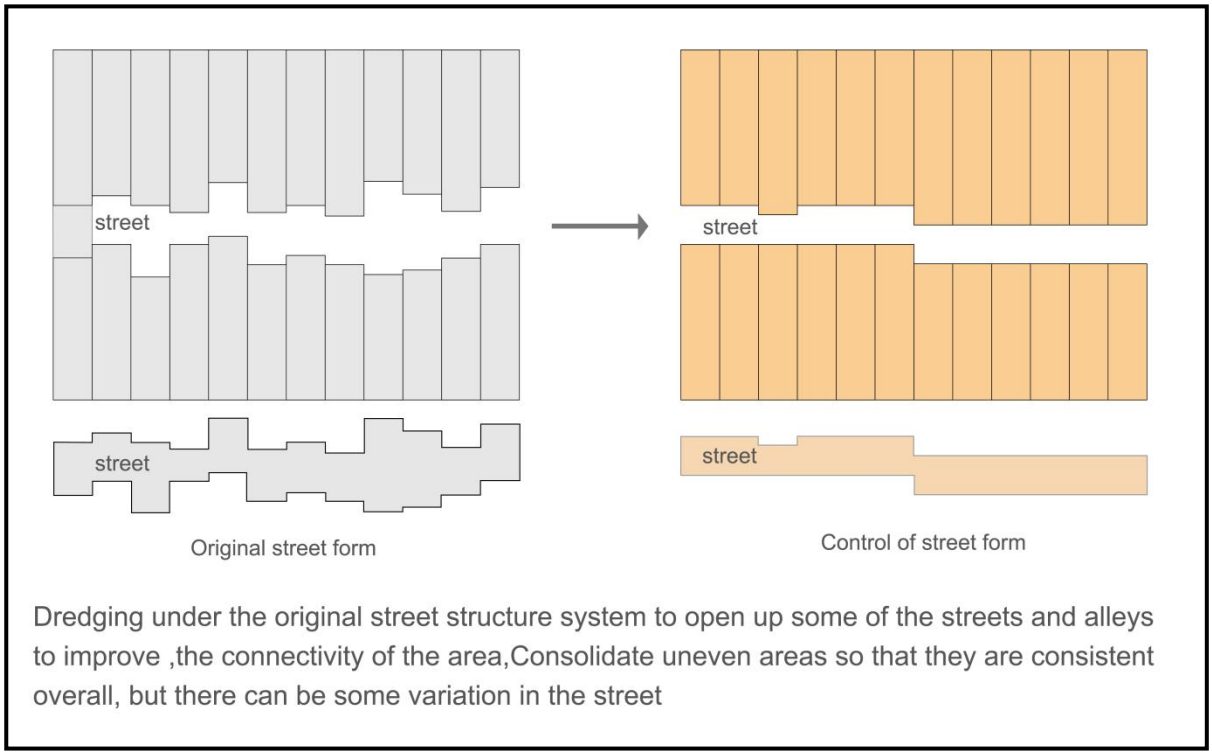


Fig. 6-6 Traditional Bamboo building Area Street Control Guidelines (Source：the author）

(5) Plot control requirements

Subdivision of irregular and large sites within the site, and certain division of parcels with alleyway trends according to existing forms. Reasonable division of land parcels is not only conducive to management, but also provides the convenience of traffic in the district.

(6) Public Space Control Requirements

Normal requirements:

1. There is an overall lack of public space for outdoor activities in the Hongde Lane , so it is possible to locally enlarge the existing street space, and at the same time, carry out certain landscape design for the public space, so as to improve the overall quality of the public space.

2. Hongde Lane, the overall preservation is more complete, but its internal lack of iconic elements and space, need to combine the relevant markers and landscape elements for certain

entrance design.

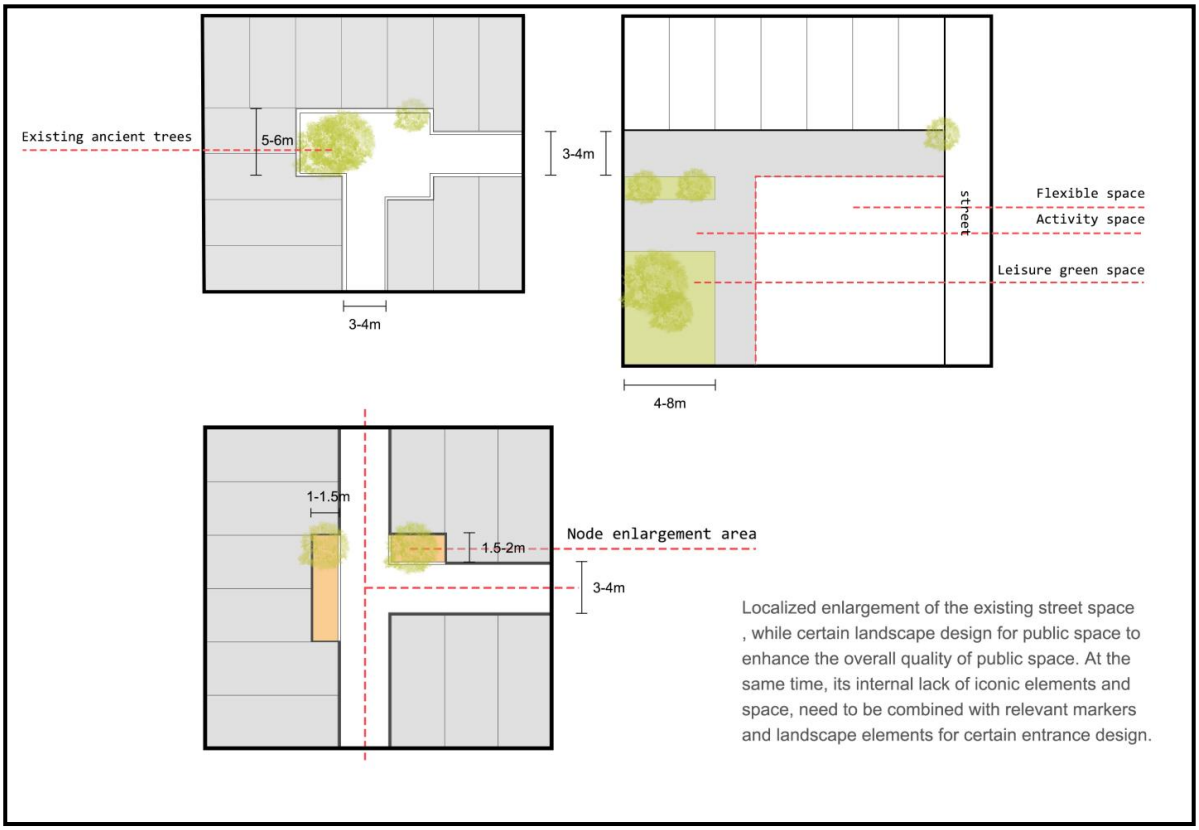


Fig. 6-7 Design Guidelines for Public Space in Traditional Bamboo building Areas (Source：the author）

6.1.2.2 Urban design guidelines for arcade district tissue (D2)

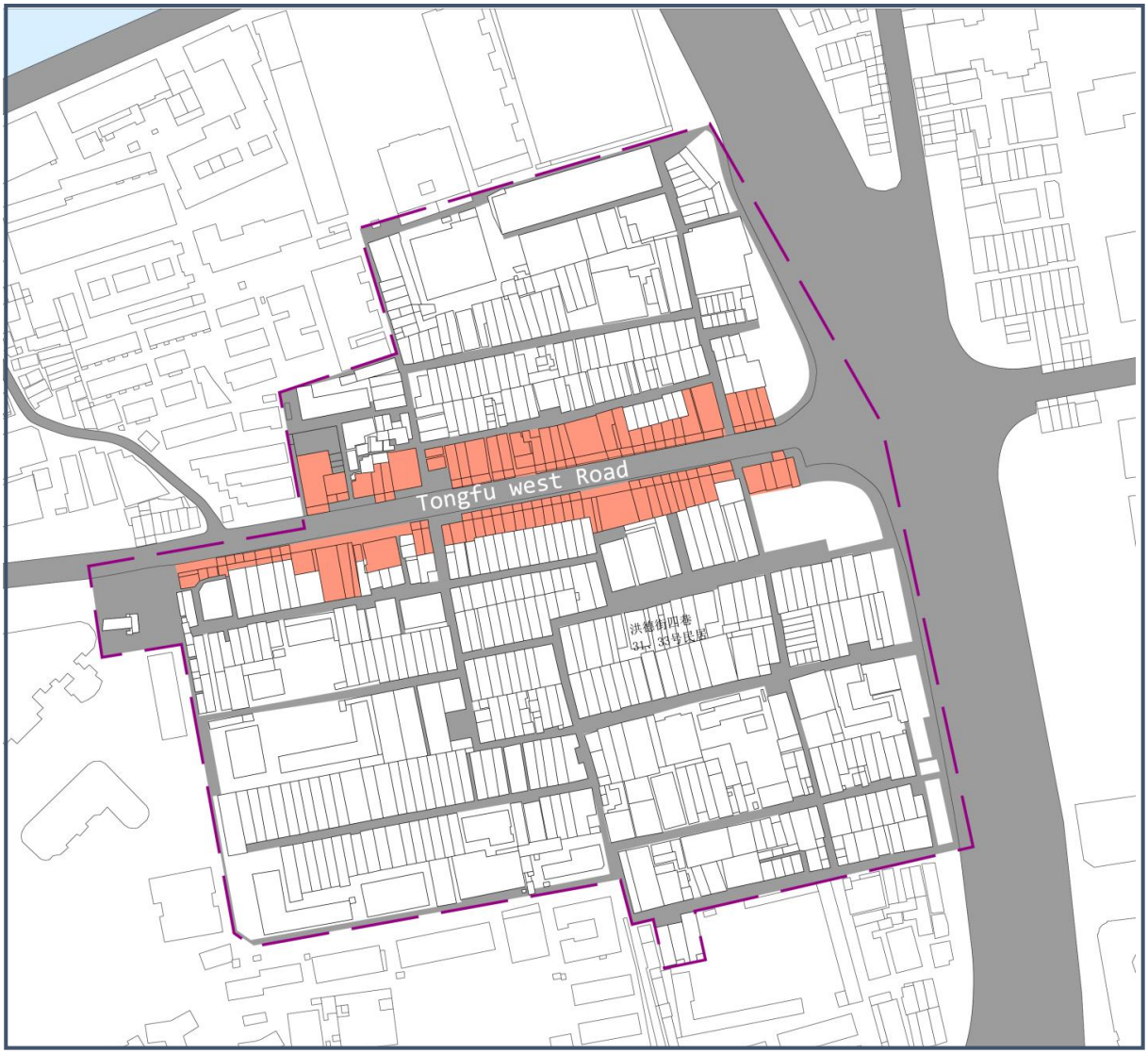


Fig. 6-8 Arcade District Tissue Map (Source：the author）

The arcade building tissue area is the key conservation area of Hongde Lane, the existing retained historical buildings of the arcade building have high historical value, in the specific control, both the existing tissue should be protected, and the original city road on the arcade building facade should be renovated.

(1) Forms of control

For the existing Republic of China arcade building should take the way of protection and repair, shall not be arbitrarily demolished, and blocking the overall interface of the arcade building of the building to carry out renovation, at the same time, the status of the poor and low value of the building along the street to carry out reasonable demolition and reconstruction.

Fig. 6-9 Arcade building street tissue remediation forms (Source：the author）

(2) Building control requirements

Normal requirements

1. Protect the width and sectional form of the existing streets, the line form of the roads, the continuity of the building of the riding tower, the height and contour line of the building of the street facade, and control the height-to-width ratio of the streets of renewable street sections and the face-to-face ratio of the building units, and the height of the buildings in the core scope area is no more than 12m.

2. Strictly protect the cultural relics and historical buildings along the streets, and protect and improve the traditional style buildings. Strictly control the renovation of normal buildings, so that their scale, form and colour are in harmony with the overall style, and there should be diversity in the facade of the buildings. Demolition of illegal construction and temporary

buildings (structures).

3. The ground floor of the building should maintain the commercial function, and certain commercial transformation can be carried out appropriately.

4. The space under the corridor needs to maintain consistent continuity, and the height of the new building should be consistent with that of the neighbouring buildings.

5. Auxiliary roads should be opened on both sides of the street to ease the traffic pressure. Traffic facilities such as car parks and parking buildings can be added at the back side of the building on the Riding Street.

Specific requirements

1. To break the continuity of the interface of the building, the first floor of the building, unified height.

2. The reconstructed building should follow the specifications of the riding building (including the necessary architectural elements) to be constructed.

(3) tissue (layout form) control requirements

When carrying out relevant renewal and reconstruction, it is necessary to maintain the overall continuous interface of the riding building, and at the same time make certain repairs to the discontinuous interface.

(4) Street

This building type is mainly distributed along the urban road interface, for the first floor of the corridor under the riding street, need to be combined with modern commercial functions for renewal, the height of the new building under the corridor and the adjacent buildings to maintain consistency, and the width of the corridor is not less than 2.5m.

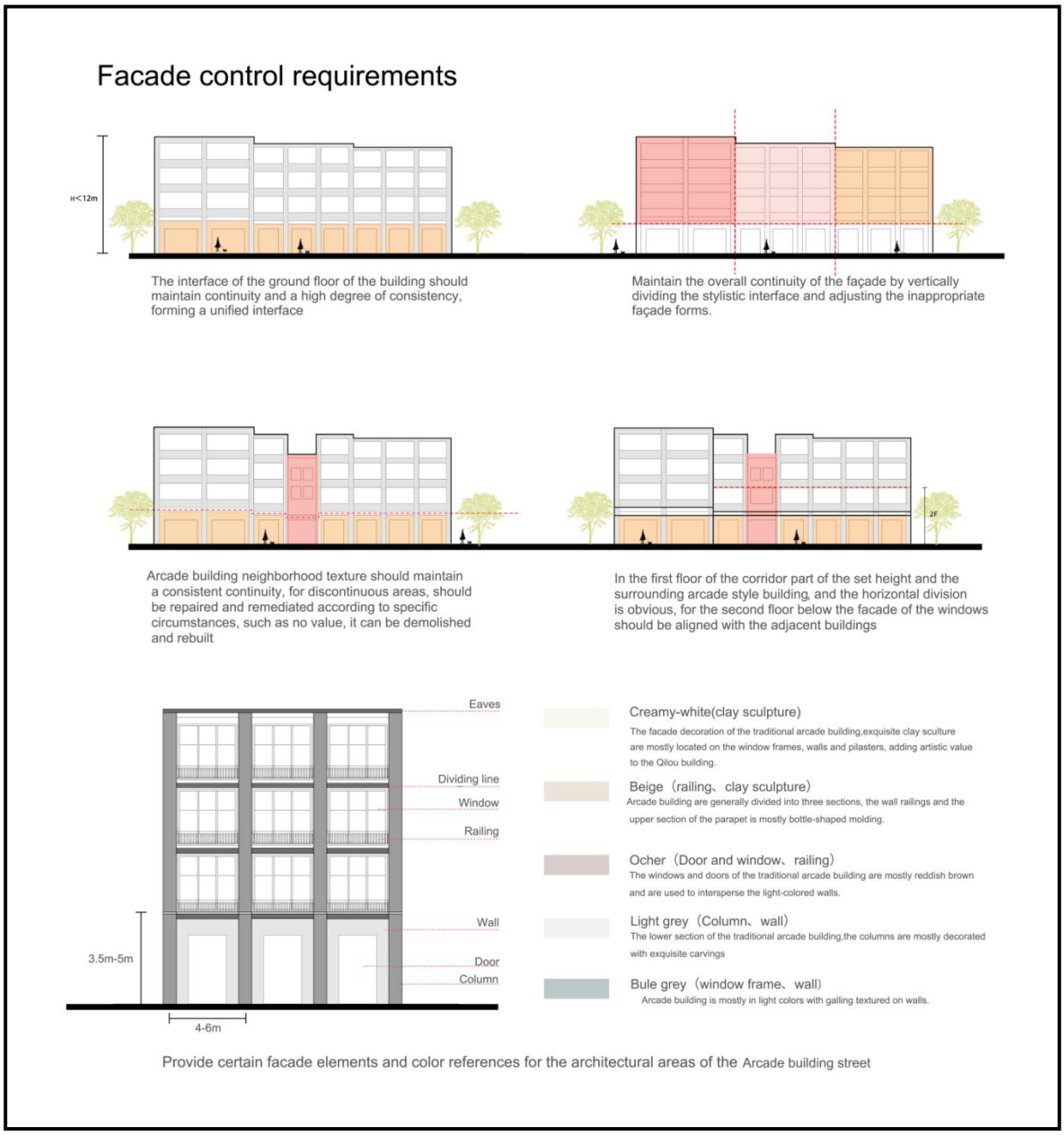


Fig. 6-10 Guidelines for the control of building facade in the tissue of the arcade street (Source：the author）

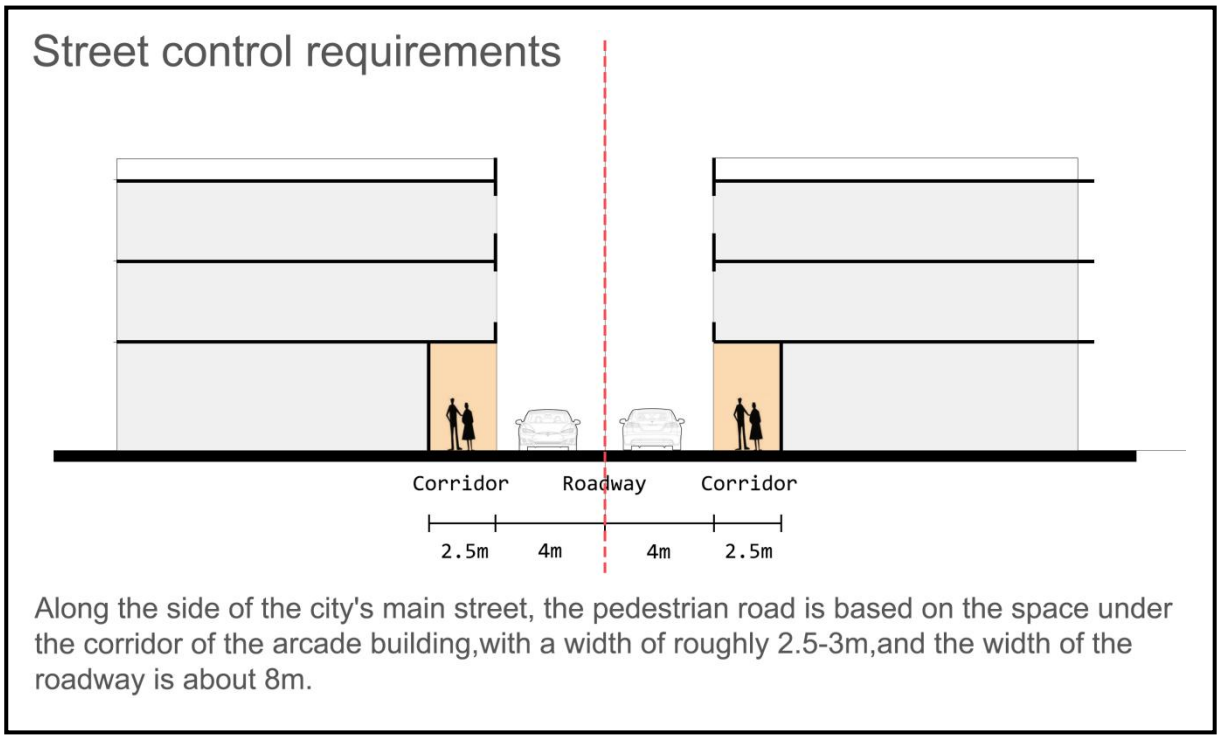


Fig. 6-11 Guidelines for the control of street in the tissue of the arcade street (Source：the author）

6.1.2.3 Urban design guidelines for modern sprawling building tissue (D3)

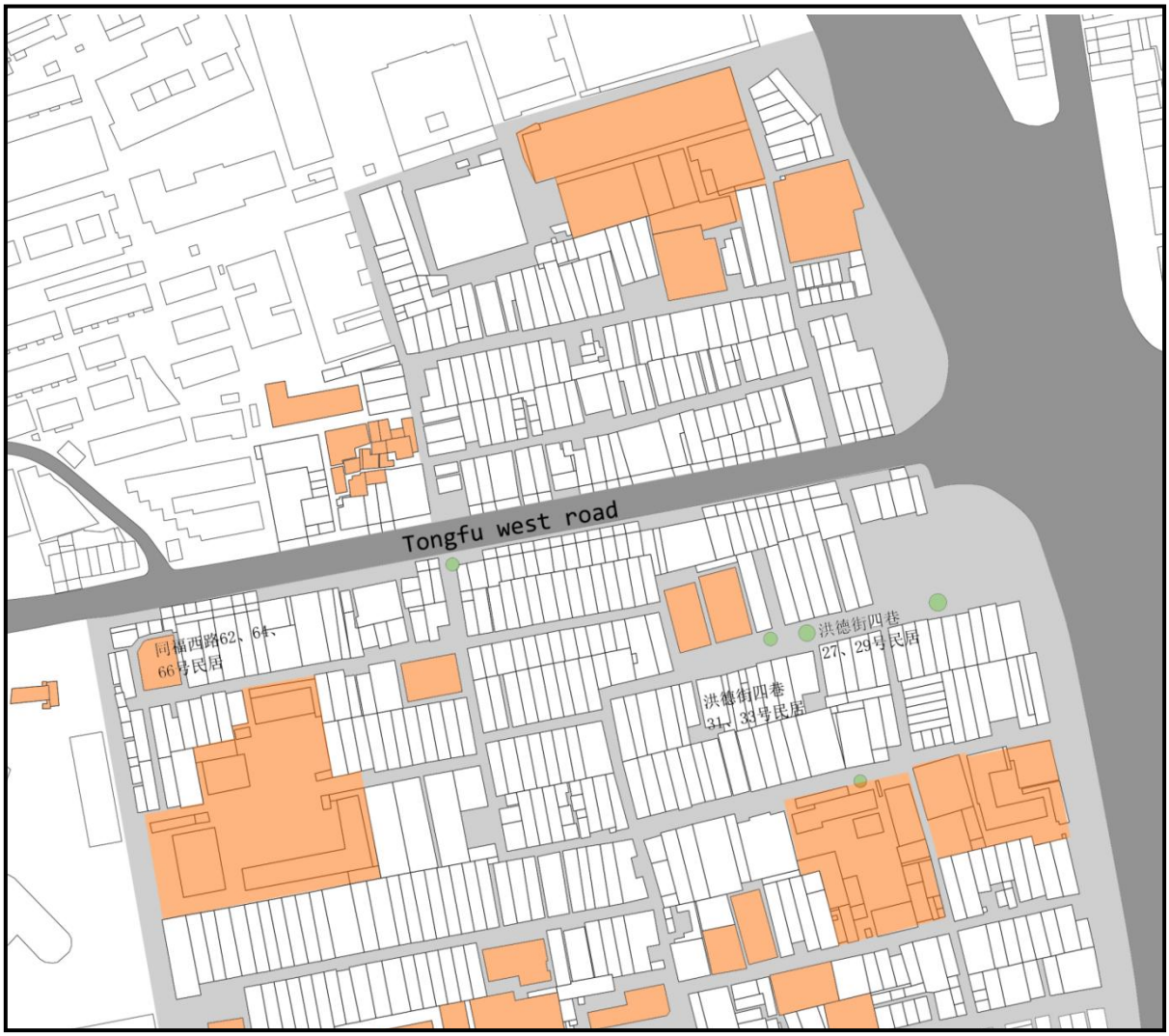


Fig. 6-12 Modern Sprawling Building Tissue Map (Source：the author）

This area is the erosion of the site tissue by modern, larger buildings, so in this area, the main approach is to rebuild the original tissue by means of renovation (which is also the focus of this design).

Fig. 6-13 Modern Sprawling Building Tissue remediation forms (Source：the author）

(1) Forms of control

Buildings that are not in harmony with the traditional style should be maintained and modified in accordance with the guidelines of the conservation plan on architectural style; buildings that are not in harmony with the traditional style should be renovated in accordance with the requirements of the conservation plan, and the renovation measures can be taken in the form of partial alteration or demolition and reconstruction; illegal constructions should be renovated and demolished by making a plan

(2) Building control requirements

Normal requirements:

1. The height of the core protection scope area is controlled within 12m, and the height of the planning protection scope area is controlled within 18m.

2. Building facade renovation and reconstruction forms need to be harmoniously consistent with the traditional architecture of the street as far as possible in terms of colour proportions.

3. Building functions should be set in accordance with the relevant planning requirements; if there is no requirement, the design should be based on the existing planning functions.

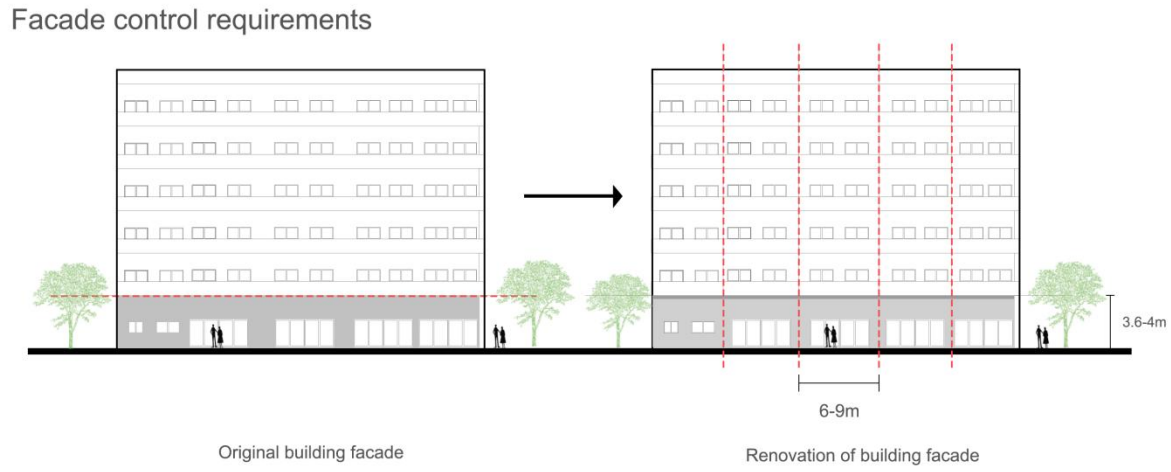


Fig. 6-14 Modern Sprawling Building Tissue facade and tissue Guidelines (Source：the author）

(3) Tissue (layout form) control requirements

Normal requirements:

1. Full consideration should be given to the overall plane tissue within the plot, and it is recommended to adopt the layout form of long strip.

2. It is appropriate to adopt the appropriate proportion of plane and elevation transformation for the existing complete buildings.

3. New buildings should not be too large in volume, and it is recommended to adopt strip-formd buildings for grouping and combining with Lingnan courtyard for design.

(4) Street control requirements

Normal requirements:

New building roads should not be too wide, as far as possible to control within 4m, but special circumstances, such as the need to enclose the square, can be appropriate to enlarge, but D / H should be maintained between 0.5-1.

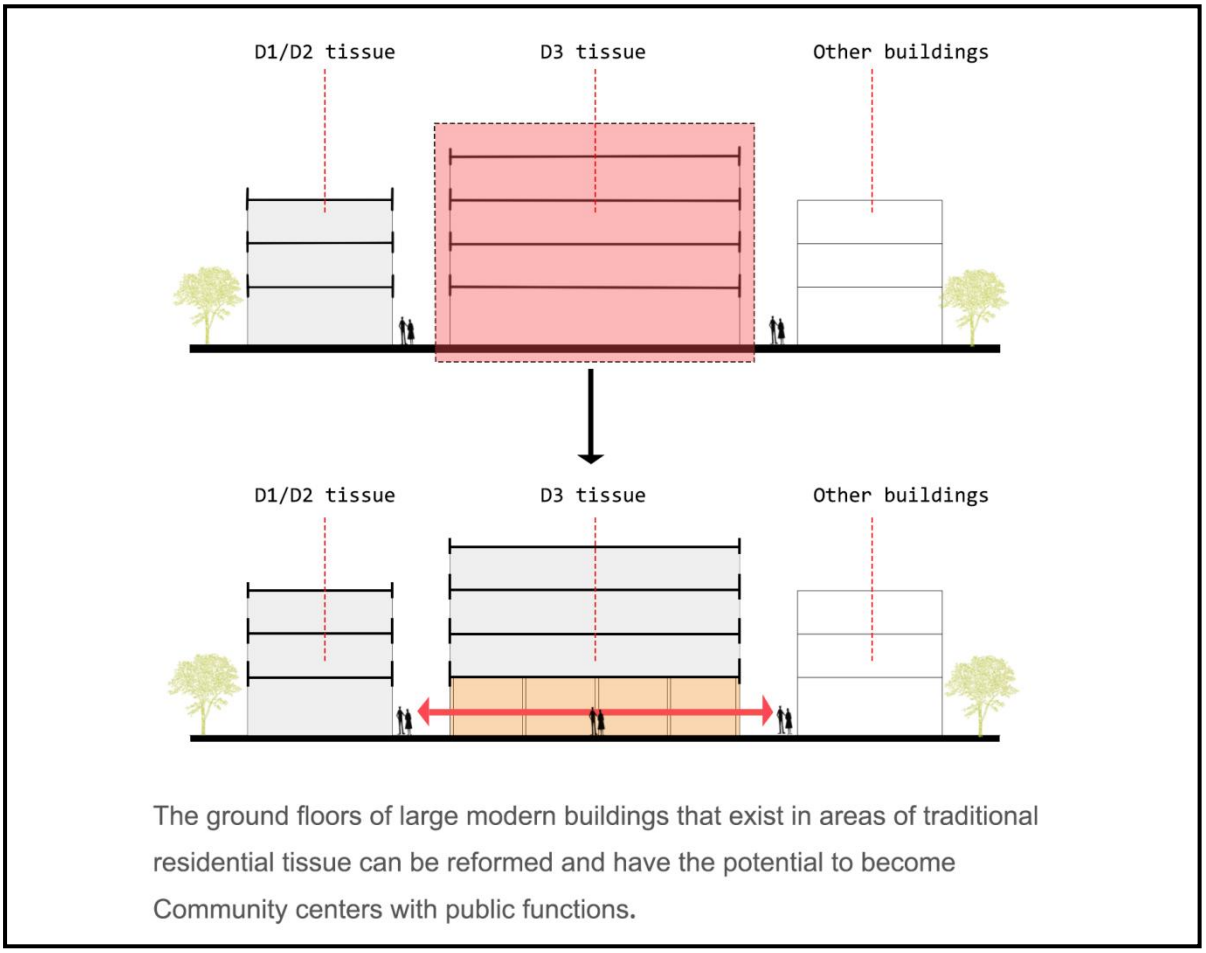


Fig. 6-15 Modern Sprawling Building Tissue for street subdivision guidelines (Source：the author）

(5) Plot control requirements

Normal Requirements:

Subdivision of larger parcels within the site to facilitate management on the one hand, and to show the overall muscular character of the site on the other.

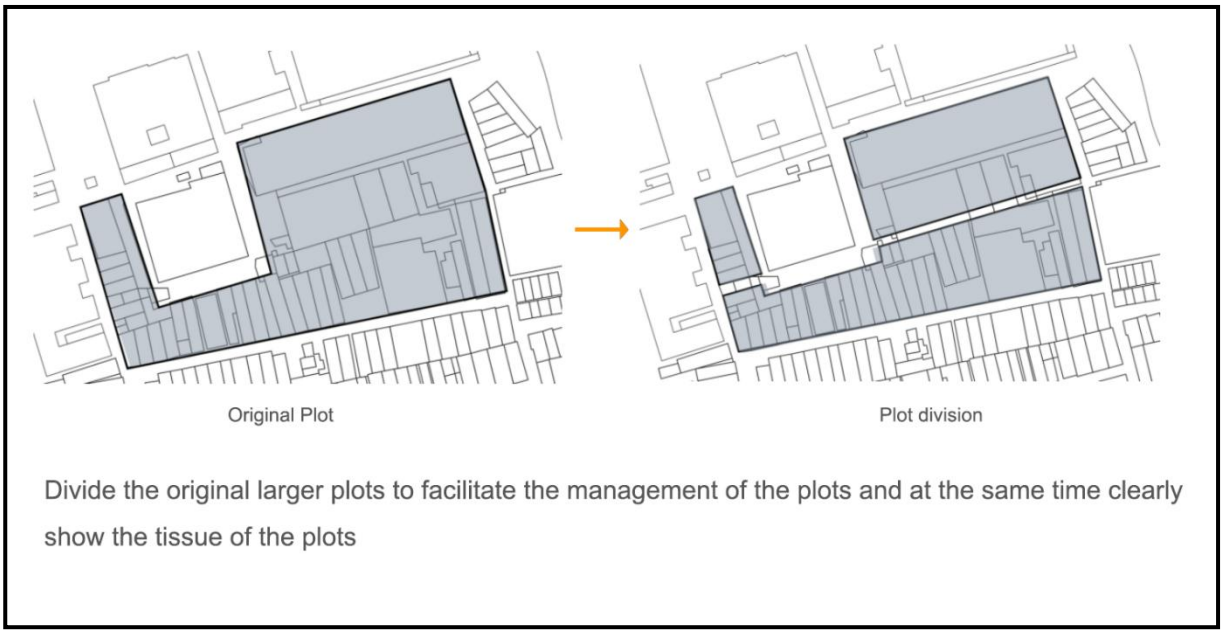


Fig. 6-16 Modern Sprawling Building Tissue plot subdivision guidelines (Source：the author）

(6) Public space control requirements

Normal requirements:

1. When carrying out architectural renovation, buffer space should be left between traditional tissue and modern architectural tissue, and relevant situational design should be carried out in the buffer space.

2. There should be a certain outdoor square space in front of the relevant public buildings, and a certain design of greening to meet the activities of the relevant people.

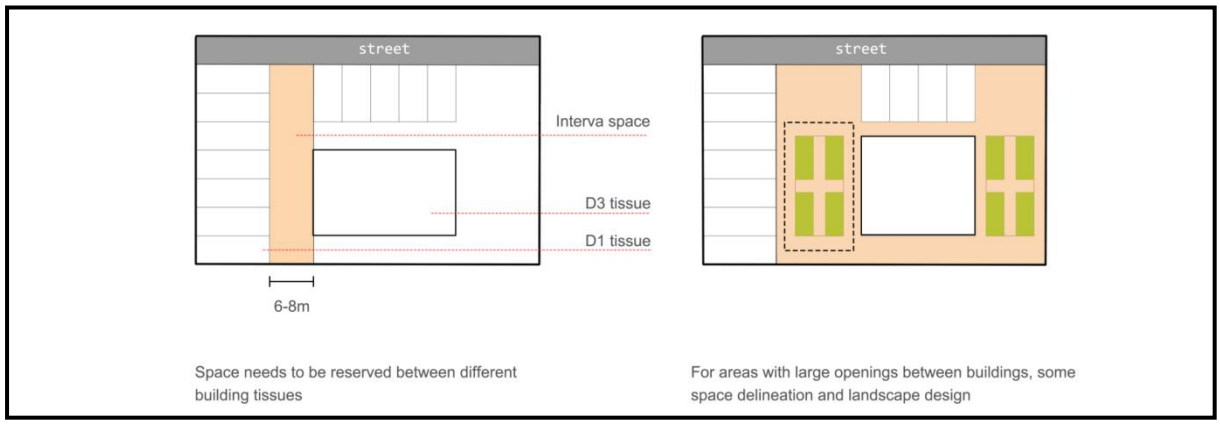


Fig. 6-17 Modern Sprawling Building Tissue for public space guidelines (Source：the author）

6.1.2.4 Urban design guidelines for new building tissue (D4)

Fig. 6-18 New building tissue map (Source：the author）

The new building tissue area is between the core protection range and the planning protection range, but still need to make relevant provisions for it, the area as a whole is a modern high-rise building, the function is a complex or office, the traditional building in the plot has completely disappeared, so in this area can only be used in the form of local plan and elevation modification to achieve harmony with the traditional tissue.

(1) Forms of control

The region's buildings are mostly modern high-rise buildings after 2000, and relatively new, so it is relatively difficult to change the internal space and plan form, so only consider

the facade form of transformation, but also for the region for the future planning of high-rise buildings to put forward certain design requirements.

(2) Building control requirements

1. The facade reconstruction and rebuilding form of the building should be coordinated with the traditional buildings in the street in terms of colour proportion.

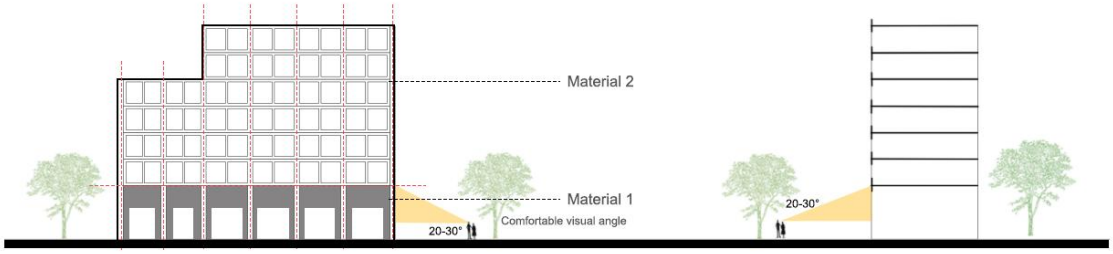
2. The first floor should be elevated as far as possible, while following the spatial form of the corridor on the ground floor of the riding tower, and reasonably adopting the form of colonnade.

(3) Public space control requirements

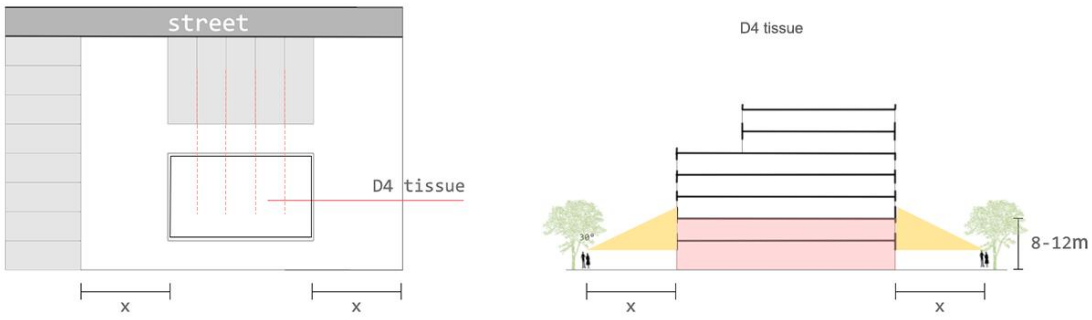
1. Appropriately carry out certain landscape design in the square area around the building, and set up specific scenic facilities.

2. Connect the square area with the core protection area building to extend the activity range of Hongde Lane residents and increase the connection between inside and outside the block.

Some of the buildings along the street need to be set back a certain distance to form the space under the corridor.



Use of materials similar to traditional buildings within the visual range of the new building façade and vertical division of the building façade.



x=15-20m

For new buildings, the effective horizontal distance is 15-20m, the effective vertical distance is 8-12m, and the visual comfort angle is 20-30°, the control of the building façade is mainly determined by this distance, and at the same time in the plan division, it is necessary to refer to the nearly traditional buildings, as far as possible, to coordinate with the traditional tissue.

Fig. 6-19 The facade guildline for New Building Tissue (Source：the author）

Fig. 6-20 Hongde Lane building tissue remediation forms(Source：the author）

6.2 Masterplan design (Urban level）

6.2.1 Adjustment of the street system

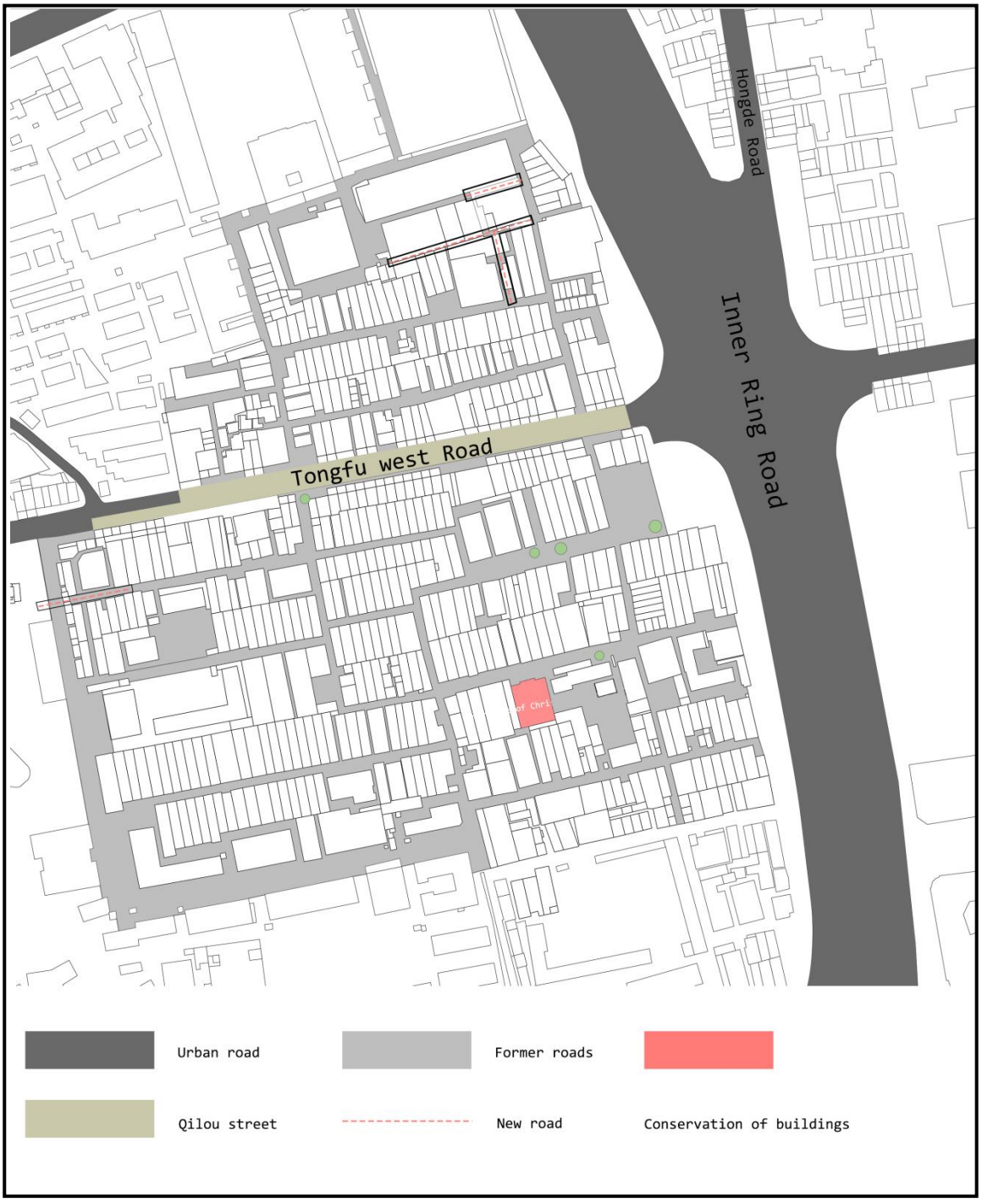


Fig. 6-21 Street System Map (Source：the author）

The roads as a whole continue the original structure, with local blocked roads opened up

to improve site accessibility and some larger plots replanned.

6.2.2 Site road scale planning

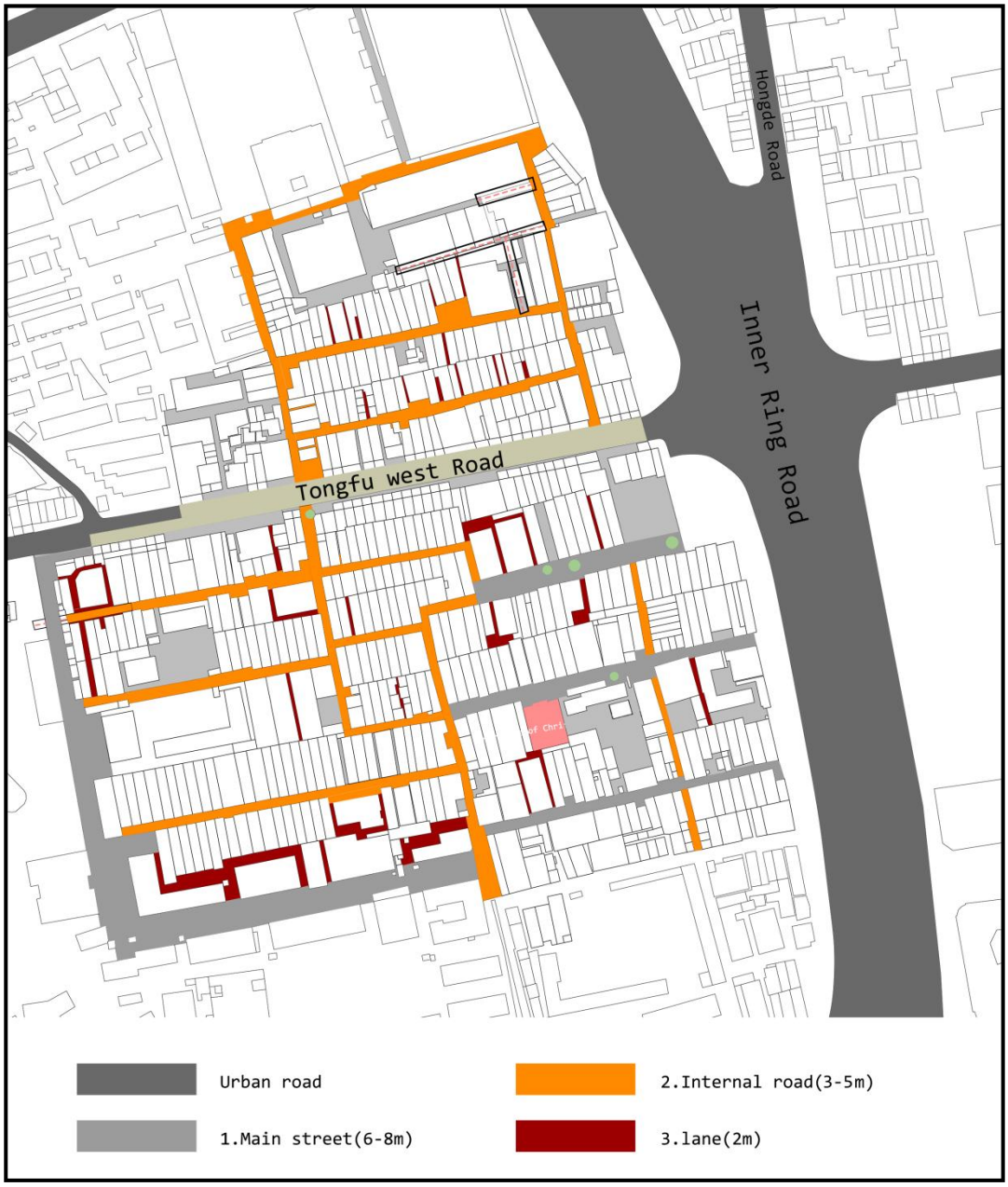


Fig. 6-22 Road Scale Levels (Source：the author）

Adjusting and dividing the road grades within the site, upgrading some of the road grades, and putting in place requirements for the different grades of road that should be met in the subsequent design.

6.2.3 Plot subdivision

The site is divided into plots, and the larger part is adjusted according to the existing tissue to continue the overall form of the plot, and at the same time, after dividing the reasonable size, it is also conducive to the overall community management, and also paves the way for the subsequent design to be able to clearly show the plan tissue.

Fig. 6-23 plot Subdivision Map (Source：the author）

6.3 Bamboo building renovation and archetypal exploration（Building level）

6.3.1 Research on micro-climate passive energy saving of bamboo building

The layout of the Republic of China Bamboo building is based on the traditional Bamboo building, with a single open room, and various functional rooms are connected sequentially in the longitudinal direction. The number of floors of the Republic of China Bamboo building is usually 2 to 3, and at that time, it was difficult to change the size of the plot of privately owned land, no matter whether it was acquired through trading or renting, so it could only be maintained in its original state. At the end of the Qing Dynasty, houses were built on long, narrow plots, and the buildings were spread out, and in the Republic of China, the size of the plots was basically maintained, so it can be assumed that the houses in the Republic of China had the form of "one house on one piece of land," which was built on narrow plots, and only one house was constructed on a single plot of land.

At the beginning of the design of the traditional Bamboo building, although the narrow form of the building is not conducive to its ventilation and lighting, the use of passive ventilation and energy saving in the traditional residential buildings in the Lingnan region (the rational use of cold lanes and patios), makes it not only meets the needs of daily use, but also saves energy effectively.

However, in the Hongde Lane, due to the rapid sprawling of the population in the last century, as well as a large influx of foreign population, as shown on the map, the Hongde Lane on the normal plane, in order to face a large number of questions of population growth, but the building base area and building height remains unchanged, the residents can only choose to put the patio area, at the expense of ventilation and lighting in exchange for an increase in the district's floor area, although the increase in the floor area, but on the lowering of the Quality of life, but also does not meet the needs of modern residential life. For this reason, it is necessary to design a "new Bamboo building" on the basis of the original Bamboo building.

Fig. 6-24 Traditional Bamboo building Forms (Source：Reference[36]）

Lingnan traditional residential buildings have rich experience in passive energy saving, in terms of ventilation principle, there are two kinds: one is wind pressure ventilation, refers to the outside airflow blowing the building, due to the building itself on the airflow of the shield, so that the building right side of the air around the uneven, so as to form the exchange of neighbouring air; the other is thermal pressure ventilation, thermal pressure is the use of temperature difference caused by the change of pressure, the air density of the uneven to Formation of hot and cold air exchange, so as to achieve the purpose of ventilation. From the principle of heat insulation, it is divided into two kinds: one is sunshade heat insulation, the purpose of sunshade, in addition to blocking the sunlight, reduce the radiant heat so as to prevent the indoor temperature from further rising, but also to block the open part of the wall, modelling the air pressure difference, accelerating the air flow, and to achieve the effect of ventilation and exchange of air, the other is the structural and tectonic insulation, the Lingnan traditional building envelope is characterized by the outer wall is thick and heavy, good thermal stability, not easy to be heated by solar radiation, less long-wave radiation to the interior, the traditional roof did not use thick and heavy materials to increase the thermal storage coefficient of the material, because it will increase the burden of the indoor structure, and the use of light, thin tile roof during the day is limited to the total amount of heat storage,

and at night the roof can also achieve the effect of rapid heat dissipation, and thermal insulation rely on the sloping roof and the projecting roof of the mountain wall to attenuate the role of solar radiation.

Through the overall analysis of the impact of the number of patios on the ventilation of the building (Fig. 6-25), the impact of the location of the front and rear patios on the ventilation (Fig. 6-26), the impact of the form of the patio on the ventilation of the building (Fig. 6-27), the impact of the detailed design of the building on the ventilation of the building (Fig. 6-28), the classification of the "Cold Lane" and its causes (Fig. 6-29), as well as the impact of the window and door components on the ventilation of the building (Fig. 6-30), the first of all, based on the results of the analysis to determine the specific ventilation strategy for the new Bamboo building, at the same time, pay attention to the quality of modern life and the reasonable division of the function of the rooms and rationally retaining the original structural framework of the building.[47]

Type	Scope of application	Vent location			Vent arrangement
		air inlet	air outlet	Main air ducts	
single patio	small residence	patio	/	Office/room	Air outlets by means of a public air outlet(alley/street) or a north-south alley around the residence
Double patio	Medium-sized residence	former patio	back patio	corridor	Switching between outlet and inlet roles when wind direction changes

(Note: a double patio has greater ventilation potential than a single patio)

Fig. 6-25 Effect of Number of Patios on Building Ventilation (Source：reference[47]）

Type	Distance to air inlet (entrance door or window opening)	Airflow path	conclude
former patio	Closer	Failure to penetrate the house	Back patio brings more wind pressure ventilation to the house than the former patio
back patio	far	Effective air flow in the house	

Fig. 6-26 Effect of former and back patio locations on ventilation (Source：reference[47]）

Type	Scope of application	air ventilation
north-south orientation	/	Adapted to the climate, with high and fast air intake, but unfavourable ventilation on both sides
east-west orientation	/	Wide air inlet surface, high air volume

(Note: for the same area, a narrow patio has a more pronounced thermal buffering effect than a wide patio due to the reduction of direct solar radiation)

Fig. 6-27 Effect of Patio form on Building Ventilation (Source：reference[47]）

Partial	Methodologies	Causes/effects
Hall Ventilation	Open, semi-open halls, open side halls, movable partitions	Maintaining the flow of the wind field facilitates the organisation of penetrating winds
Roof Ventilation	Air windows, air pockets, ventilated ridge eaves or under the tip of the hill wall as air outlets	In town buildings, which are densely populated and poorly ventilated
Enclosure Ventilation	Enclosure openings (through-flower enclosures, patterned hole enclosures, etc.)	Enclosure openings (through-flower enclosures, patterned hole enclosures, etc.)

Fig. 6-28 Effect of detailing on building ventilation (Source：reference[47]）

Type	Position	Causes of "Cold" Lane
Indoor Cold Lane	Indoor connection of rooms	Between an external wall and an enclosure/between two neighbouring houses
open-air cold lane	Between an external wall and an enclosure/between two neighbouring houses	Large aspect ratio, small sun exposure area, short sun exposure time, small long-wave radiation, relatively low air humidity

Fig. 6-29 Classification of "cold lanes" and its causes (Source：reference[47]）

component	Type	Method	Aim
Door	Tanglong door, AiShan door	Movable partitions/doors with pass-through mullion gates on the outside (when the weather is hot, the Open the door and close the mullion)	Increase air convection
window	ManZhou window, ZhiZhai window	Floor-to-ceiling partitions (the lower section of the partitions has pass-through fixed timber railings)	Obtaining better windward opening and windward angle; accelerating air Convection

Fig. 6-30 Effect of window and door elements on building ventilation (Source：reference[47]）

6.3.2 Passive energy-saving application of bamboo building microclimate

The new Bamboo building programme design experiments, to determine the ventilation power: wind pressure ventilation, thermal pressure ventilation, the use of roof induced air at the same time to examine the working conditions, to determine the air inlet and outlet: location (rear), the number of (rear patio, in the light well), the scale (depth of 4m), the ventilation path: the ventilation path scale comparison (the width of the face does not have much impact) and the form of space combinations (open type) (Fig. 6-31) Finally, drawing the basic plan of the old Bamboo building in Guangzhou, it is not difficult to find that the main combination of the form from the street to the internal hall connected to the cold lane, the cold lane next to some rooms and light atrium, in the end of the overall room for the ventilation of the patio (Fig. 6-32). [48][49]

Therefore, in the design of the new Bamboo building, firstly, the overall building depth is controlled to be 4m, secondly, a light atrium is set in the middle, a separate patio is set in the back, the overall space combination adopts the open type and adopts the wind-pressure ventilation by using the roof air-conducting, the sloping roof air-conducting wells are set on the roof, the heat-pressure ventilation is adopted, the heat-insulation by using the hill wall in the Lingnan building envelope, the indoor functional space is set up in a reasonable way and the solar panels and water processor are introduced to enhance the overall energy-saving effect of the house. So the way to enhance the overall energy-saving effect of the residence.

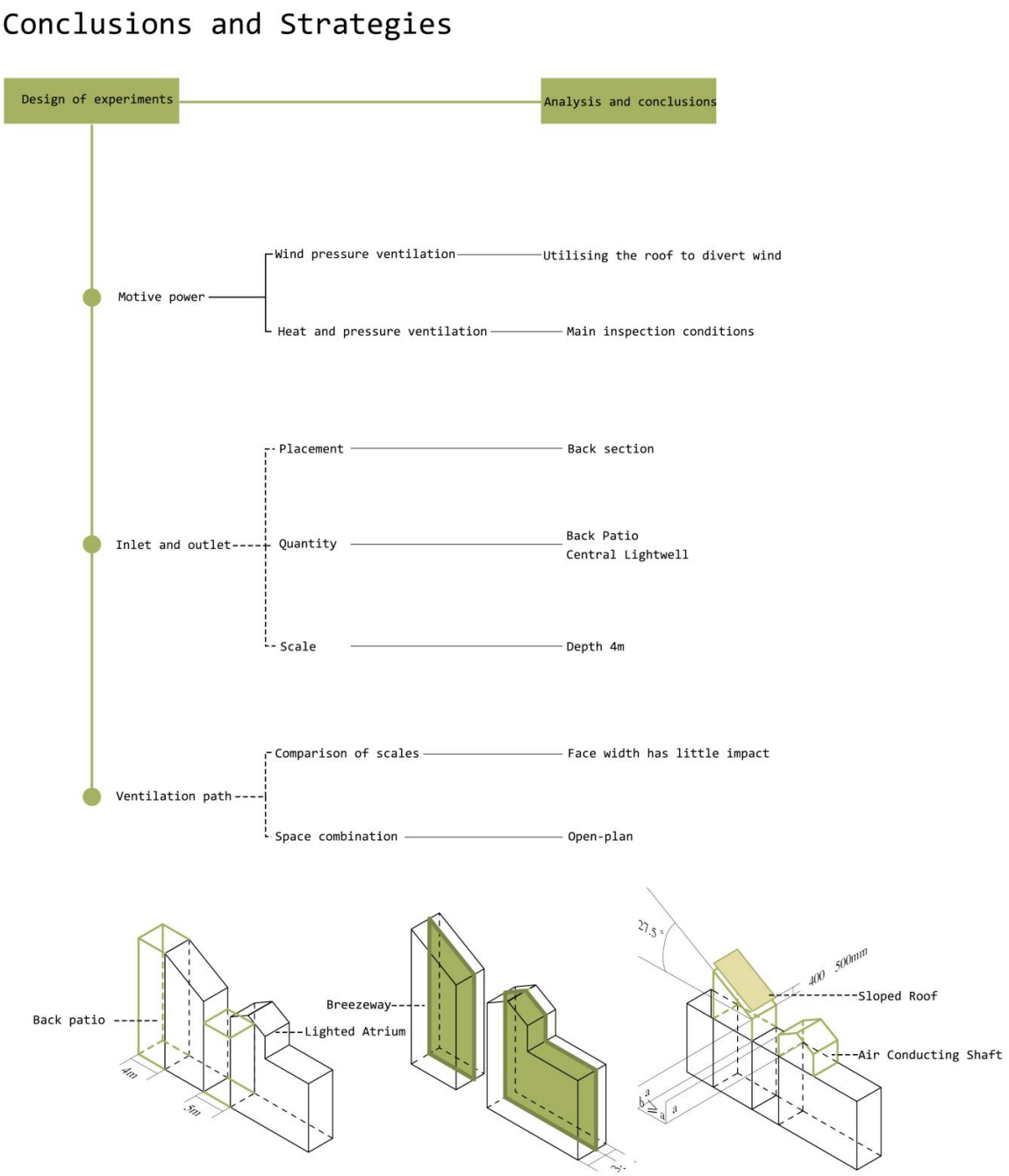
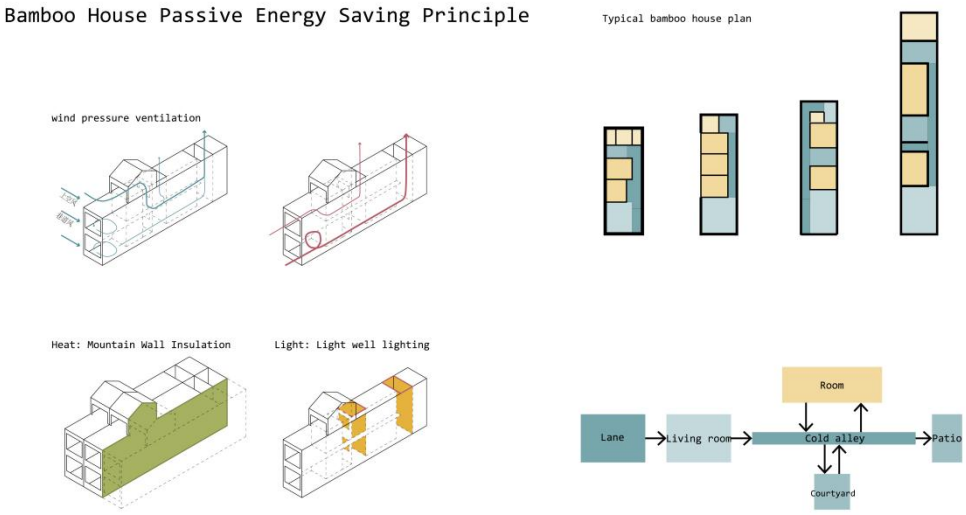
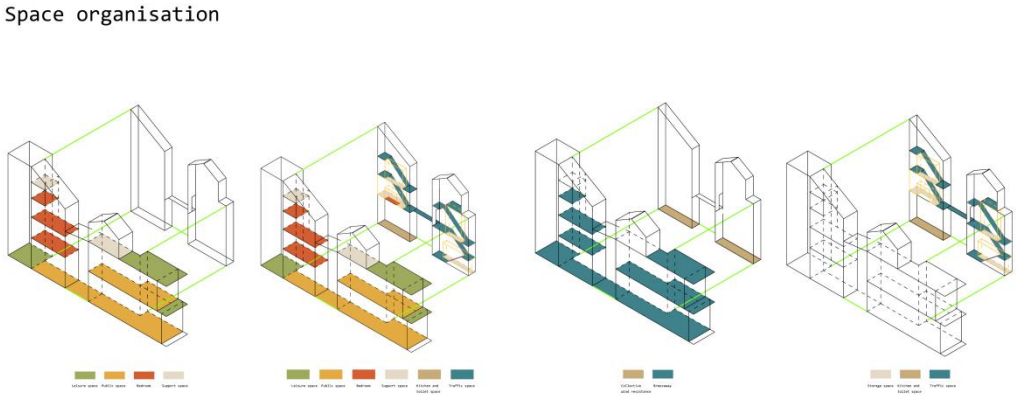


Fig. 6-31 Bamboo building energy efficiency renovation strategy (Source：the author）





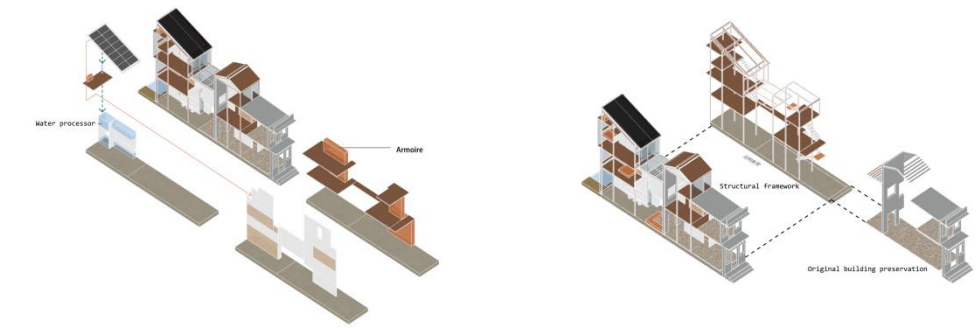


Fig. 6-32 Analysis of Bamboo building Renovation (Source：the author）

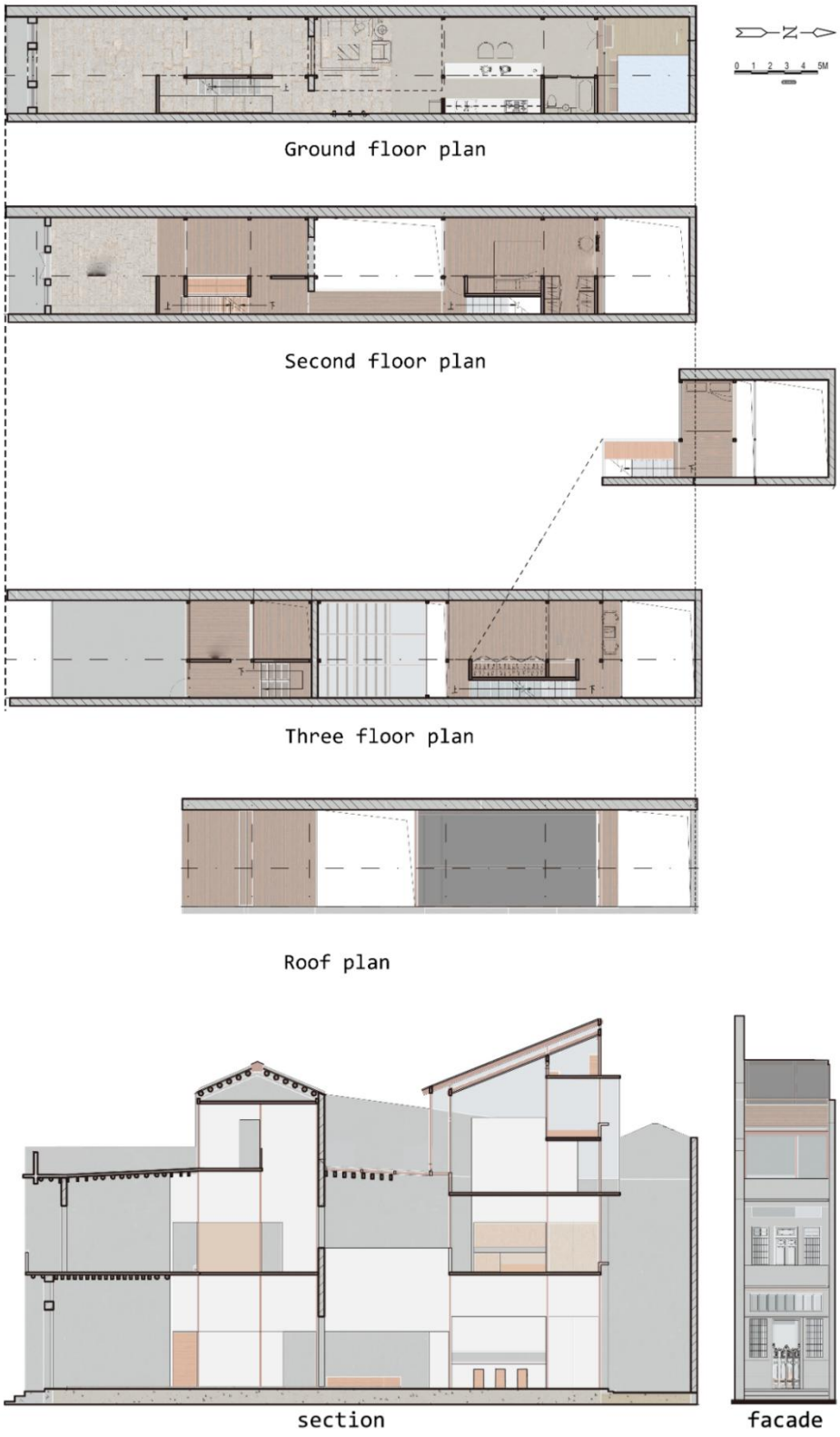


Fig. 6-33 Bamboo building renovation (Source：the author）

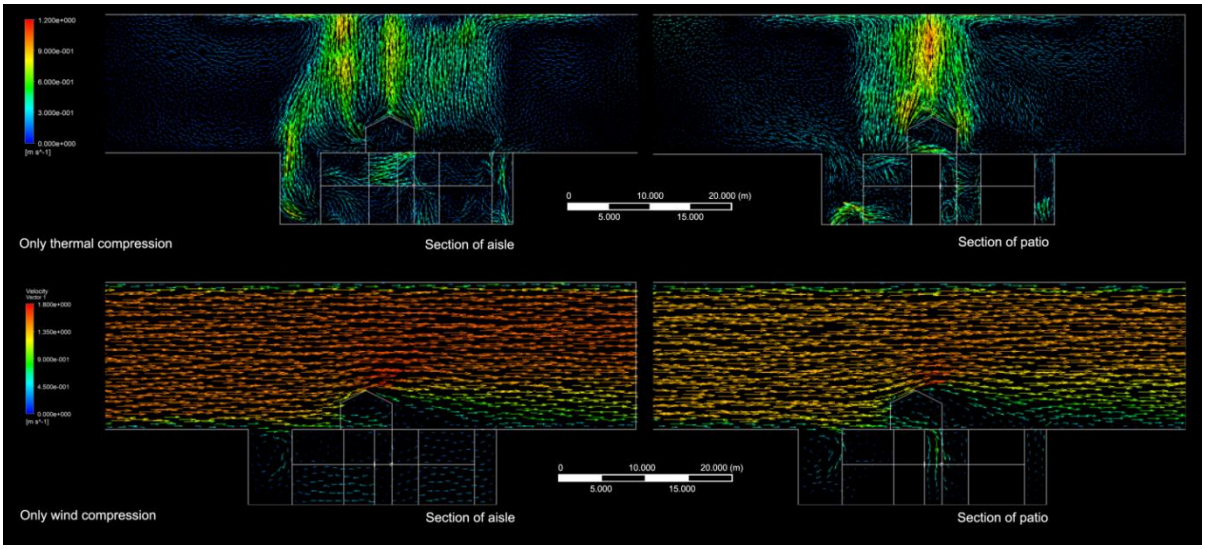


Fig. 6-34 *Fluent* heat and wind pressure simulation (Source：the author）

6.4 Combined forms of basic and special buildings

According to Caniggia, urban building can be divided into two categories: Basic Building and Special Building, in which Basic Building is the materialization of privately owned residential building types in the same cultural area, which is the result of a "spontaneous consciousness", while Special Building is a non-residential building with a public function that has gradually evolved as a result of a "critical consciousness" acting on Basic Building.[50][51]

Although the two classifications have different names, their essence is to classify urban buildings into two categories, public and private, and to study the relationship between public and private areas.The former are mostly found in the form of dots connected to the urban street network, constituting the main public areas, where important monumental buildings continue to participate in the process of urban evolution, shaping the spirit of place and historical value of the city with their durability. Private building, on the other hand, often constitutes the urban substrate patches in the form of facades, reflecting the urban morphology and social organization with its different types of characteristics.

In the Hongde Lane, in addition to most of the residential buildings, there are also a number of public buildings (office buildings, kindergartens, a university for the elderly, and

an activity centre for the elderly) in the boundary area of the site, so the combination of the individual buildings - the "New Bamboo building" - will be adjusted according to their different functions.

First of all, the tissue analysis of the relatively complete preservation of residential plots in the site, which is normally a household with one house, and arranged in the form of "three" zigzag plot plan morphological characteristics (i.e., the top is the road, the middle is the residential plot, and the bottom is the road), the road can be east-west oriented to form the "three" zigzag plot plan. The roads can be east-west orientated, forming a "triple" formd plot plan. Because of the differences in the area of each family in the specific residential land planning at that time, the size of the plot and the form of the boundary varied, and these differences indirectly formed a rich and varied form of the district. In the specific residential plots, although the overall living environment is compact, but in the middle of the compactness, local residents are also looking for some forms of spontaneous exploration of public space to meet the daily public activities. For example, some open space (to meet the daily fitness needs of the elderly) is left in the districts where they belong to. After analysing the physical characteristics of the site, it is not difficult to find some specific questions: the compact layout of the residential buildings in the plot, the spontaneous irregular additions due to the increase in population, and the close proximity of the front and rear buildings, with no fire breaks for the residential buildings, and the lack of appropriate public space in the plot.

Therefore, in response to these issues, and based on the area designated for renovation within the Hongde Lane by the Guangzhou Municipal Government, a new basic architectural renewal of the combination of forms was carried out.

From the above analysis, the complete tissue of the site is organized with Bamboo buildings as the basic unit (or its combination of variants), because the size of their property rights differed at the beginning of the plot delineation, and although they are the basic units of Bamboo buildings, they are adapted to each household, such as changes in the form of the mountain wall, the building's distance from the street setback distance, etc., and gradually form the block plot with the appropriate scale. Therefore, when combining the basic buildings, the form of building organization within the site is respected, but at the same time the

previously mentioned issues need to be taken into account.

The new Bamboo buildings are arranged side by side, and in the process of arranging, the rear patio is merged, and at the same time, the new Bamboo buildings are placed side by side, and the patio passage is opened up, forming a passageway that belongs exclusively to the plot of land, which not only meets the effect of the patio of the Bamboo buildings in pulling out the wind, but also in the process of arranging side by side. This operation not only meets the effect of the bamboo tube house's patio pulling wind, but also leaves an appropriate open space in the process of side-by-side arrangement, which not only leaves room for subsequent construction, but also serves as a public activity site between plots, which improves the frequency of contact between neighbours in the plot and enhances the district relationship.(Fig. 6-35)

For residential units, this form of row placement can be used, then for public buildings, how to the new Bamboo building as a basic unit for combined reconstruction? Here, first of all, its need to extract the architectural archetype of the new Bamboo building, which is normally connected to each function of the room (including courtyard/lighting well, room, and patio) by the cold lane (Fig. 6-36), and the key to energy saving lies in the correct use of the rear patio and the inner courtyard (or light well) as well as the ventilation of the cold lane, and at the same time, in the site research and previous analysis, the initial appearance of the form of the Bamboo building has already appeared in the 50s and 80s. In the 1950s and 1980s, there was an initial emergence of collective housing (Fig. 6-37), whose facade proportions were comparable to those of the Bamboo building, and the elements were simplified appropriately, with only part of the decoration retained, and the traffic space moved to the

traffic nucleus to increase the indoor area of each household. Therefore, based on the above two analyses, the public building is designed.

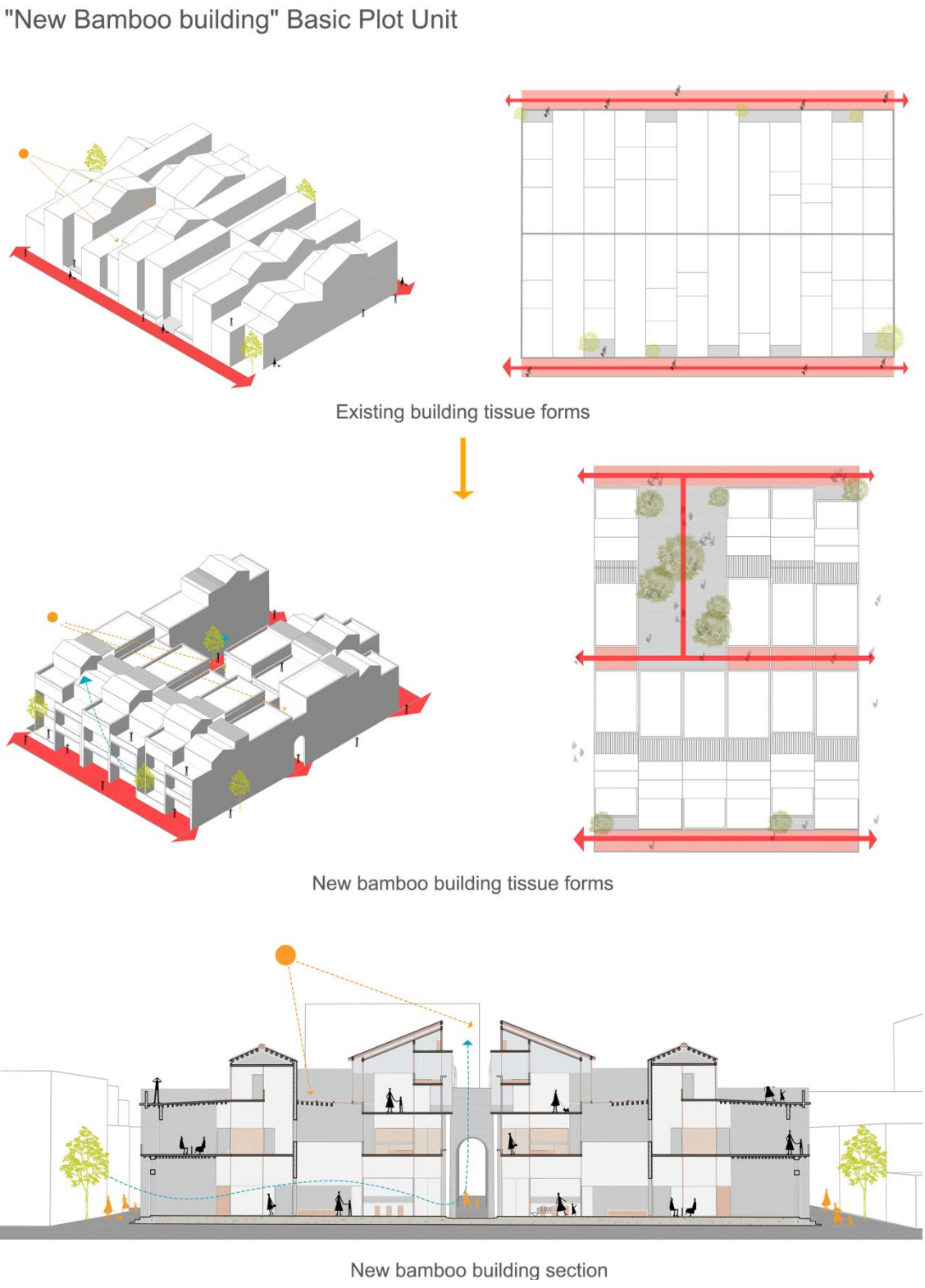


Fig. 6-35 "New Bamboo building" Basic Plot Unit Combination (Source：the author）

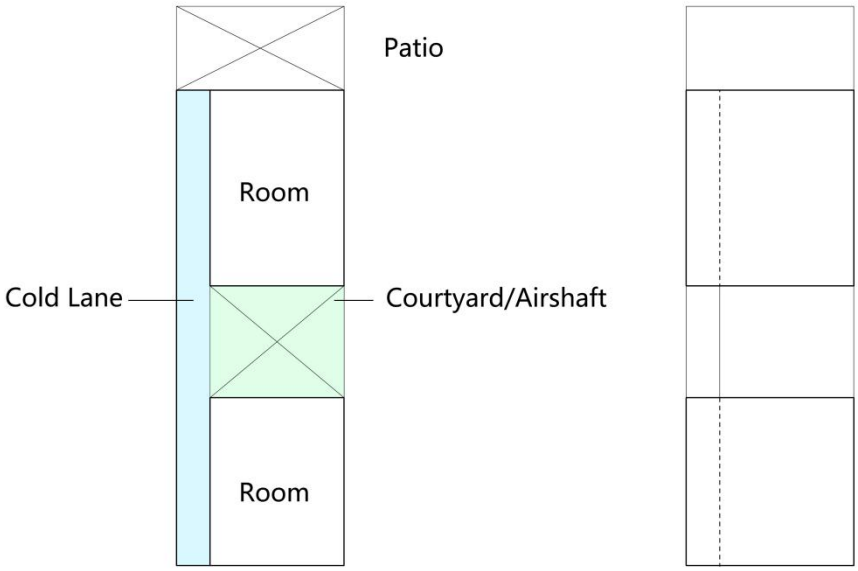


Fig. 6-36 Bamboo building archetype extraction (Source：the author）

Fig. 6-37 Multi-storey collective house (Source：the author）

First of all, choose the appropriate length and width ratio of the monolith, juxtaposition, reserved atrium space, the monolith will be placed side by side, reserved traffic core, the front and back of the monolith form according to the actual room needs to set the size of the design of the different storey heights, reserved for the people on the roof (or to do the relevant roof green for insulation and ventilation), the end of the monolith and the adjoining buildings reserved for fire prevention (the same is the back of the patio where it is located), the middle of the courtyard area for the linkage, not only to enhance the overall connectivity at the same time as the East-West ventilation air intake surface is wide, the wind is large, and finally, the building can be set up for some of the elevated floors, to create dark space, in line with the climatic characteristics of the Lingnan region.

It should be noted that the generation of the unit module is only the conceptual state, in the design of different sites, according to the site environment and characteristics, as well as specific functional requirements, according to the basic form of the unit module, the variants, the real form of the type of continuous heritage.

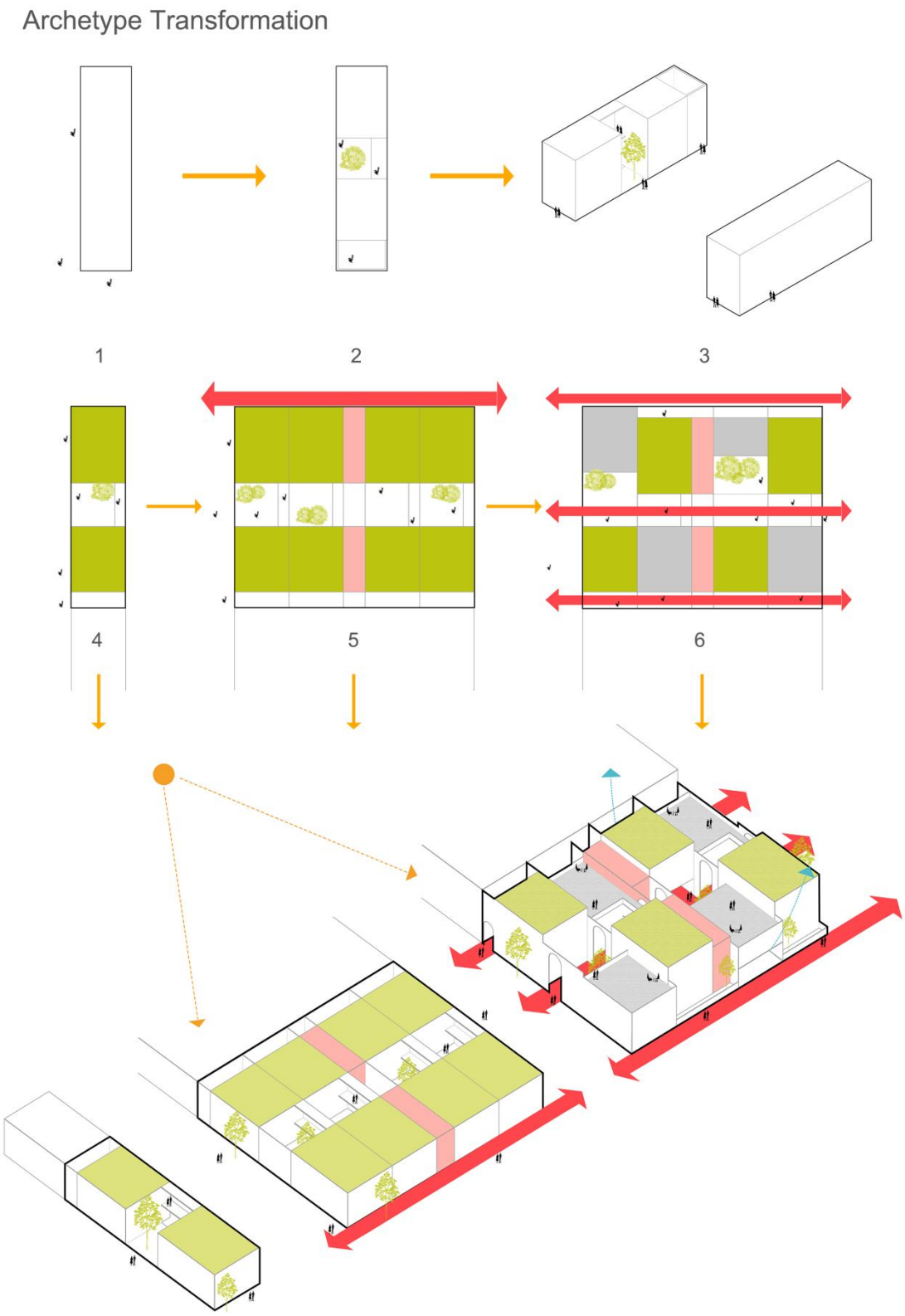


Fig. 6-38 Archetype Transformation (Source：the author）

6.5 Specific urban design

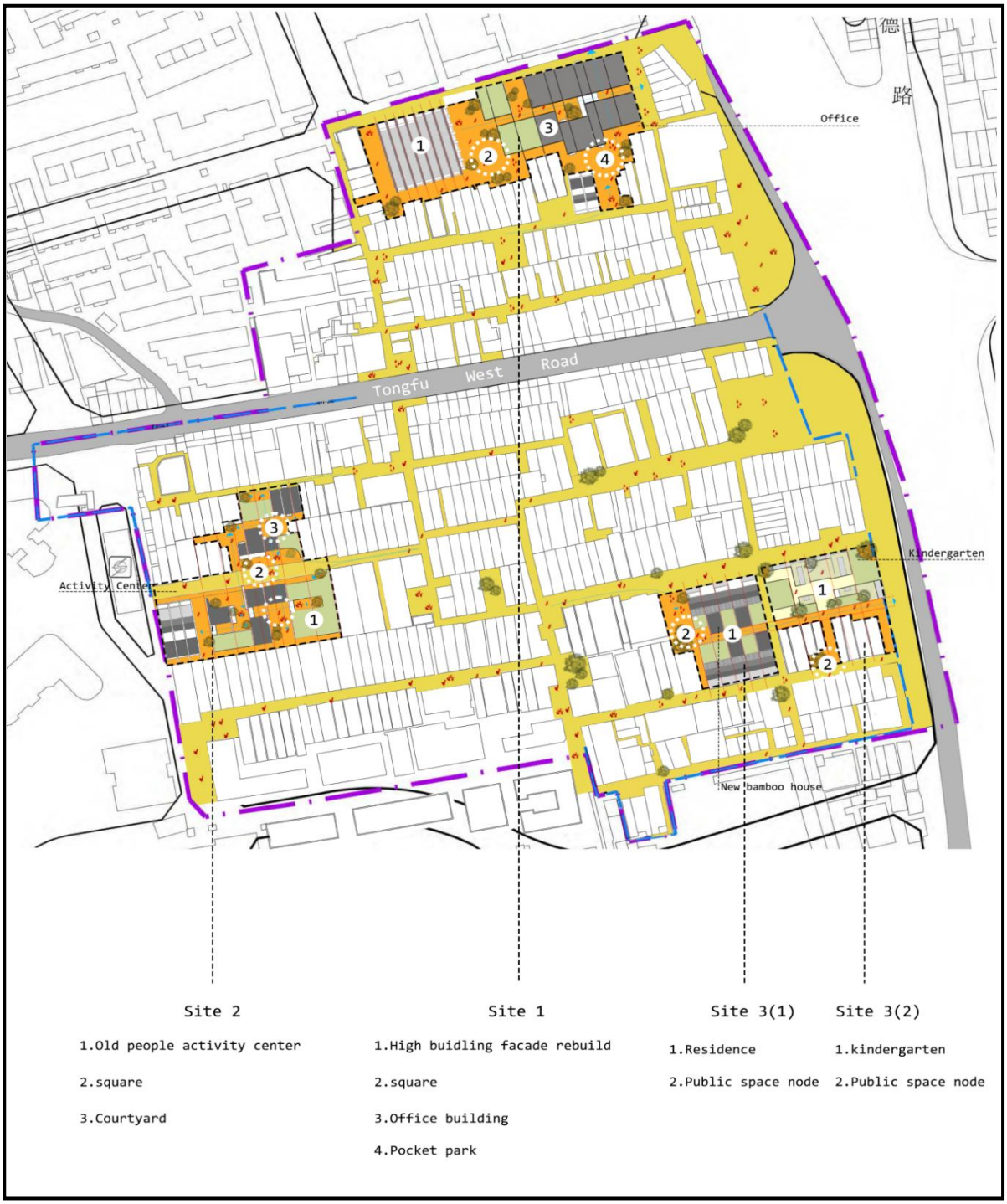


Fig. 6-39 Site plan (Source：the author）

6.5.1 Site 1 design

Site 1 is located in the northern edge of the site, the main function of the office and part of the residential, the left side of the high-rise building, 7-storey high, for the new office

building. The right side of the long building and the building below was originally an office building, now due to the age of repair, 2-3 floors are no longer in use, only 1 floor as the neighbouring residential areas to take the courier and the logistics of the surrounding hotels warehousing. The vertical strip of buildings on the south side are residential buildings. Roads, due to the high-density characteristics of the district, the site roads are relatively narrow, and the north side of the office building and the south side of the residential housing is not connected, although there are some activities around the office building, but fewer people use.

Therefore, in view of the current situation of Parcel 1, it is necessary to firstly formulate relevant protection control requirements, so as to specifically target the subsequent design.

Design strategy:

According to the protection control requirements and the previously established urban design guidelines, the new high-rise office building on the left side should be renovated with a facade that is in line with the historical style of the district, and the office building on the right side that needs to be demolished should be designed in a way that is in line with the district's tissue and coordinated in terms of volume, colour and materials, etc. It is hoped that it will be able to create a certain link with the residents of Bamboo Hut in the southern part of Parcel 1, so as to make the edge area of the site stimulate the corresponding vitality. The site edges will be energized accordingly.

Form Generation Process

1. Determine the buildings to be rebuilt and the facade to be modified.

2. Plan the flow of the site and the nodes that need to be enlarged.

3. According to the existing complete street architectural tissue within the site, delineate the relevant axes and make reference for the subsequent placement of the size and proportion of the block.

4. Determine the relationship between building heights according to the actual function and protection norms.

5. Determine the relationship between the relevant axes and the unique ventilation and heat insulation methods in Lingnan area.

6. Improve the building facade and set up the activity scene of related public places.

Fig. 6-40 Site 1 surroundings (Source：the author）

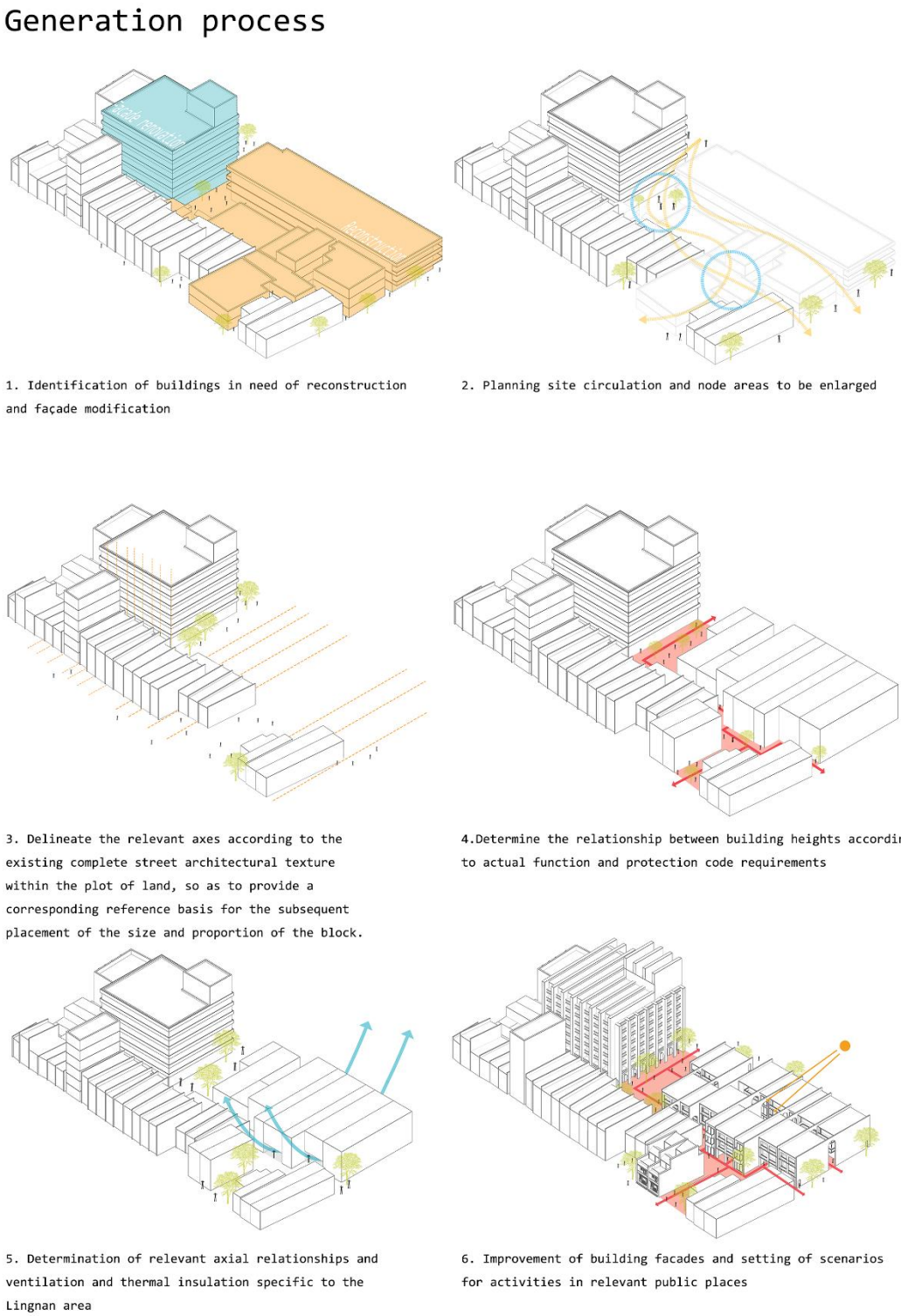


Fig. 6-41 Site 1 generation process (Source：the author）

Fig. 6-42.Site 1 plan and section (Source：the author）

Fig. 6-43 Site 1 building facade rebuild (Source：the author）

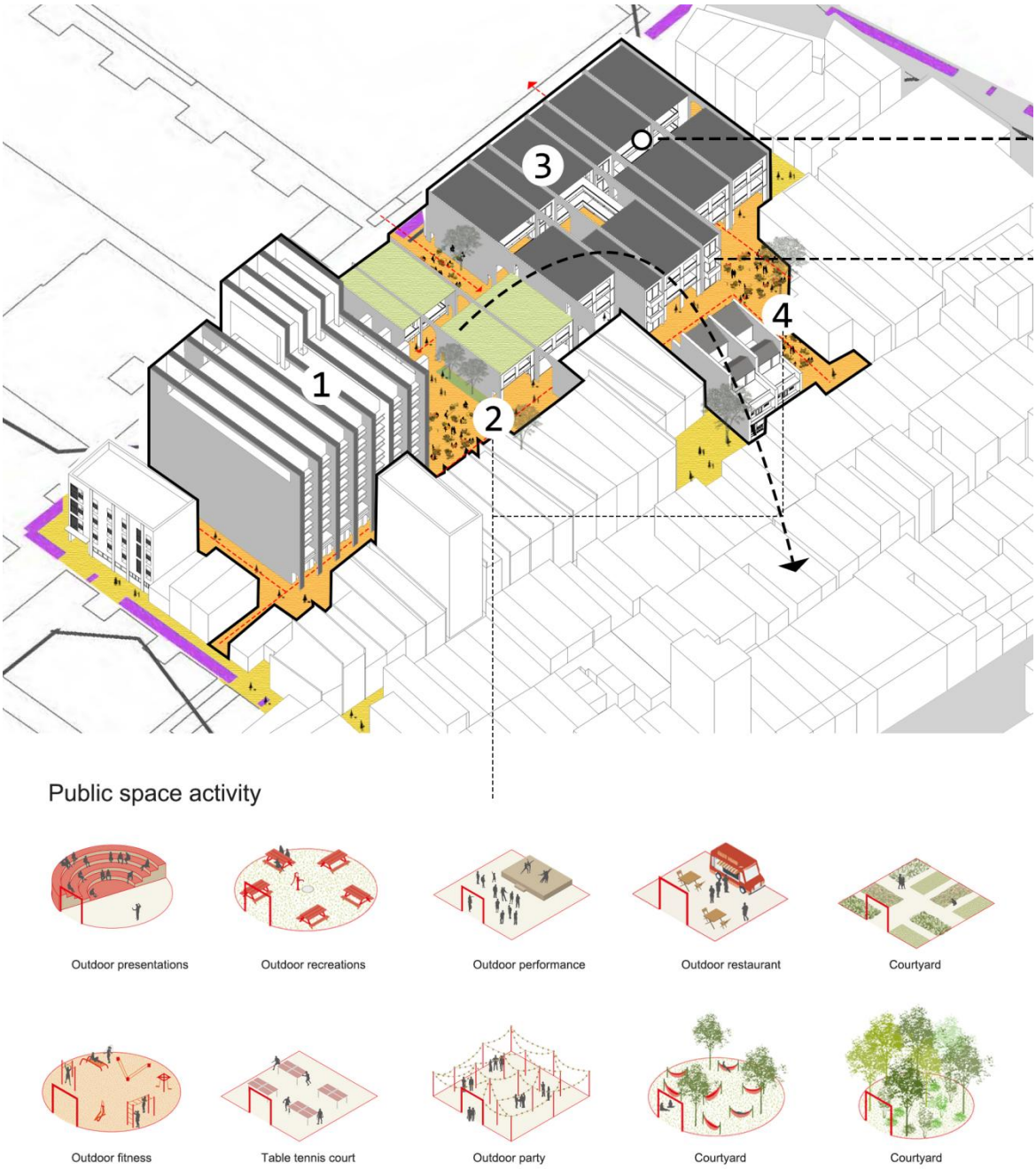


Fig. 6-44 Site 1 public space activities (Source：the author）

6.5.2 Site 2 design

Site 2 is located at the western edge of the site, the main function of which is an activity centre for the elderly. The southern side of the plot is 5 storeys high and is the Haizhu District Elderly University. The north side of the senior citizen activity centre is 6 storeys high. The

site situation found that as two public buildings, only to meet the daily needs of the elderly classes, the spare space, due to the wall separation, the use of efficiency is not high, as the only elderly activity centre in the historical district of Hongde Lane, but can not be efficiently used by the elderly and the majority of elderly people in Hongde Lane, so how to make efficient use of the site, and at the same time, reduce the height of the original building to reduce the sense of pressure in the district as the starting point of the current design. This was the starting point for the design.

(1) Design Strategy

Reduce the overall building height to reduce the sense of oppression to the district, and at the same time make full use of the existing site to create public spaces of different scales and sizes to satisfy different forms of gathering activities for the elderly (such as senior square dance, open-air theatre interpretation, daily leisure and fitness, etc.).

(2) Form Generation Process

1. Determine the area to be rebuild.

2. Divide the site into plot boundaries, and at the same time sort out the relevant axes according to the existing buildings within the parcel for subsequent design reference.

3. According to the actual functional area and the requirements of the conservation plan, generate blocks of different heights.

4. Create public spaces of different sizes and related visual corridors to indirectly connect the buildings between different plots.

5. Partially enlarge the scale along the street to imply the entrance space, and at the same time, the enlarged space on both sides can generate the external piazza to meet the gathering activities of the elderly.

6. Improve the building facade and set up related public space activity scenes.

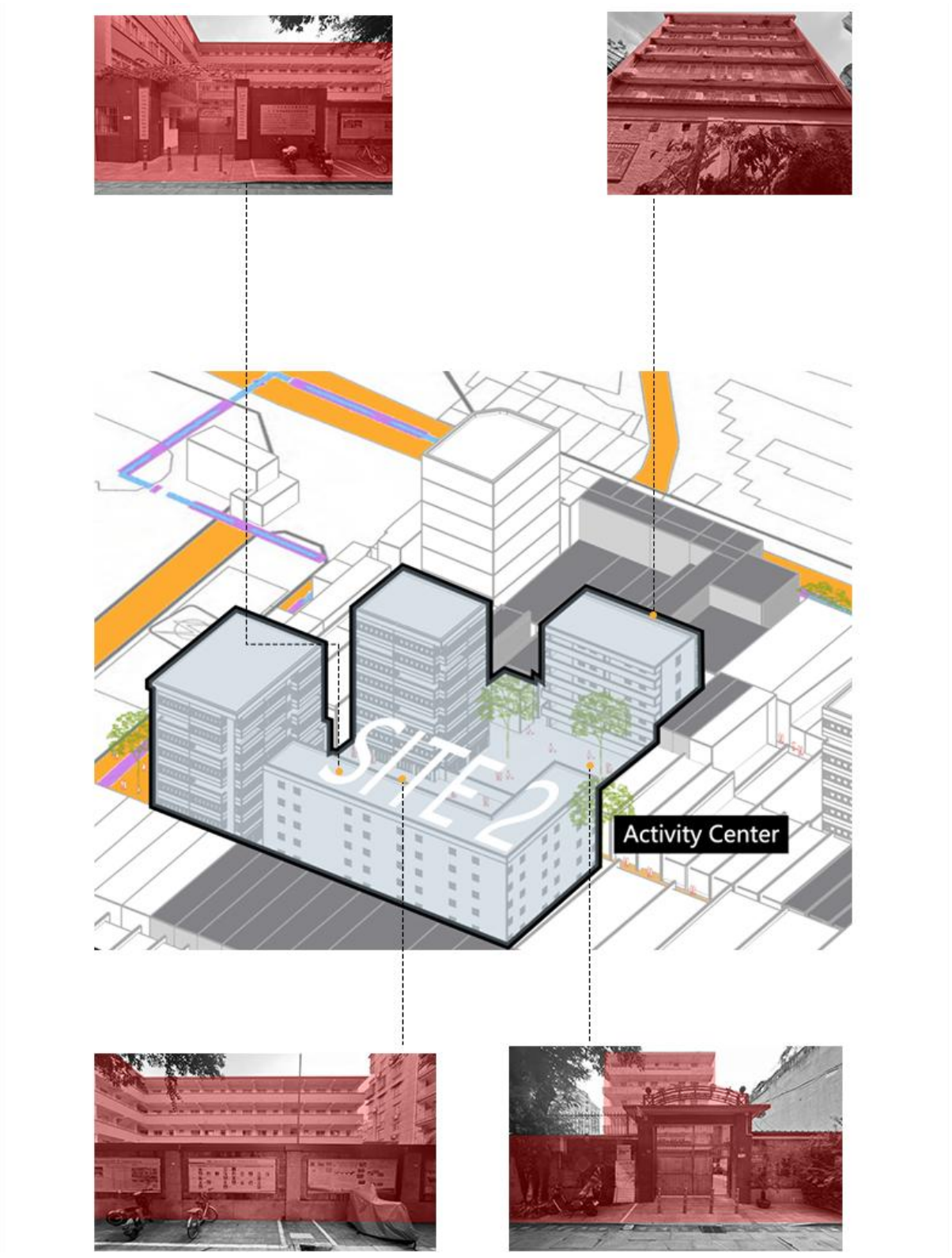


Fig. 6-45 Site 2 surroundings（Source：the author）

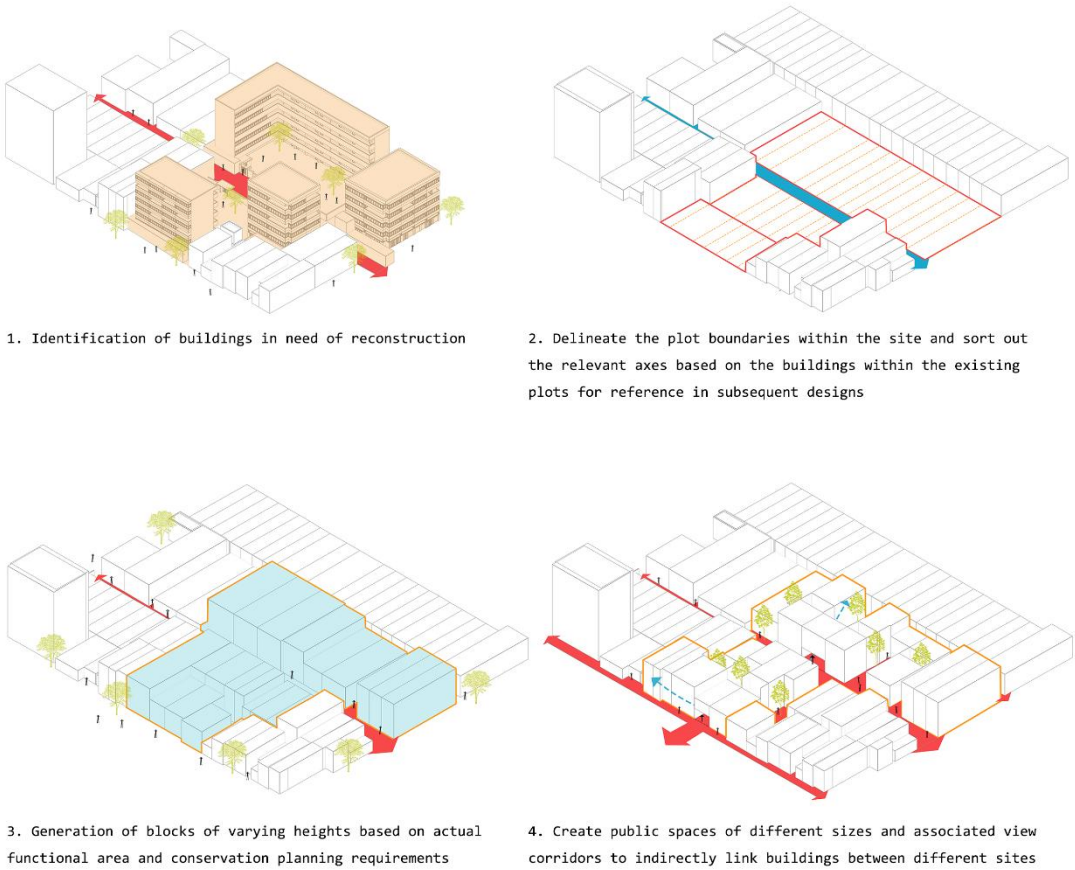


Fig. 6-46 Site 2 generation process (Source：the author）

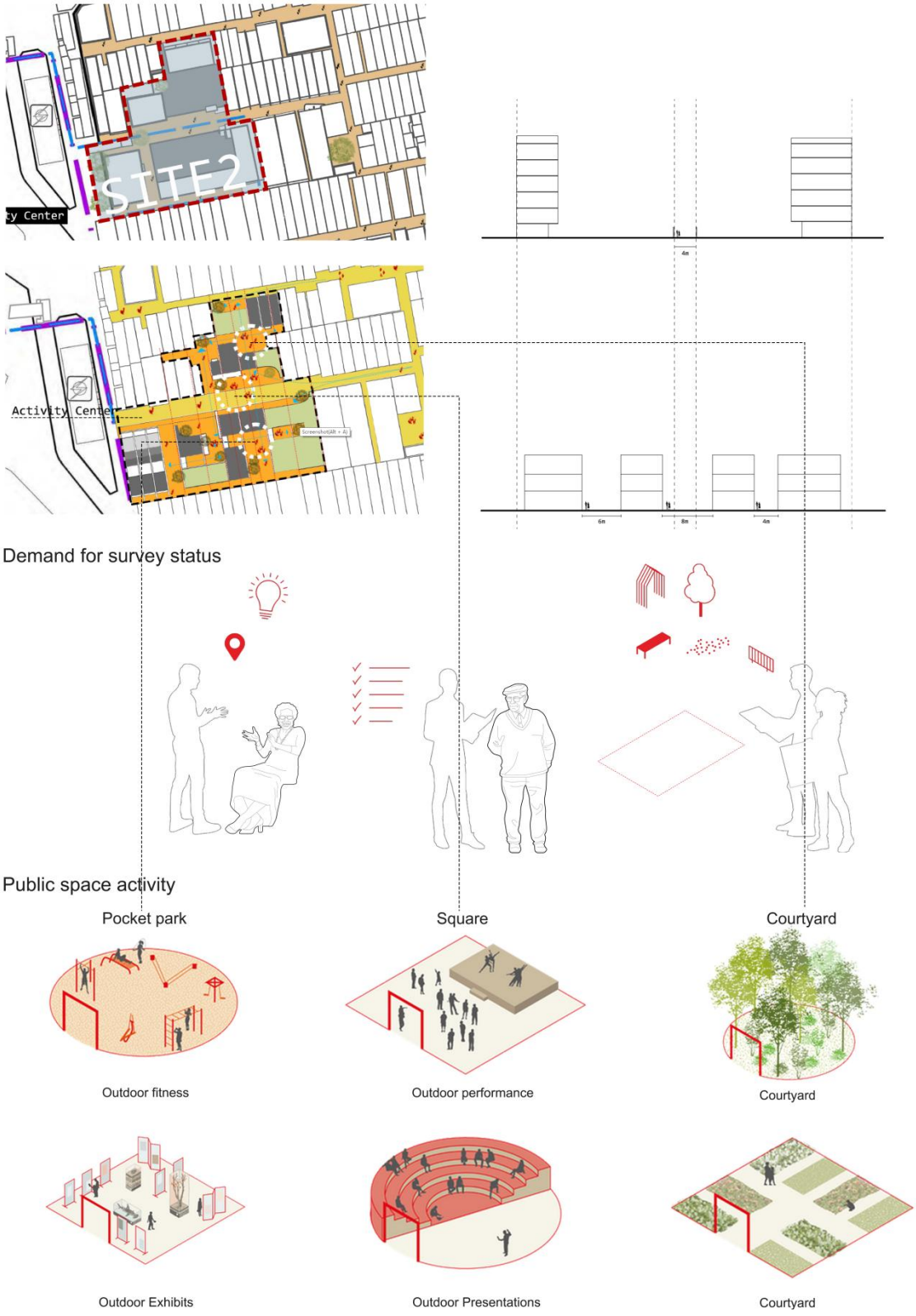


Fig. 6-47 Site public space activities (Source：the author）

6.5.3 Site 3 design

Site 3 (1) is located in the east side of the site, the main function is for the 50's-80's

housing, there is a registered immovable cultural heritage - Christian Hongde Tang, which has not yet been approved and announced as a cultural heritage conservation unit. Among the current situation of the site, some of the houses follow the design of the traditional Bamboo building, but most of the houses are constructed randomly in an unclear site relationship, which seriously damages the overall tissue. Therefore, it is necessary to reorganize the site relationship and make a reasonable layout.

（1）Design Strategy.

There is a heritage conservation building within the site, which needs to be set back from it, and based on the existing part of the residence, the original building ownership is presumed, based on which the new Bamboo building is placed within the plot.

（2）Form Generation Process

1. Determine the scope of the building to be renovated.

2. According to the existing part of the building, speculate the original land ownership relationship.

3. According to the control requirements of the core protection building and its setback, at the same time, enlarge the space locally within the plot to form a small public space.

4. Place the new Bamboo building within the plot so that it maintains an overall continuous street interface.

Site 3 (2) is located on the eastern edge of the site, the main function of the kindergarten and part of the multi-storey residential and commercial along the street, the site according to the latest planning, the overall designation for the kindergarten building, the site status quo, the entire plot of buildings have a complete street interface, but the kindergarten for the 80's after the construction of the overall layout not only to destroy the overall district tissue, but also does not meet the current requirements of the use of the site. Therefore, it is necessary to carry out a targeted design according to the specific conditions of the site and the variants of the unit modules.

（3）Design strategy: combing the current situation of the site, searching for axial relationships, generating blocks, combining the blocks according to the size of the kindergarten classes, and leaving space for outdoor activities and traffic.

（4）Form generation process

1.Determine the design boundary of the site and place the axes on the site according to the existing buildings.

2.Generate the blocks and control their height according to the control requirements.

3. According to the size of the kindergarten classes, merge the blocks and determine the relevant functional blocks.

4.Reserve outdoor space for each class and add other form elements to break up the homogeneous form of the block.

5.Improve the building facade and set up related activity scenes.

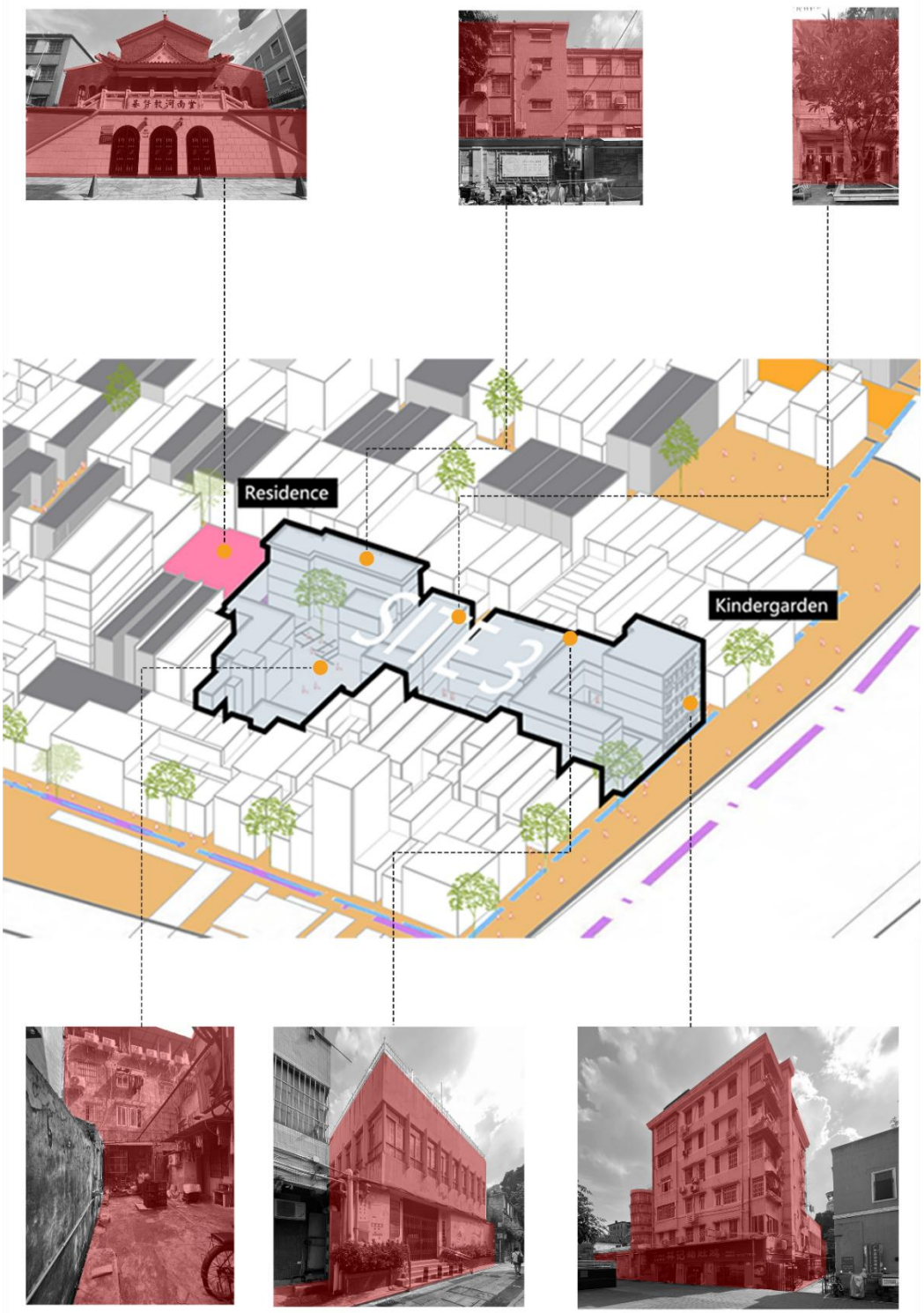


Fig. 6-48 Site 3 surroundings（Source：the author）

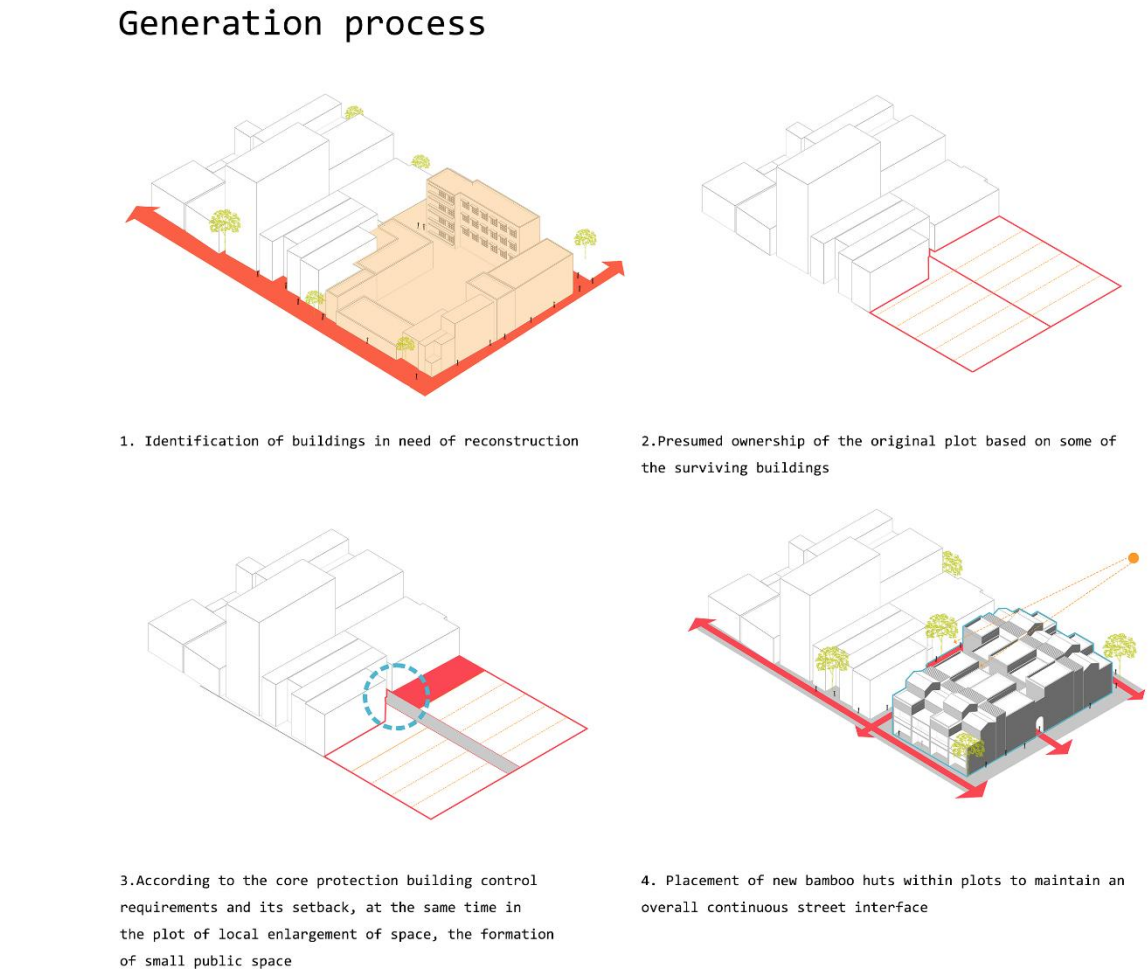


Fig. 6-49 Site 3（1）generation process and section (Source：the author）

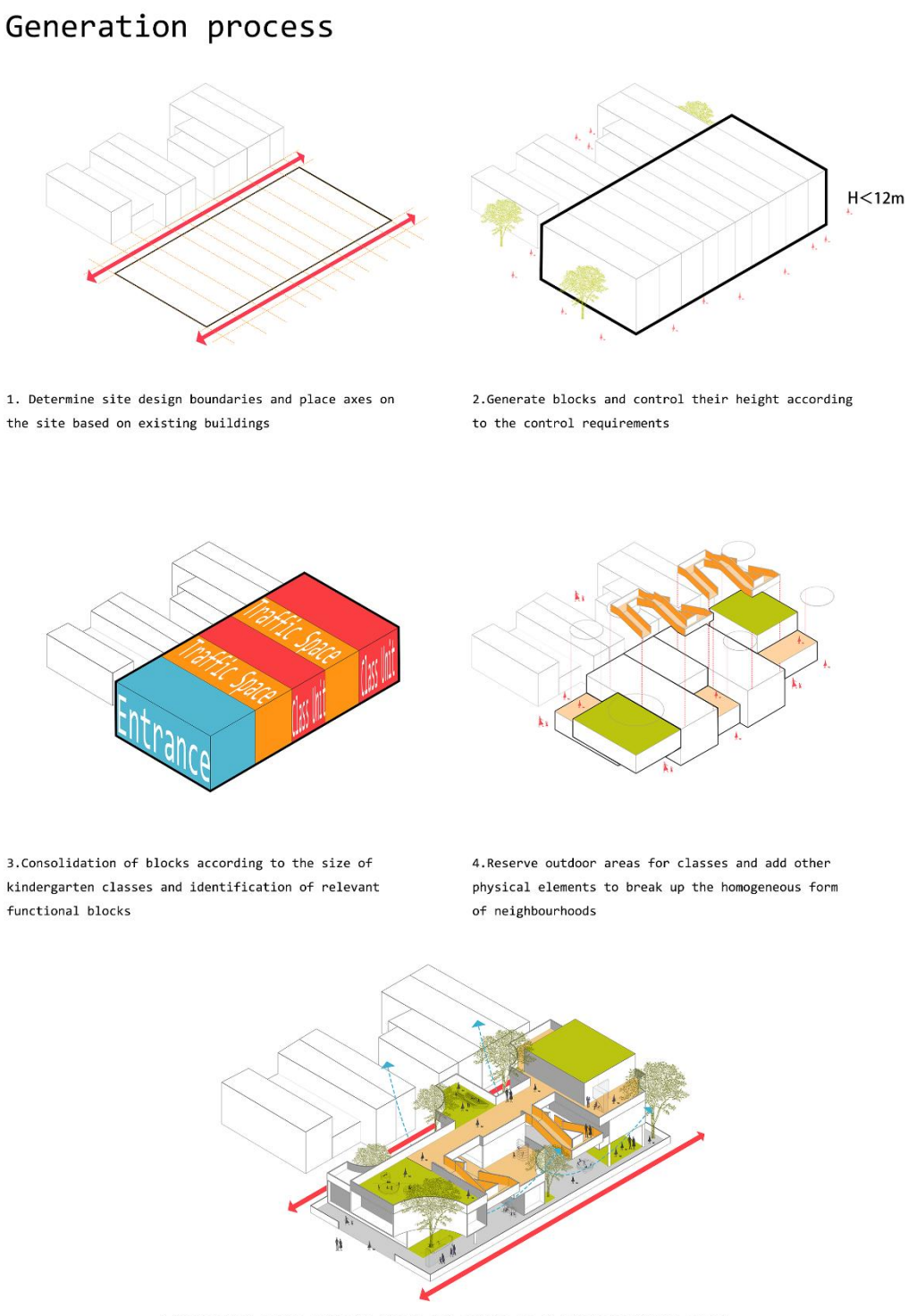


Fig. 6-50 Site 3（2）generation process (Source：the author）

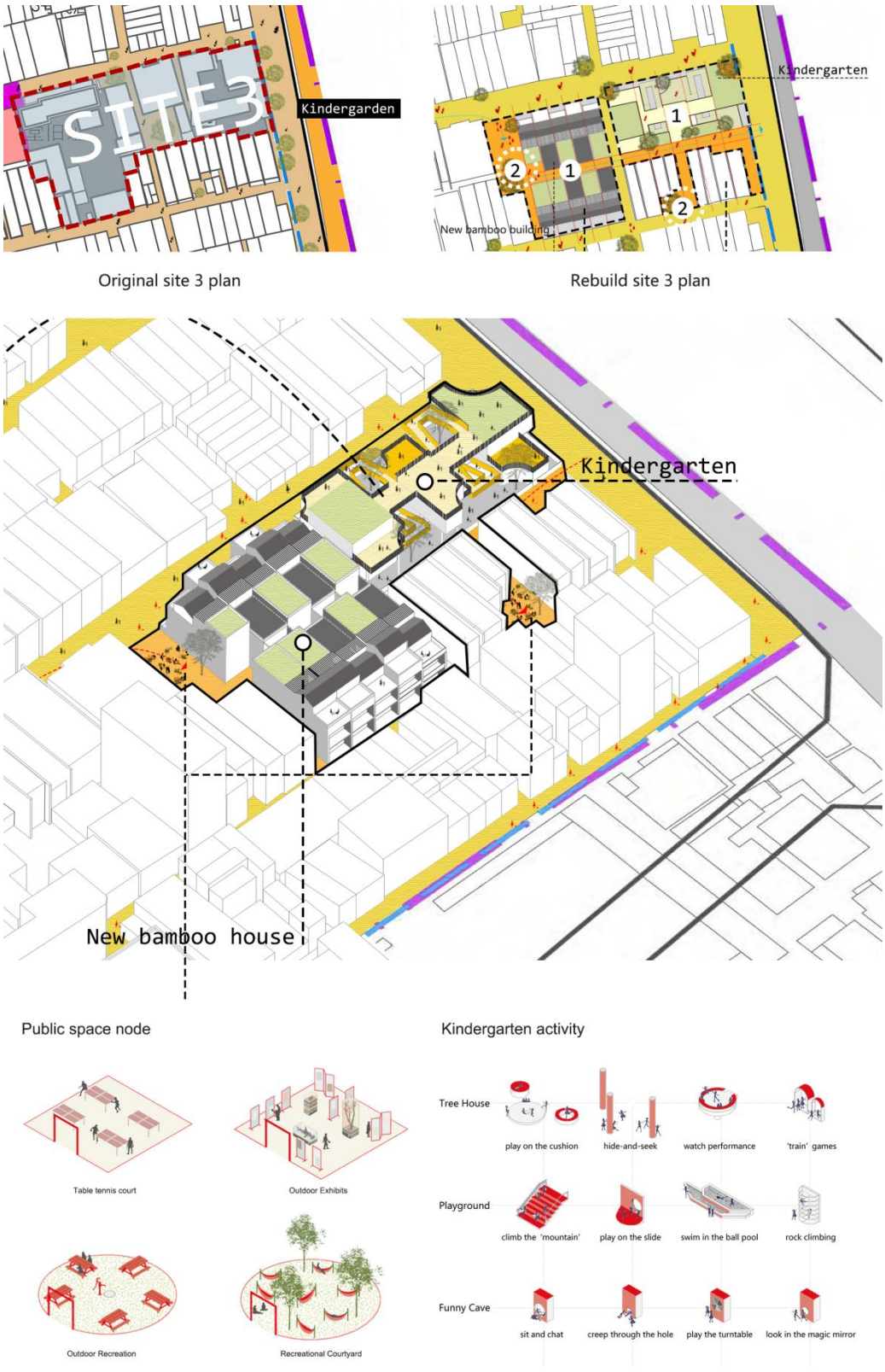


Fig. 6-51 Site 3 plan and public space activities (Source：the author）

Site 2	Site 1	Site 3(1)	Site 3(2)
1.Old people activity center	1.High buidling facade rebuild	1.Residence	1.kindergarten
2.square	2.square	2.Public space node	2.Public space node
3.Courtyard	3.Office building		
	4.Pocket park		

Fig. 6-52 Site axonometric plan (Source：the author）

6.6 Summary of the chapter

This chapter through the Hongde Lane for master planning practice based on the Typo-Morphology process analysis(urban level), and continue to explore the site of the main type of tissue unit - Bamboo building(building level), this urban and building level of the focal point of the renovation and enhancement of the strategy, and the extraction of its architectural archetypes, will be associated with the public building, constructed to belong to the public building of the basic combination of units, disease and its interpretation, the need to be different for the different sites of the different ways of dealing with the site tissue of the destruction of the site of the three sites for the overall targeted renovation and transformation of the design.

Conclude

The main goal of this study is to establish a complete method system suitable for the renewal of Guangzhou historical and cultural streets through the localization adjustment of the theoretical methods of Typo-Morphology. Combined with Guangzhou Hongde Lane, the specific method is applied.

1.Summary

(1). The applicability of the Typo-Morphology method in China.

Although it was recognized in the analysis that the application of the method needs to be based on specific cultural and social backgrounds and requires detailed local historical data, the application of the method in China is feasible as a whole. First of all, in recent years, China has paid more attention to the protection of the old city, more aware of the potential historical value, and in the system to learn from foreign advanced concepts to deal with complex urban problems. Secondly, although the application of this technology in China is largely limited by the lack of historical data, some cities still retain relatively complete historical atlas data for reference. At the same time, summarizing the existing historical atlas data will also help to establish a database of urban morphology in China and provide reference for future planning practices.

(2). Guangzhou Hongde Lane practice research significance.

It is an important attempt to put the theory into practice by applying the localized Typo-Morphology method to the urban practice of Hongde Lane. In previous studies, domestic scholars have only introduced and combed the theory of Typo-Morphology. Although they have begun to try to analyze rural settlements, most studies have only focused on the introduction of methods, and there are not many methods and strategies that can truly guide practice. This paper combines the theory of Typo-Morphology with the Chinese background, and makes the detail practical attempt to deepen the localization of Typo-Morphology.

2. Reflection

(1). In the study of Typo-Morphology, the evolution of architectural historical maps is very important, but in this study of the renewal of the Hongde Lane, the specific building information is less and there is less quantitative analysis of the elements, which brings certain difficulties to the study of the evolution of the Typo-Morphology.

(2). The research design can continue to deepen, the analysis of building types in the Italian Muratori - Caniggia school, often analyze the type of the whole area, so the refinement of the type can be more in-depth and specific (for more detailed classification).

Finally, the authors also recognize that the renewal of historic cultural districts is a very complex question, and in order to solve this question, it requires the collaboration of various aspects such as technology, governmental systems, and the will of the residents, etc. Although this technology cannot solve all the questions of historic renewal, it can be used as a direction to understand the importance of the historical value of urban form, and provide an important reference value for the improvement of the relevant systems in the future.

Reference

[1] 王景慧.历史地段保护的概念和作法[J].城市规划,1998(03):34-36+63.

[2] 李晨.“历史文化街区”相关概念的生成、解读与辨析[J].规划师,2011,27(04):100-103.

[3]ICOMOS, Charter for the conservation of historic towns and urban areas(Washington Charter 1987), 1987.10

[4] Alan Colquhoun，Typology and Design Methed，Essagsin Architectural Criticism，MIT Press，1981

[5] Moudon, Anne Vernez, Getting to Know the Built Landscape: Typomorphology. in Franck, Karen A and Lynda H Schneekloth, Ordering Space: Types in Architecture and Design New York: Van Nostrand Reinhold, 1994.

[6] M.R.G.Conzen.Alnwick,Northumberland-a study in town-plan analysis. London: Institute of British Geographers. 1969

[7] J. W. R. Whitehand, British Urban Morphology: The Conzenian Tradition[J]. Urban Morphology,2001, (2): 103-109.

[8] Muratori S. Studi per una operante storia urbana di Venezia[J]. Palladio, 1959, 1959: 1-113. 22.

[9] Caniggia, Gianfranco and Gian Luigi Maffei. Architectural Composition and Building Typology -Interpreting Basic Building, Firenze: Alinea Editrice, 2001.

[10] Moudon A V. Urban morphology as an emerging interdisciplinary field[J]. Urban morphology, 1997, 1(1): 3-10.

[11] Kropf K. Aspects of urban form[J]. Urban morphology, 2009, 13(2): 105.

[12] Kropf K S. Ambiguity in the definition of built form[J]. Urban Morphology, 2014(18):41-57.

[13] Scheer B C. The epistemology of urban morphology[J]. Urban Morphology, 2016, 20(1):5-17

[14]沈克宁.设计中的类型学[J].世界建筑,1991,(02):65-69.

[15]魏春雨.建筑类型学研究[J].华中建筑,1990,02:81-96.

[16]汪丽君.建筑类型学[M].天津：天津大学出版社，2005

[17]尼跃红.北京胡同四合院类型学研究[M].北京：中国建筑工业出版社，2009

[18]汪丽君.广义建筑类型学研究[D].天津大学,2003.

[19]周绍文.云南传统聚落类型学研究[D].昆明理工大学,2007.

[20]樊婧怡.类型学视角下的关中村镇传统街区设计构型研究[D].西安建筑科技大学,2011.

[21]邓浩,朱佩怡,韩冬青.可操作的城市历史——阅读意大利建筑师萨维利奥·穆拉托里的类型形态学思想及其设计实践[J].建筑师,2016,(01):52-61.

[22]蒋正良.意大利学派城市形态学的先驱穆拉托里[J].国际城市规划,2015,(04):72-78.

[23]朱佩怡.可操作的历史——阅读意大利穆拉托里学派类型形态学思想以及基于城市形态学分析的设计实践初探[D].东南大学,2015.

[24]齐文举.从房屋类型到城市形态—阅读吉安弗里科·卡尼吉亚的类型形态学思想[D].东南大学,2017.

[25]段进,邱国潮.国外城市形态学概论[M].南京:东南大学出版社, 2009.

[26]谷凯.城市形态的理论与方法——探索全面与理性的研究框架[J].城市规划,2001,12:36-42.

[27]梁江,孙晖.模式与动因——中国城市中心区的形态演变[M].北京:中国建筑工业出版社, 2007.

[28]丁沃沃,刘青昊.城市物质空间形态的认知尺度解析[J].现代城市研究,2007,08:32-41.

[29]丁沃沃,胡友培,窦平平.城市形态与城市微气候的关联性研究[J].建筑学报,2012,(07):16-21.

[30]韩冬青.城市形态学在城市设计中的地位与作用[J].建筑师,2014(04):35-38.

[31]田银生,谷凯,陶伟.城市形态研究与城市历史保护规划[J].城市规划,2010,(04):21-26.

[32]张剑涛.城市形态学理论在历史风貌保护区规划中的应用[J].城市规划汇刊,2004,(06):58-66+96.

[33]沈克宁.建筑类型学与城市形态学[M].北京:中国建筑工业出版社,2010

[34]陈飞,谷凯,西方建筑类型学和城市形态学:整合与应用.建筑师,2009(02):53-58.

[35]陈飞.一个新的研究框架:城市形态类型学在中国的应用[J].建筑学报,2010,04:85-90.

[36]陈锦棠,姚圣,田银生.形态类型学理论以及本土化的探明[J].国际城市规划,2017,32(02):57-64.

[37][英]康泽恩(M.R.G. Conzen).城镇平面格局分析:诺森伯兰郡安尼克案例研究[M].宋峰等译.北京:中国建筑工业出版社,2011.

[38] Bienstman H. Morphological Concepts and Urban Landscape Management: the Cases of Alkmaar and Bromsgrove[D]. University of Birmingham. PhD thesis, 2007.

[39] Gianfranco Caniggia, Gian Luigi Maffei. Interpreting Basic Building [M]. Altralinea Edizioni, 2017.

[40] Gianfranco Caniggia, Gian Luigi Maffei, Composizione architettonica e tipologia edilizia. II. Il progetto nell’edilizia di base, Marsilio, Venezia, 1984

[41] Kropf K S. Ambiguity in the definition of built form[J]. Urban Morphology, 2014(18):41-57.

[42] Kropf K S. Typological Zoning[M]. Attilio Petruccioli (ed.) Typological Process and Design Theory. Cambridge, Massachusetts: Aga Khan Program for Islamic Architecture. 1998: 127-140.

[43] Trisciuoglio, Marco; Crapolicchio, Martina; Xiao, Xiao (2023) The Form of Palermo and the Map by Pier Luigi Cervellati. In: JIANZHUSHI, vol. 221, pp. 6-12. ISSN 1001-6740 Contributo su Rivista

[44]徐好好. 意大利波河流域历史城镇城市遗产的保护和更新研究[D]. 华南理工大学, 2014.

[45]韩冬青. 城市形态学在城市设计中的地位与作用[J]. 建筑师, 2014(04):35-38.

[46]阮仪三, 李红艳, 真伪之问：何谓真正的城市遗产保护, 同济大学出版社, 上海, 2016.

[47]王静, 周璐. 岭南地区传统住宅建筑通风方式的启示[J]. 华中建筑, 2013, 31(07):53-58.

[48]曾志辉, 陆琦. 广州竹筒屋室内通风实测研究[J]. 建筑学报, 2010, (S1):88-91.

[49]王文棋, 拜盖宇. 基于湿热气候环境下的广州民居形式研究[J]. 中外建筑, 2014, (08):86-89.

[50] Aldo Rossi，The Architecture of the City，The MIT Press，1982

[51]童明. 罗西与《城市建筑》[J]. 建筑师, 2007(05):26-41.

攻读硕士学位期间取得的研究成果

一、已发表（包括已接受待发表）的论文，以及已投稿、或已成文打算投稿、或拟成文投稿的论文情况：

序号	发表或投稿刊物/会议名称	作者（仅注明第几作者）	发表年份	与学位论文哪一部分（章、节）相关	被索引收录情况

二、与学位内容相关的其它成果（包括专利、著作、获奖项目等）

Acknowledgment

To see the world,things dangerous to come to, to see behind walls,to draw closer, to find each other and to feel. That is the purpose of life.

目录

第一章 绪论

1.1 提出问题

1.1.1 历史文化街区的价值

历史文化街区的发展，具有重要意义。其承载当地过去记忆，展示当地发展变化，且历史文化街区当中的文化遗产能够成为社区集体认同感的来源。现在，我国城市发展模式逐渐由之前的大拆大建模式转向存量更新模式，这对于历史文化街区更新具有十分重要的意义。

1.1.2 保护与更新

在 20 世纪 60 年代左右，具体的宪章及意见逐渐确定历史地段的概念、保护基本原则及方法。其中 1964 年通过的《威尼斯宪章》提出，历史建筑所在的场地也需要进行保护。1987 年发表的《华盛顿宪章》对《威尼斯宪章》进行补充，更加完善定义城市历史地段；并规定具体保护原则、目标及方法，指出首先需要保护当地人民，其次是历史地段特征及表达该特征的物质和精神要素。[1][2][3]

而中国对于历史文化城市的保护，虽然起步较晚，但对其足够重视，在不同时期进行适当的修订及补充。

“更新”主要指对城市中的旧工业区、城中村等已不适合现代化城市社会生活的地区进行更新，目的是为在完善城市功能，改善人居环境，促进社会可持续发展。

上世纪的西方城市更新发展经历了很大变化，其历程与特点大体有四个阶段，1960 年代之前-推倒重建，1960-1970 年代-社区更新，1980-1990 年代-旧城开发，1990 年后期-有机更新。

	第一阶段	第二阶段	第三阶段	第四阶段
时期	20 世纪 60 年代之前	20 世纪 60-70 年代	20 世纪 80-90 年代	20 世纪 90 年代后期
发展背景	战后繁荣时期	普通的经济增长和社会富足	经济增长趋势缓和自由主义经济盛行	人本主义和可持续发展深入人心

主要政策和计划	英国:《格林伍德住宅法》（1930） 美国:《住宅法》(1937)	美国:现代都市计划(1965) 英国:《地方政府补助法案》（1969） 加拿大：邻里促进计划（1973） 法国：邻里社会发 展计划（1981）	英国：城市开发公司、企业开发区 （1980） 美国：税收奖励措施：授权区、税收增值筹资 、 商 业 改 良 区（1980）	英国：城市挑战计划（1991） 英国：综合更新预算（1995） 欧盟：结构基金（1999）
更新特点	推土机式重建	国家福利主义色彩的社区更新	地产开发导向的旧城再发展	物质环境、经济和社会多维度的社区复兴
战略目标	清理贫民窟：清除快速增长城市中的破败建筑，提升城市物质形象	向贫穷开战:提升已有房屋居住环境,通过提高社会服务解决人口社会问题	市场导向的旧城再开发：市中心修建标志建筑和豪华服务娱乐设施吸引中产阶级回归，复兴旧城经济活力	高度重视人居环境：提供城市多样性和多用途性，注重区历史价值保护和社会肌理保持
更新对象	贫民窟和物质衰退地区	被“选择的”旧城贫民社区	城市旧城区域	城市衰退地区和规划欠佳的非衰退地区
空间尺度	强调地方性的宗地尺度	宗地和社区级别	宗地尺度向区域尺度转变	社区和区域尺度
参与者	中央政府主导	中央政府与地方政府合作，社区和私有部门参与度低	政府与私有部门的双向伙伴关系，社区居民的意愿被剥离	政府、私有部门和社区的三方合作，强调社区的参与和作用制衡
资金来源	公共部门投资和少量私人投资	主要来自中央财政,地方财政补充	大量私人企业和个人投资者，政府少量启动资金	公共部门补贴，大私人企业和个人投资
管治特点	政府主导：自上而下	政府主导：自上而下	市场主导：自上而下	三方合作：自上而下与自下而上相结合

表 1-1 西方城市更新发展历程和政策演变

从上述时代背景,不难看出,城市更新不仅包括城市物质空间更新,更包括对于“人”

的考虑。

因此，总的来说，对于历史文化街区的保护与更新不仅需要将现有历史遗存进行保护，同时也要对居民生活品质进行提升，并且通过多种渠道进行资源引入，多方合作，共同进行历史文化街区的保护与更新。

1.1.3 形态类型学

类型的想法在早期就已经出现，其类型学研究源于法国启蒙思想运动。

20 世纪中期为抵制现代主义运动和恢复欧洲传统城镇的人性化空间，类型学理论得到新的发展。阿尔干解读德·昆西的对于类型定义，认为类型是一系列建筑的内在形式。穆拉托里和卡尼吉亚用类型方法理解建筑环境和城市发展，建立了传统与现代、城市与建筑单体之间的桥梁。柯洪和莫尼欧通过《Typology and Design Method》和《On Typology》等文章对类型学发展过程和重要概念进行分析。[4]20 世纪初，德国历史地理学科将形态概念引入城市分析，并由康泽恩进一步发展完善，构建初期完整的“城市形态学”理论体系。其后由其他学者推广到更多国家。1987 年，穆东定义了两种学派融合的新研究构架。[5]随后，克罗普夫融合上述两个理论的核心概念和术语，提出综合的形态类型学。

1.1.4 研究对象的联系

本文的研究对象主要为形态类型学的理论方法及广州洪德巷历史文化街区保护更新工作这两方面内容，通过寻找适合中国化的形态类型学的理论方法来解决现实问题。在对该理论框架及相关专业术语、实际案例进行归纳总结，并根据广州洪德巷历史文化街区的特殊性进行适应性更新，形成适合中国城市传统街区的特定性方法。

1.2 相关研究综述

1.2.1 形态类型学研究

（1）国外相关研究成果

形态类型学领域中主要的两个学派-英国历史地理学科的康泽恩学派和基于意大利传统类型学理论的穆拉托里——卡尼吉亚学派。

前者主要由英国学者康泽恩建立，其建立起形态学研究的理论架构。并利用不同年代城市地图具体认识城市中整体和局部的结构关系以及各要素的历史演变形式。[6]怀特汉德在《British urban morphology: the Conzenian tradition》该书描述了康泽恩学派城市

形态研究的过程。[7]

意大利学派研究源于传统类型概念，由穆拉托里等人将其延申到历史城市中心区域的研究中。卡尼吉亚继承穆拉托里的理论，构建了能够解读城市空间的方法体系。[8][9]马泽特在《The study of urban form in Italy》在该论文中体现了意大利研究传统中城市形态和设计之间的关系。

由于两个学派研究思路的相似性和互补性，开始走向融合。穆东在《城市形态学作为一个新兴的跨学科领域》一文中，初步建立了两种学派融合的研究构架。[10]克罗普夫在《城市形态学中建造形式定义的探讨》以及《建造形式定义的模糊性》等文章中，提出综合的形态类型学研究框架。[11][12]希尔在《The epistemology of urban morphology》中总结形态类型学的观点，并多方面建立了城市形态研究的认识论。[13]

（2）国内相关研究成果

类型学在上世纪 80 年代末被引入，主要的研究聚焦于《城市建筑学》理论的介绍（沈克宁《设计中的类型学》）[14]，类型学概念在具体建筑设计理论中的运用（尼跃红《北京胡同四合院类型学研究》，魏春雨《建筑类型学研究》，汪丽君《建筑类型学》）[15][16][17]，在研究生论文中也有将类型学用于传统城市更新的探讨（樊婧怡《类型学视角下的关中村镇传统街区设计构型研究》，汪丽君《广义建筑类型学研究——对当代西方建筑形态的类型学思考与解析》，周绍文《云南传统聚落类型学研究》）[18][19][20]。同时，也有对意大利学派介绍的论文（齐文举《从房屋类型到城市形态——阅读卡尼吉亚的类型形态学思想》，邓浩《可操作的城市历史——阅读意大利建筑穆拉托里的类型形态学思想及其设计实践》，蒋正良《意大利学派城市形态学的先驱穆拉托里》，朱佩怡《可操作的历史——阅读意大利穆拉托里学派类型形态学思想以及基于城市形态学分析的设计实践初探》等）。[21][22][23][24]

同样，国内有关城市形态学的研究出现许多研究方法及成果。如段进、邱国潮编写的《国外城市形态学概论》系统梳理了形态学研究概况[25]；谷凯《城市形态的理论与方法——探索全面与理性的研究框架》对城市形态的方法进行全面的概述[26]；梁江和孙晖的《模式与动因——中国城市中心区的形态演变》运用城市形态学分析城市中心区的形态演进特征并总结规律[27]；丁沃沃等在《城市物质空间形态的认知尺度解析》从多角度构建对于城市空间形态的体系和要素，且在《城市形态与城市微气候的关联性研究》中

探索城市形态与微气候之间的关系[28][29]；张剑涛《城市形态学理论在历史风貌保护区规划中的应用》，韩冬青《城市形态学在城市设计中的地位与作用》，田银生《城市形态研究与城市历史保护规划》等文章从多角度解释形态学理论在城市设计等方面的作用。[30][31][32]

近年来对于综合的形态类型学研究开始逐渐增多，沈克宁的《建筑类型学与城市形态学》整理两个学科的交融性[33]；陈飞在《西方建筑类型学和城市形态学——整合与应用》该文中强调了该理论的意义，在《一个新的研究框架：城市形态类型学在中国的应用》中提出针对中国城市在地性研究概述[34][35]；陈锦棠在《形态类型学理论以及本土化的探明》中总结形态类型学理论和具体应用范围，并积极探索该理论本土应用过程中遇到的机遇和挑战。[36]

1.2.2 研究领域的问题

上述研究成果从多种角度为本文研究提供基础信息、方法指导和实践借鉴，但是对于广州洪德巷历史文化街区更新项目来说，当前研究成果依然存在一定的问题和不足。

首先，虽然形态类型学方法在关注问题、研究方法等方面与历史文化街区更新工作契合，且在西方国家长期的实践中积累了大量理论文献和案例。但东西方城市的城市建设背景存在很大差异，直接应用该方法会产生许多问题，如时代文化背景、建造方式、社会制度等方面的不同。虽然有学者试图提出这些问题，但缺少对其本质的分析，并提出具体提升方案。

其次，近年来，国内学者对形态类型学方法仅仅做了理论的引入介绍与梳理，虽开始尝试对乡村聚落进行分析，但多数研究仅集中在方法介绍，能够真正形成指导实践的方法策略并不多。

1.3 研究意义

1.3.1 历史文化街区对于中发展的重要意义

历史文化街区不同程度保留了传统城市的形态特征和建筑肌理，或集中体现了某一时期的整体风貌，或积累了不同历史阶段的物质和文化遗存，同时也容纳了丰富多样的生活行为，具有重要的文化内涵和研究价值。

近年来，随着我国城镇化水平的提高和土地资源的短缺，不少大中城市逐渐摆脱大

规模扩张和大拆大建模式,转向存量更新和环境品质提升，作为旧城区改造的重要内容，历史文化街区的保护与再生对于展现城市风貌特征、改善居民生活水平、激发社区活力具有重要意义和价值。

1.3.2 本文研究意义

本文通过对形态类型学理论的学习，对洪德巷历史文化街区原有建筑构件材料、建筑类型、街道尺度、地块类型、平面肌理、公共空间等内在秩序要素的组织模式及演替流程进行研究，并根据其进程的延续性，对其进行平面肌理区域进行划分，提出适合广州洪德巷历史文化街区城市更新导则，并对广州传统竹筒屋住宅，进行城市微气候与城市形态的探究，并将其具体应用于洪德巷历史文化街区的城市设计中。该方法不仅能够揭示历史文化街区的历史演变过程及其本质特征，同时“新竹筒屋”的改造也是源于广州的地域性特点，满足居民的现代生活需要，这对广州洪德巷历史文化街区的更新有着积极影响。

1.4 研究方法与论文结构

1.4.1 研究方法

本文在整体研究方法上，注重地区发展演变，重视理论方法应用。由现实问题发展至对相关理论的研究，并通过案例分析，将理论和相关案例学习并基于当地的自然环境及社会发展情况，探索出适合广州洪德巷的形态类型学方法，构建完整的方法体系。针对具体地块进行相应的城市更新设计。

本文以广州洪德巷为案例，探究适用于广州历史文化街区更新保护的形态类型学方法。洪德巷历史文化街区所面临的问题代表了广州以至国内其他城市历史文化街区更新保护的普遍性问题，因此引发了对历史文化街区更新的合理且有效的方法探究。通过对洪德巷历史文化街区元素进行形态类型学进程梳理，总结其发展过程，提出基本策略和城市导则，以此为基础，进行具体的城市更新设计。

具体的研究方法主要包括如下几个：

1.历史资料查找 2.理论梳理 3.案例研究 4.现场调研 5.图解设计

1.4.2 论文结构

本文研究从广州洪德巷现实问题展开，在此，开始对形态类型学方法进行系统梳理，

并对相关案例进行分析，再通过对洪德巷历史文化街区元素进行形态类型学流程梳理，总结其发展过程，基于上述分析提出一些基本策略和城市导则，构建适应本土化的形态类型学应用方法。

第二章“广州洪德巷历史文化街区更新问题”介绍场地背景。首先解释广州洪德巷历史文化街区在城市发展中的历史及现状情况，表现其历史价值与城市发展之间的差距。其次对广州洪德巷历史文化街区更新中面对的问题进行分类，并指出该问题与形态类型学方法的相关性，激发对相关理论方法的研究。

第三章“形态类型学方法及相关理论梳理”是本次研究的理论背景。介绍欧洲国家城市形态类型学研究的理论基础和方法体系，包括英国康泽恩学派和意大利穆拉托里——卡尼吉亚学派的主要理论体系和诠释工具，综合的形态类型学研究进展。并对以上理论的研究方法进行总结。

第四章“案例研究”，通过对博洛尼亚“经济与民众建设计划”中圣·莱昂纳多 C 区的修复设计（1973）、巴勒莫城市规划（1990）进行分析，这些案例都充分反映了形态类型学的思想，同时规划技术也相对成熟，对后续设计有着一定的启发。

第五章“基于形态类型学的本土化研究及设计策略”，根据理论及洪德巷具体情况确定研究元素及洪德巷形态类型学应用技术方法，对洪德巷的主要元素进行形态类型学元素演替流程及特点梳理分析,并对其进行总结。

第六章“以广州洪德巷历史文化街区为例的城市设计”，根据第五章的总结，制定相关策略及不同分区肌理的城市设计导则，对场地道路、地块及相关功能进行总体规划，并对该地区肌理单元建筑-竹筒屋，对其进行微气候被动式节能探索，针对不同地块的特殊性（建筑类型、场地条件）进行相关城市更新设计。

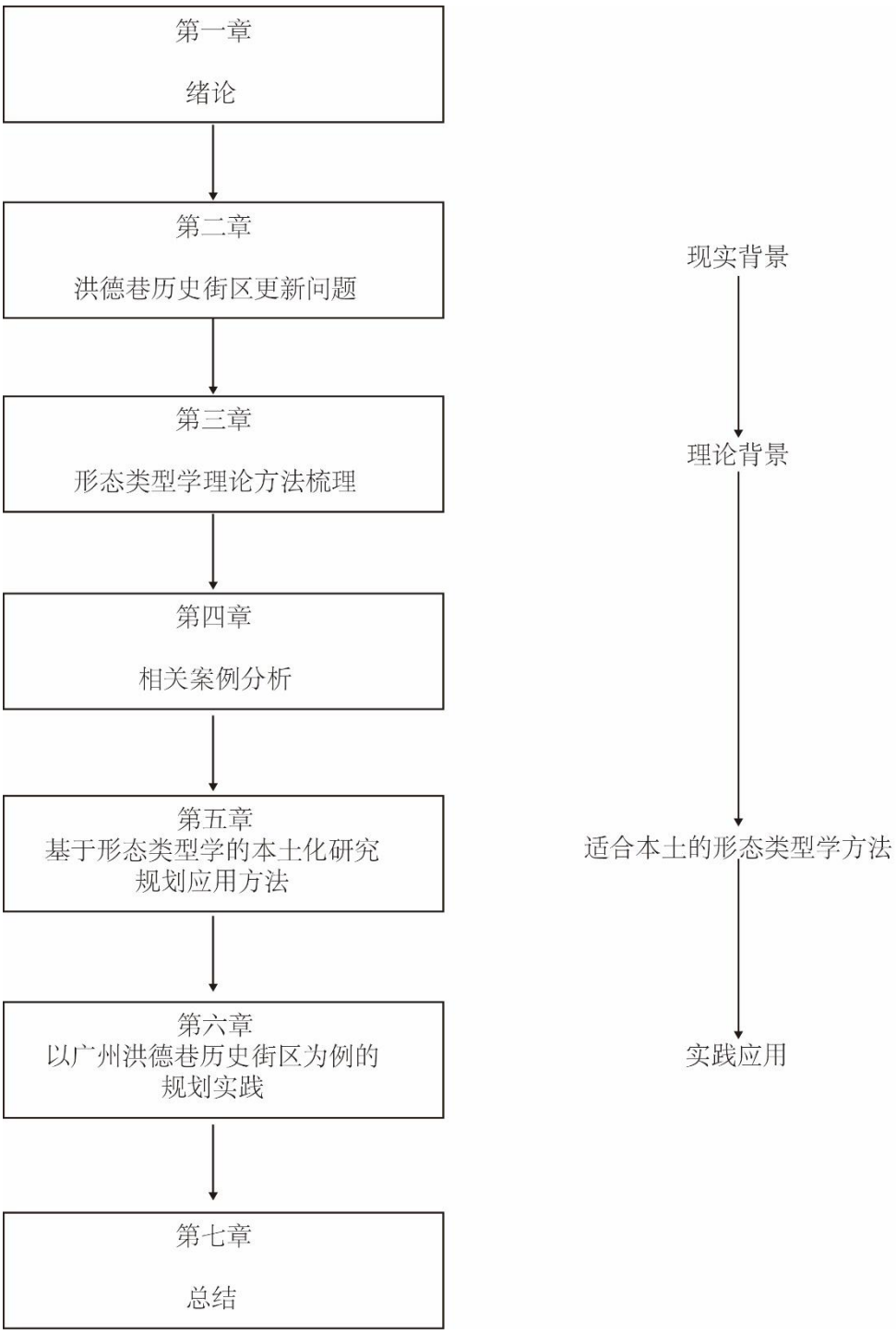


图 1-1 文章整体结构（自绘）

第二章 洪德巷历史文化街区更新问题

2.1 历史沿革及文化资源

早在南汉时期已出现殿堂坛庙园林；宋元到明清前期，以岭南传统水乡聚落为主，在清代，已成为十三行行商聚居区，依托漱珠涌沿线发展繁盛，出现众多酒肆娱乐场所；在民国时期，以基础设施建设（南华路，同福路，洪德路）为依托，近代城市格局基本形成，近代住宅，骑楼风貌特色凸显；解放后，在建国后至改革开放初期，历史城区基本保持原有格局，60 年代因淤塞严重，漱珠涌封涌。改革开放后，地区建设加速，大量高层住宅建成。其发展与两条主线密切相关，其一为“因水而生，因水而兴”的空间发展脉络，其二为与广州十三行的密切关系。

同样因为其历史文化悠久，在此也存在大量具有历史文化价值与特色的建筑。

1.民国时期竹筒屋、大屋为特色的传统住宅区。

清中期洪德巷一带发展成为广州的住宅区，形成洲头咀大街、宝恕大街、洪德大街等几个住宅片，每个片区内住宅以竹筒屋为主要构成单元，间或有部分大屋，历史上居住者多为买办行商。大量以竹筒屋为特色的传统住区肌理尚存、风貌完整，具有较高历史价值。

2.河南地区民族宗教发展的见证。

保护范围内的基督教洪德堂旧址是河南地区民族宗教发展的见证。

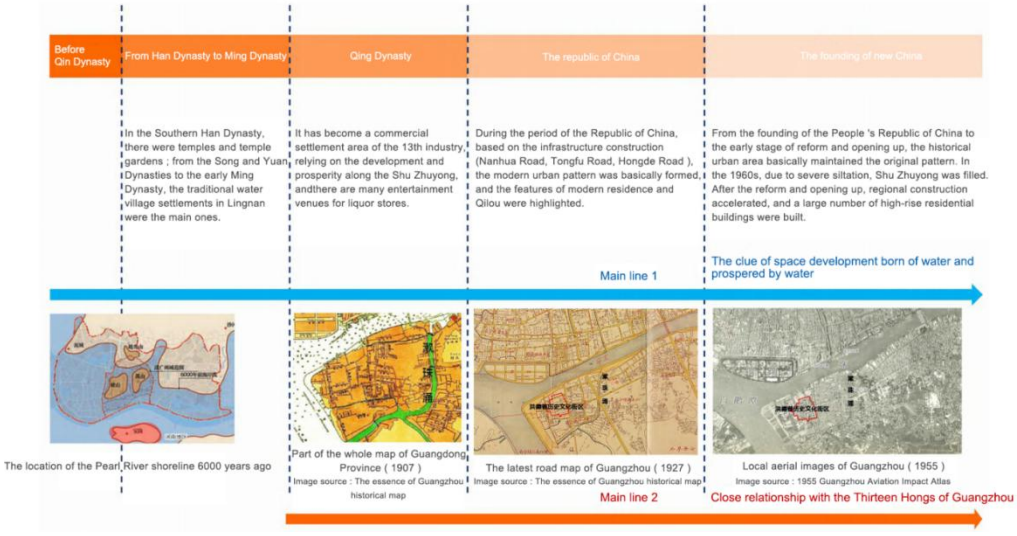


图 2-1 洪德巷历史沿革分析

2.2 现状情况

洪德巷历史文化街区位于广州市海珠区，其规划范围与《广州历史文化名城保护规划》划定的洪德巷历史文化街区保护范围一致，即：南至后乐园街、洪德七巷，北至海天四望、西至宝恕大街、后乐园街，东至人民桥、洪德路，保护范围面积 8.23 公顷，其中核心保护范围面积 5.64 公顷，建设控制地带面积 2.59 公顷。

展开详细的历史资料调研及补充更新现状研究成果：首先，明确洪德巷地段内的保护对象，洪德巷历史文化街区的保护对象由物质要素和非物质要素两部分组成。

1.物质要素

（1）自然环境，包括珠江、传统街巷绿化、开敞空间等；

（2）不可移动文化遗产，包括 1 处不可移动文化文物（基督教洪德堂旧址），4 处历史建筑线索、42 处传统风貌建筑线索及其他传统建筑；

（3）历史环境要素，包括同福西路骑楼街，洪德一巷等 4 条传统街巷的肌理、风貌，以及传统居住片区的整体格局等。

2.非物质要素

非物质文化遗产包括海天四望地名传说、后乐园等民间文学、粤剧等传统戏剧、彩扎（广州狮头制作技艺）等传统技艺、十三行行商等名人事迹、洲头咀抗英运动等历史事件等。

保护对象分类		具体保护对象
自然环境	水系	珠江
	绿化及开敞空间	传统街巷绿化空间
不可移动文化遗产	不可移动文物-尚未核定为文物保护单位的不可移动文物	基督教洪德堂旧址
传统街巷	骑楼街	同福西路
	传统街巷	洪德一巷等 4 条传统街巷
其他不可移动文化遗产及历史		传统居住区的整体格局；洪德街四巷 27、29 号民居

环境要素		等 3 处历史建筑线索；洪德街六巷 36 号民居等 42 处传统风貌建筑线索以及其他传统建筑
优秀传统文化和非物质文化遗产	民间文学	海天四望地名传说、后乐园
	传统艺术、技艺	粤剧、彩扎（广州狮头制作技艺）
	历史事件	洲头咀抗英运动、十三行行商

表 2-1 洪德巷历史文化街区保护对象一览表

2.3 具体问题

洪德巷区域不仅人口密度较大同时老龄化现象严重，且街区之间居住环境狭小、建筑衰败、场地环境复杂及一些违章加建现象，不仅降低居住品质同时破坏场地环境肌理。对于具体设计研究来说，不仅需要前期进行精确调研，对现状建筑的重要程度由大到小进行修缮、改善、整修、整治、改造的处理方式，并充分了解场地内的物质空间及居民的生活方式，同时也需要及时与居民进行协商其具体需求及建议，基于自身研究成果及各方要求提出适合场地的最优解。

2.4 保护更新问题与形态类型学之间联系

广州洪德巷历史文化街区保护更新工作包括诸多工作包括相关政策制定、建筑设计、城市规划等多方面内容。以上问题，从现有欧洲案例来看，其均与形态类型学有所联系，并且能够做出一定合理解释。其根本原因在于，形态类型学由城市形态学与建筑类型学结合，共同关注城市形态与建筑类型的内在特征，及其具体的物质空间发展随城市功能及市民意愿变化而变化，具有很强的适应性。

2.5 本章小结

本章通过对洪德巷历史文化街区进行介绍，对其有了初步的认知，同时对保护更新问题及形态类型学之间的联系做了初步解释，为后续对于形态类型学理论的开始研究做铺垫。

第三章 形态类型学理论方法梳理

3.1 英国康泽恩学派

3.1.1 理论架构和术语

康泽恩建立并对城市形态学进行发展，《城镇平面格局分析：诺森伯兰郡安尼克案例研究》该书是其最重要的著作。其认为城市风貌，是城市平面形式、建筑形态以及城市土地利用形式的综合反映，并由以下三种基本元素构成：

（1）街道及街道系统；

（2）地块及在街区中的形式；

（3）建筑物基底平面。[37]因此他提出一种进化式观点，认为城市在不同发展时期会留存其独特形式，且可以通过对历史资料的解读及场地调研发现。(图 3-1)

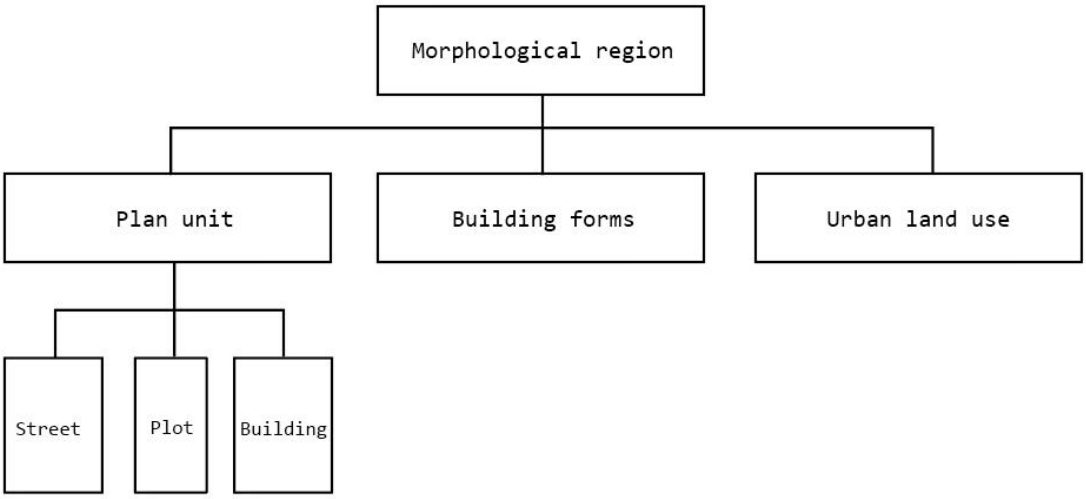


图 3-1 城镇景观构成要素（自绘）

3.1.2 解释工具——平面类型单元和形态区域

平面类型单元和形态区域是康泽恩进行城镇平面分析时主要使用的诠释工具。在其研究中，他标记城市不同历史时期的平面类型，并在地图上用颜色和图案进行区分，来反应不同时期的形态特征及历史演变过程（图 3-2 图 3-3）。这张城市形态区域划分图为理解拉德洛城市形态演变和确定保护区域提供了基础框架。同时比恩斯曼在 2007 年对

荷兰城市 Bromsgrove 中心区域的案例研究中，根据康泽恩方法划定了 4 种城市形态区域界线（图 3-4）。[38]并利用城市形态学理论得到的形态区域综合了平面类型单元等信息等信息，能够有效动态记录城市发展演变过程。

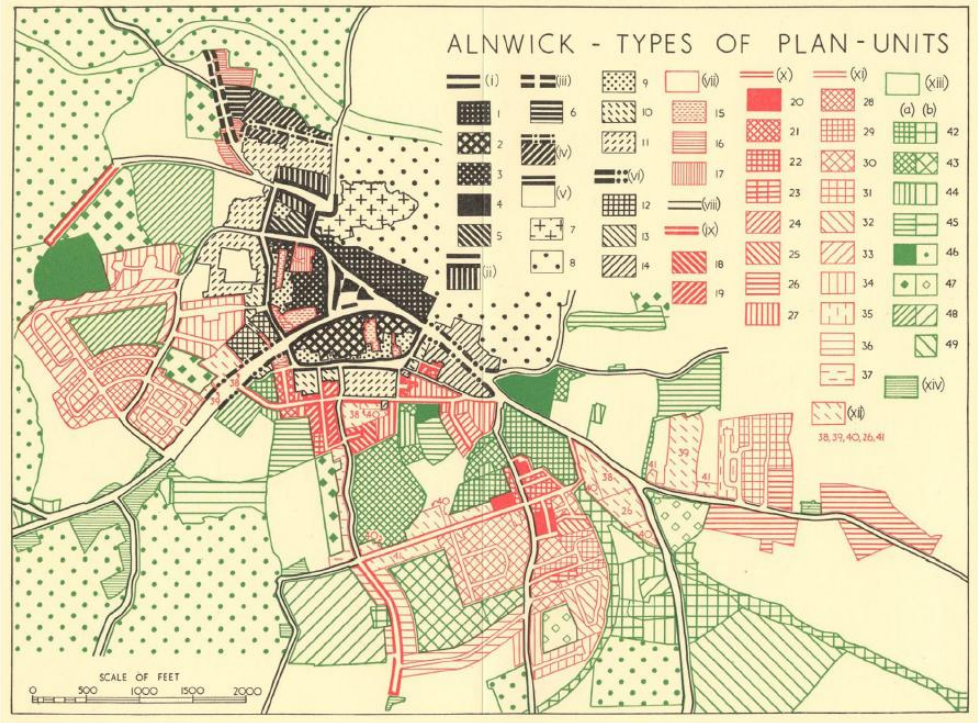
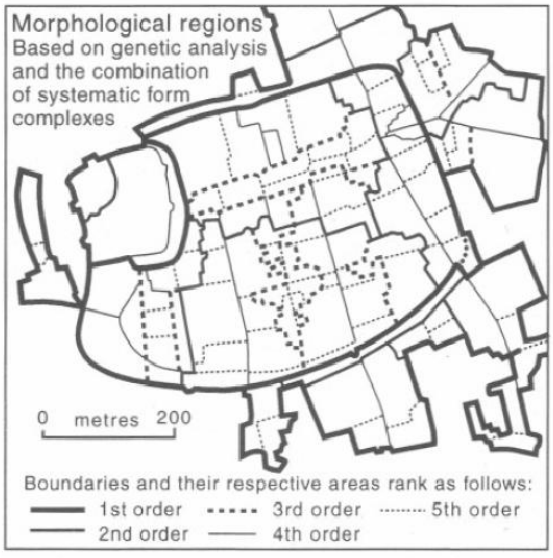


图 3-2 安尼克平面类型单元划分（康泽恩，1960）



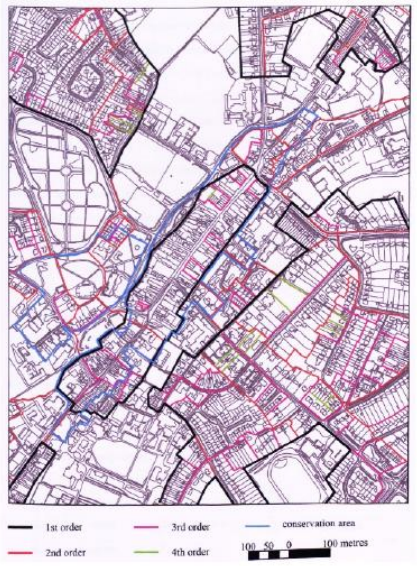


图 3-3 拉德洛形态区域划分（怀特汉德，2001） 图 3-4 Bromsgrove 形态和保护区域（比恩斯曼，2007）

3.1.3 研究方法分析

综上所述，通过不同形态区域的拼贴解释城市发展过程是康泽恩学派的主要研究方法。通过下图方法进行研究（图 3-5）。该研究目标是通过对形态区域划分认识城市中不同时期的建设痕迹和城市发展历程，设定未来建设和改造的控制引导办法，成为城市形态管理依据。

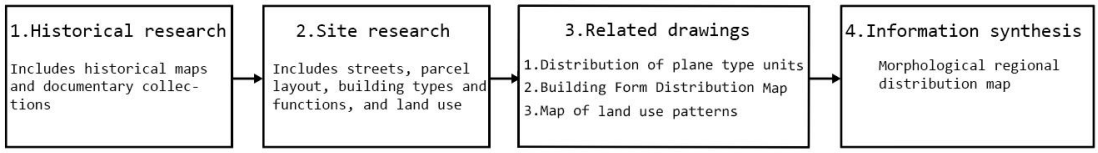


图 3-5 康泽恩学派主要研究方法（自绘）

3.2 意大利穆拉托里——卡尼吉亚学派

3.2.1 理论框架和术语

意大利建筑师穆拉托里通过对意大利城市的研究将类型的概念扩展到城市尺度，不仅限于建筑单体，更加关注其所处的城市环境——“城市有机体”。他在研究中设定一系列历史时期，以此理解城市形态和建筑类型的演变过程，并且将其作为重要基础资料，为新的设计提供指导，即一种“可操作的”历史研究方法。

卡尼吉亚，以此为基础发展出类型学进程的概念，他将城市中的建筑物分为基本建筑和特殊建筑，并且指出各种建筑活动都源于“自发意识”和“批判意识”的共同作用。[39]

卡尼吉亚对建筑的基本类型进行跨历史和地域的研究，他认为类型的发展存在某种源头，主导类型随地域和时间发展出共时性变体与历时性变体（图 3-6）。卡尼吉亚认为，在新的设计中保持与“主导类型”的某种延续关系，就可以在新老城市与建筑之间建立联系。[36]

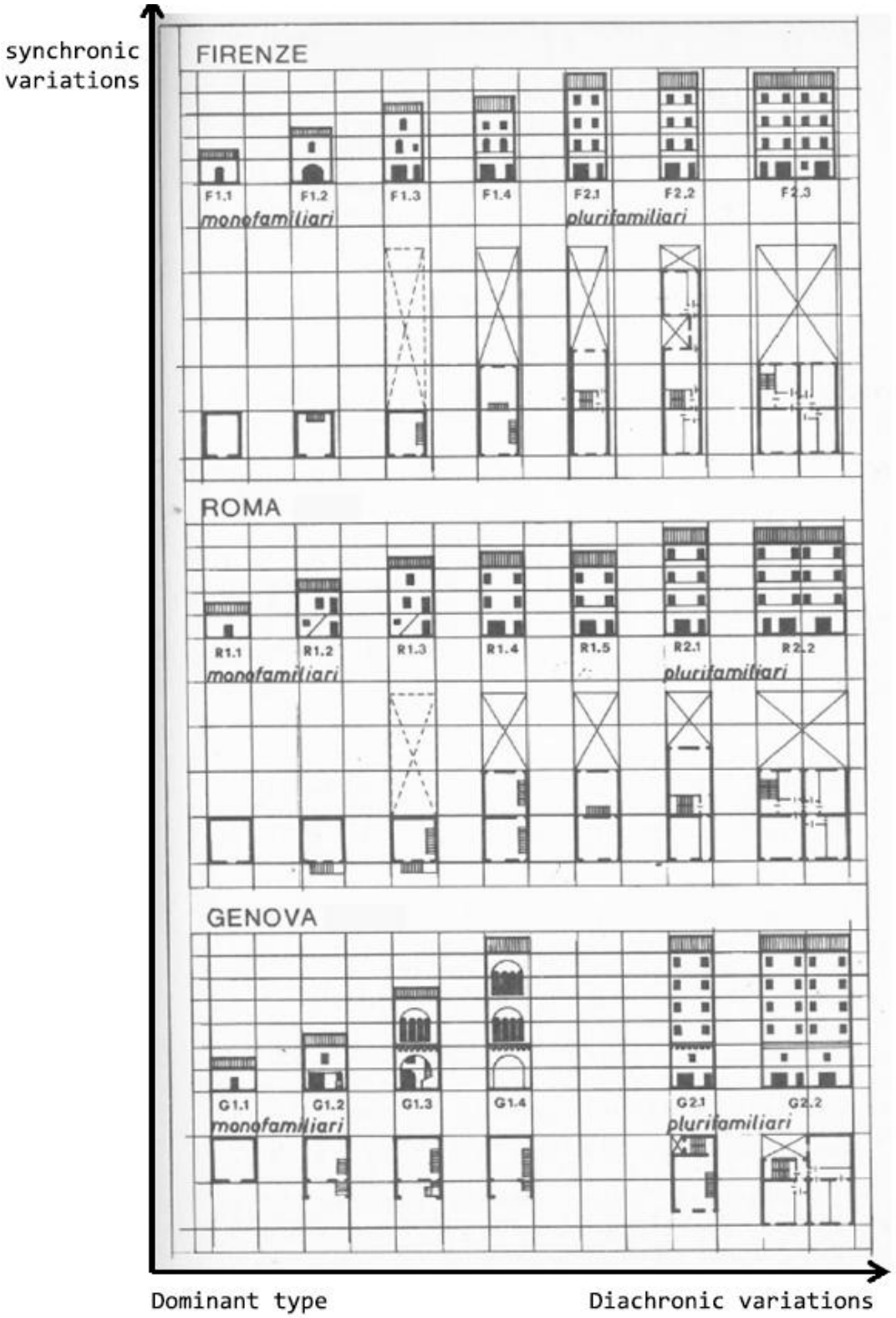


图 3-6 共时性变体和历时性变体（卡吉尼亚，1979）

卡尼吉亚还将穆拉托里的尺度概念发展为形态细分体系，其建立起一套层级体系：元素、元素结构、结构系统和系统有机体，复杂程度依次增加，并将其应用于建筑和城

市。按照这个分级，建筑序列被细分为“材料——构件——房间——房屋”四个层级。同样的，城市序列细分为“房屋——肌理——街区——城镇”四个层级，房屋作为两个层级的交点，在城市研究序列中成为基本元素[39]，这样，卡尼吉亚构建了从材料到城市的形态体系。（图 3-7）

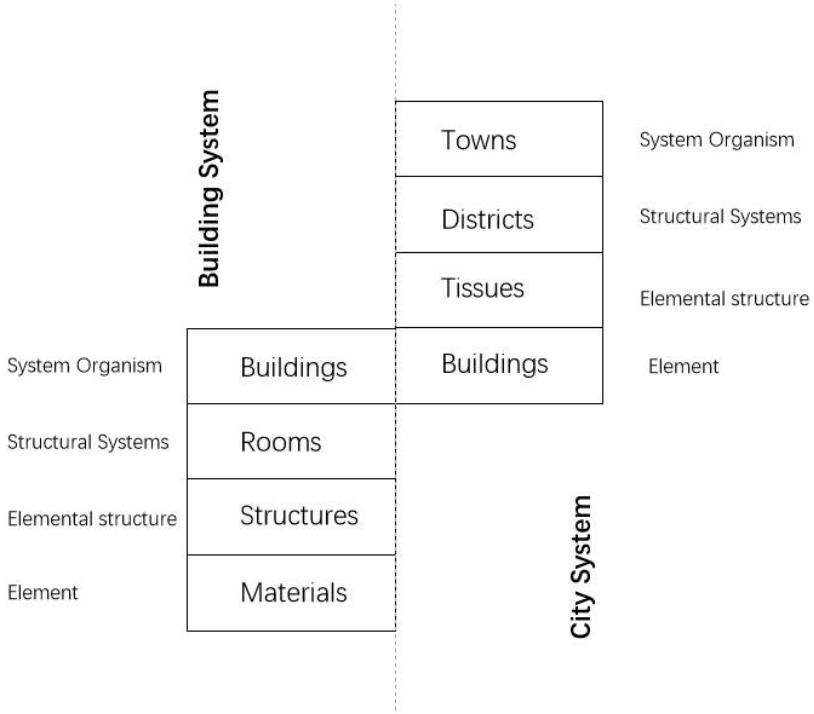


图 3-7 卡吉尼亚形态细分体系（自绘）

穆拉托里和卡尼吉亚的目标不仅仅是研究并记录城市形态和建筑类型演变，更重要的是他们希望探索在新的城市设计和建筑设计项目中如何延续既有类型的本质特征，既能传承历史文化又适应新的生活需求（图 3-8 图 3-9）。其参加的设计竞赛基于类型概念，使得意大利学派构建了一套完整的从城市设计到具体建造的“设计类型学”方法。

图 3-8 圣·朱利亚诺沙洲竞赛方案（穆拉托里，1959）

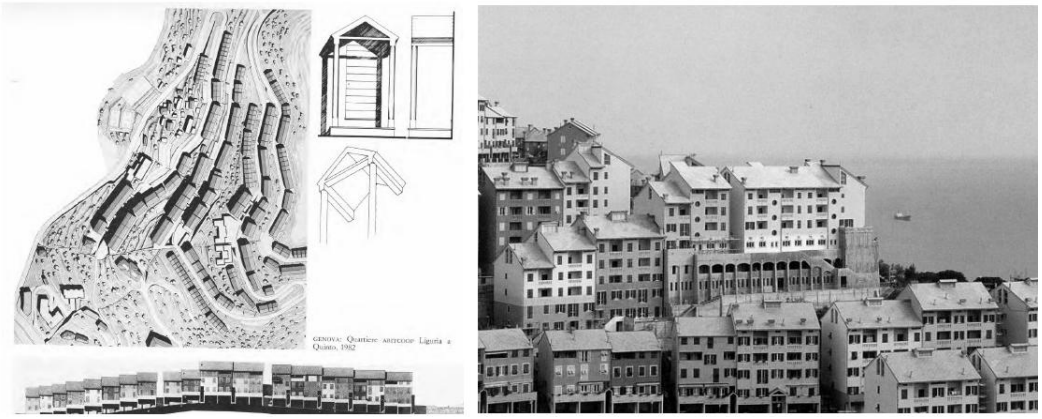


图 3-9 热那亚 Costa degli Ometti 居住区（卡吉尼亚，1980）

3.2.2 解释工具——类型学地图

类型学地图类似考古学家绘制的遗址地图，能够将城市整体形态与建筑平面布局展示在同一张图纸上。1748 年诺利按照罗马教皇本笃十四世的要求绘制“新罗马地图”，整套 12 张地图连在一起详细记录了当时罗马城市和郊区的建设状况（图 3-10 图 3-11）。

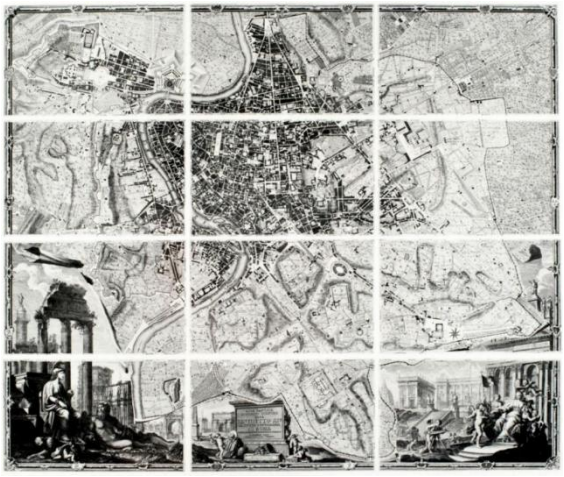


图 3-10 诺利底图（诺利，1748）

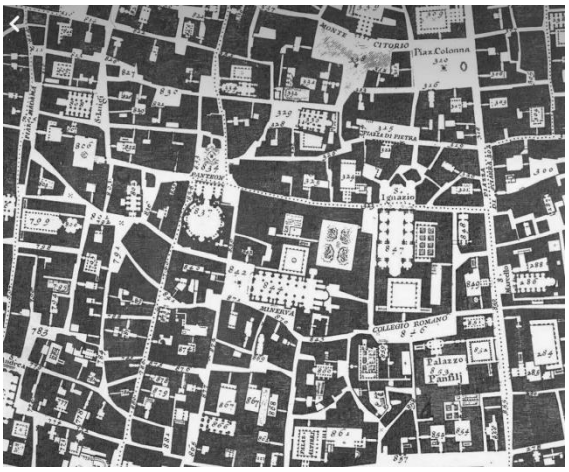


图 3-11 诺利底图局部（诺利，1748）

随后穆拉托里在威尼斯建筑大学教授“建筑空间类型”课程，在城市中选择部分区域带领学生细致测量全部建筑物，并绘制整个区域的地面层平面图，即类型学地图（图 3-12）；接下来，并基于文献资料绘制“推测类型学地图”（图 3-13）。通过比较可以进一步研究其发展和演变过程。

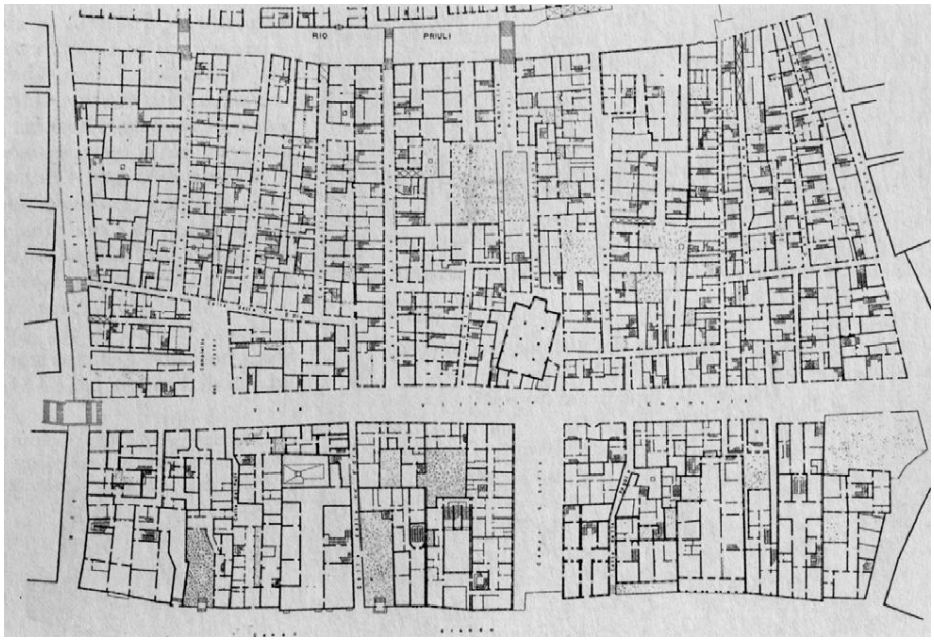


图 3-12 类型学地图：20 世纪的威尼斯圣索非亚区（穆拉托里，1959）

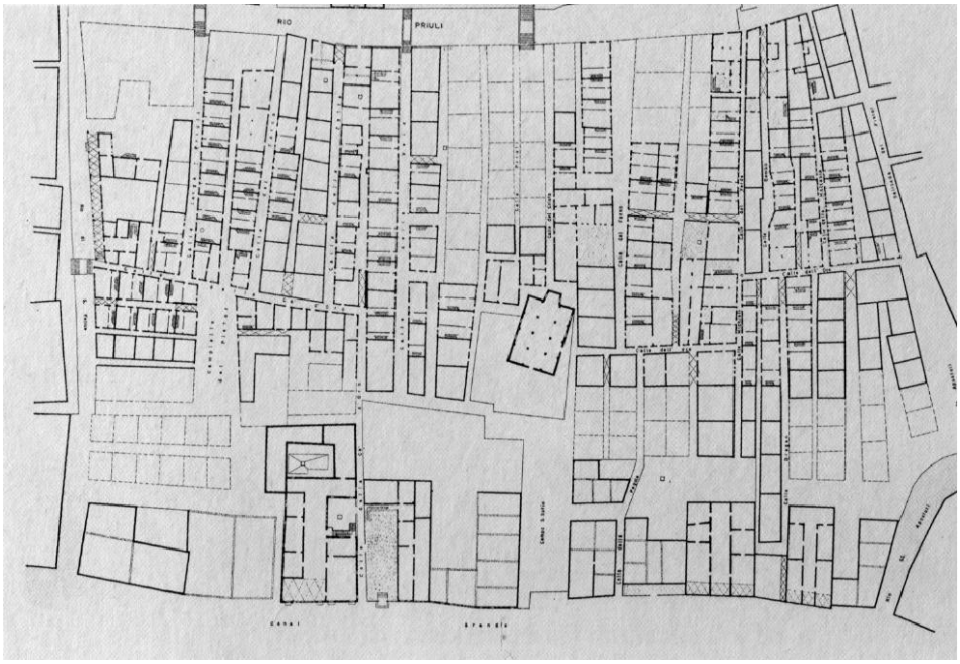


图 3-13 推测类型学地图：哥特时期的威尼斯圣索菲亚去（穆拉托里，1959）

卡尼吉亚对科莫古城的研究中，详细描绘了 19 世纪科莫中心城区的地面层平面（图 3-14）。他通过绘制意大利城市在不同历史时期的类型学地图和“推测类型学地图”（图 3-15），对基本建筑类型进行比较。

卡尼吉亚在 1984 年发表的《建筑构图与房屋类型学》系列专著的第二部《基本建筑设计》中，建立了在一定环境条件下逐步推导建筑设计方案的 4 个不同尺度层级的阶段，分别是：肌理设计—用于控制建筑类型的尺度、建筑类型的选择与适应性、建筑构件的类型、建筑材料的类型。系统、类型、构件和材料四个层级作为直接和间接的建筑语言，沟通了研究到设计的全部过程。[40]（图 3-16 图 3-17 图 3-18）。

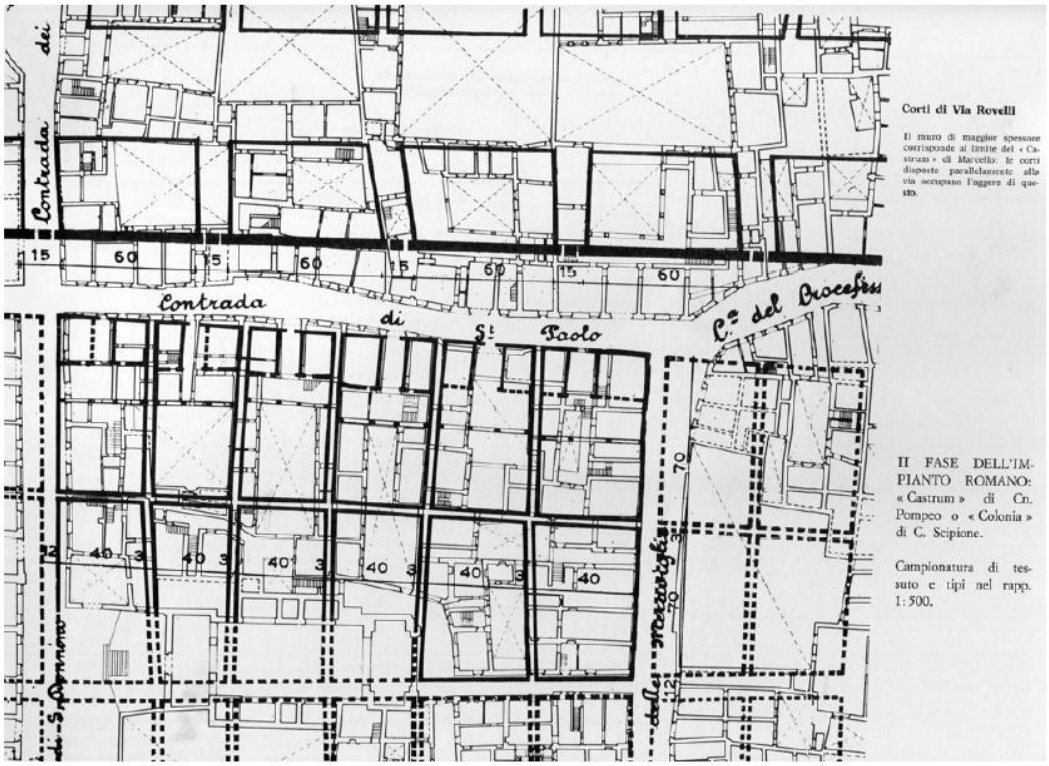


图 3-14 科莫，罗马时期考古地图与现代城市类型地图叠加（卡尼吉亚，1963）

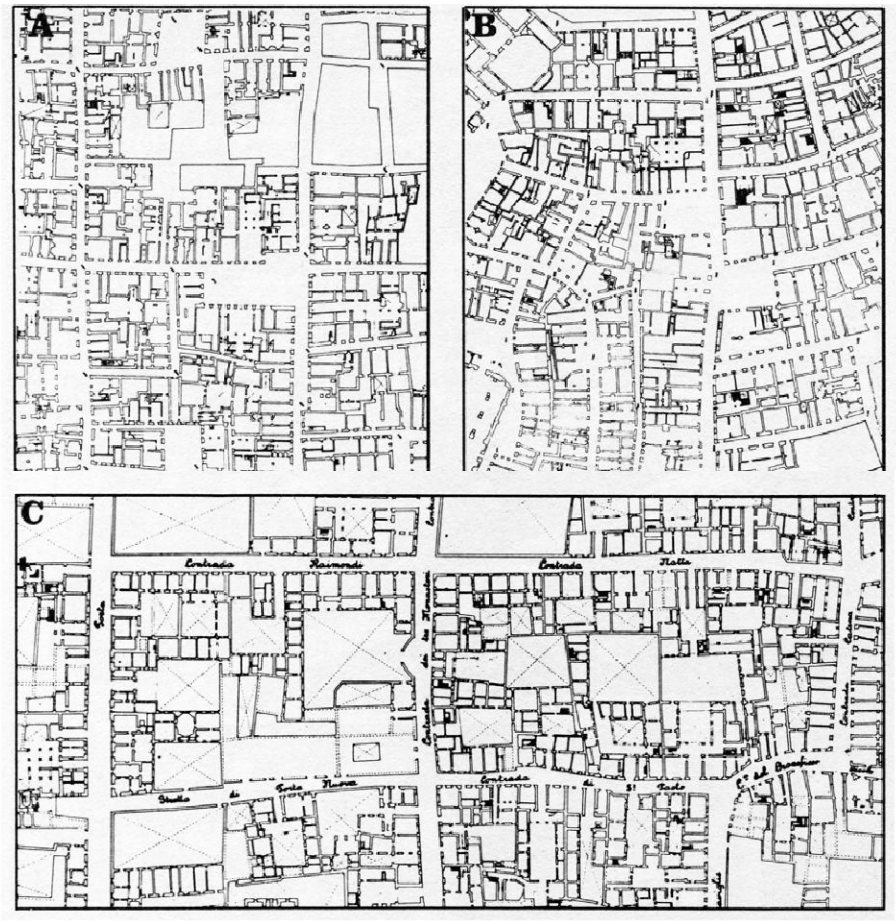


图 3-15 类型学地图示例，A 热那亚 B 卢科利 C 科莫（卡尼吉亚，1979）

图 3-16 佛罗伦萨圣·弗雷迪亚诺区 A 地面层平面（卡尼吉亚，1984） B 航拍图（2018）

图 3-17 圣·弗雷迪亚诺区形态演变，A-13 世纪中期城墙建设前，B 城墙修建后，C 城堡修建后，D1833 年地籍图（卡尼吉亚，1984）

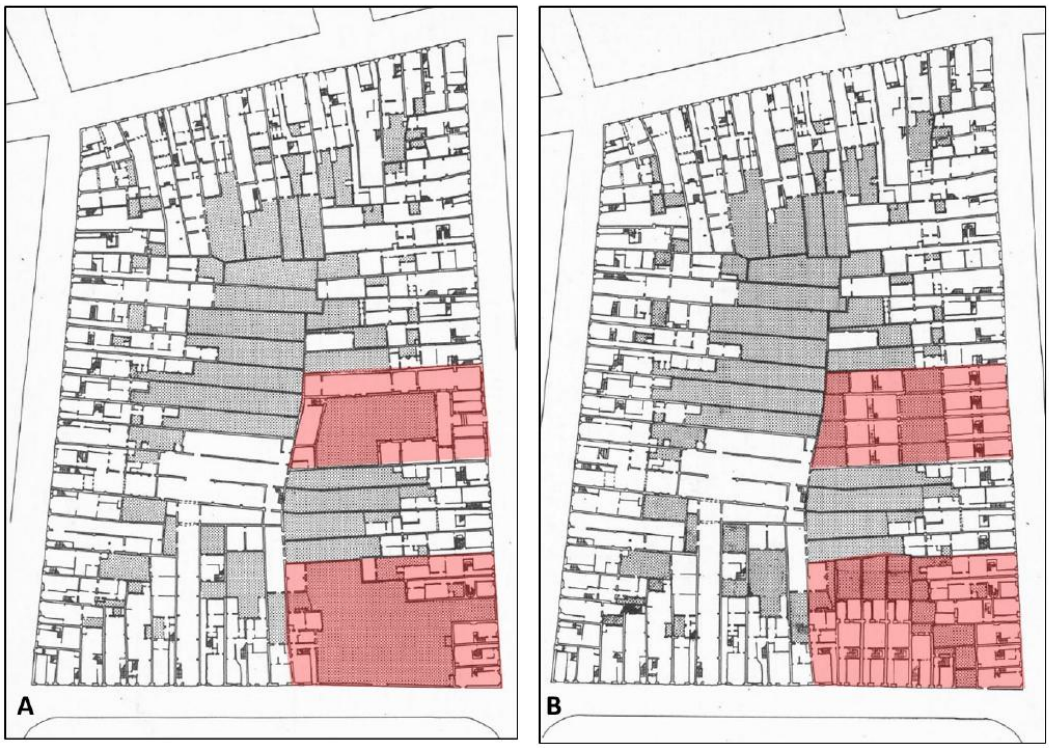


图 3-18 圣·弗雷迪娅诺区 A 现状类型学地图 B 设计成果（卡尼吉亚，1984）

3.2.3 研究方法分析

相比于康泽恩学派城市形态学，意大利学派更注重研究的层级体系。意大利学派构建的方法体系，利用类型学地图，从材料到城市层面对城市进行分析。（图 3-19）

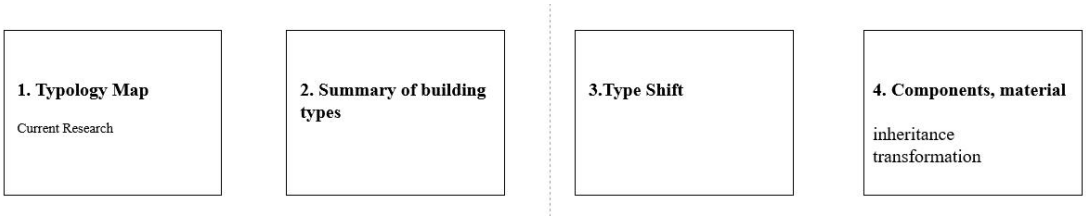


图 3-19 穆拉托里——卡尼吉亚学派主要研究方法（自绘）

3.3 综合的形态类型学方法

美国学者穆东引用埃蒙利农研究的专业术语“形态类型学”，构建了两种学派结合而形成的研究框架。英国学者克罗普夫在他的博士论文中整合了康泽恩和卡尼吉亚理论，

并重新解释形态类型学的层级体系。

克罗普夫认为康泽恩与卡尼吉亚建立的层级体系存在一定的模糊性。他认为卡吉尼亚对于街道的这个定义扩大了街道概念的内涵，用单一肌理这一名称更容易理解其内涵，不同类型的单一肌理拼合在一起构成城市肌理。[41]

克罗普夫的研究搭建起清晰的研究层级，在具体的操作中，更多的还是以康泽恩学派的平面类型单元作为主要的诠释工具。其对巴黎南部小镇梅纳西的土地利用规划进行了编制规划控制导则。（图 3-20）[42]

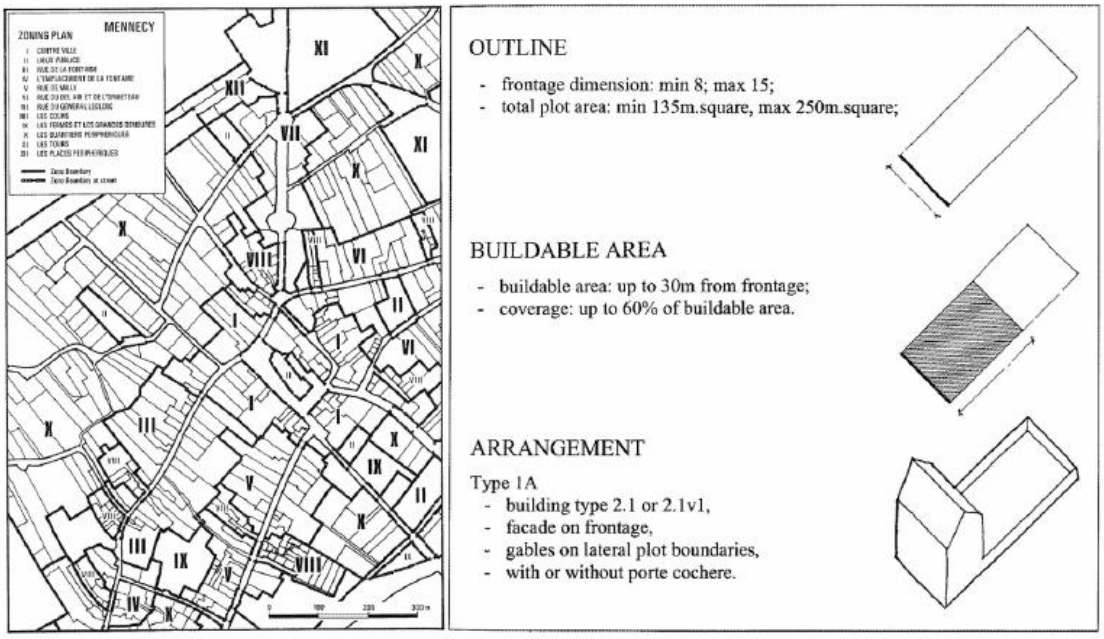


图 3-20 梅纳西形态分区规划与地块导则（克罗普夫，1998）

3.4 本章小结

本章简要介绍欧洲城市形态类型学研究中的主要理论体系、诠释工具和研究方法，英国康泽恩学派和意大利穆拉托里——卡尼吉亚学派虽然在学科背景、地域和语言等方面都有较大差异，但是研究的思路和使用的技术方法还是有很多相似和互补之处，克罗普夫通过对康泽恩和卡尼吉亚的主要概念的对比，提出综合的形态类型学研究框架和层级序列。

这些理论和方法在西方城市历史中心区的演变研究和更新设计中起到重要推进作用。也为后续构建适合中国的形态类型学研究方法和层级序列起到重要的参考作用。

第四章 案例分析

本章选取了形态类型学方法在城市规划和设计中的实际案例进行分析，巴勒莫城市规划（1990）和博洛尼亚“经济与民众建设计划”中圣·莱昂纳多 C 区的修复设计（1973）。

选取这两个案例的依据是：（1）巴勒莫城市规划充分反映了形态类型学的思想，同时规划技术也相对成熟，可作为参考针对后续研究。（2）圣·莱昂纳多 C 区的修复设计是建筑类型的更新研究，可作为在形态类型学规划技术背景下，对具体的地块修复进行参考。

4.1 巴勒莫城市规划（1990）

4.1.1 规划背景

巴勒莫是位于意大利西西里岛的古老城市，拥有悠久的历史和辉煌的文化遗产。作为西西里的首府，巴勒莫在中世纪以及之后的几个世纪中一直是南部意大利的文化、经济和艺术中心（图 4-1）。

在 20 世纪后，巴勒莫历史中心区的辉煌逐渐消退。二战期间，城市遭受了严重的破坏，许多历史建筑受到损毁，这给巴勒莫的历史遗产造成了巨大的损失。此外，城市中心的发展也开始向北部的现代化区域转移，导致历史中心区的地位和影响力急剧下降。许多建筑物遭到忽视和疏于维护，导致其逐渐破败和衰败。1990 年开展的巴勒莫历史中心区规划一开始就明确了历史中心区的历史价值，并指出历史中心区作为历史场所，不仅依赖历史文物建筑，也依赖整个城市的历史发展，以及社会、政治、经济、文化等层面，同样也应值得受到具体的保护和发展规划。在此阶段西方的形态类型学技术已经比较完善成熟，且有许多成功的实际规划案例可以进行参考。其主要应用目标为通过对建筑类型和城市肌理发展过程的详细调研，确定其类型演替流程来进行城市的整体修复来重新定义该城市的巨大价值。

图 4-1 巴勒莫卫星图（图源：Google 地图）

4.1.2 规划应用方法

本次在巴勒莫历史历史中心区的规划中主要是基于城市形态学和建筑类型学的分析，建筑类型研究以历史中心区内的所有建筑类型为对象，通过详细的归纳总结形成建筑类型的分类集合。

形态类型学的研究以整体的历史中心区城市肌理为主要研究对象，其包含元素主要有具体建筑类型、街道、公共空间、地块等，进行其各个演替阶段、对其变化过程进行总结，从而获得其整体的发展信息。本次规划是在意大利的城市形态研究传统中，首次将城市的类型学地图视为一个项目。

通过对现有建筑的具体分类，如建筑类型包括简单的单户住宅（所谓的 "catoio"）、多层单间住宅、小宫殿、多户小宫殿、宫殿、教堂和小礼拜堂、修道院和寄宿学校、特殊公共建筑、生产性特殊建筑、19 世纪末规划的建筑、战后建筑、尚未分类的建筑、城墙、塔楼、扩建建筑、绿地等。其为该城市的每个城市区域进行类型划分，并定义属于其自身的城市肌理，得到了准确详实的建筑类型图和城市肌理图。在控制方式上其操作更为突出，主要的控制方式包括修复、更新、语言学重建、类型学重建、考古遗址、拆除和墙体修复等，类型的准确划分和控制方式分别针对，确定了建筑师在未来几十年内解读和设计意大利（以及欧洲其他地区）历史中心的方式，为城市的未来发展规划提供

了重要参考。

对巴勒莫的具体规划也对城市的具体建筑类型形式（图 4-2、图 4-3）及各类平面肌理图（图 4-4）制定细致化的控制模式导则，这些地图和导则提供了每栋建筑的修复或再利用规则，解释了建筑师可以做什么或不能做什么，为后人提供了设计参考依据。[43]

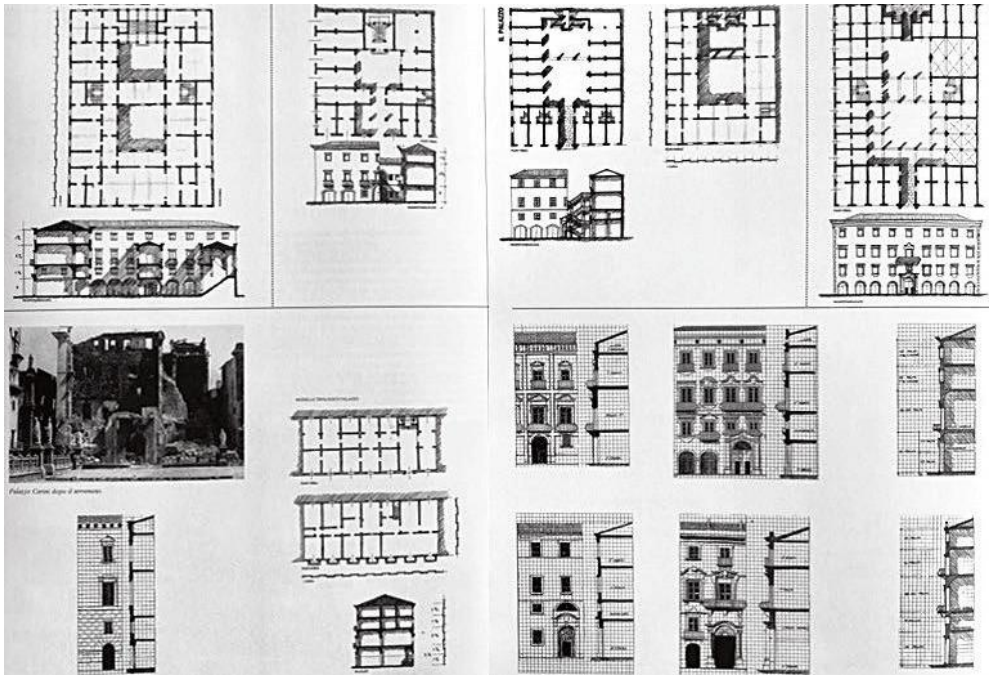


图 4-2 巴勒莫历史中心建筑类型图

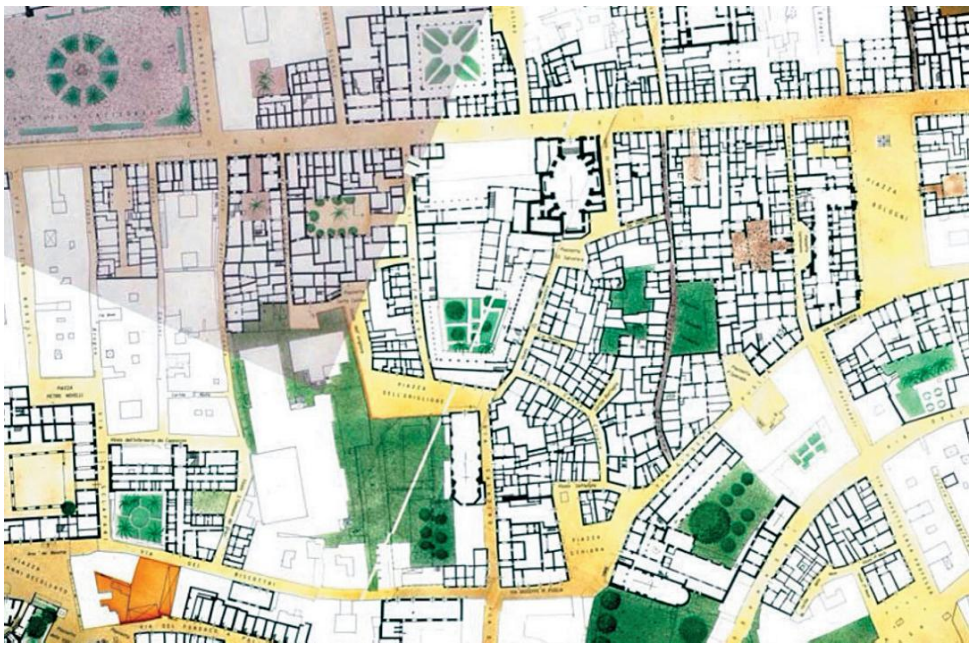


图 4-3 巴勒莫历史中心首层平面（局部）

图 4-4 巴勒莫历史中心平面肌理图

4.2 博洛尼亚圣·莱昂纳多 C 区修复设计

4.2.1 规划背景

博洛尼亚位于意大利北部波河与亚平宁山脉之间，是艾米利亚-罗马涅大区首府，早在公元前三千年前就有人类活动迹象，二战之后，博洛尼亚迅速成为意大利重要铁路枢纽和新兴工业城市。作为历史遗产保护的经典案例，博洛尼亚最早提出“整体性保护”，不仅保存城市中的历史建筑，更需要保护的是其中的居民。1962-1965 年，意大利建筑历史学家本奈沃洛应博洛尼亚政府邀请，开始针对博洛尼亚城市和建筑遗产的类型学研究，该成果极大推动了 1973 年批准的 PEEP 计划。[44]

4.2.2 规划应用方法

切尔维拉蒂根据类型学研究成果，对 17 世纪后的公共建筑和居住建筑的类型和组合形式进行统计（图 4-5）。

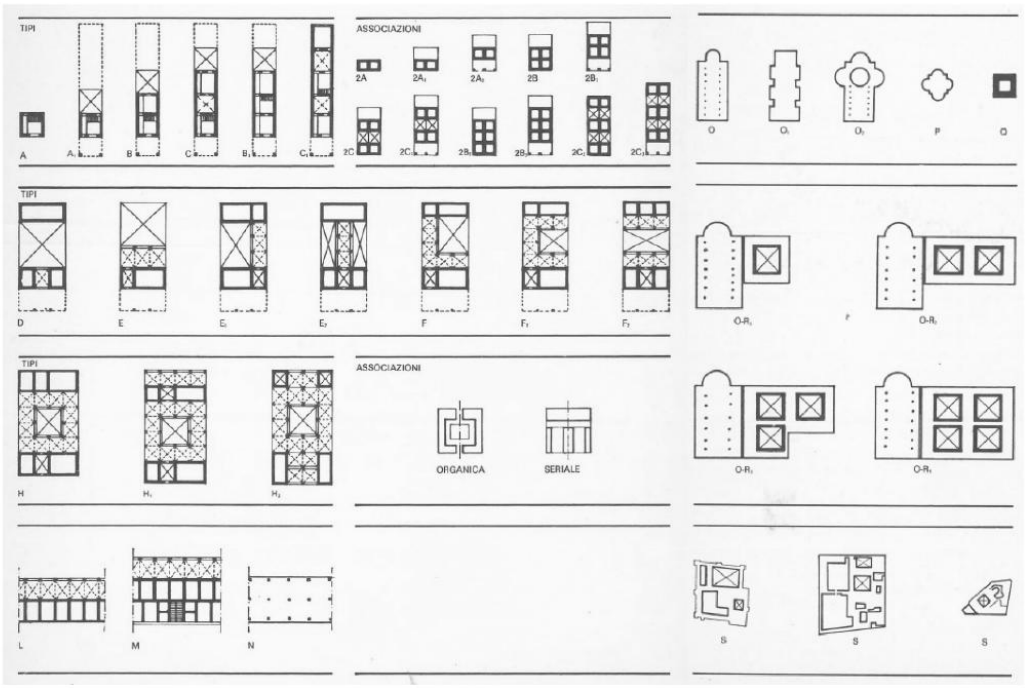


图 4-5 17 世纪后的公共建筑和居住建筑的类型和组合形式（切尔维拉蒂，1973）

在圣·莱昂纳多 C 区的修复设计中，其首先对比了该街区不同时期的产权关系图。为了在新的设计中恢复中世纪城市肌理形式和建筑类型特征，建筑师遵守早期地块划分模式对地块进行了具体细分（图 4-6）。

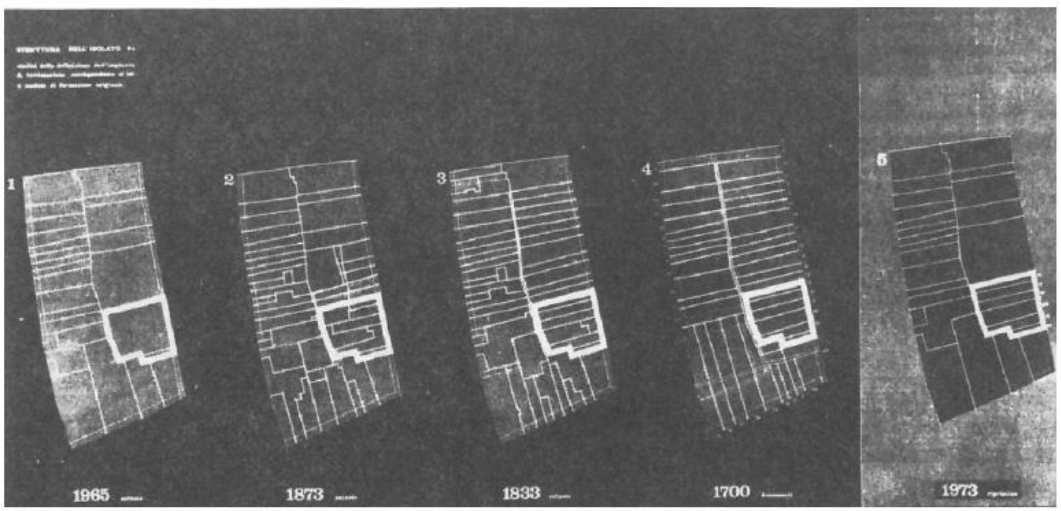


图 4-6 圣·莱昂纳多 C 区地块演变（切尔维拉蒂，1973）

接着其根据不同类型建筑的布局特点及形式等，融入新功能，得到新建筑平面形式（图 4-7）。同时对几种不同类型的平面布局按照地块面宽和形状进行调整，并置入沿街空地中，最终对场地内缺失的传统肌理进行有效的修补。（图 4-8、图 4-9、图 4-10）

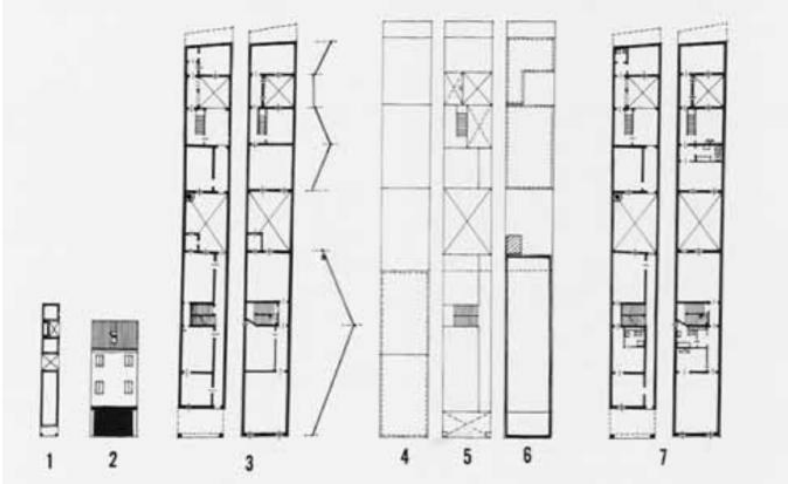


图 4-7 类型分析与设计 1. 抽象原型 2. 立面 3. 地面层、标准层、屋顶 4. 土地使用模块 5. 类型元素 6. 附着物区域 7. 设计成果

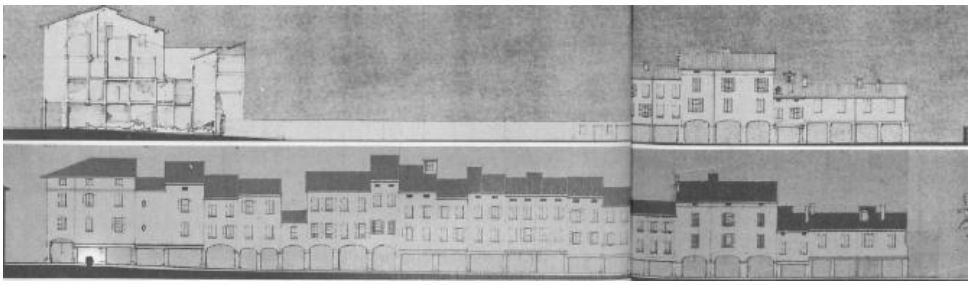


图 4-8 沿圣・莱昂纳多大街现状立面与设计立面（切尔维拉蒂，1973）

图 4-9 圣·莱昂纳多 C 区地面层平面 1 现状 2 设计（切尔维拉蒂，1973）

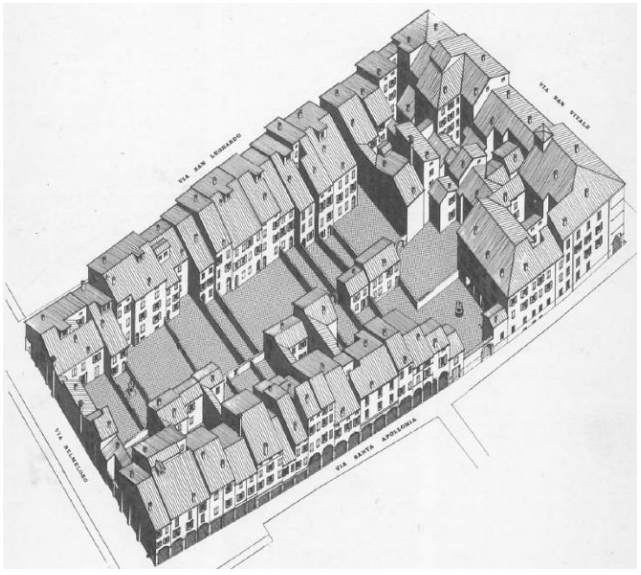


图 4-10 圣·莱昂纳多 C 区设计轴测图（切尔维拉蒂，1973）

4.3 本章小结

本章通过对两个案例分析，从对其背景和规划技术方法进行归纳总结：

1.从巴勒莫城市规划中，其以城市肌理为研究对象，对各元素的演替阶段进行变化过程总结，同时对现有建筑具体分类且控制方式多样，最终制定了详细化的设计导则和控制形式，这对今后的城市规划有着重要参考作用。

2.在博洛尼亚修复设计中，对住宅原型的探讨进行归纳总结，并根据其演替过程对地块进行了重新划分，对不同类型的建筑进行总结，并融入新功能，从而得到具有原型的新住宅建筑，能够对该区域进行有效缝合。

在基于对理论了解的情况下，研究其对具体规划操作的可行性，为后续研究适合中国的形态类型学应用方法做铺垫。

第五章 基于形态类型学的本土化研究规划应用方法

韩冬青在《城市形态学在城市设计中的地位与作用》中提出，“认识是创造的前提……形态设计必然以形态理解为前提，而形态理解的内容与方法也必然与设计的问题目标相联系。[45]

本章通过对洪德巷建筑构件材料、建筑类型，街道，肌理，地块及公共空间进行形态类型学流程梳理，并总结其发展过程，这些元素的确定主要是对卡吉尼亚对尺度概念的形态细分体系的调整和根据对广州洪德巷的具体调研综合考虑（图 5-1），同时又根据康泽恩学派的研究方法，将洪德巷历史文化街区进行细致的调研图纸绘制（包括现状保护对象分布图、建筑年代分析图、建筑形态分布图、建筑功能肌理图等），为判断其整体类型学进程提供依据，进而对各元素形态类型学演替过程分析和总结。

5.1 元素介绍

5.1.1 建筑构件与材料

对于该元素，不同地区和不同时代的建筑由不同的材料和构造方式建造而成，也是历史地段风貌特征的具体反映。

5.1.2 建筑类型及布局

房屋元素主要包括住宅建筑和公共建筑，洪德巷历史文化街区主要为住宅建筑，因此研究对象主要为住宅建筑。对其研究深化部分主要有：平面、立面形式、层高及主体功能。本次研究中主要结合不同的建设时期及类型布局进行分析。

5.1.3 肌理

肌理包括连贯的邻里形态（开放空间、建筑）和功能（人类活动）。社区在建筑、空间和功能（主题）的排序方面表现出可识别的模式，其中的变化强化了一套组织原则。

5.1.4 街道与地块

街巷和地块在图纸绘制中互为图底关系，密不可分，其中街巷限定历史地段的边界并建立起内在的街区结构，而地块的组织方式则构成街区肌理的隐藏秩序，共同表达历史地段边界形态和结构秩序。

5.1.5 公共空间

公共空间指存在于建筑外部，在建筑实体之间存在着的开放空间体，是城市居民进

行公共交往，举行各种活动的开放性场所，其目的是为服务广大群众。

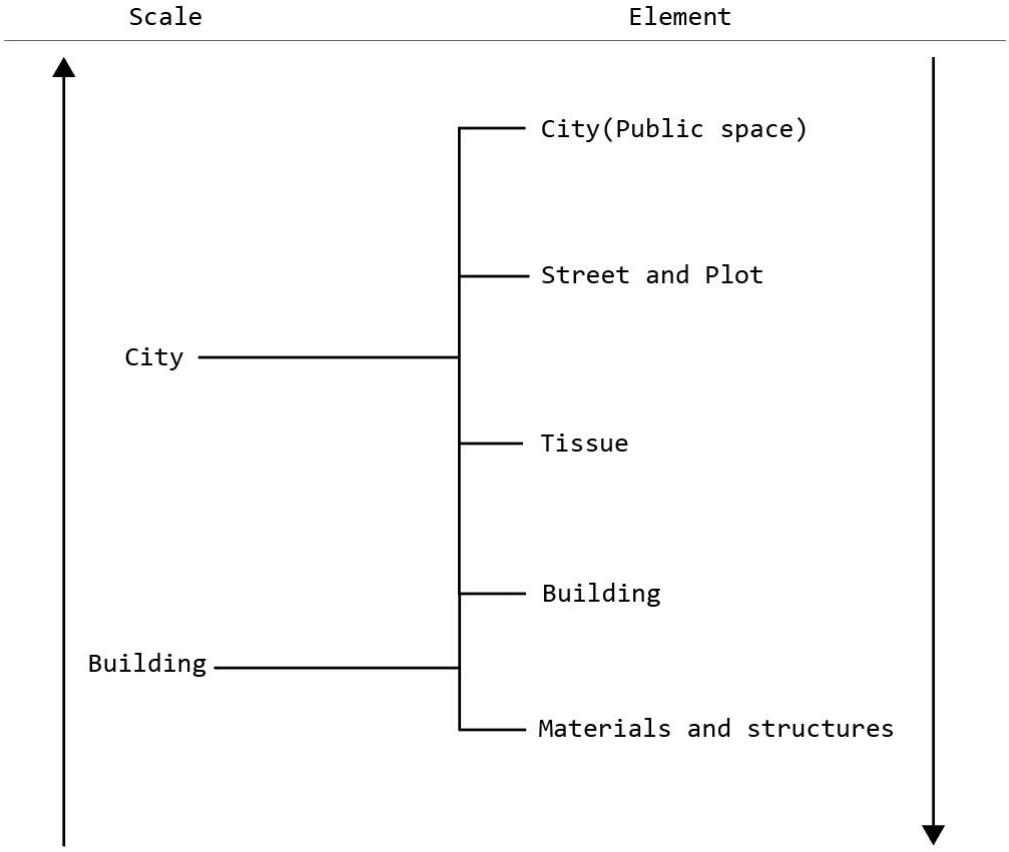


图 5-1 洪德巷历史文化街区形态研究元素图

5.2 洪德巷历史文化街区形态类型学规划应用方法

该应用方法在 6 个元素的基础上分为四个步骤，分别为：对场地进行详细调研绘制相关类型图、洪德巷历史文化街区形态类型学分析、基于上述分析的形态类型分区及具体的规划导则制定和设计实践。

首先，绘制场地内平面类型单元及形态区域相关图纸，为下一步要素研究，提供参考依据。

其次，根据三个阶段（民国 1912-1949、建国后 1950-1980、改革开放后 1980 年代后）对各个研究元素进行分析，结合形态特征总结归纳各元素的形态类型，然后对其进行形态类型学分析，以判断其形态演变过程中的连续性，对后面制定的城市设计导则提供一定参考依据。

然后，对各研究元素进行形态区域的整体划分。

最后，基于上述分析和分区进行具体城市设计导则和洪德巷历史文化街区的城市设计。导则主要为对城市肌理的整体修复和增加建筑物控制的导则。具体的城市设计主要针对破坏场地整体的公共空间对其进行改造处理。（图 5-2 洪德巷历史文化街区形态类型学规划应用方法）

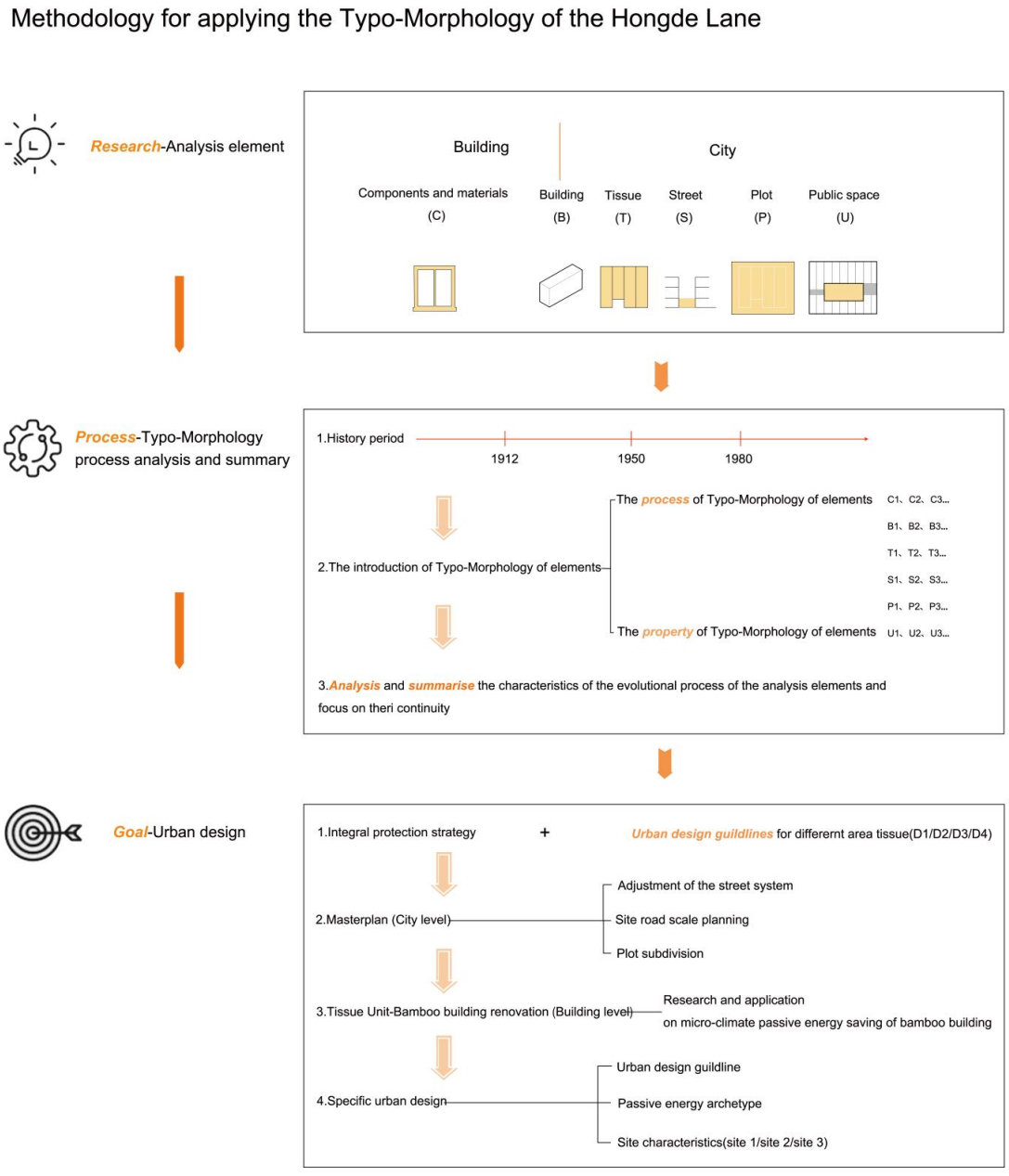


图 5-2 洪德巷历史文化街区形态类型学规划应用方法

5.3 洪德巷历史文化街区平面类型单元及形态区域

对洪德巷历史文化街区进行详细调研，重点关注其街道、建筑高度、年代、类型和功能等方面，基于历史研究和现场调研成果，绘制现状建筑高度图（图 5-3）、现状功能肌理图（图 5-4）、保护对象分布图（图 5-5）、建筑物与环境要素分类保护整治规划图（图 5-6）、建筑年代分析图（图 5-7）等，为后续对其历史进程演替研究做铺垫。

图 5-3 现状建筑高度图

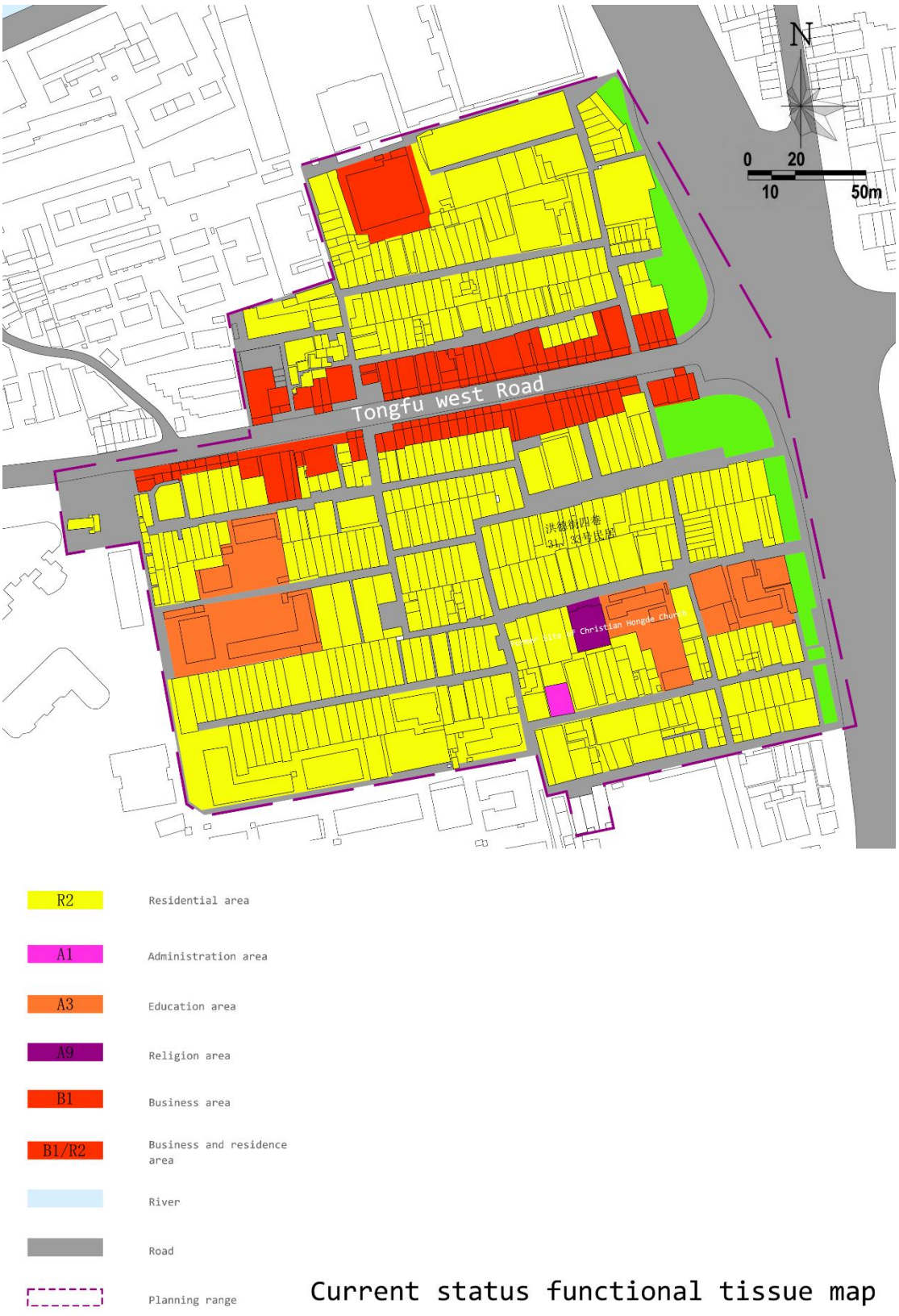

N
0 20
10 50m
Tongfu west Road
洪塘街四巷
31、33号民居
R2
Residential area
A1
Administration area
A3
Education area
A9
Religion area
B1
Business area
B1/R2
Business and residence area
River
Road
Planning range
Current status functional tissue map

图 5-4 现状功能肌理图


N
0
20
10
50m
Tongfu west Road
Former Site of Christian Hongdi Church
immovable building
immovable cultural heritage protection clues
other traditional buildings
Tree
Qilou street
Traditional lane
Historical and cultural districtCore Protection Scope
Historical and cultural districtconstruction control zone
Distribution map of protected objects

图 5-5 保护对象分布图

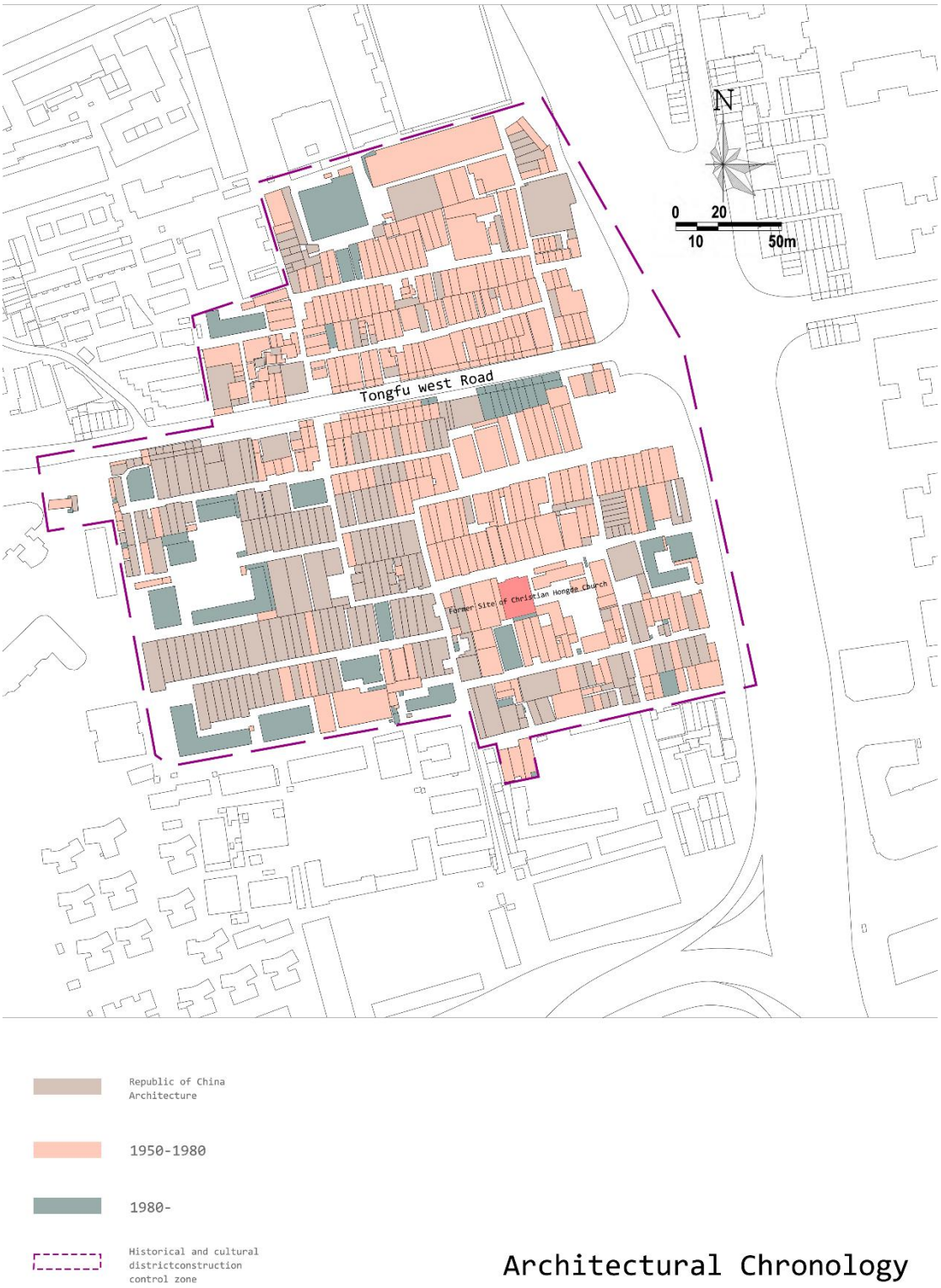

N
0 20
10 50m
Tongfu west Road
Former Site of Christian Hongde Church
Republic of China Architecture
1950-1980
1980-
Historical and cultural districtconstruction control zone
Architectural Chronology

图 5-6 建筑年代分析图

5.4 洪德巷历史文化街区形态类型学进程

5.4.1 建筑构件与材料

在卡尼吉亚的房屋序列中，材料对应元素，构件对应元素结构，具体来说，材料是一种自然物质和不同文化、地域建造行为结合的综合产物，包括砖、瓦、木材等；构件则是一种或几种元素的组合，例如楼板、墙、隔断、屋面等等。由于不同的文化和地域条件，中国传统建筑以木材和砖石为主要材料组合出一系列独特的构件，而广府岭南传统民居则是粤派建筑的典型代表。洪德巷地段中尚存一些保留较为完好的传统民居建筑，部分翻建的住宅也或多或少保留了传统特色，解析不同时期构件和材料的特征以及演变的过程，有助于把握历史地段的建构方式和风貌特征，并为新的设计提供启发。

5.4.1.1 民国时期

（1）形态类型演进

该时期住宅，在洪德巷地块中，可以清晰识别出其连续的山墙（图 5-7），这对于地段的整体形态和肌理组织具有重要的格局意义。

（2）形态类型特征

多为一至二层，结构形式为砖木结构,屋顶形式为整体连续的坡屋顶，且有着连续的结构山墙，根据檐墙界面虚实属性不同呈现两种状态，一般来说，实墙界面不出檐，或出檐很小，常呈现出前后出檐不对称的状态（图 5-8）。

图 5-7 连续山墙界面

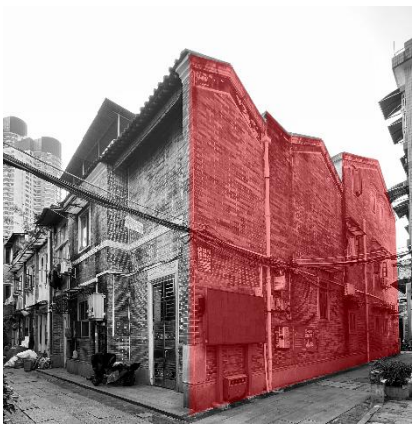


图 5-8 前后檐形式

5.4.1.2 1950-1980 时期

（1）形态类型演进

该时期建筑整体继承民国形制，但在材料与屋顶形式上进行一定简化，立面装饰简单，此外，还有不少搭建建筑屋面采用石棉瓦、彩钢板、阳光棚等现代材料。这些材料较为廉价，而且随着违章搭建面积的不断扩大，所占比例也逐渐加大，对于历史地段的整体风貌造成了很大的破坏。

（2）形态类型特征

比例形式大小延续民国形制，但在形体及材料装饰上进行简化，屋顶形式出现平屋顶或坡屋顶，立面装饰多为粉刷或贴青砖处理。

5.4.1.3 1980 年代后时期

（1）形态类型演进

80 年代后期由于技术的发展及快速制造的需求，整体建筑形式以简约为主，且由于结构的进步，一般层数较高，不做过多装饰且屋顶形式简化，这些都是服务于快速制造。

（2）形态类型特征

80 年代后住宅整体以砖混结构和框架结构为主，且屋顶形式多为平屋顶，墙面装饰上多以粉刷或贴马赛克砖为主。

5.4.2 建筑

5.4.2.1 民国时期

（1）形态类型演进

民国竹筒屋是指在民国时期建造的竹筒屋住宅建筑类型。民国竹筒屋与传统竹筒屋在外观上虽然大为不同，但实际上是传统竹筒屋通过“自适应”过程演变而成。民国竹筒屋的平面布局是以传统竹筒屋（图 5-9A）的为基础，没有太大演变：单开间，各种功能房间在纵深方向一节一节地串联起来。民国竹筒屋的层数通常是 2 到 3 层，也有公寓式的楼房，大部分新建的住宅都是平屋顶，立面用到水磨石刷面、钢筋水泥构件，以及西式装饰元素，如柱式、西式线脚、拱券。可以看出，民国竹筒屋应是传统竹筒屋在适应民国时期的一些社会与经济特征而产生的类型“变异”。

传统竹筒屋的平面形式本来就能适应窄长型的小地块，因此民国竹筒屋可以直接承继这种平面形式来应对当时的生活需求。传统竹筒屋也有 2 层，但基本是同一家庭使用，因此楼梯放置在房屋的中部或尾部，不会设置独立入口（图 5-9B）。民国竹筒屋楼房，基本都是一层一套房的形式。有些时候是几户人家一起自建房屋（现实情况也有私

人共有的房屋出现），每层都需要有独立的出入口和楼梯直通地面。因此楼梯就从中间或者后部位置转移到建筑的前端，靠边设置。为了节省面积，尽量少地打断首层临街界面的整体性，以及尽量少占用本来就很窄的开间宽度，楼梯都很窄，为直跑式。楼房会在楼梯间设独立入口，首层的房屋就从正面的大门进入，二层以上的就在楼梯的各层休息平台进入（图 5-9C）。这样共用楼梯间，每层楼都可以互不干扰，又提高空间利用率。有些为了更加节约面积，对称的两栋住房在中间位置共用一个楼梯，楼梯也是狭窄的直跑式（图 5-9D）。这种情况，可能是两个相邻地块拥有者联合建造，或者都同属一位拥有者，进行整体建造。

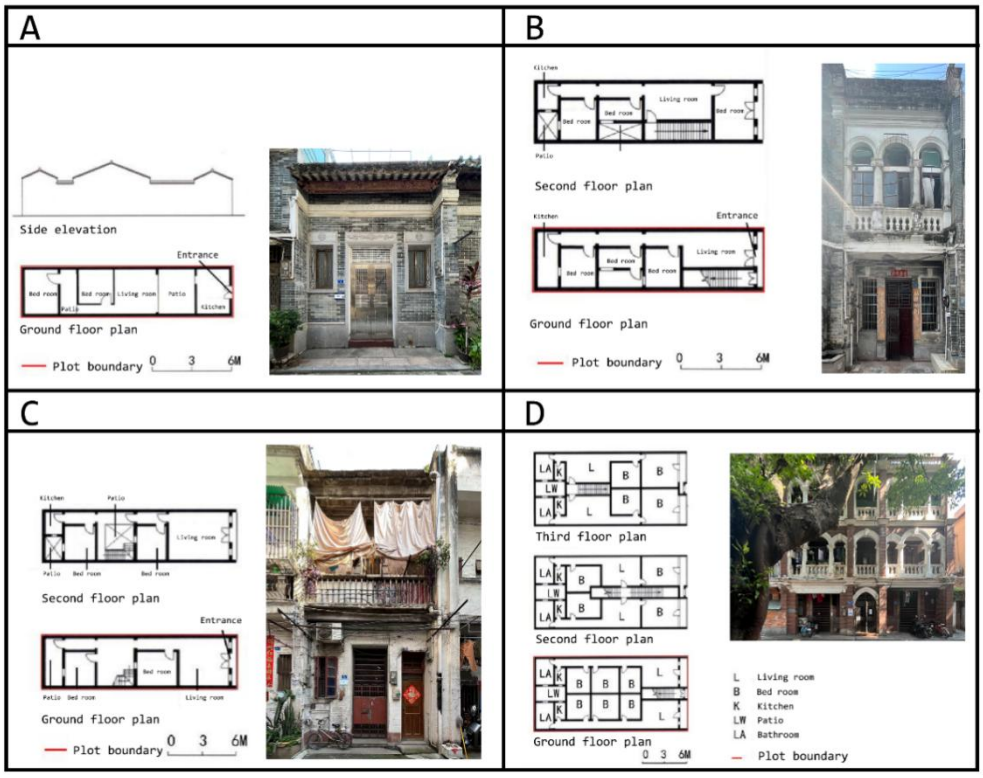


图 5-9 不同竹筒屋类型平面

（2）形态类型特征

20 世纪初以来，竹筒屋联排住区是在清末住区的基础上演变而成。在建筑的空间层次，建筑类型都是以明清时期固定下来的传统竹筒屋为原型。平面形式基本不变，只是在层数、建筑结构、立面形式与装饰、材料方面有所变化。这种变化反映出该时代的建造技术，审美偏向。在街廓的空间层次，即地平面，由于地块形状、地块系列的组织方式都没有变化，随之街廓的形状也没有改变，当时的特征就是清末时期的特征。

各种要素之间的约束情况中，地块形状是决定性的要素。因为地块形状不能改变，旧有的建筑平面形式可以继续被使用，而建筑的形式则随着经济和社会的变化而产生变化。二维空间特征上，多为 4 到 5 米宽，地块的宽度也随之被固定成这个标准尺寸。地块组合成地块系列和街廓后，有效边界的长度就变成这个标准尺寸的倍数。

5.4.2.2 1950-1980 时期

（1）形态类型演进

洪德巷历史文化街区情况与 50 年代后其他重建地区有所差异，依据现场实际调研情况，场地内 1950-1980 年代建筑大部分住宅地区仍保留传统竹筒屋和青砖大宅形式（部分区域存在集合住宅形式），但又有所差异，其中在立面层次上开始进行简化，仅保留基本形式，材料的使用也逐渐多样，从颜色抹灰到瓷砖贴面，以及后期对其屋顶上的其他结构加建（图 5-10），同时由于人口数量的增加，住宅层数逐渐增高（图 5-11）。

图 5-10 结构加建建筑

图 5-11 多层“竹筒屋”

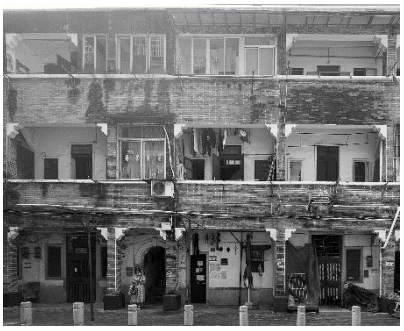


图 5-12 多层住宅建筑

（2）形态类型特征

该时期住宅建筑整体得以延续民国时期相近建筑体量和空间组织模式并在不同形状地块中布局时进行适应性调整，展现了和谐且丰富的整体城市肌理。但在立面与屋顶形式进行简化，同时也出现新类型板式多层住宅建筑(图 5-12)，为外廊式，且在立面比例上与传统竹筒屋比例相似。

5.4.2.3 1980 年代后时期（住宅）

（1）形态类型演进

改革开放后，广州市人口大量增加，为容纳更多人口，这一阶段也开始由原有的多层建筑基础上出现部分高层建筑（板式住宅和点式住宅），在场地内修建了高层集中住宅（图 5-13），整体以砖混结构为主，外部粉刷或贴砖，户均面积 50-60 ㎡左右。与传

统住宅建筑模块化建设不同的是，整体的房屋形式变得多样。

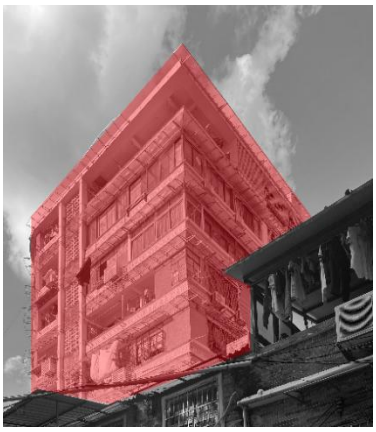


图 5-13 高层住宅

（2）形态类型特征

该阶段建筑层数明显增加，整体多为框架结构，一般在 8 层以上，且具体平面形式更加多样，但立面一般较为简单，其数量在洪德巷整体较少，但占地面积较大，且在立面风格上与传统住宅建筑相差极大，显得格为突兀。

5.4.2.4 1980 年代后时期（公共建筑）

（1）形态类型演进

场地内公共建筑多为 80 年代后期为服务当地居民所建造，这类建筑在洪德巷场地内数量较少，但整体规模较大，其中现有北侧边界地区办公厂房（图 5-14），及一座新建办公建筑，场地西侧边缘老年活动中心及海珠区电大(图 5-15)，场地中侧一座宗教建筑-基督教洪德堂旧址（尚未核定公布为文物保护单位的登记不可移动文物）(图 5-16)，场地东侧边缘一座服务于当地社区的幼儿园（图 5-17）。这些公共建筑平面多呈横长方形或 L 形。

图 5-14 办公厂房

图 5-15 老年活动中心

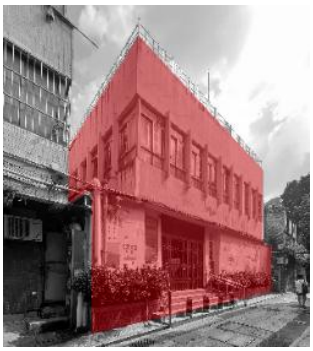


图 5-16 幼儿园

图 5-17 基督教洪德堂

（2）形态类型特征

整体建筑面积大，一般将所处地块铺满，位于场地边缘地区，整体沿街立面延续，但缺少对传统建筑组织方式的传承，使得场地边界杂乱无序同时破坏整体场地肌理，缺乏对场地的统一和连续性。

5.4.3 肌理

单一肌理的概念来自于卡尼吉亚对街道的定义，指同一条路径以及其两侧相同或相似的地块序列构成的整体，也就是说必须同时满足地块与街道的关系一致，以及地块内的建筑布局模式相似才能构成同一种单一肌理。从这个角度来看，这一概念与康泽恩提出的平面类型单元定义非常相似，都是涵盖了街巷、地块、建筑等全部要素的集合。不同类型的单一肌理或者说平面类型单元拼贴在一起，进而构成更为复杂的街区以及城市肌理，单一肌理的划分将成为未来规划与设计中分类编制地块保护与再生导则的重要依据。

5.4.3.1 民国时期

（1）形态类型演进

该时期，主要平面肌理为由竹筒屋所组成，其单个开间 4-6m，进深 20-25m，紧密排布，可单层排布也两层排布，可横排也和横纵组合排布，构成丰富多样的平面肌理，建筑密度较大，一般短边为入口，与相邻建筑有时也有些许空隙，产生一些小型院落，且这时城市道路两侧出现骑楼街道，产生一种新形式肌理。

（2）形态类型特征

该时期的形态特征整体由传统住宅或骑楼建筑和街道进行划分，在此统称为传统住宅肌理和骑楼街区肌理。

5.4.3.2 1950-1980 时期

（1）形态类型演进

该时期，新的建筑类型的出现为场地的组合肌理发生改变，其一般位于传统住宅肌理内部或并列放置，占地面积较大，与周围传统住宅产生明显冲突。

（2）形态类型特征

现代扩张肌理相对独立且形体规整，因此与道路的关系相对比较清晰，但其与传统住宅肌理差异大，现代扩张肌理的介入破化了原有传统住宅肌理关系。

5.4.3.3 1980 年代后时期

（1）形态类型演进

该时期为适应建筑现代化的布局发展，多位于场地边界修建高层建筑，造型一般比较丰富，但与传统民居肌理产生明显的冲突和反差。

（2）形态类型特征

整体拆除的区域一般产生大型建筑（办公楼等），在此可视为新建肌理，新建肌理的产生，对于传统肌理的破坏不可恢复。

5.4.4 街道

5.4.4.1 民国时期

（1）形态类型演进

1918 年，由于广州市市政公所的成立开始进行了现代意义上的道路修建，这一时期的城市道路建设，确定了洪德巷街区的基本格局。且在同福西路两侧出现了骑楼建筑，新街道类型-骑楼街道也随之产生。

（2）形态类型特征

随着这一时期，道路建设的完善，街区的整体街道网络系统层级关系逐渐清晰，且逐渐产生不同层级尺度的道路。大体可以分为 4 类，分别为：城市道路（图 5-18）、内部主要街道（图 5-19）、内部巷道（图 5-20）、里巷（图 5-21）。城市道路主要为城市中的车行道，位于街区右侧及中部穿越，宽度中间为 12-16m 之间，右侧为 20-25m。内部主要街道主要以宝恕大街、洪德四巷、德和新街为主，宽度为 5-10m, 。内部巷道在主要在主要街道南北方向延伸，宽度为 3-4m。里巷为建筑之间小道，仅能通人，且数量较少，宽度为 2m 以下。

5.4.4.2 1950-1980 时期

（1）形态类型演进

在 1950-1980 期间，城市的道路发展建设继续进行，街区之间的同福西路改为城市车行道路，因此将整个洪德巷历史文化街区整体一份为二，南北两侧。在街区内部由于 1950 年后的大量住宅房屋修建，出现了许多尺度狭小的里巷道路。

（2）形态类型特征

整个街区的道路结构系统在此阶段基本成型，洪德巷内部以主要街道、巷道与里巷构成的整体街道网络整体稳定。但在此阶段，由于部分建筑被拆除，街区内的里巷数量整体减少，其他类型整体无太大变化。

5.4.4.3 1980 年代后时期

（1）形态类型演进

1980 年后广州在住房建设方面上加块了整体城市建设步伐，洪德巷历史文化街区在 1980 年后进行了局部的拆除，主要是针对板式或点式高层住宅建筑的修建，且在 2000 年代后期，对边缘地块进行比较大范围的拆除用以修建高层综合体。这个阶段，部分里巷被拆除，道路系统被进一步规整处理。

（2）形态类型特征

整体核心街道秩序并无太大变化，仅在边缘处及内部发生一些改变，其特征主要为，道路宽度加宽，边界更加规整。

图 5-18 城市道路图

图 5-19 内部主要街道

图 5-20 内部巷道

图 5-21 里巷

5.4.5 地块

5.4.5.1 民国时期

（1）形态类型演进

这一阶段，洪德巷街区内的主街及巷道构成的街道网络将街区划分为较为清晰的地块，且整体地块尺度较大，以横向分布为主。

（2）形态类型特征

这一阶段的地块划分整体无太大改变，且地块的部分建筑新建与拆除产生了许多内部巷道，使得场地内的地块边界更加明显。这一阶段以传统地块为主。

5.4.5.2 1950-1980 时期

（1）形态类型演进

洪德巷历史文化街区在该时期的地块形态划分出现了比较明显的变化，其原因为1950 年后，广州市对城市道路进行了比较完善的道路系统规划，横向的同福西路将街区整体一份为二，且由于内部巷道的逐渐增加，将场地内地块进行细化。

（2）形态类型特征

该时期主要有 2 种地块类型，为传统地块和特殊地块，这时传统地块的逐渐划分产生了许多面积较小但形状相对比较规则的地块，而特殊地块由于对传统地块的拆分合并，形状比例与传统地块有所差异。

5.4.5.3 1980 年代后时期

（1）形态类型演进

1980 年后，地块划分发生一些改变，场地边缘地区开始修建一些板式住宅一般修建于较大地块中，且逐渐出现将较大地块进行划分的现象趋势。

（2）形态类型特征

传统地块在该阶段并无太大改变，即使在其中修建了一些公共建筑，但也整体在地块之内修建，能够看出完整的地块边界。特殊地块被进行了更细一步的划分，形体较为规整，且定义方式出现了除街道外的广场形式。

5.4.6 公共空间

该小节将结合具体的空间形态及周围建筑的围合关系等原因对公共空间的形成进行形态类型学研究，并对洪德巷历史文化街区内公共空间的发展趋势做一定的合理推测。

5.4.6.1 民国时期

（1）形态类型演进

洪德巷历史文化街区自明清以来就是依托漱珠涌沿线发展，成为十三行行商聚居区，传统住宅建筑密度大。且一户一宅，有着明确的地权关系，且该时期尚未由对于公共空间的相关规划，因此该时期公共空间一般由于地权关系与街道之间的关系而自发产生，但整体数量及面积都比较小。

（2）形态类型特征

该时期公共空间大体可分成两种类型，分别为内部局部放大空间（图 5-22）与街区内的开敞区域（图 5-23）。由于早期的整体规划比较缺乏，街区内界面一般不平整，街道内建筑局部退后，产生局部空地，该地方现已成为街区群众日常休闲娱乐区域。该空间虽然面积小，但是街区内人群聚集度比较广泛的公共空间。街区内开敞空间一般为场地边界规划区域，整体尺度较大。其在洪德巷历史文化街区种数量少，且使用频率不如局部放大空间。这两类公共空间的产生都具有一定的自发性。

5.4.6.2 1950-1980 时期

（1）形态类型演进

建国后，广州市对城市内道路进行相关规划，对洪德巷历史文化街区内部进行一定整治并拆除部分老旧建筑，这时候，部分内部局部放大空间变大。且在该时期，对街区的开敞空间进行一定的铺装，成为街区的小型社区公园。

（2）形态类型特征

该时期，公共空间的尺度逐渐增大，且基督教洪德堂这一宗教性质的公共建筑修建，为居民提供了一定的社交场所，总的来说，1950-1980 年代时期，公共空间仍以内部街区放大空间和开敞空间为主，尺度增大，但数量依旧较少。

5.4.6.3 1980 年后

（1）形态类型演进

改革开放后，地区建设加速，修建了一大批多层住宅及公共建筑（老年活动中心），因而场地整体建筑密度的减小，逐渐为该街区内提供了较大面积的公共空间，边界区域与传统住宅之间的空间以及公共建筑内部区域，逐渐成为居民之间的共享空间，并配合

一些健身设施，成为居民的健身与交流场所。

（2）形态类型特征

内部局部放大空间与街区内开敞空间数量与面积逐渐增加，且开敞空间因公共建筑不同平面形式而产生不同空间样式。

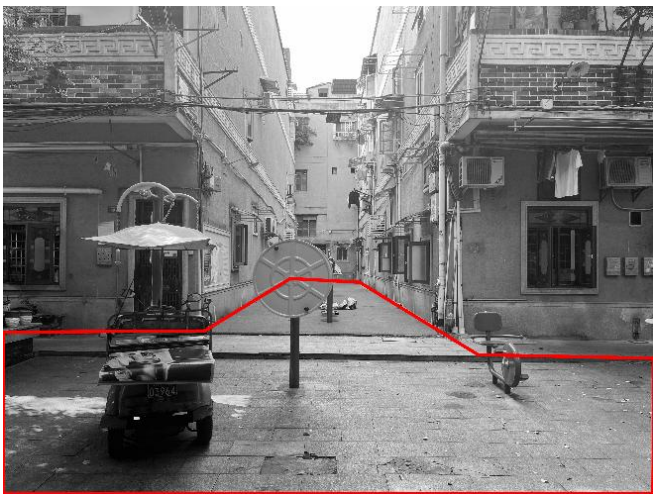


图 5-22 内部局部放大空间

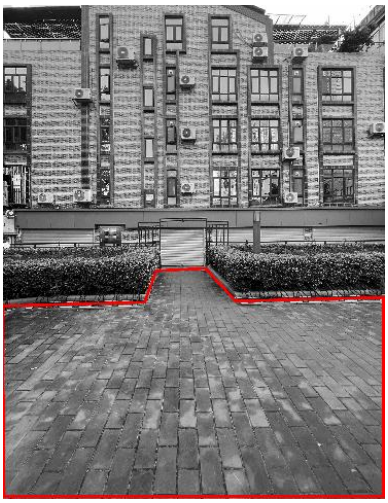


图 5-23 街区开敞区域

5.5 研究元素演替总结

本节主要对研究要素进行归纳和演替总结，对场地内物质空间形成及演进周期进行认知，同时根据元素内容可推断演替规律是否具有连续性，为后面的城市导则和控制措施做铺垫。

（1）建筑构件与材料

场地内因不同年代，所造就的建筑及材料类型有所差异。对于广州传统民居主要构件和材料的形态类型诠释应该从结构体系、屋顶、山墙、三种构件展开，这些构件对于历史地段整体格局与风貌特征的塑造有着重要的意义。首先，山墙作为肌理控制的结构性要素，以其连续性和方向性形成街区的整体秩序；其次，由结构体系限定的基本居住单元与院落空间间隔分布，在连续山墙序列的控制下形成统一且丰富的整体肌理；第三，山墙、屋面的构造做法和材料也展现了广州地区传统民居的建构特征和风貌特色。

在 50 年代之后翻新的住宅以及 80 年代后新建的公共建筑中，传统的构件和材料也发生了一系列变化，其中结构体系经历了砖木混合、砖混到框架结构的转变；随着结构体系的变化，屋顶形态也由坡屋顶逐渐简化为平面坡屋顶和平屋顶，屋面材料由小青瓦

改为更加经济耐用的机平瓦，甚至是彩钢板；山墙的连续性逐渐消失，门窗立面的不同界面类型也被标准规格的现代门窗洞口替代。整体看来，构件和材料层面的演变加剧了历史地段格局和风貌的杂乱。(图 5-24)

（2）建筑

场地内现存建筑类型共有 4 类，分别为传统住宅、骑楼建筑、50 年代后修建的公共建筑和 80 年代后的多层住宅。其中传统住宅建筑演替流程没有遭到中断，在不同时期有着本源形式的演化，保留类型的本源。骑楼建筑主要出现在民国时期，具有一定的连续性，但现存部分遭到损坏，缺乏部分连续性。公共建筑分为两种，一部分为基督教河南堂，为宗教仿古建筑，另一部分为服务与该街区的老年活动中心、幼儿园及办公楼。这些都因为时代及政策原因，而缺乏整体连续性。(图 5-25)

（3）肌理

场地内肌理类型共有 4 种，分别为传统住宅肌理、骑楼街区肌理、现代扩张建筑肌理以及新建建筑肌理。传统住宅肌理从最早清代时期便已出现，并因为排列方向及数量上的差异，不同地块肌理的组合产生了丰富多变的形式。骑楼住宅肌理主要沿城市干道沿街分布，具有连续界面，但其在发展过程中遭到部分现代建筑加建等原因的不同程度侵蚀。现代扩张建筑肌理主要在 1950 年之后出现，为对传统住宅肌理的拆除重建，一般存在于在传统肌理之间，有着一定的修复可能性。新建建筑肌理出现于 2000 年以后，一般是修建新类型肌理，其对场地内传统肌理的破坏不可修复，仅能在平面及立面进行弥补改造。(图 5-26)

（4）街道

场地内共有街道类型 4 种，由大到小分别为城市道路、历史文化街区内主干道、内部巷道及里巷。这些道路在历史发展过程中，整体呈现比较稳定的发展形式，其不同等级之间也存在自身尺度与形态的独特性，街区内街道整体等级分明，在里巷道中，有被人为阻碍现象，妨碍场地交通，因此可对其进行打通提升场地交通便捷性。(图 5-27)

（5）地块

场地内地块类型共有 2 种，分别为传统地块与特殊地块，洪德巷历史文化街区内主要以传统地块为主，并存在少量特殊地块，这种特殊地块主要存在于核心保护范围区边界，对边界地块进行侵蚀且一般体量较大，因此后续需要对其进行一定形式划分。(图

5-28)

（6）公共空间

场地内现存共有 2 种公共空间类型，分别为街巷局部放大空间，及场地公共建筑围合形成的开放区域。其中街巷局部放大空间具有一定的自发性，由公共建筑围合的开放公共空间，为政府规划主导下，有意识的进行规划开发。(图 5-29)

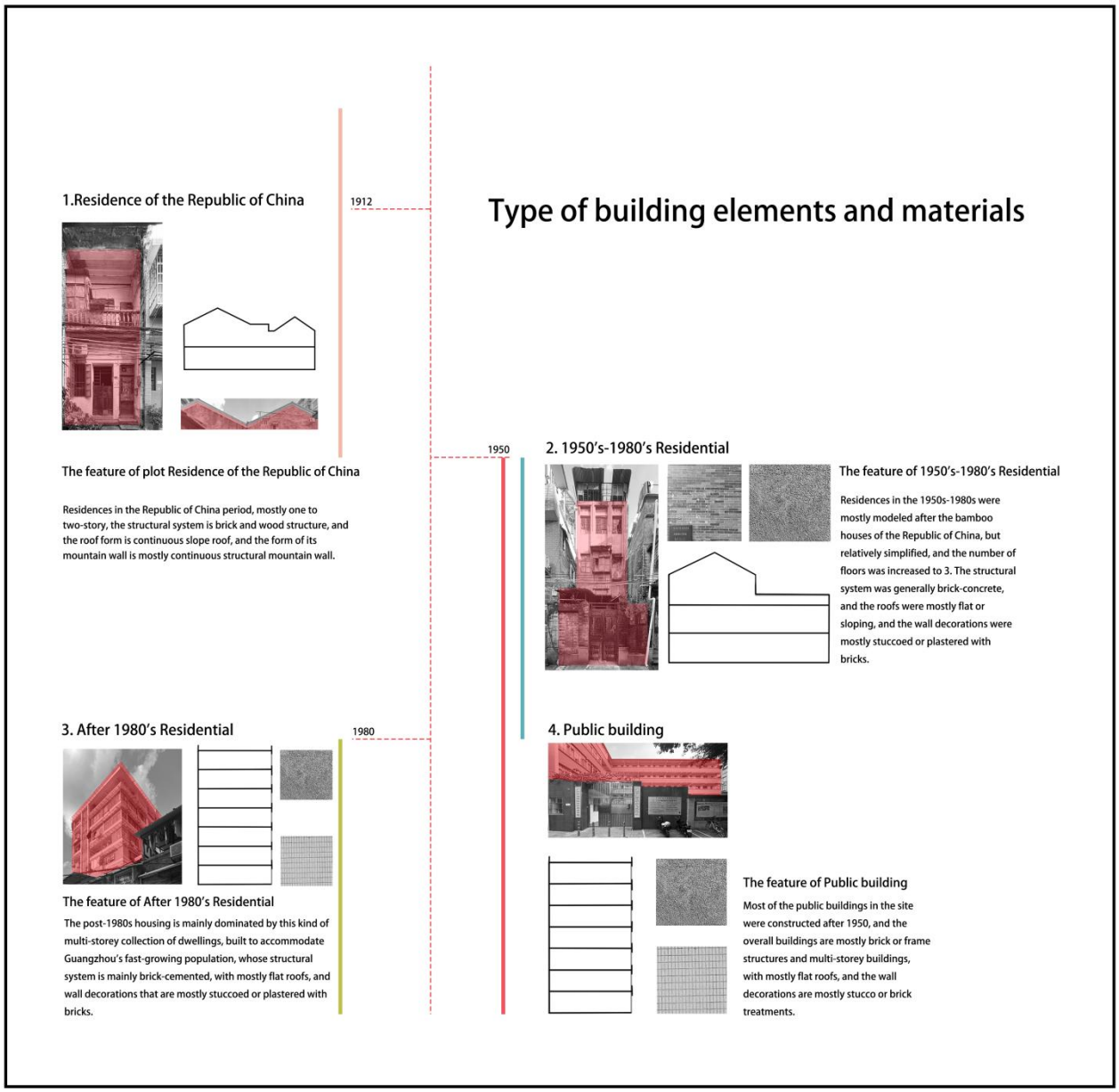


图 5-24 建筑构件与材料发展流程

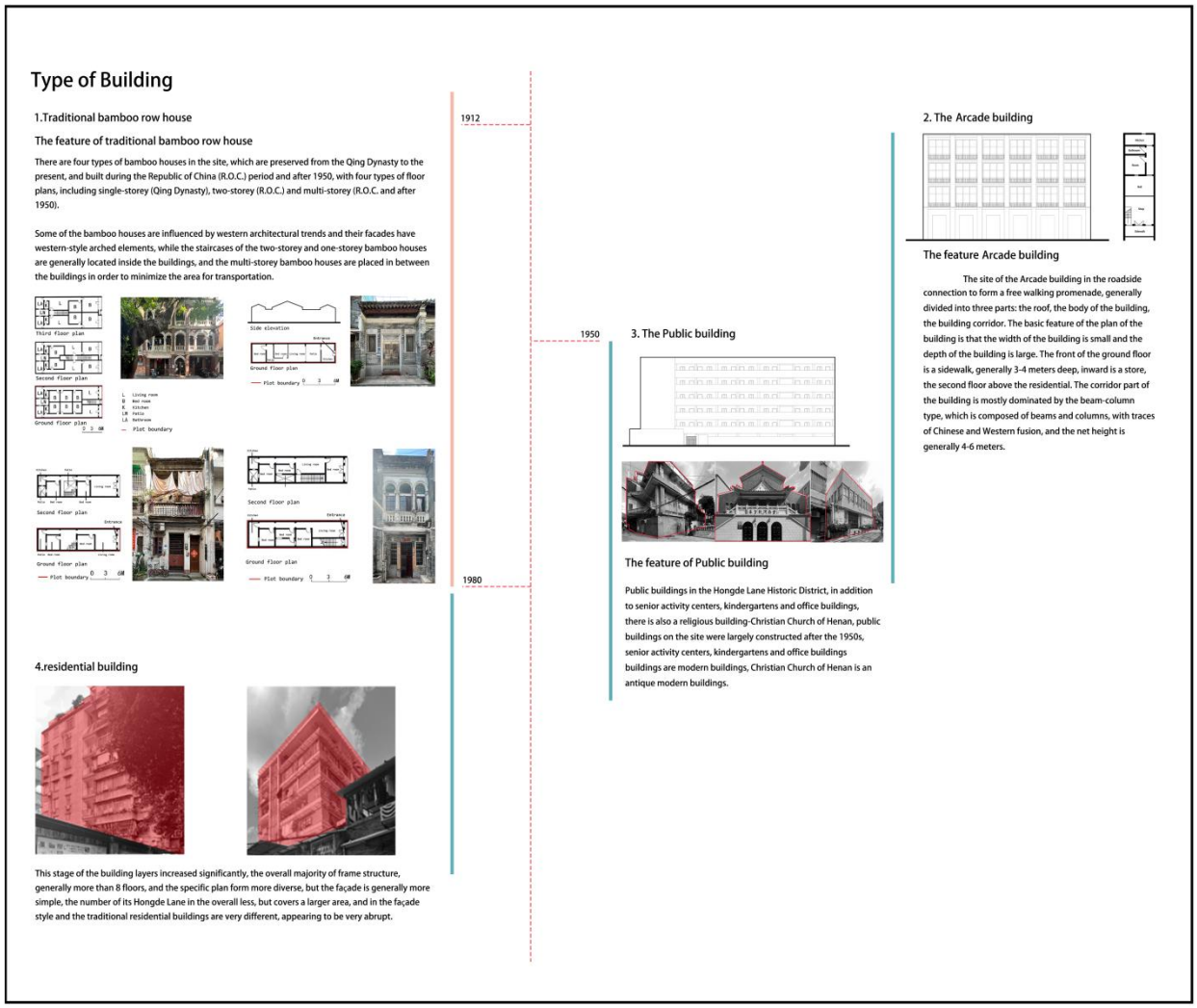


图 5-25 建筑类型发展流程

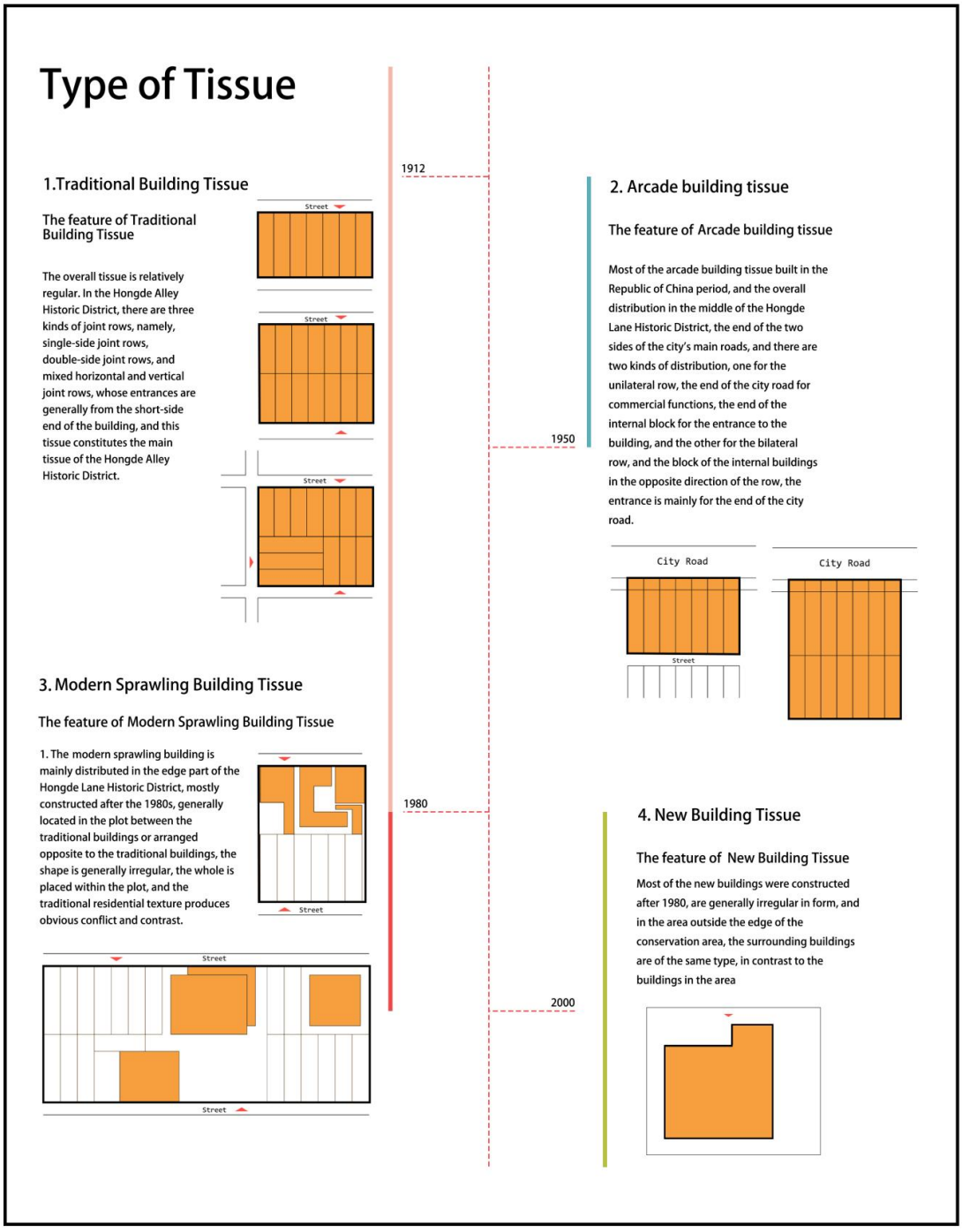


图 5-26 肌理类型发展流程

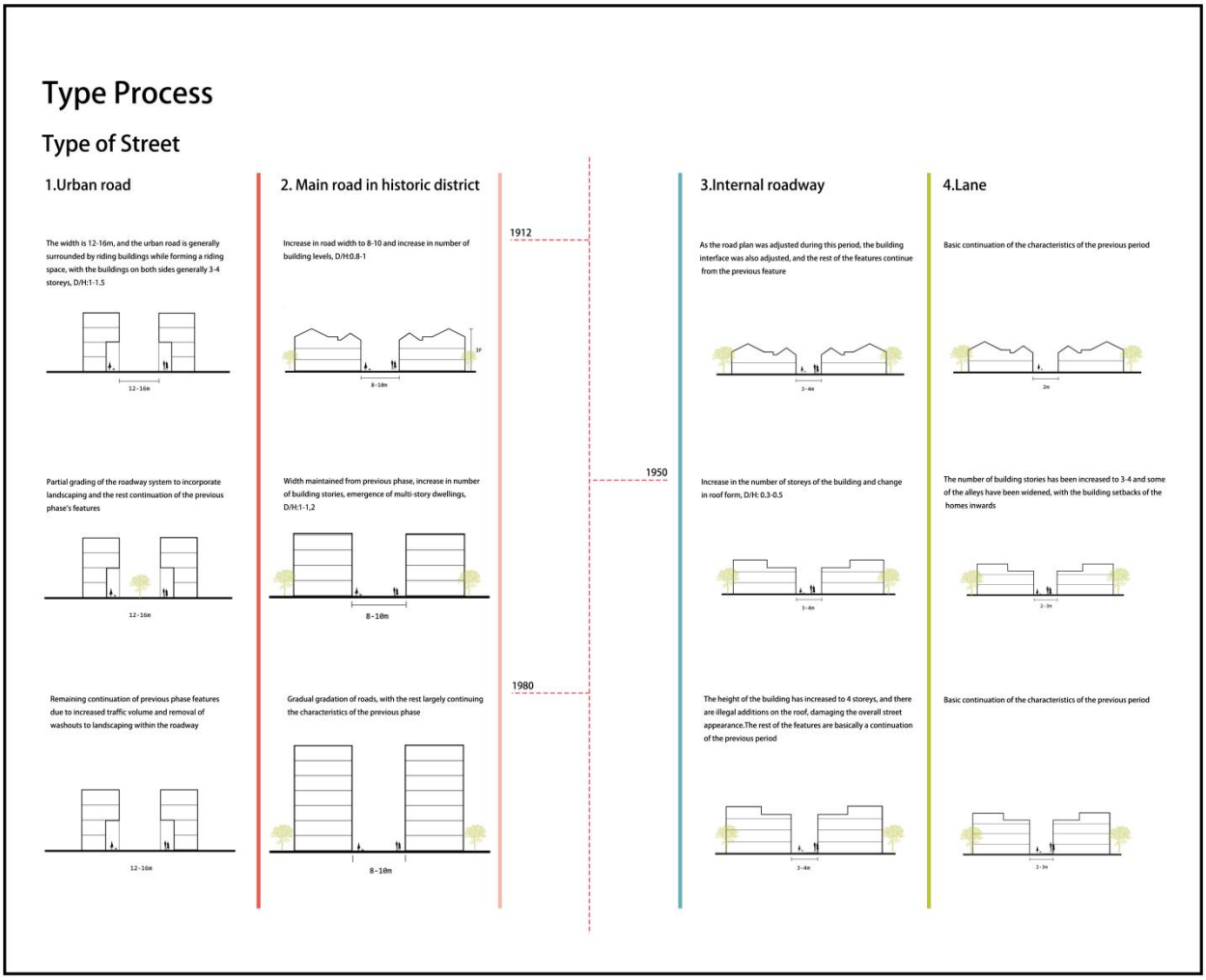


图 5-27 街道类型发展流程

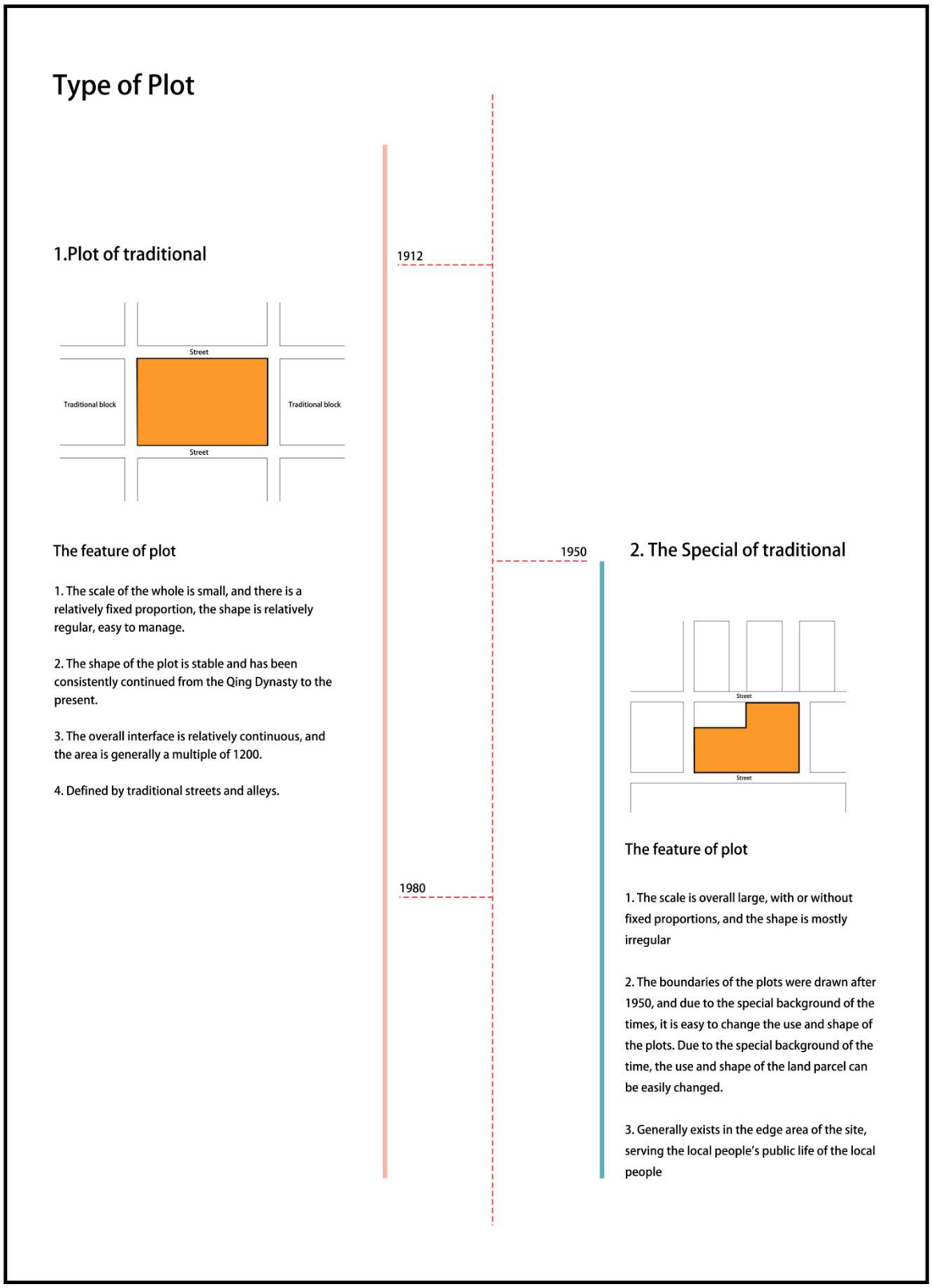


图 5-28 地块类型发展流程

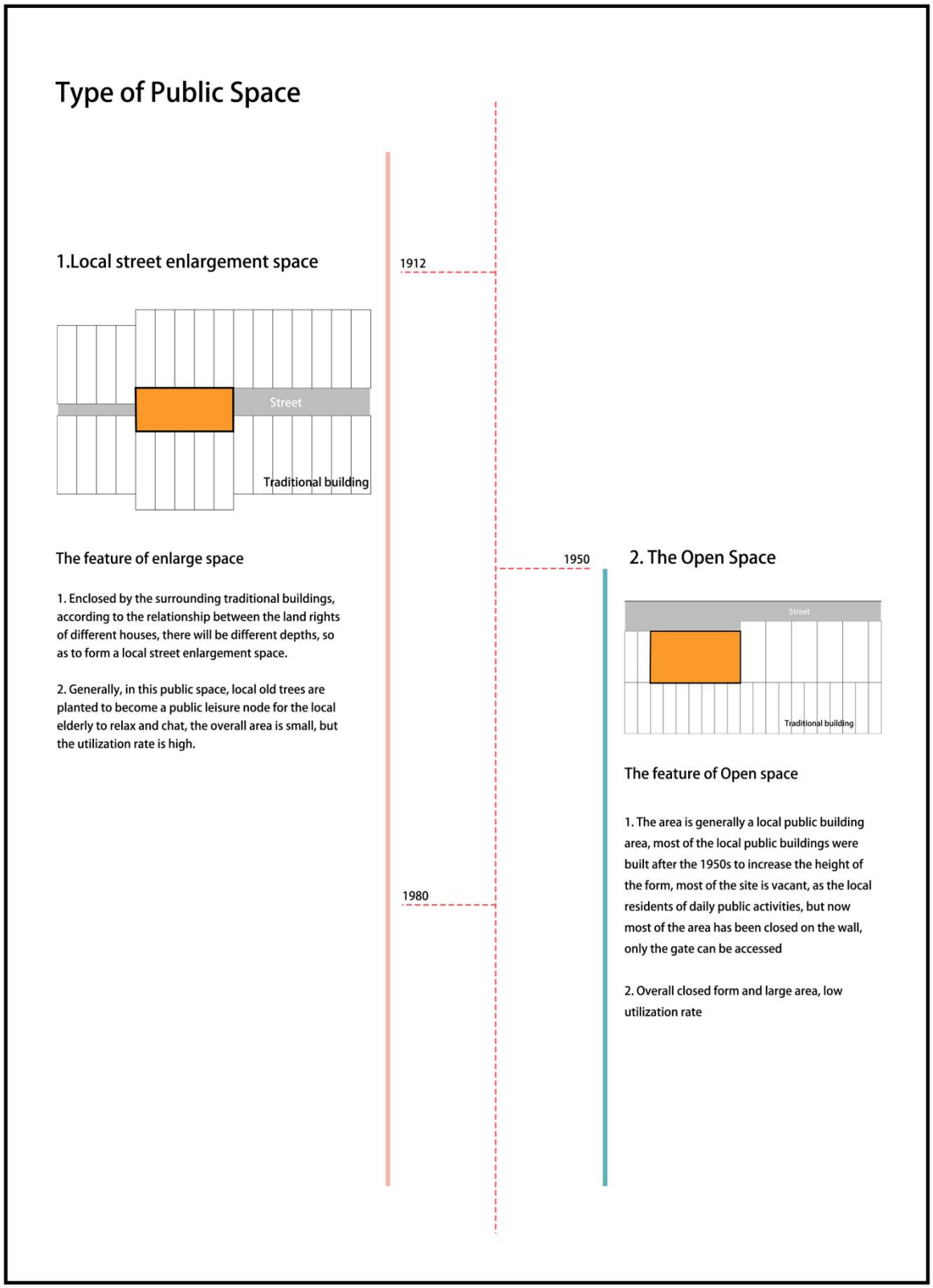


图 5-29 公共空间类型发展流程

5.6 本章小结

本章通过对洪德巷历史文化街区各城市建筑元素进行形态类型学演替过程进行分析，并总结其特点，重点关注其发展过程的连续性，为后续针对广州洪德巷历史街区制定详细的城市设计导则提供参考依据。

第六章 以广州洪德巷历史文化街区为例的城市设计

本次城市设计首先基于上一章对元素演替过程的总结提出设计策略，并制定不同区域的设计导则，其次通过对场地内的道路调整、对整体地块的划分及相关功能划定进行调整，在对城市层面上操作后，对该地区肌理单元建筑-竹筒屋，对其进行微气候被动式节能探索，针对不同地块的特殊性（建筑类型、场地条件）进行相关城市更新设计。

在洪德巷历史文化街区核心保护范围内，大部分住宅保存完好，历史肌理完整，仅需对部分进行一定程度上的整修，而场地内的公共建筑因上世纪规划欠缺，导致公共建筑的修建破坏场地平面肌理，而且其主要分布在在历史文化街区建设控制地带与历史文化街区核心保护范围之间，情况较为复杂，占地面积较大，多由围墙围护，丧失其建筑公共性，且部分年久失修。因此将选择这类场地作为本次更新设计的出发点。

6.1 设计策略

6.1.1 整体性保护

在 1973 年展开的博洛尼亚“经济与民众建设计划”中提出“整体性保护”概念，目前“在国际上被认为是城市历史地区保护和发展的唯一有效的准则，在历史地段的保护和发展中被广泛应用。”[46]

洪德巷历史文化街区更新也出现同样相似的问题，居民生活品质较低，历史建筑衰败等等，新的形态类型学研究成果，不仅能够分析历史文化街区空间形态的变化，且关注当地的人口结构及气候影响对于建筑形态及类型的改变。所以，基于新的形态类型学历史文化街区更新设计需要将“人与建筑共同更新”的全面性保护想法作为后续研究及设计的标准。

1. 首先，应当打破以往仅由专业人员主导的自上而下的规划设计，应当采用“自上而下”的规划设计结合“自下而上”的参与式更新相融合。

2. 以提升居民生活质量为基础，重点考虑居民的当地生活，改善当地的居住品质，同时增加公共活动空间，提升凝聚力。提升当地的市政局础设施及街巷空间的同时，引导居民和社会共同参与，进行自主改善，既激发当地街区的活力，同时也满足现代生活的需要。

3. 物质文化遗产与非物质文化遗产共同保护，从对洪德巷的具体分析可知，不同时期的建筑与当地的风俗文化，生活方式的叠加，共同形成了当地独特的历史形态风貌。这种独特性也决定了该地区的历史文化价值。所以，对历史文化街区的更新保护，不是简单将其恢复原始面貌，而应将其看做是一个动态发展变化的过程，尊重不同时期留存的文化遗产，并注入新的当代活力，满足新的功能需要。

6.1.2 根据不同肌理的城市设计导则

通过前面对于洪德巷历史文化街区内六个基本元素的整体形态类型学分析对其细致划分，并对其特征及演替过程研究。根据形态类型学特点对其进行平面分区，且对每个不同肌理区域给定适应其区域内的城市设计导则。导则内要是对元素进行限定，进行一定的控制，能够有效的指导今后设计。在导则方面，大体分为两个部分，一个为具体原则，对场地内特殊情况（如骑楼形制及竹筒屋形式等）做了一定的详述，另一个为通用原则，给出使用元素的一般普适规定要求。在此首先需要确立整体保护目标:

（1）梳理历史文化资源，全面深入挖掘、科学评估洪德巷历史文化街区的价值和特色。

（2）以传统居住历史地段以及骑楼街为保护重点，建立完善的保护体系。

（3）划定合理的保护范围，制订有效的管控措施。

（4）保护和延续传统格局和风貌，活化利用各类历史文化遗产。整合与串联重要历史文化片段，激活地区发展，为广州世界文化名城战略提供重要支撑。

对洪德巷内四种不同的建筑肌理进行分区，并针对不同肌理区域制定城市设计导则。（图 6-1）

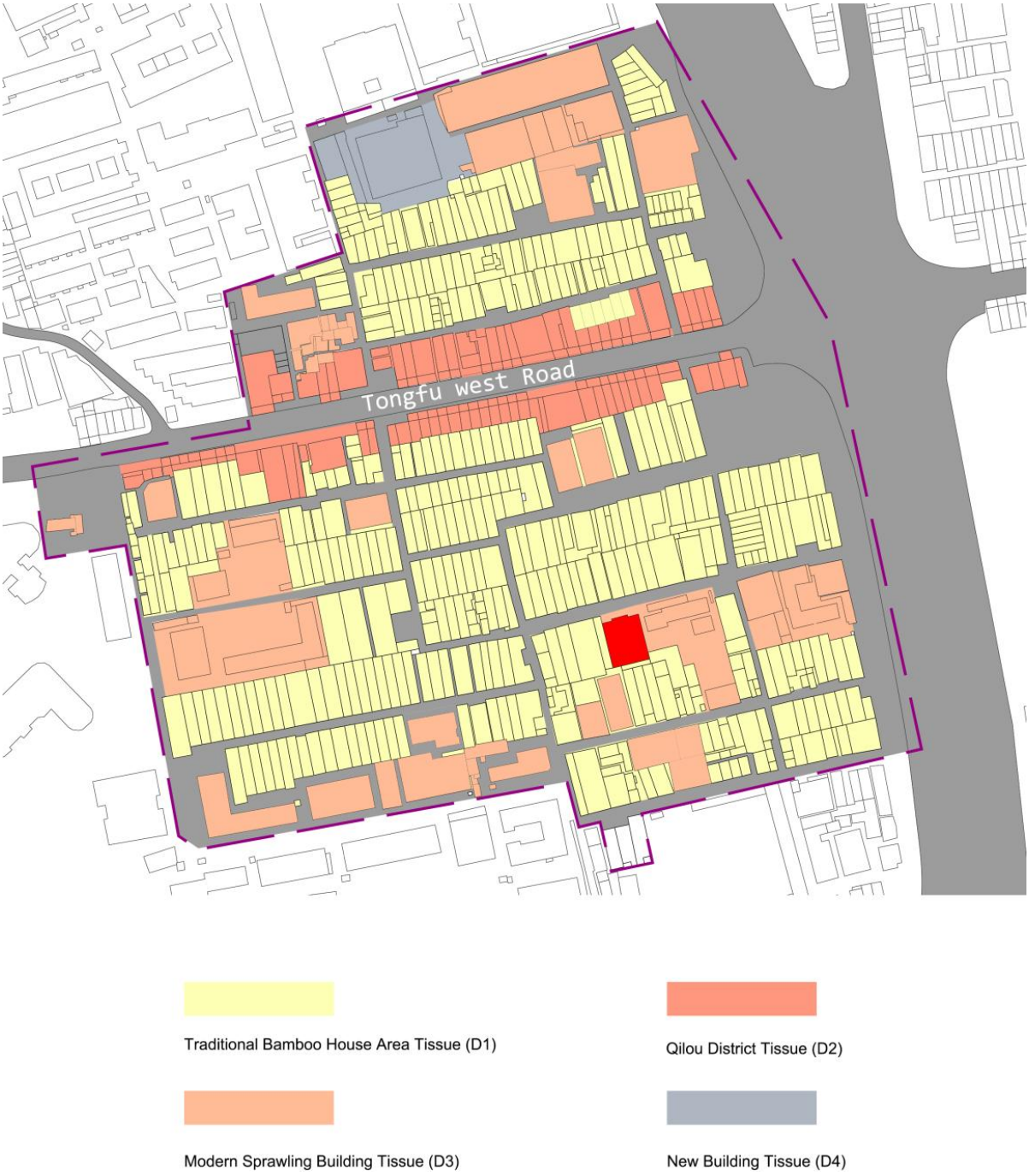

Tongfu west Road
Traditional Bamboo House Area Tissue (D1)
Qilou District Tissue (D2)
Modern Sprawling Building Tissue (D3)
New Building Tissue (D4)

图 6-1.不同肌理区域图

6.1.2.1 传统竹筒屋区域肌理(D1)城市设计导则

图 6-2 传统竹筒屋区域肌理图

该区域肌理是洪德巷历史文化街区肌理的主要组成部分，在进行导则制定时，需根据具体情况进行针对性控制。

（1）控制形式

对清朝及民国时期竹筒屋建筑尽可能对其进行保护修缮，对 50-80 年代沿袭竹筒屋的住宅应给予一定整修措施，对相关破坏严重及没有价值的住宅建筑可考虑重建。

图 6-3 传统竹筒屋区域肌理整治形式

（2）建筑控制要求

一般要求：

1.建筑立面改造及重建形式需在色彩比例方面同街道传统建筑尽可能谐调一致，必要的新建、改建活动，其建筑尺度、高度应与本地区的传统空间肌理相匹配。

2.新建建筑需再立面上出现明显竖向划分，一般为 4-6m。

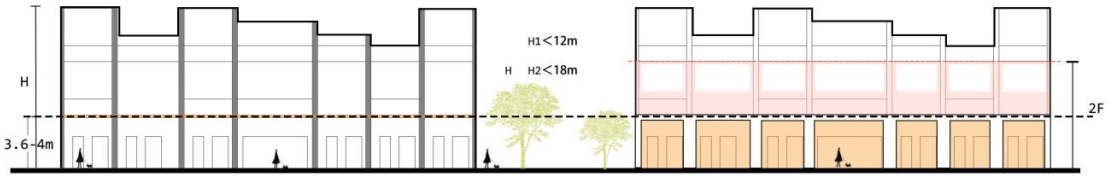
3.建筑整体高度应按照核心范围保护规划要求，不应高于 12m，以符合该区域的整体高度.

4.建筑平面可根据自身需求进行调整，但不应破坏整体平面肌理。

具体要求：

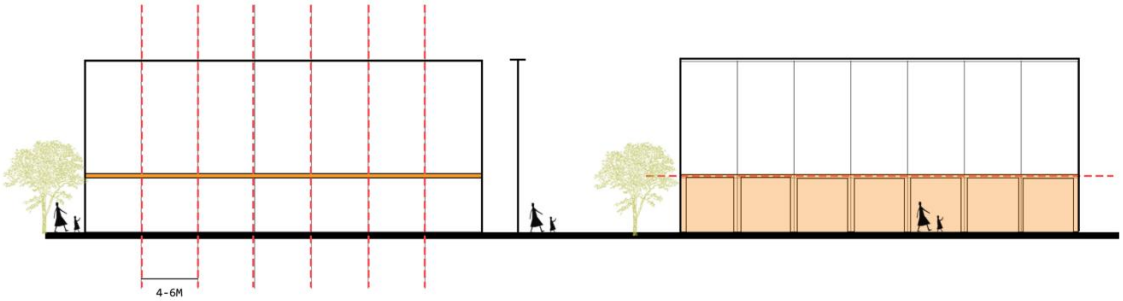
1.在该地区修建新住宅，需按照一定规格（包含必要的建筑元素）进行建造。

2.在首层处，尽可能高度一致，并在立面进行一定分隔，保持整体肌理的连续一致性。



New buildings within the core protection area of the historic and cultural district (H1) less than 12m.
New buildings within the control zone of the historic and cultural district (H2) less than 18m.
The first floor should be controlled at 3.6-4m to maintain the continuity of the façade.

For the residence with a corridor should control the height of the corridor in 3.6m-4m, and the location of the windows on the second floor should be harmonized with the whole of the second floor.



New buildings need to have obvious vertical division, in which the width is controlled at 4-6m, and the first floor height also needs to meet the general requirements.

Some of the buildings along the street requires some concessions at the first floor to create corridor spaces, and with a clear division between the first and upper floors.

Provide certain facade elements references for the traditional bamboo house area tissue

图 6-4 传统竹筒屋区域建筑立面控制导则

（3）肌理（布局形式）控制要求

一般要求：

改造和新建建筑需保持原有建筑肌理，为长条形式样体，且出入口一般置于建筑短边位置，对单体规模需进行一定控制。

具体要求：

对新建建筑控制面宽为 4-6m，进深 15-25m，需要注意，具体的尺寸需要根据地块内建筑进行合适调整，可进行一定程度的前院设计，但整体应符合地块平面距离。（图 6-5）

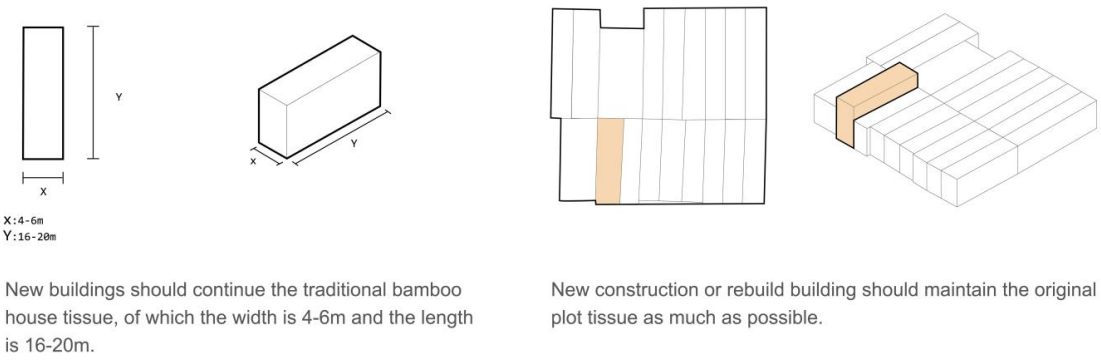


图 6-5 布局形式控制导则

（4）街道控制要求

一般要求：

1. 在原有街道结构体系下进行疏通，对部分街巷进行打通，提高区域的连通性。

2. 对不平整区域进行整合，使其整体保持一致，但在其中可有一些变化。

具体要求：

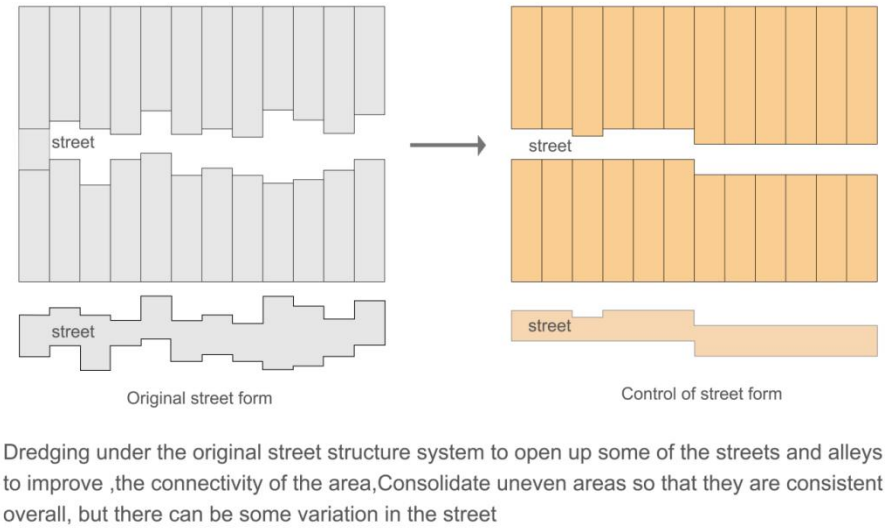


图 6-6 传统竹筒屋区域街道控制导则

1. 对场地内的洪德四巷、宝恕四巷进行拓宽，并设置一定的植物进行道路细分。

（5）地块控制要求

对场地内形态不规则且面积较大场地进行细分，根据现存形式，对有巷道趋势的地块进行一定划分。地块的合理划分不仅有利于进行管理，同时提供街区交通的便利性。

（6）公共空间控制要求

一般要求：

1.洪德巷历史文化街区内整体缺少可供室外活动的公共空间，可对现有街巷空间进行局部放大，同时对公共空间进行一定的景观设计，提升公共空间整体质量。

2.洪德巷历史文化街区，整体保存较为完整，但其内部缺少标志性元素及空间，需结合相关标志物及景观元素进行一定的入口设计。

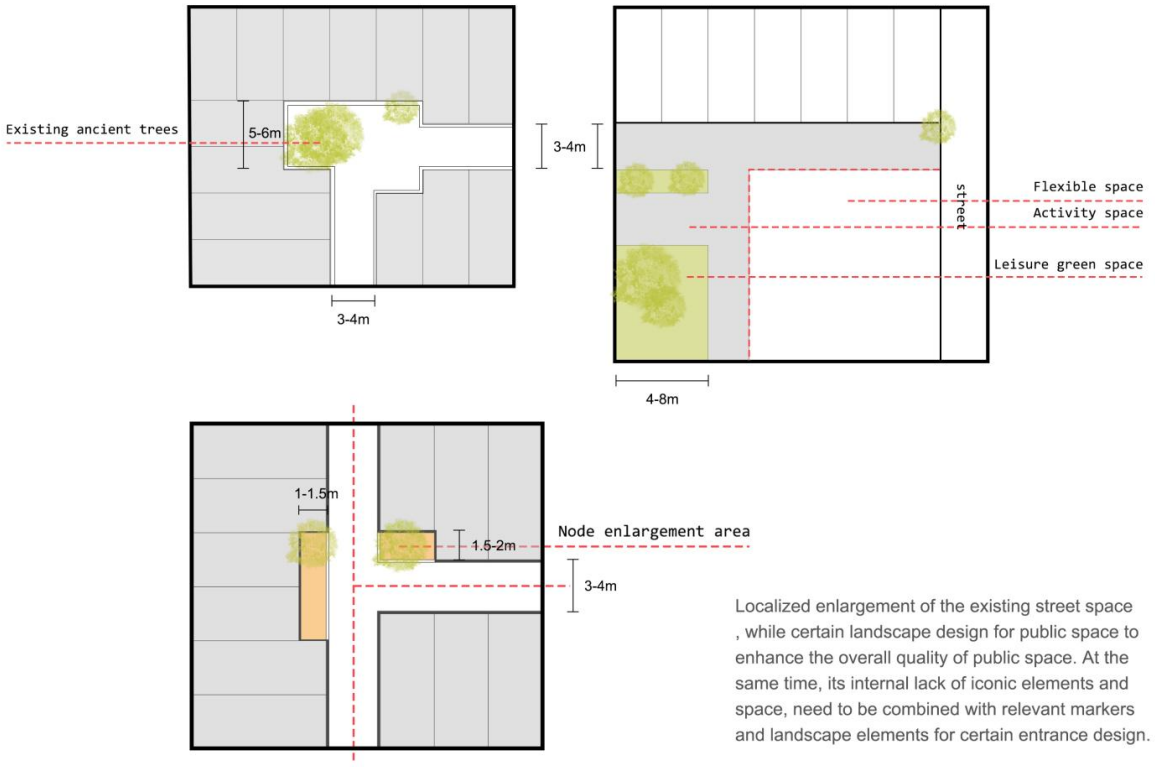


图 6-7 传统竹筒屋区域公共空间设计导则

6.1.2.2 骑楼街区肌理(D2)城市设计导则

骑楼肌理区域是洪德巷重点保护区域，现保留的骑楼历史建筑具有很高的历史价值，在具体控制时，应当既保护现存肌理，又对原有城市道路上的骑楼立面进行改造。

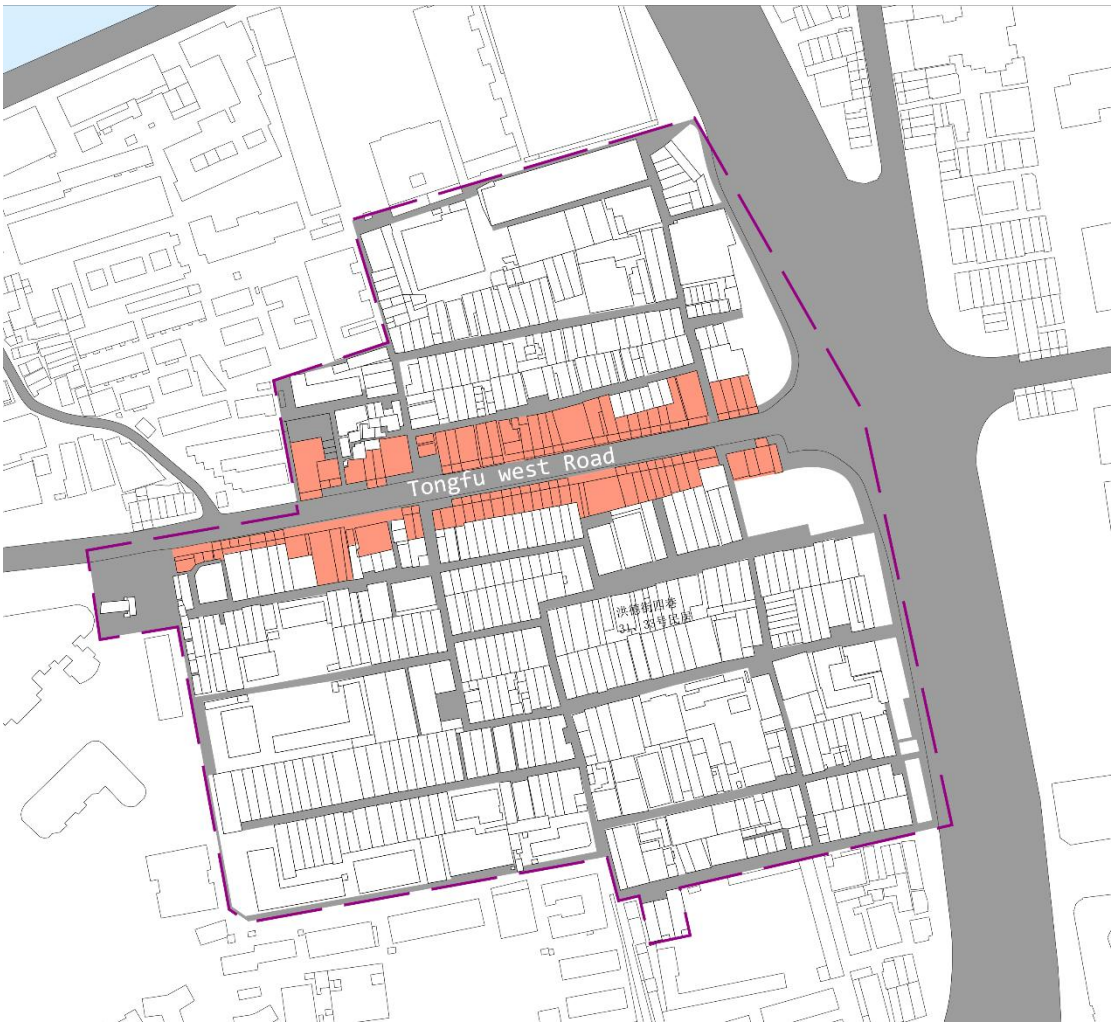


图 6-8 骑楼街区肌理图

（1）控制形式

对现存民国骑楼建筑宜采取保护修缮的方式，不得随意拆除，且对阻断骑楼整体界面的建筑进行改造，同时对现状较差且价值不高的沿街建筑进行合理拆除重建。

图 6-9 骑楼街区肌理整治图

（2）建筑控制要求

一般要求

1. 保护现状街道的宽度及断面形式、道路的线型、骑楼建筑的连续性、街道立面建筑的高度与轮廓线，控制可更新街段街道的高宽比、建筑单元的面宽比例，且核心范围区建筑高度不大于 12m。

2. 严格保护沿街的文物建筑和历史建筑，保护和整治传统风貌建筑。严格控制一般建筑的改造,使其在尺度、形式、色彩上与整体风貌相协调，且骑楼建筑立面应存在多样性。拆除违法建设和临时搭建的建（构）筑物。

3. 骑楼建筑底层应保持商业功能，可适当进行一定商业化改造

4. 廊下空间需保持一致连续性，且新建建筑高度应与相邻建筑一致。

5.在骑楼街两侧宜开辟辅道,以疏解交通压力。在骑楼街建筑后侧可以增设停车场和停车楼等交通设施。

具体要求

1. 对打破界面连续性的骑楼建筑，统一其首层高度。

2. 改造建筑需遵循骑楼规格（包含必要的建筑元素）进行建造。

（3）肌理（布局形式）控制要求

在进行相关更新改造时候，需保持整体连续的骑楼界面，同时对不连续界面进行一定的修缮。

（4）街道控制要求

该建筑类型主要沿城市道路界面分布，为首层廊下骑楼街，需结合现代商业功能进行更新，新建建筑廊下高度与相邻建筑保持一致，且廊下宽度不小于 2.5m。

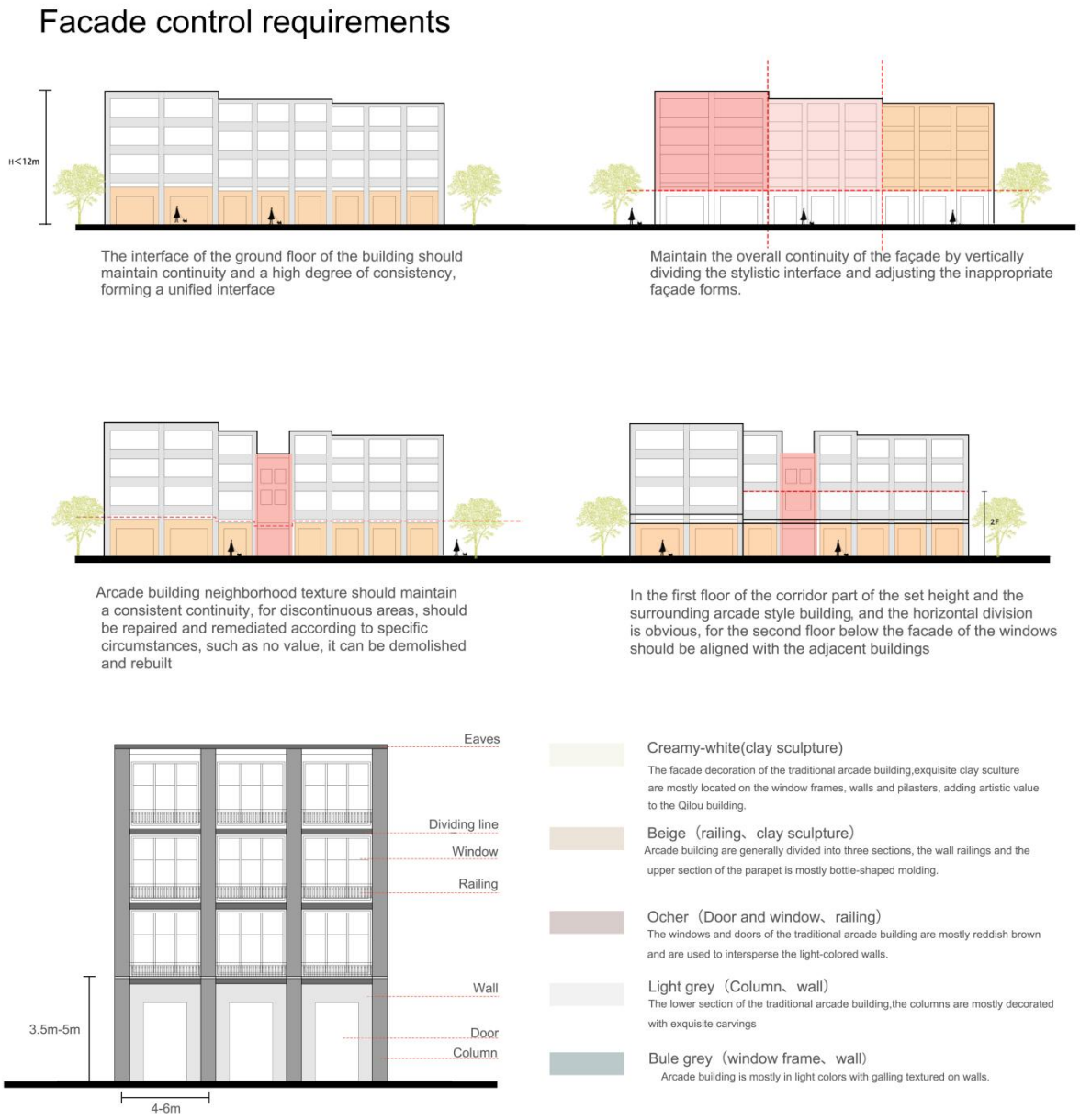


图 6-10 骑楼街区肌理建筑立面控制导则

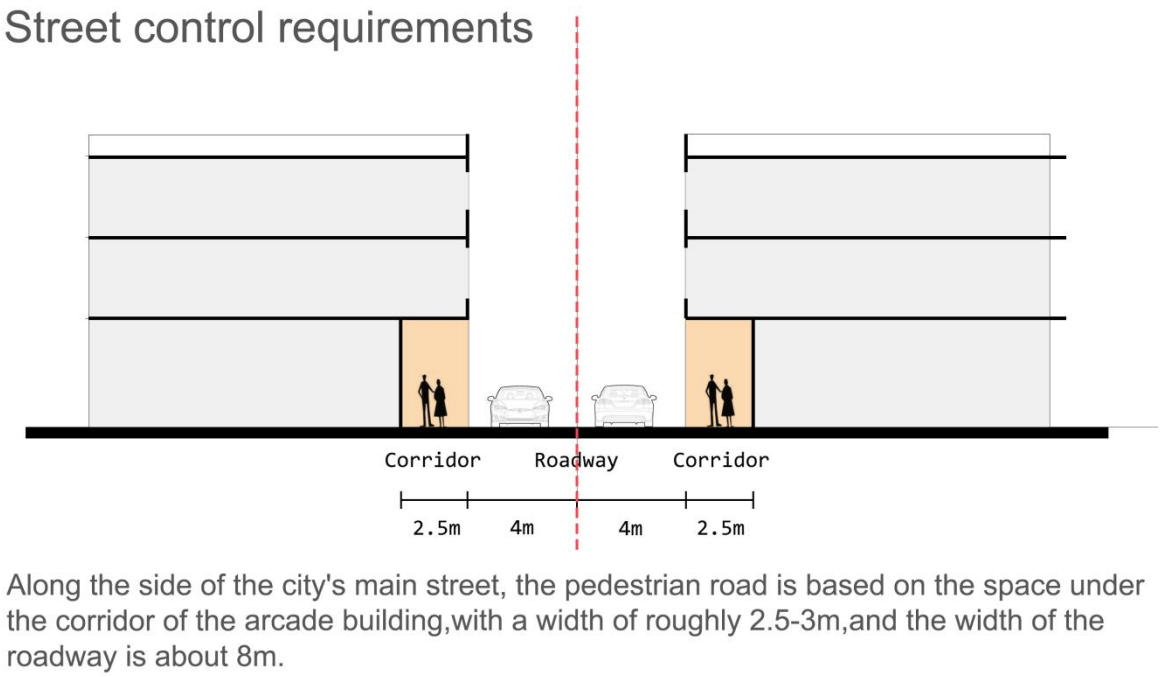


图 6-11 骑楼街区肌理街道控制导则

6.1.2.3 现代扩张建筑肌理(D3)城市设计导则

图 6-12 现代扩张建筑肌理图

该区域为现代较大体量建筑对场地肌理的侵蚀，因此在该区域中，主要采取改造的方式来对原有肌理进行修复（也是本次的设计重点）。

图 6-13 现代扩张建筑肌理整治图

（1）控制形式

与传统风貌不协调的建筑，应按照保护规划关于建筑风貌的指引进行建筑外观的维护修饰；与传统风貌不协调的建筑，应按照保护规划的要求进行改造，改造措施可以采取局部改建或拆除重建的方式；违法建设应制定计划进行改造拆除

（2）建筑控制要求

一般要求：

1.核心保护范围区高度控制在 12m 内，规划保护范围区高度控制在 18m 内。

2.建筑立面改造及重建形式需在色彩比例方面同街道传统建筑尽可能谐调一致。

3.建筑功能按照相关规划要求设定，如无要求，应根据现有规划功能进行设计。

（3）肌理（布局形式）控制要求

一般要求：

1.应充分考虑地块内整体平面肌理，建议采用长条状的布局形式。

2.对现存完整建筑宜采用合适比例的平面与立面改造。

3.新建建筑不宜体量过大，建议采用条状建筑进行组团及结合岭南庭院的方式进行设计。

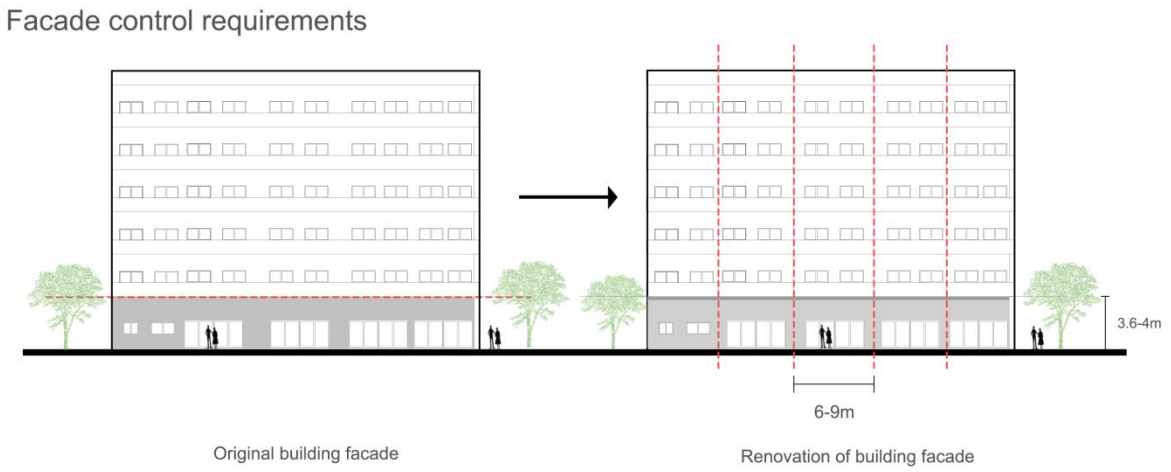


图 6-14 现代扩张建筑肌理平面及立面控制导则

（4）街道控制要求

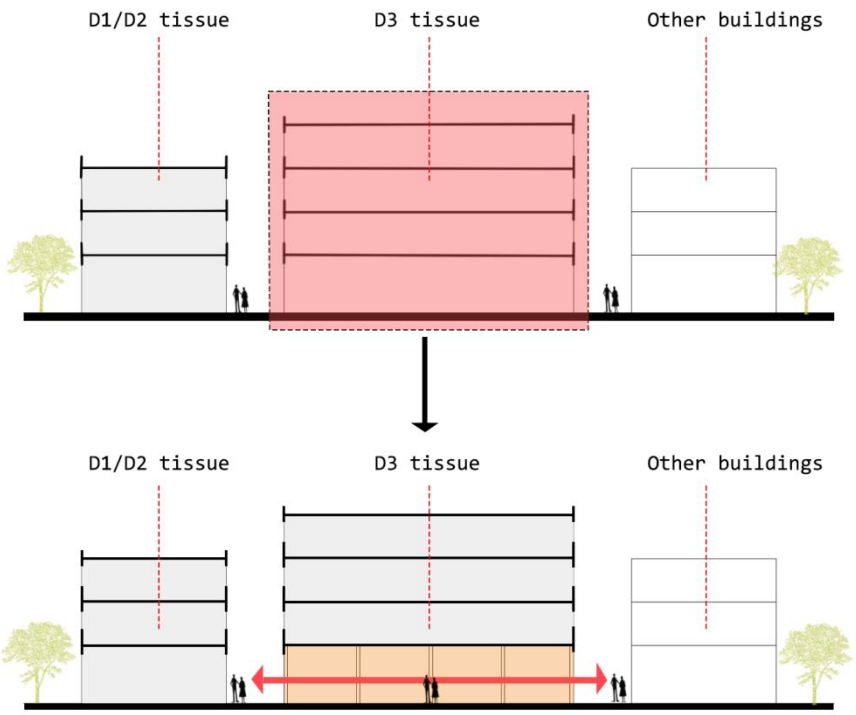
一般要求：

新建建筑道路不应过宽，尽可能控制在 4m 以内，但特殊情况，如需要围合广场，可适宜放大，但 D/H 应保持在 0.5-1 之间。

（5）地块控制要求

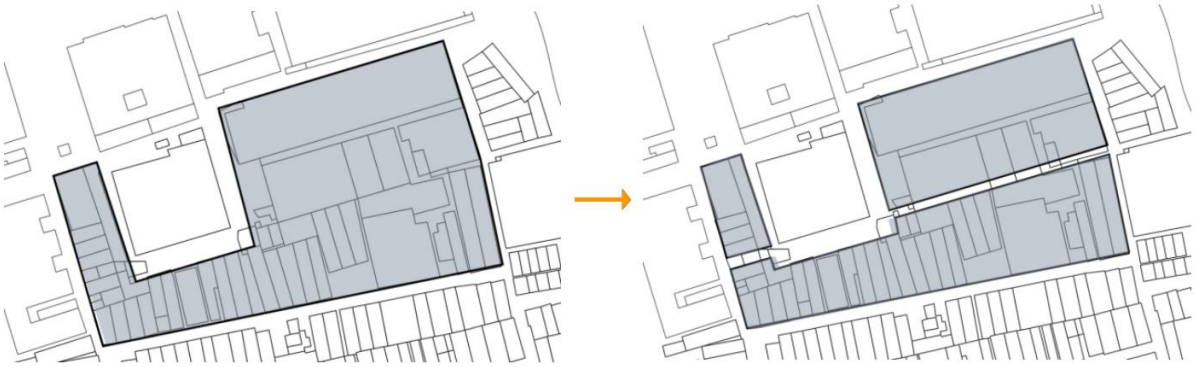
一般要求：

对场地内较大地块进行细分，一方面利于管理，同时也有利于显示场地整体肌理特征。



The ground floors of large modern buildings that exist in areas of traditional residential tissue can be reformed and have the potential to become Community centers with public functions.

图 6-15 现代扩张建筑肌理平面街道控制导则



Divide the original larger plots to facilitate the management of the plots and at the same time clearly show the tissue of the plots

图 6-16 现代扩张建筑肌理平面地块划分控制导则

（6）公共空间控制要求

一般要求：

1.进行建筑改造时，应在传统肌理与现代建筑肌理之间留出缓冲空间，并在缓冲空间进行相关情景化设计。

2.相关公共建筑前应有一定室外广场空间，并对绿化进行一定的设计，以满足相关人群活动。

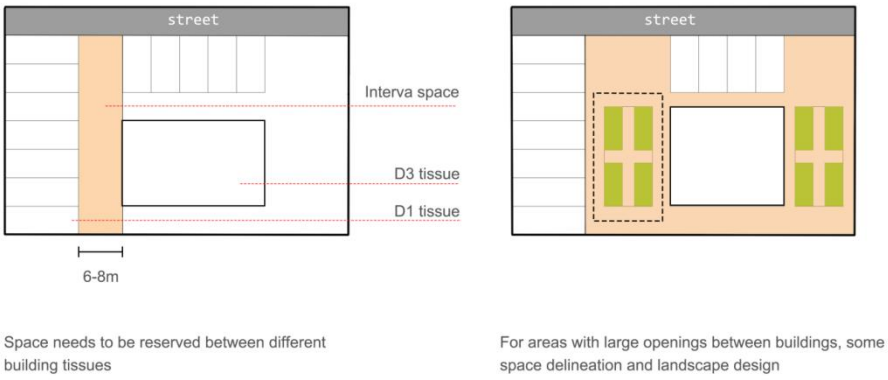


图 6-17 现代扩张建筑肌理平面公共空间控制导则

6.1.2.4 新建建筑肌理(D4)城市设计导则

图 6-18 新建建筑肌理图

新建建筑肌理区虽然是在核心保护范围及规划保护范围之间，但仍需对其进行相关规定，该区域整体为现代高层建筑，功能为综合体或者办公，地块内传统建筑已完全消失，因此在本区域仅能采用局部平面及立面改造的形式与传统肌理达到和谐。

（1）控制形式

该区域建筑多为 2000 年后现代高层建筑，且相对较新，因此在内部空间及平面形式上改动相对困难，故仅考虑立面形式改造，同时也对该区域为未来高层建筑的规划提出一定的设计要求。

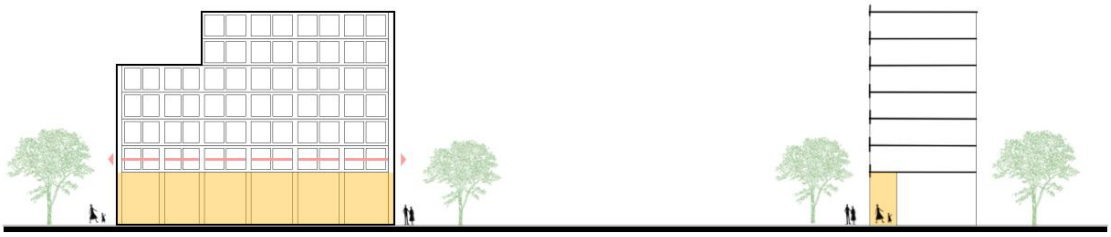
（2）建筑控制要求

1. 建筑的立面改造及重建形式需在色彩比例方面同街道传统建筑协调一致。

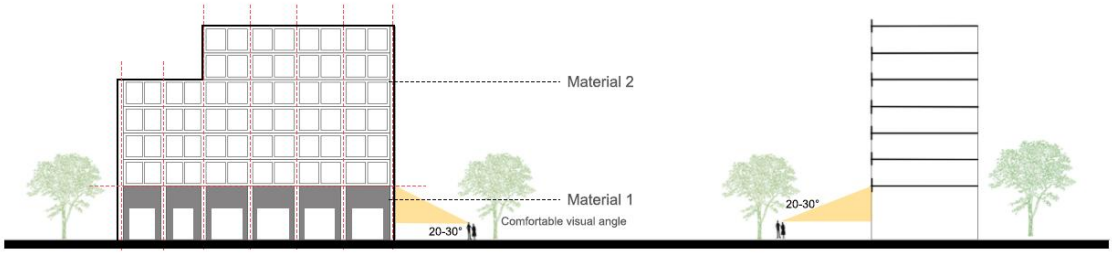
2. 首层尽可能架空，同时沿用骑楼底层廊道的空间形式，并合理采用柱廊形式。

（3）公共空间控制要求

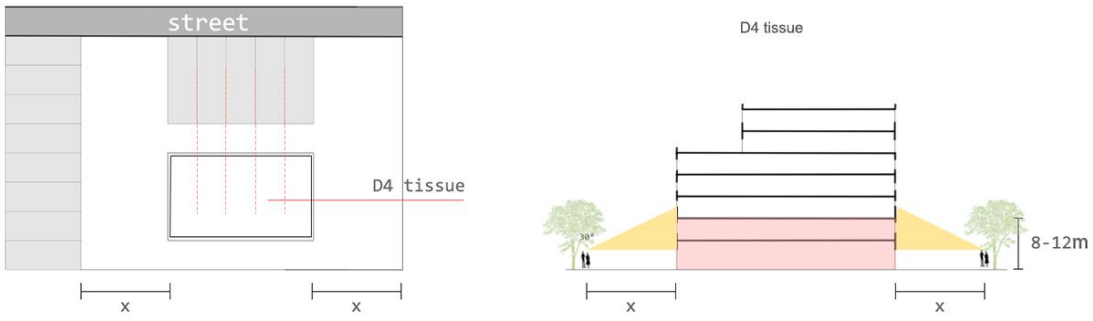
1. 适当在该建筑周围广场区域进行一定景观设计，并设置具体场景化设施



Some of the buildings along the street need to be set back a certain distance to form the space under the corridor.

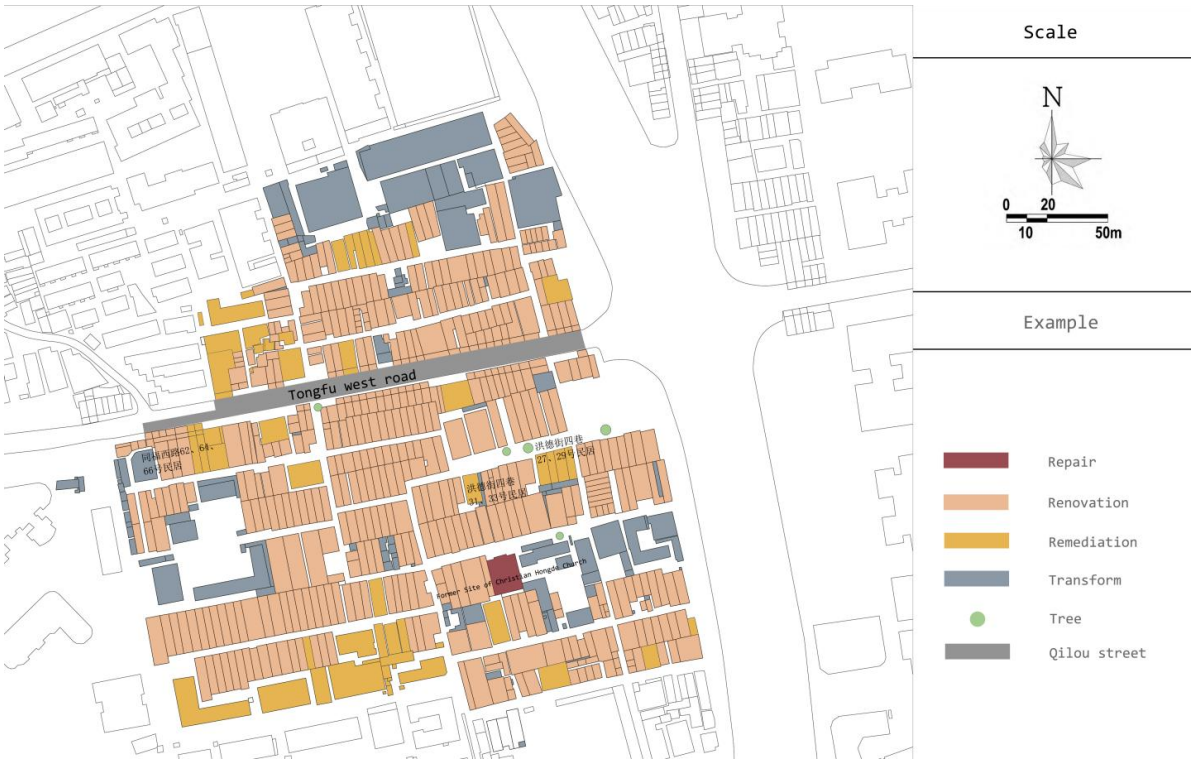


Use of materials similar to traditional buildings within the visual range of the new building façade and vertical division of the building façade.



For new buildings, the effective horizontal distance is 15-20m, the effective vertical distance is 8-12m, and the visual comfort angle is 20-30°, the control of the building façade is mainly determined by this distance, and at the same time in the plan division, it is necessary to refer to the nearly traditional buildings, as far as possible, to coordinate with the traditional tissue.

图 6-19 新建建筑肌理建筑立面控制导则



2. 将广场区域与核心保护区域建筑进行一定联系，扩展洪德巷居民活动范围，增加街区内外联系。

图 6-20 洪德巷街区建筑肌理改造形式

6.2 总体规划设计

6.2.1 道路体系调整

图 6-21 道路体系图

道路整体延续原来形式，对局部堵塞道路进行打通，提升场地便捷性，并对部分地块进行重新规划。

6.2.2 场地道路尺度规划

图 6-22 道路尺度等级

调整场地内道路等级并对其进行划分，升级部分道路等级，同时对不同等级道路提出相关要求，在后续设计中应满足。

6.2.3 地块划分

对场地内地块进行划分，将较大部分地块按照现有肌理进行调整，延续整体地块形式，同时划分出合理大小后也有利于整体的社区管理，也能够为后续设计中清晰展示平

面肌理做铺垫。

图 6-23 地块划分图

6.3 竹筒屋改造及原型探究

6.3.1 竹筒屋微气候被动式节能探究

民国竹筒屋的平面布局是以传统竹筒屋为基础，单开间，各种功能房间在纵深方向依次串联，民国竹筒屋的层数通常是 2 到 3 层，在当时，对于私有土地，不管是通过买卖，还是租用获得，其地块大小已经难以变更，只能维持原状。清末时期，住宅建立在窄长型的狭小地块上，建筑整体铺满，到民国时期，地块大小也基本维持原状，因此可

以认定，民国时期的住宅有着“一地一宅”的形式，建立在狭小地块上，单个地块仅建设一栋房屋。

传统竹筒屋在设计之初，虽然狭长的建筑形状不利于其通风采光，但对岭南地区传统住宅建筑中被动式通风节能利用（冷巷、天井的合理使用），使得其不仅满足日常使用需求，同时有效节能。

但在洪德巷历史文化街区，由于上世纪人口迅速扩张，以及外来人口的大量涌入，从地图上显示，洪德巷历史文化街区总平面上，为了面对大量的人口增长问题，但宅基地面积与建筑高度不变的情况下，居民只能选择将天井区域，以牺牲通风采光换区建筑面积的增加，虽然增加了建筑面积，但对生活品质有着极大的降低，也不符合现代居住生活的需要。为此需要在原有基础上设计“新竹筒屋”。

图 6-24 传统竹筒屋形制

岭南传统住宅建筑在被动式节能上有着丰富经验，从通风原理说，分为两种：一种是风压通风，指外界气流吹响建筑物时，由于建筑物自身对气流的遮挡，使得建筑便面周围空气不均匀，从而形成相邻空气间的交换；另一种是热压通风，热压是利用温度差导致的压力变化，空气密度的不均匀来形成冷热空气的交换，从而达到通风换气的目的。从隔热原理说，分为两种：一种是遮阳隔热，遮阳的目的，除了遮挡太阳光，减少辐射热从而阻止室内温度进一步升高外，同时也能遮挡墙面开口部分，造型空气压力差，加

速空气流动，达到通风换气的效果，另一种是结构和构造隔热，岭南传统建筑外围护结构特点是外墙厚而重，热稳定性好，不容易被太阳辐射加热，对室内的长波辐射较少，传统屋顶没有采用厚而重的材料来增加材料的蓄热系数，因为这样会增加室内结构的负担，而采用轻盈、较薄的瓦屋面白天的蓄热总量有限，而到了晚上屋顶也能达到散热快的效果，而隔热依靠坡屋面和凸出屋面的山墙减弱太阳辐射作用。[49]

通过对天井数量对建筑通风的影响（表 6-1）、前后天井位置对通风的影响（表 6-2）、天井形状对建筑通风的影响（表 6-3）、细部设计对建筑通风的影响（表 6-4）、“冷巷”的分类及其成因（表 6-5）以及门窗构件对建筑通风的影响（表 6-6）整体分析，首先根据分析结果确定新竹筒屋的具体通风策略同时，注重现代生活质量并对房间功能进行合理划分，并合理保留原有建筑结构框架。[47]

6.3.2 竹筒屋微气候被动式节能应用

对新竹筒屋方案设计实验，确定通风动力：风压通风、热压通风，利用屋顶引风同时考察工况，确定进出风口：位置（后部）、数量（后天井、中光井）、尺度（进深 4m），通风路径：通风路径尺度对比（面宽影响不大）及空间组合形式（开敞式）（图 6-5）

最后对广州旧竹筒屋进行绘制其基本平面，其主要组合形式由街巷到内部的厅连接冷巷，冷巷旁为一些房间及采光中庭，在整体房间的最后为通风的天井。因此在新竹筒屋的设计上，首先控制整体建筑进深为 4m，其次中间设置采光中庭，后部设置单独天井，整体空间组合采用开敞式并采用风压通风利用屋顶导风，在屋顶设置坡屋顶导风井，采用热压通风，利用岭南建筑外围护结构中的山墙隔热，合理设置室内功能空间并引入太阳能板及水处理器方式，增强住宅整体节能效果（图 6-6）。[48][49]

最后用 Fluent（仅热压风压作用下）对其进行仿真模拟，实验结果显示，在热压和风压作用下，竹筒屋都可以有效进行室内通风，室内平均最高风速 0.6m/s 到 1.0m/s 不等，达人体可感风范围。首层测点风速均匀室内以准静止风为主，由热压自然形成二层走廊末端受外界风影响较大，其他风速均匀，由热压自然形成。因此该新竹筒屋提升改造有效。

类型	适用范围	通风口位置			通风口布置方式
		进风口	出风口	主要风道	
单天井	小型住宅	天井	无	厅/房	出风口借助公共出风口（巷道/街道）或在住宅周围设置一条南北巷道
双天井	中型住宅	前天井	后天井	廊道	风向变化时，出风口和进风口作用转换

图 6-25 天井数量对建筑通风的影响

（注：双天井比单天井拥有更大的通风潜力）

类型	与进风口（入口门窗洞口）距离	气流路线	总结
前天井	较近	未能深入屋内	后天井比前天井更能带来屋内的风压通风
后天井	较远	有效带动屋内空气流通	

图 6-26 前后天井位置对通风的影响

类型	适用范围	通风优势
南北向	/	适应气候，进风量大而快，但不利于两侧通风
东西向	/	进风面宽，风量大

图 6-27 天井形状对建筑通风的影响

（注：同种面积下，窄天井由于减少了太阳直射辐射，其热缓冲作用比宽天井更明显）

局部	做法	成因/作用
厅堂通风	开敞式、半敞厅、开敞侧厅、活动式隔扇	维持风场的流畅，有利于组织穿堂风
屋面通风	气窗、风兜、通风屋脊檐下或山墙尖下做出风口	在城镇楼房，人多地密，通风条件差
围墙通风	围墙开孔（通花围墙、图案形孔洞围墙等）	风口有较高的围墙阻挡

图 6-28 细部设计对建筑通风的影响

分类	位置	“冷”巷的成因
室内冷巷	室内连接各房间	长期不受太阳辐射，空气流通又顺畅，生活余热少
露天冷巷	外墙和围墙之间/相邻两屋之间的	高宽比大，受晒面积小，受晒时间短，长波辐射小，空气湿度相对较低

图 6-29 “冷巷”的分类及其成因

构件	类型	做法	目的
门	趟栊门、矮栅门	活动式隔扇/门外加通透的木栅门（天气炎热时，开启大门而关闭木栅门）	加大空气的对流
窗	开敞式槛窗、满洲窗、支摘窗	落地隔窗（隔扇的下截采用通透式固定木栏杆）	取得较好的迎风口、迎风角；加速空气的对流

图 6-30 门窗构件对建筑通风的影响

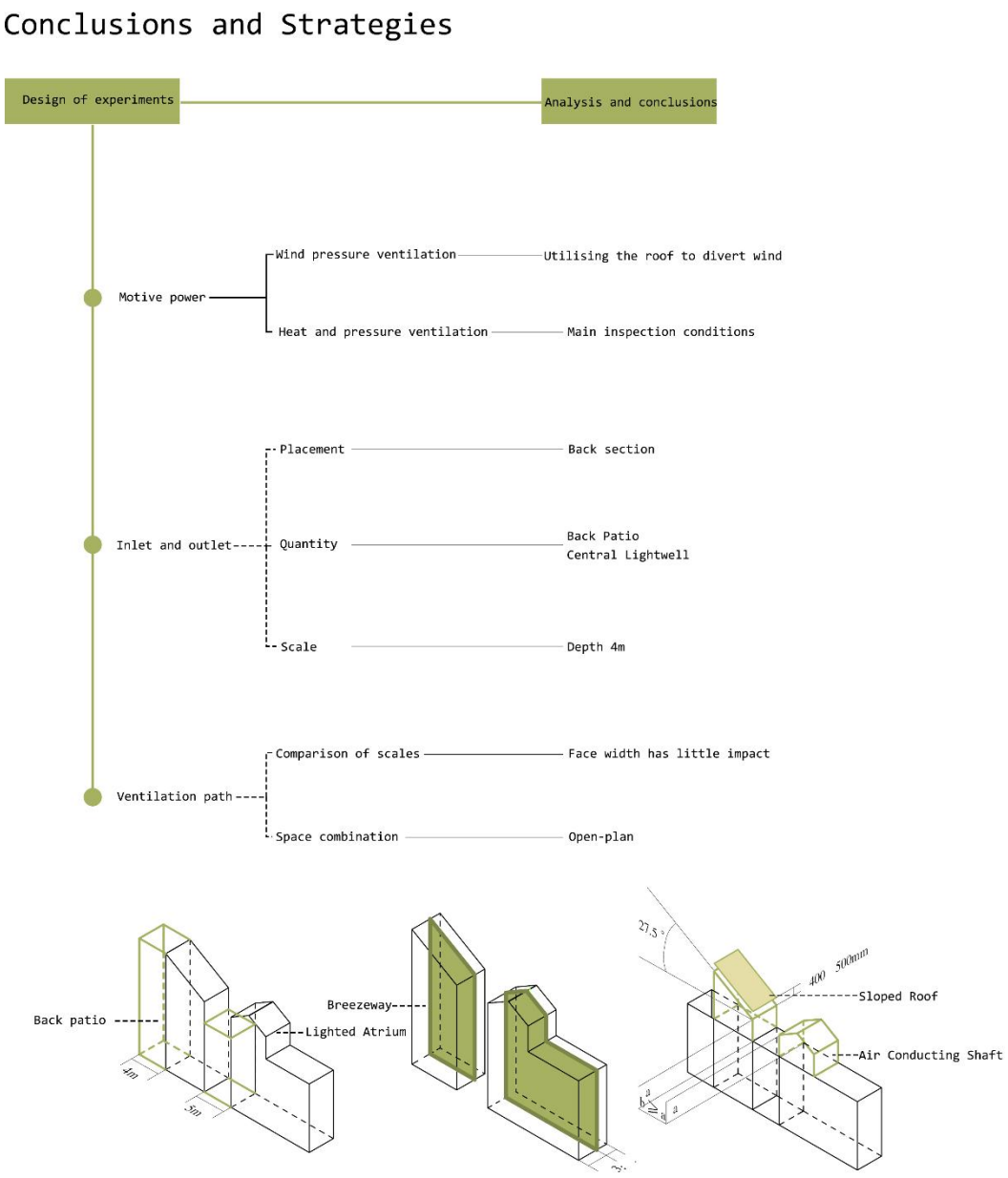
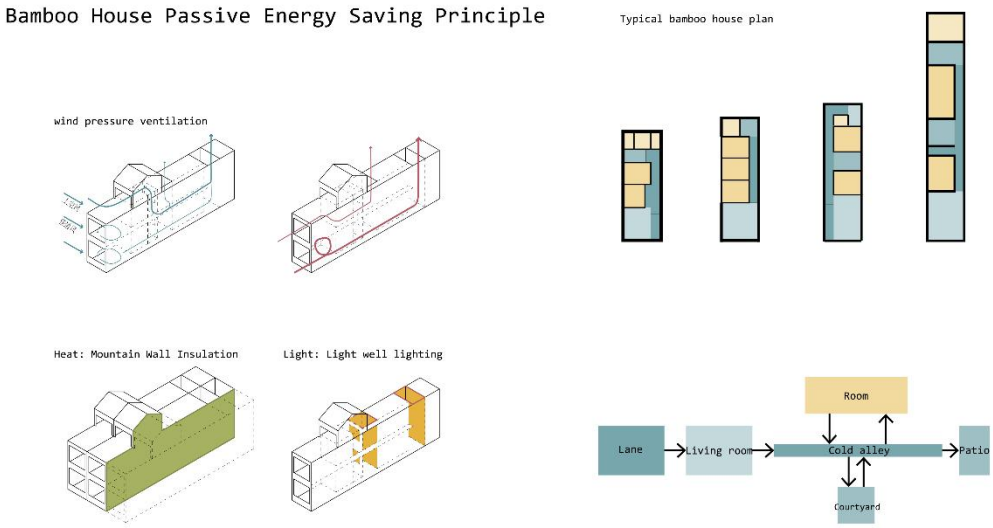
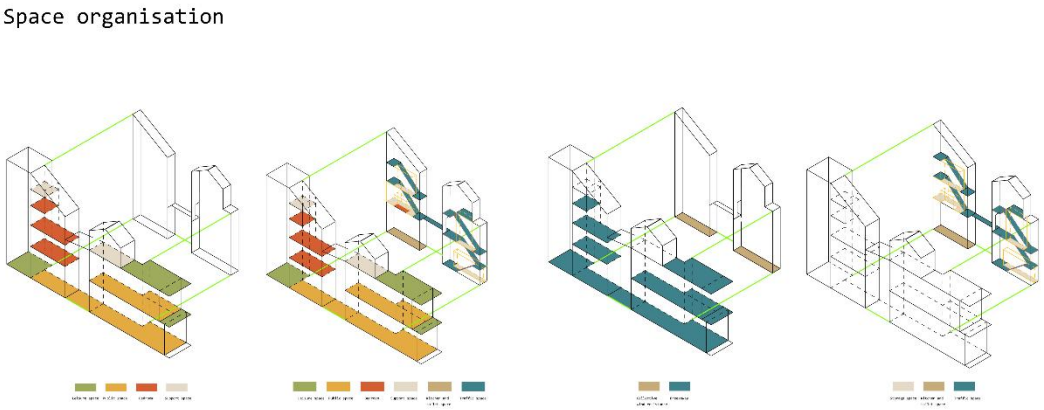


图 6-31 竹筒屋改造设计策略





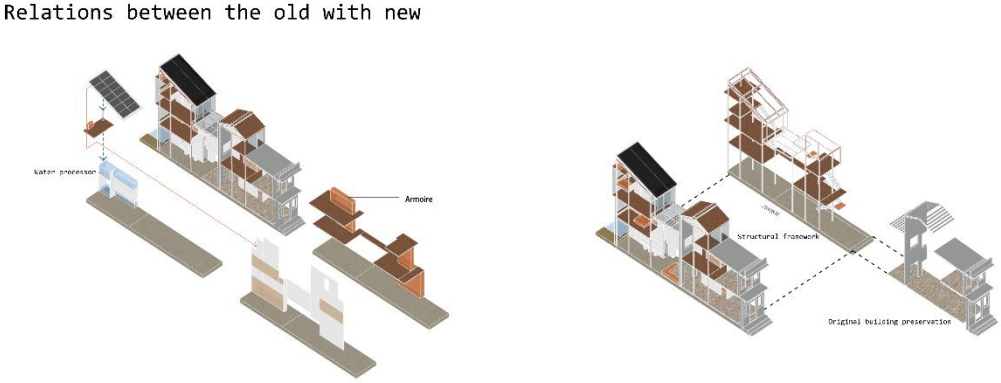


图 6-32 竹筒屋改造分析

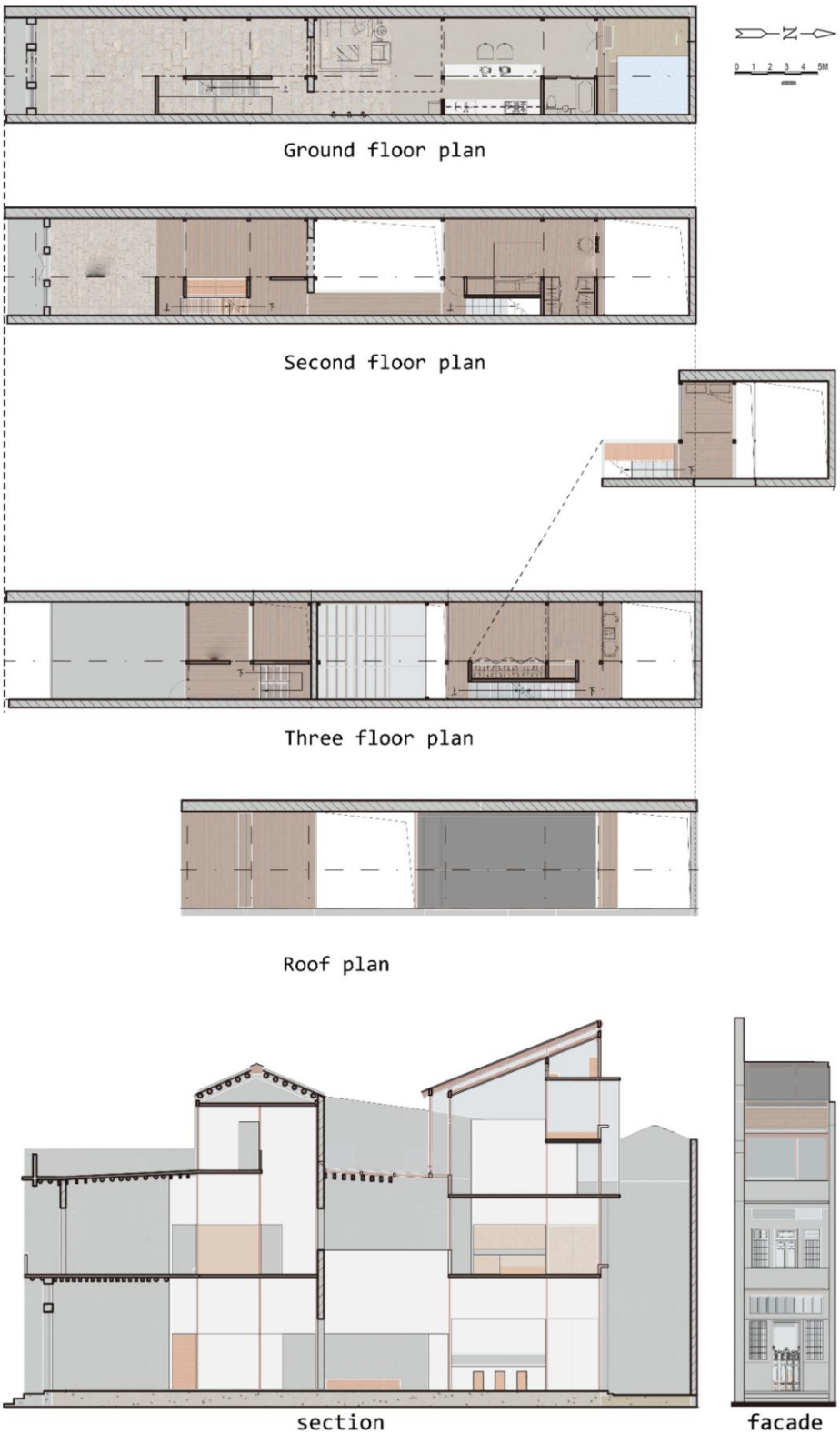


图 6-33 竹筒屋改造平立剖

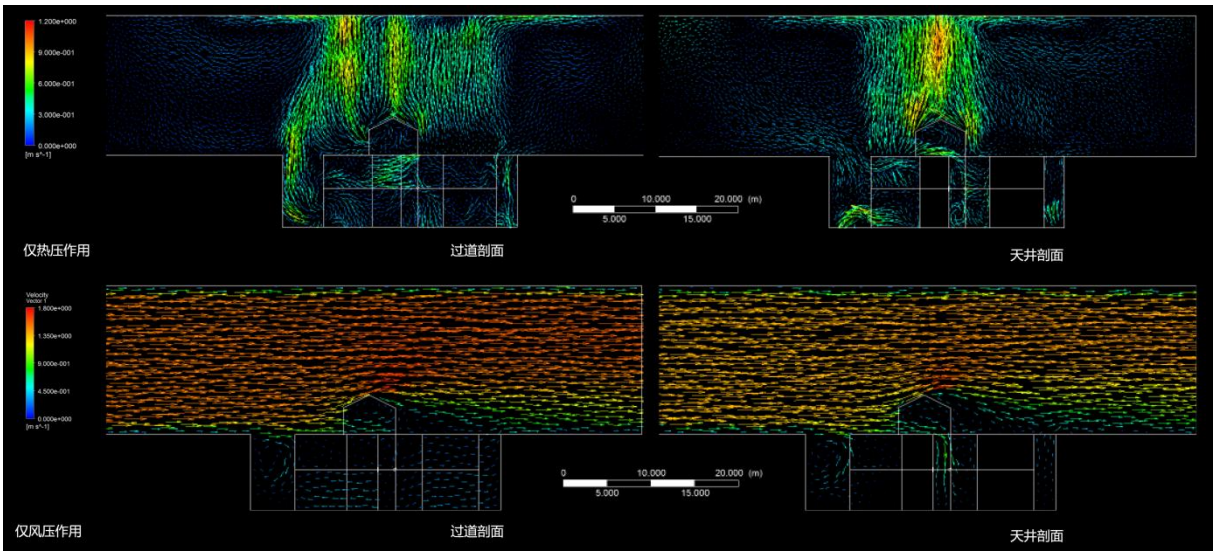


图 6-34 Fluent 热压风压模拟

6.4 基本建筑与特殊建筑的组合形式

卡尼吉亚认为城市建筑可分为基本建筑和特殊建筑两类，其中基本建筑是指同一文化地区内私有居住建筑类型的物化，是一种“自发意识”的结果；而特殊建筑则是“批判意识”作用于基本建筑而逐渐演化出的具备公共性功能的非居住建筑。类似的，罗西也在米利契亚的基础上将城市构成要素分为住宅区域和主导要素两类，二者组合在一起，共同构成了具有空间整体性的城市区域。[50][51]

两种分类方式虽然名称不同，但其本质都是将城市建筑分为公共建筑和私有建筑两类，研究公共区域和私密区域之间的关系。前者多以点状形式出现，串联在城市街道网格中，构成主要公共性区域，其中重要的纪念性建筑持续参与城市演变过程，以其经久性塑造城市的场所精神和历史价值；而私有住宅则常以面状形式构成城市基底斑块，以其不同类型特征体现城市形态和社会组构特征。

在洪德巷历史文化街区内，除了大部分的住宅之外，在场地边界地区也有不少公共建筑（办公楼、幼儿园、老年大学及老年活动中心），因此从对于单体建筑-“新竹筒屋”的组合形式会根据其不同功能进行适当调整。

首先对场地内保存较为完整的住宅地块进行肌理分析，其大体上为一户一宅，且以“三”字形地平面形态特征排列（即最上面是道路，中间是住宅地块，最下面是道路），道路可以是东西向，形成“三”字形地平面。因其当时在具体宅基地规划各家面积时，有所差异，形成的地块大小及边界形状有所差异，这些差异也间接形成了街区丰富多变

的形态。而在具体住宅地块中，虽然整体居住环境紧凑，但在紧凑当中，当地居民也在自发寻找探索公共空间的一些形式以满足日常的公共活动。如在所属街块中适当见缝插针式，留有一些空地（满足日常老年人健身需求）。在分析完其肌理特征后，也不难发现一些具体问题，地块内住宅紧凑布置，同时由于人口数量增加，带来的则是自发的不规则加建，且前后建筑紧挨，无住宅防火间距，地块内无适当的公共空间。因此针对这些问题，同时依据广州市政府洪德巷历史文化街区内划定需要改造的区域，对其进行新的基本建筑更新组合形式。

从上述分析中，场地中的完整肌理，是以竹筒屋作为基本单元（或其组合变体）进行组织，因其产权大小在地块划定之初有所差异，且虽为竹筒屋基本单元，但又经各家各户的自适应，如山墙形式变化，建筑距离街道退后距离等的不同，逐渐形成尺度适宜的街区地块。因此在对基本建筑进行组合时，尊重场地内建筑组织形式，但同时也需要考虑之前所提的问题。

将新竹筒屋并列排置，排置过程中，将后部天井合并，同时将并排放置的新竹筒屋，天井通道打通，在地块中形成一条专属于地块的通道，这样操作，不仅满足竹筒屋的天井拔风效果。且在并列排置过程，适当留有空地，既可以为后续建造留有余地，同时也可作为地块之间的公共活动场地，提高地块内邻里接触频率，增强邻里关系(图 6-35)。

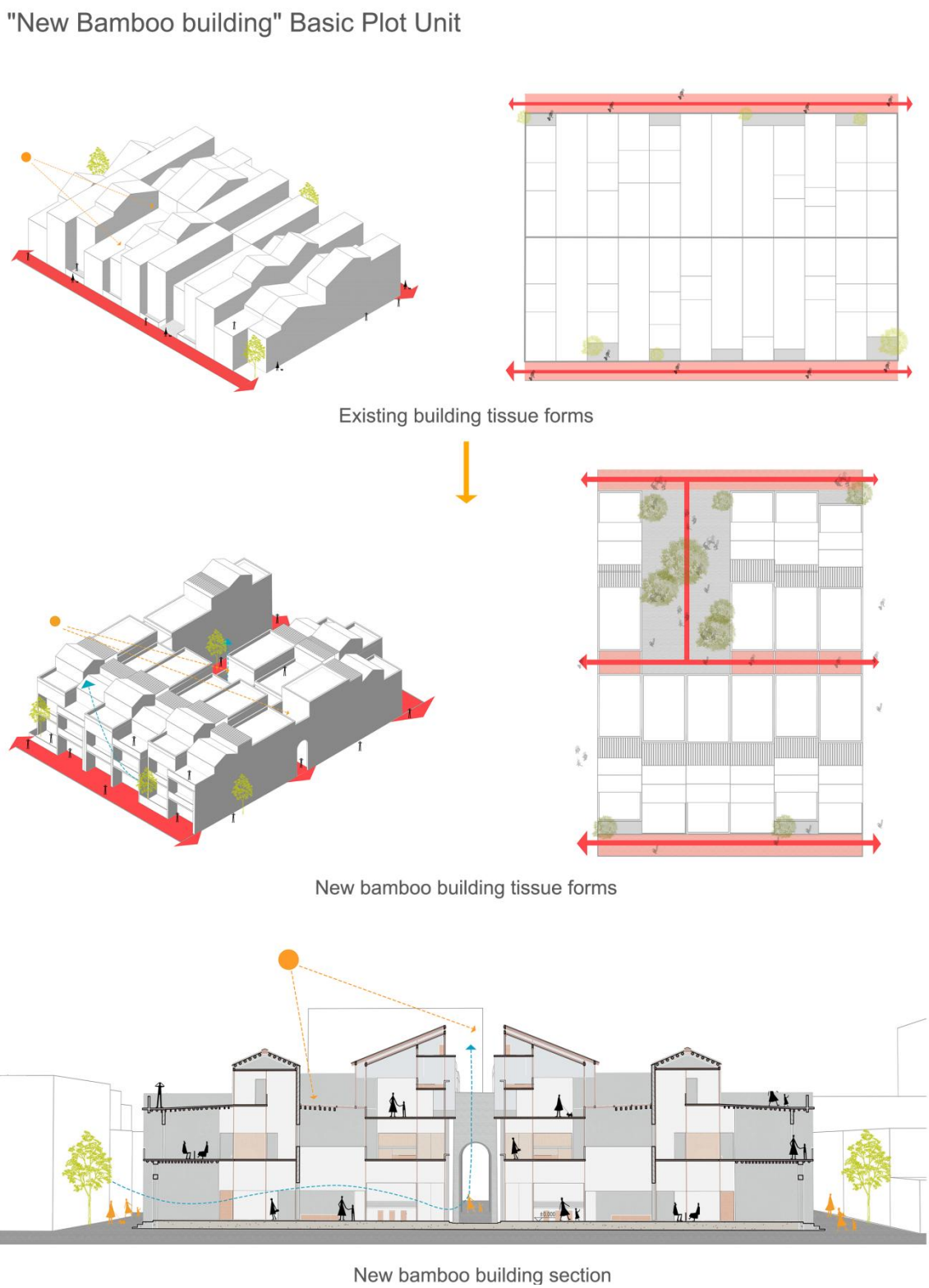


图 6-35“新竹筒屋”基本地块单元组合

对于住宅单元，可以使用这种排置形式，那么对于公共建筑，如何使用新竹筒屋这种基本单元进行组合重构呢？这里首先需要对新竹筒屋的建筑原型进行提取，竹筒屋一般由冷巷连接房间各个功能（包括庭院/采光井、房间、天井）（图 6-36），其节能关键

在于后天井与内庭院（或采光井）以及冷巷通风的正确使用，同时在场地调研及之前的分析中，在 50-80 年代已经初步出现具有竹筒屋形式的集合住宅（图 6-37），其立面比例与竹筒屋比例相当，并适当简化元素，仅保留部分装饰，将交通空间移置交通核，增加各户室内面积。因此基于上面两点分析，对公共建筑进行设计。

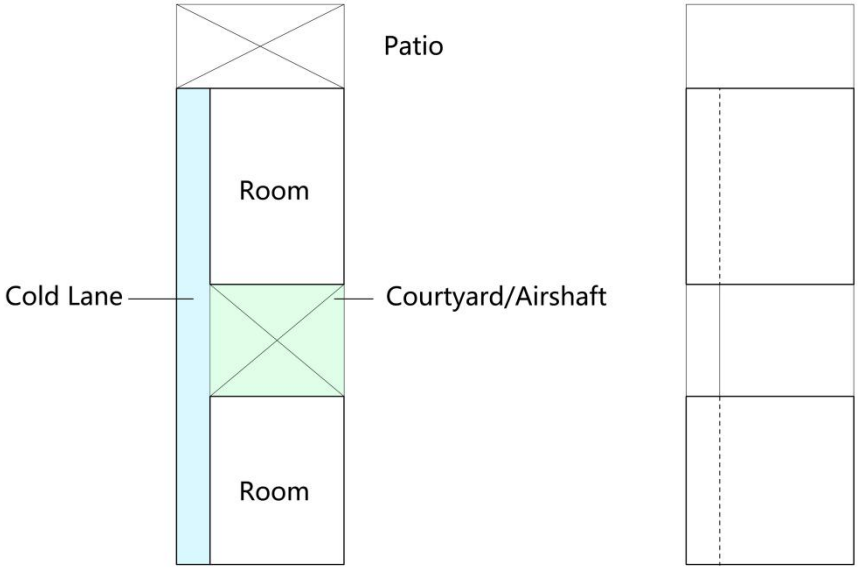


图 6-36 竹筒屋原型提取

图 6-37 多层集合住宅

首先，选择长宽比例合适的单体，进行并置,预留中庭空间，将单体并列排置，预留好交通核，对单体前后形体根据实际房间需要设置大小，同时设计不同层高，预留上人屋顶（或做相关屋顶绿化进行隔热通风），单体尾部与相邻建筑预留防火间距（同样也是后天井所在处），对中间庭院区域进行连通，不仅能够加强整体连通性同时东西向通风进风面宽，风量大，最后可对部分建筑设置架空层，营造灰空间，符合岭南地区的气候特点。

需要注意的是，生成的该单元模块仅为概念状态，在针对不同的场地设计时，需根据场地环境及特点，以及具体功能要求，根据单元模块的基本形式，进行变体，真正做到形态类型的连续传承。

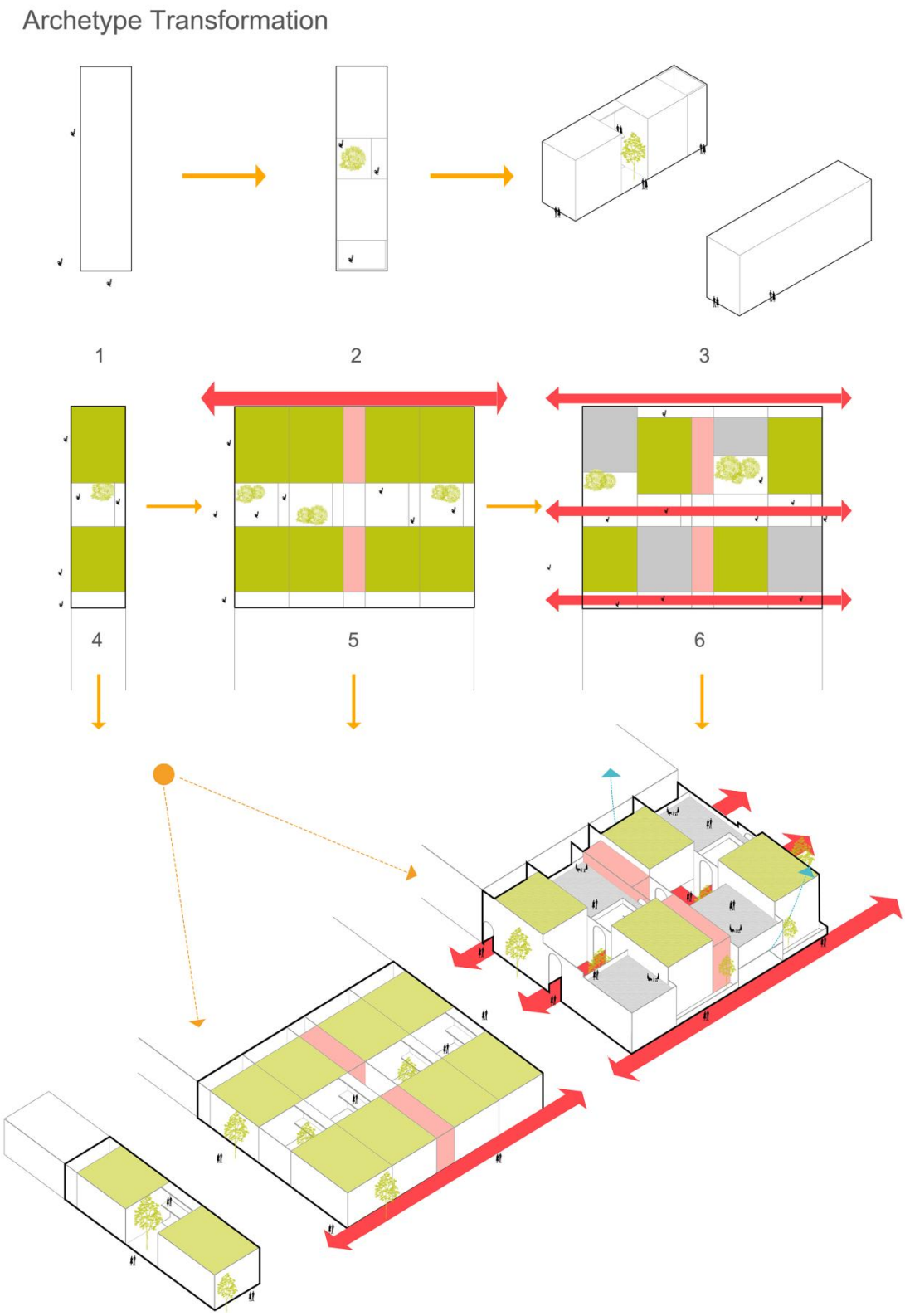


图 6-38 原型转化

6.5 总体设计

图 6-39 总平面图

6.5.1 地块 1 设计（办公建筑）

场地现状

地块 1 整体位于场地北侧边缘，主体功能为办公兼部分住宅，地块内左侧高层建筑，高 7 层，为新建办公建筑。右侧长条建筑及其下面建筑原为办公建筑，现因年久失修，2-3 层以不再使用，仅 1 层作为附近居民区取快递及周边酒店的后勤仓储。南侧竖长条建筑为居民住宅。道路方面，由于街区高密度特性，场地道路较为狭窄，且北侧办公建筑与南侧居民住宅未有联系，虽然办公建筑周围有些许活动场地，但较少有人使用。因此针对地块 1 现状问题，首先需要制定相关保护控制要求，以此来具体针对后续设计。

设计策略：

根据保护控制要求及之前所建立的城市设计导则，对左侧新建高层办公建筑进行以符合街区历史风貌的立面改造，对右侧需要拆除的办公建筑，进行符合街区肌理，同时体量、色彩、材质等方面相协调的城市设计，并且希望能够与地块 1 南部竹筒屋居民产生一定联系，使得场地边缘区域能够激发相应活力。

形体生成过程

1. 确定需要重建及立面改造建筑。

2. 规划场地流线及需要放大的节点区域。

3. 根据地块内现存完整街道建筑肌理，划定相关轴线，为后续放置体块大小比例做相应参考依据。

4. 根据实际功能及保护规范要求确定建筑层高关系。

5. 确定相关轴线关系及岭南地区特有通风隔热方式。

6. 完善建筑立面并设定相关公共场所活动场景。

图 6-40 Site 1 周边情况

图 6-41 Site 1 平面及剖面对比

图 6-42 Site 1 立面改造对比

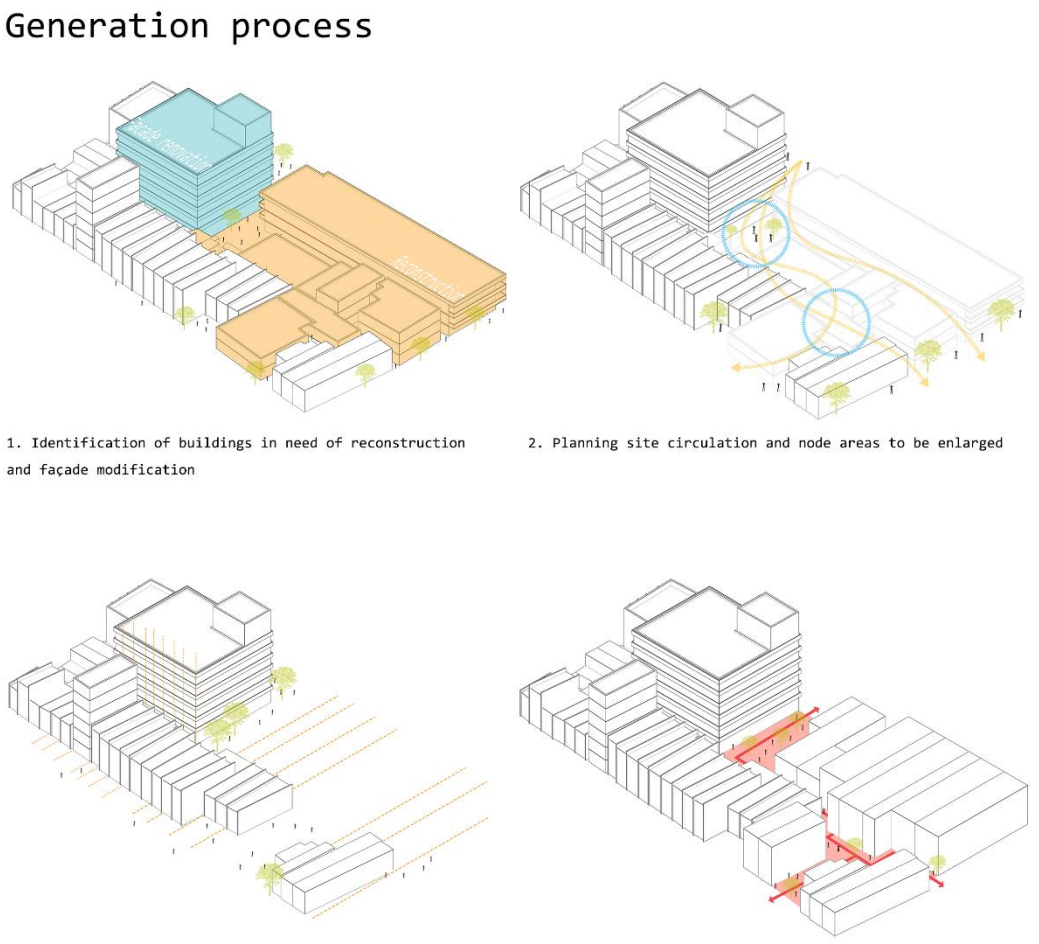


图 6-43 Site 1 改造生成过程

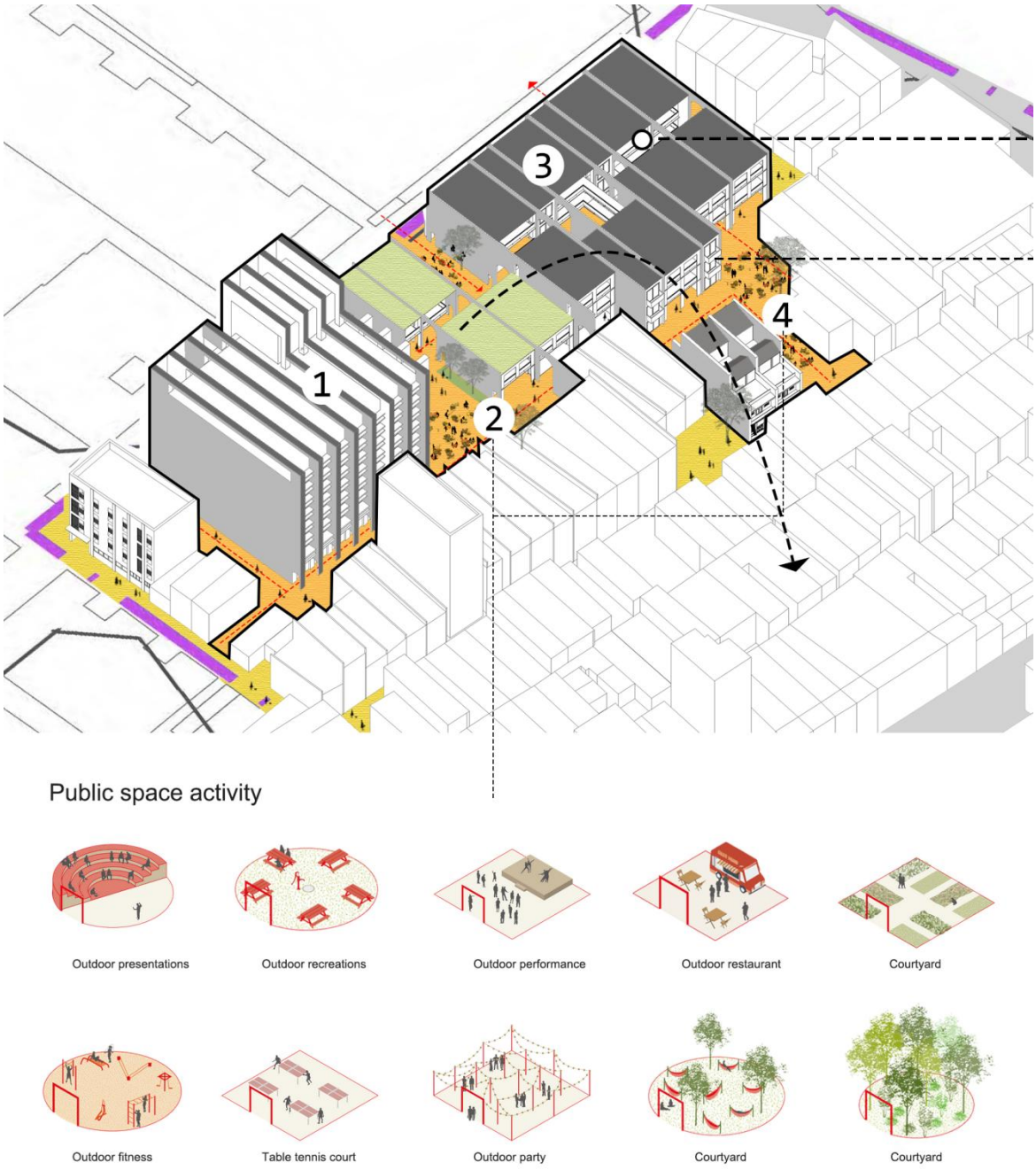


图 6-44 Site 1 公共空间活动

6.5.2 地块 2 设计（老年活动中心）

地块 2 整体位于场地西侧边缘，主体功能为老年活动中心，地块内南侧高 5 层，为海珠区老年大学。北侧为老年活动中心，高 6 层。现场情况发现，作为 2 座公共建筑，仅满足日常老年人上课需求，空余的场地，由于有围墙相隔，使用效率不高，作为洪德

巷历史文化街区唯一的老年活动中心，却不能被老年人高效使用且洪德巷内老年人居多，因此如何高效利用场地，同时降低原有建筑高度减少其在街区内的压迫感，作为设计出发的起点。

设计策略

降低整体建筑高度，减少对街区的压迫感，同时充分利用现有场地，营造不同尺度大小公共空间，满足不同形式的老年聚集活动（如老年广场舞、露天戏剧演绎、日常休闲健身等）。

形体生成过程

1. 确定需要改造区域。

2. 将场地内地块边界划分，同时根据现有地块内建筑梳理相关轴线，供后续设计参考。

3. 根据实际功能面积及保护规划要求，生成高度不一的体块。

4. 营造不同大小公共空间及相关视线通廊，间接联系不同地块之间建筑。

5. 局部放大沿街尺度，暗示入口空间，同时两侧放大的空间，可生成外部露天广场，满足老年聚集活动。

6. 完善建筑立面并设定相关公共场所活动场景。

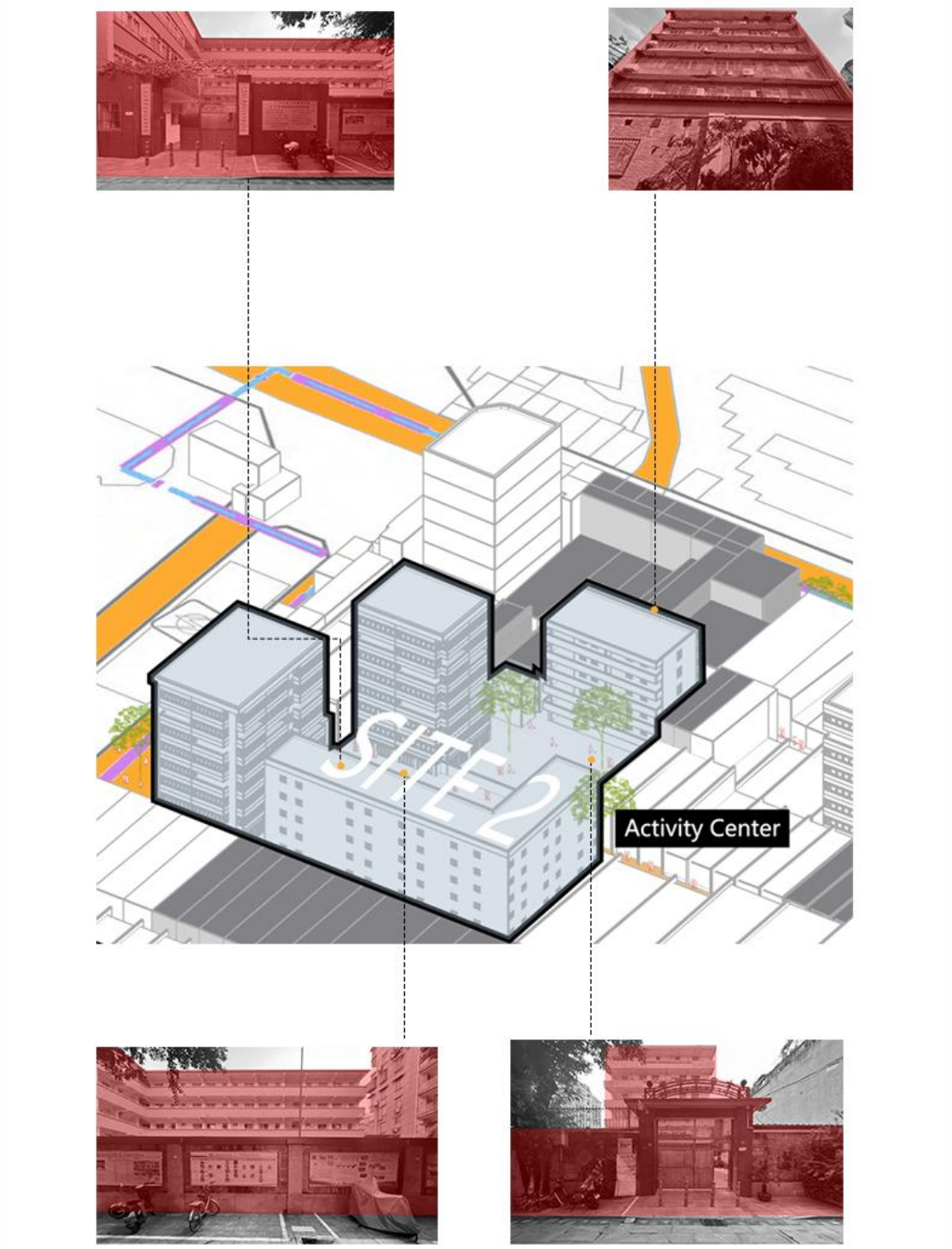


图 6-45 Site 2 周边情况

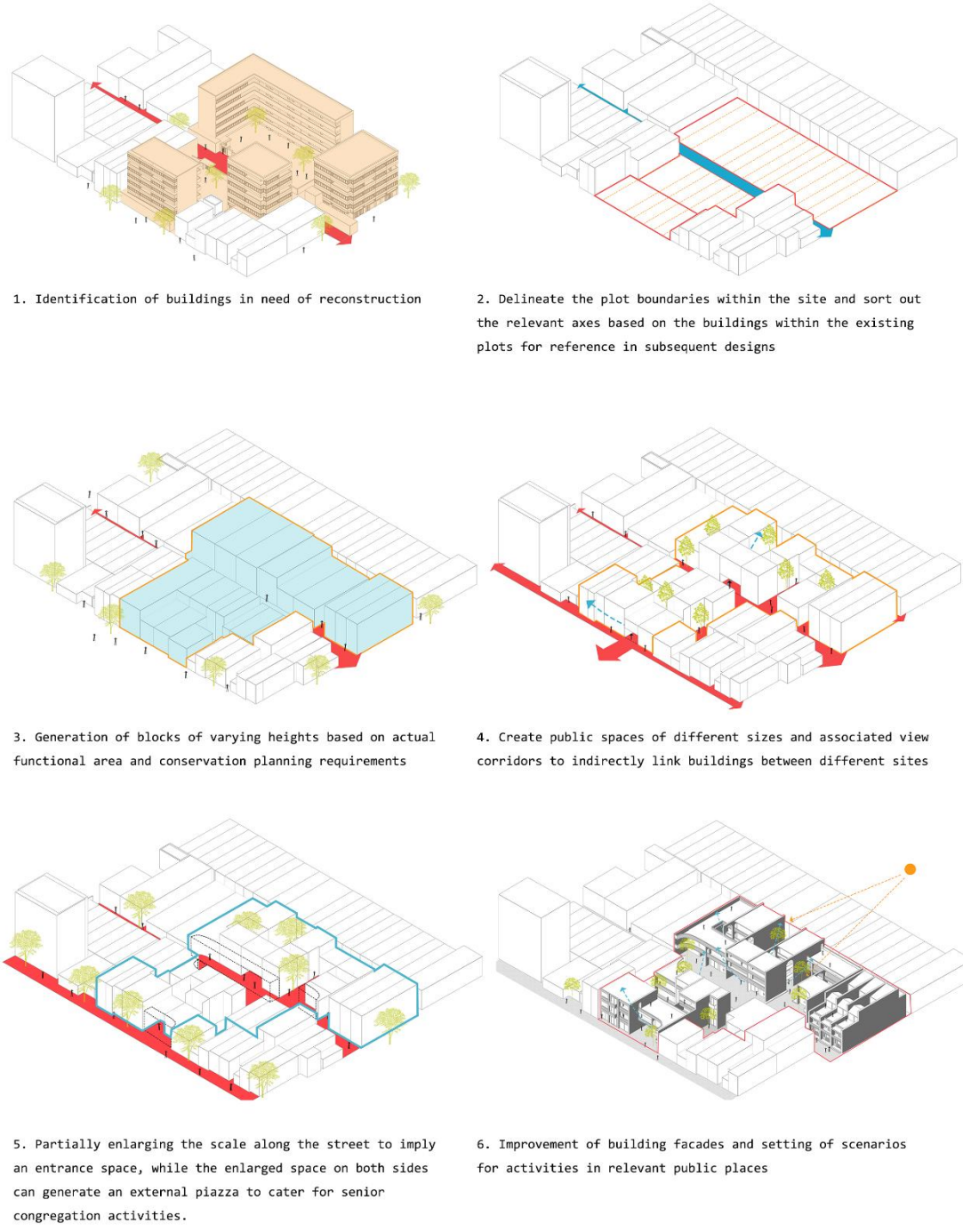


图 6-46 Site 2 改造生成过程

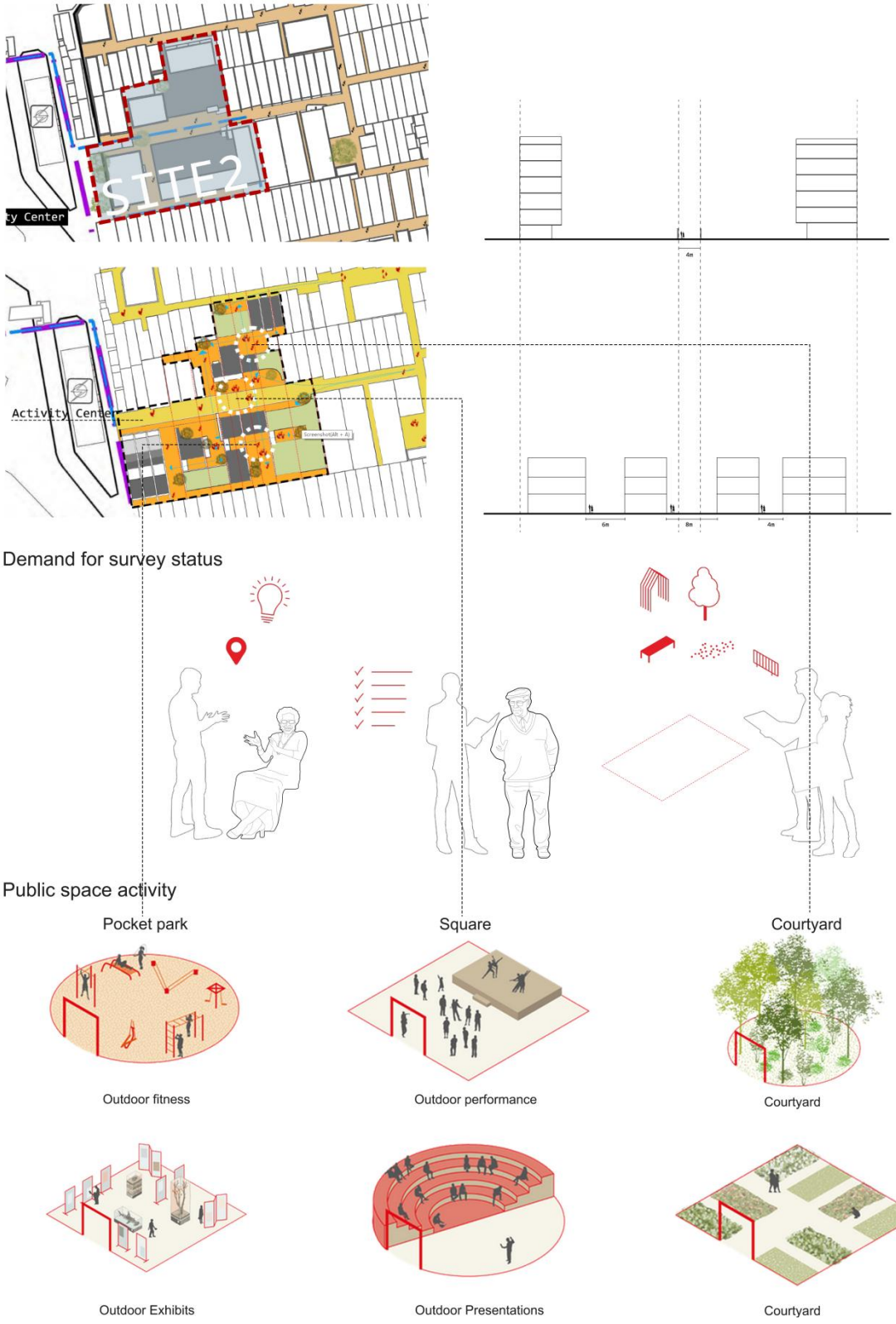


图 6-47 Site 1 公共空间活动

6.5.3 地块 3 设计（住宅建筑、幼儿园）

地块 3（1）整体位于场地东侧，主体功能为 50-80 年代住宅，场地内有一座尚未核

定公布为文物保护单位的登记不可移动文物-基督教洪德堂，场地现状当中，部分住宅遵循传统竹筒屋形制设计，但大部分则是用地关系不明，随意修建，严重破坏整体肌理。因此需要重新梳理用地关系，进行合理的平面肌理布局。

设计策略:

场地内有文物保护建筑，需与其进行退距，同时根据现存部分住宅，推测原有建筑产权，基于此，将新竹筒屋置于地块内。

形体生成过程

1. 确定需要改造建筑范围。

2. 根据现存部分建筑，推测原有地块产权关系。

3. 根据核心保护建筑控制要求与其退距，同时在地块内局部放大空间，形成小型公共空间。

4. 将新竹筒屋在地块内放置，使其保持整体连续的街道界面。

地块 3（2）整体位于场地东侧边缘，主体功能为幼儿园兼有部分多层住宅及沿街商业，场地中根据最新规划，整体划定为幼儿园建筑，场地现状当中，整个地块内建筑有着完整的沿街界面，但幼儿园为 80 年代后所建，其整体布局不仅破坏整体街区肌理，同时也不满足现状使用要求。因此，需要根据现场具体情况及单元模块的变体，进行针对性设计。

设计策略：对场地现状进行梳理，寻找轴线关系，生成体块，根据幼儿园班别大小将体块进行合并，并留出室外活动场地及交通空间。

形体生成过程

1. 确定场地设计边界及根据现存建筑，将轴线置于场地。

2. 生成体块，并根据控制要求控制其高度。

3. 根据幼儿园班别大小，合并体块，并确定相关功能体块。

4. 预留各班室外活动场地，并添加其他形体元素，打破街区均质形式。

5. 完善建筑立面并设定相关活动场景。

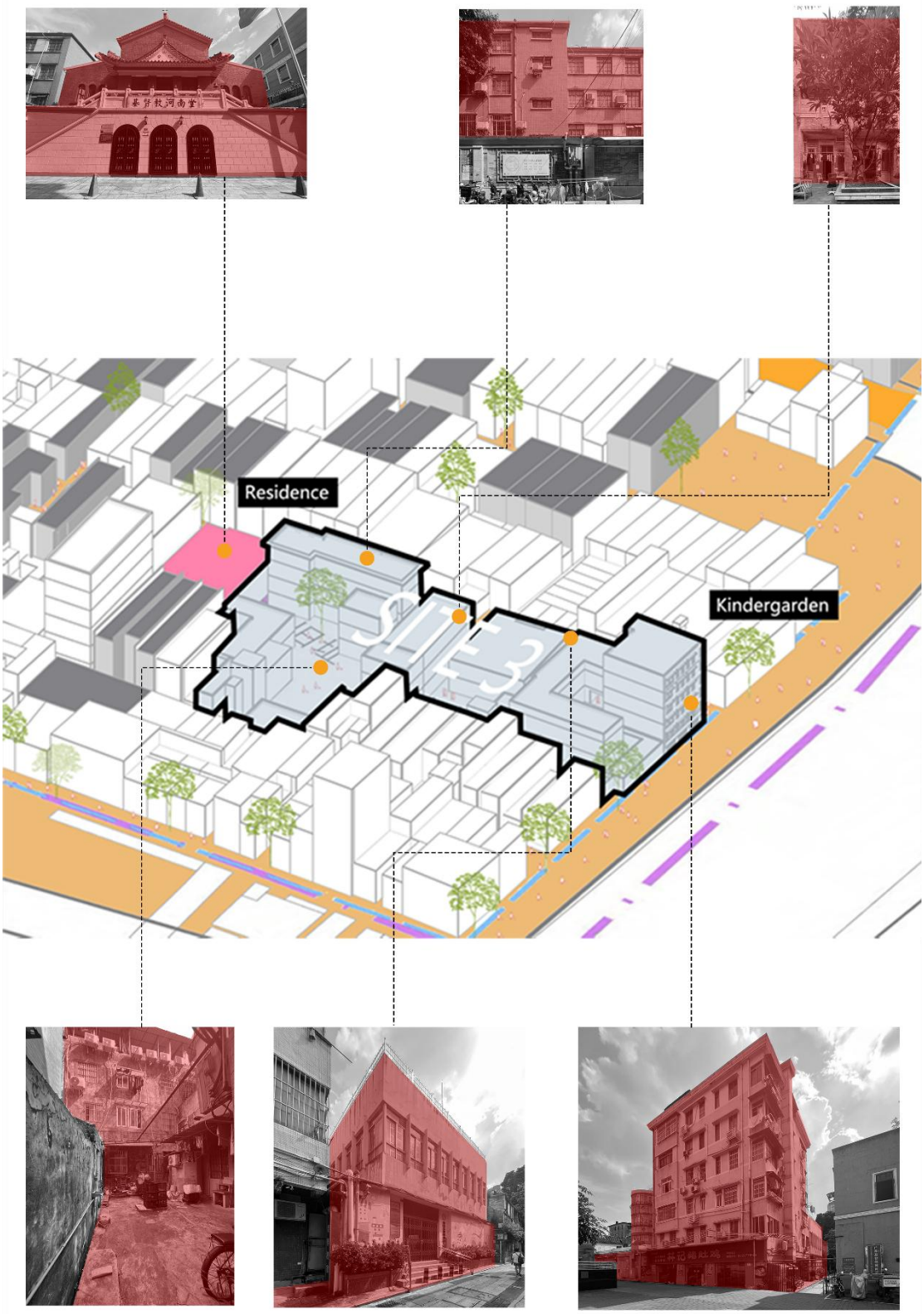


图 6-48 Site 3 周边情况

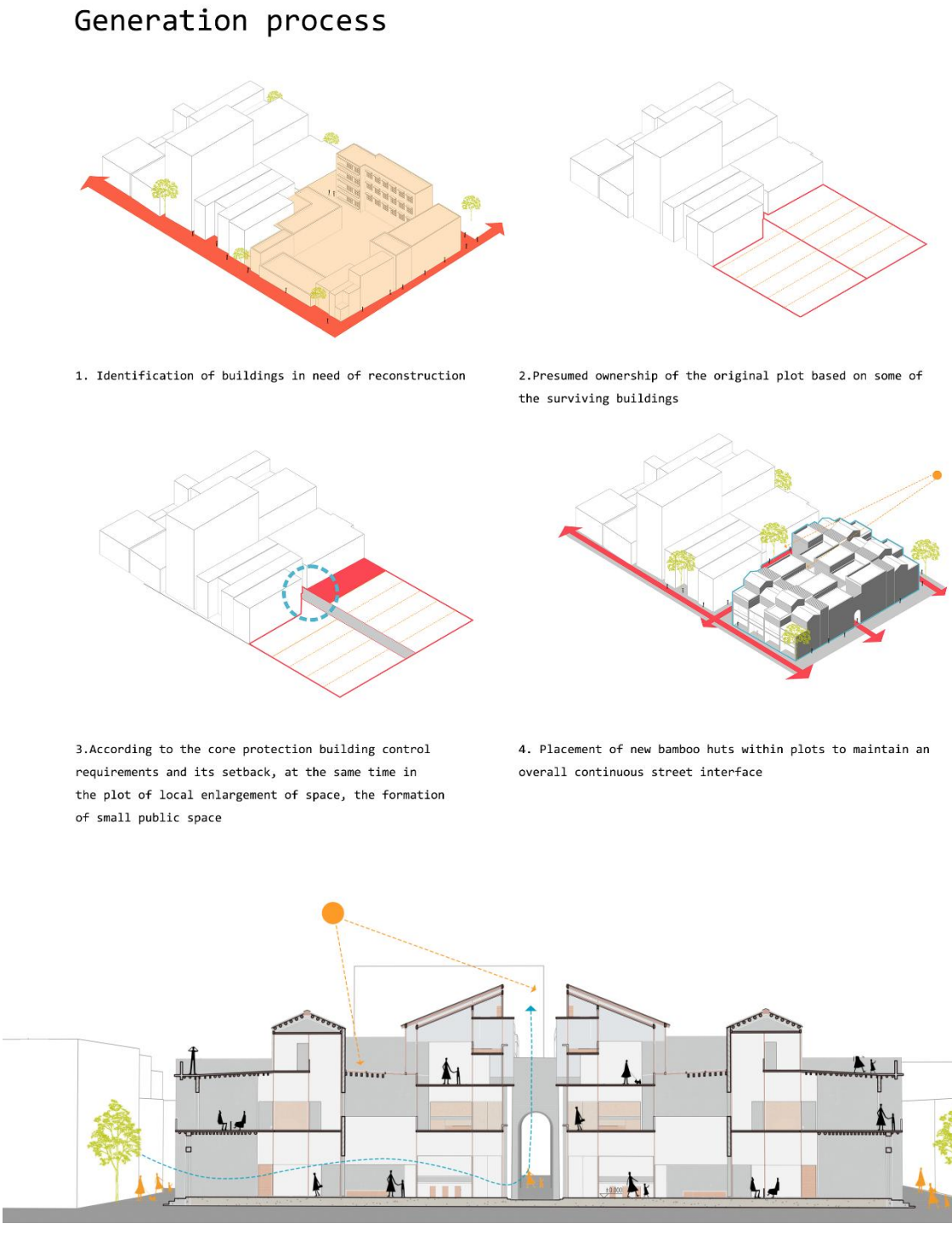


图 6-49 Site 3（1）改造生成过程及剖面

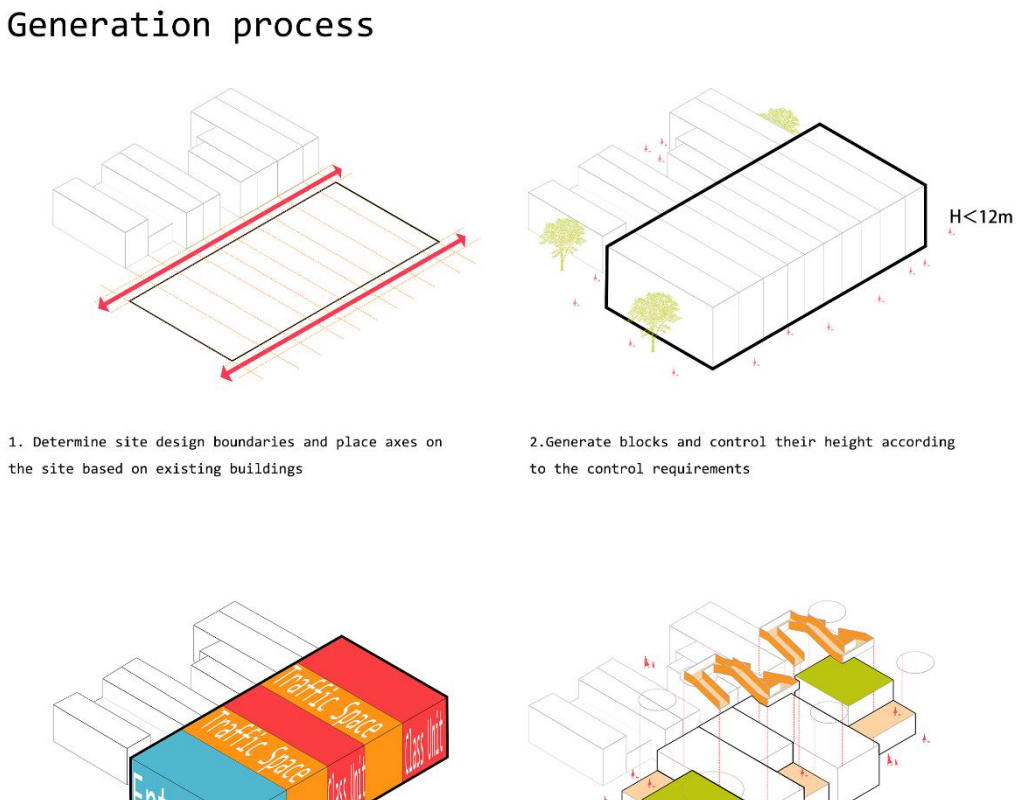


图 6-50 Site 3（2）改造生成过程

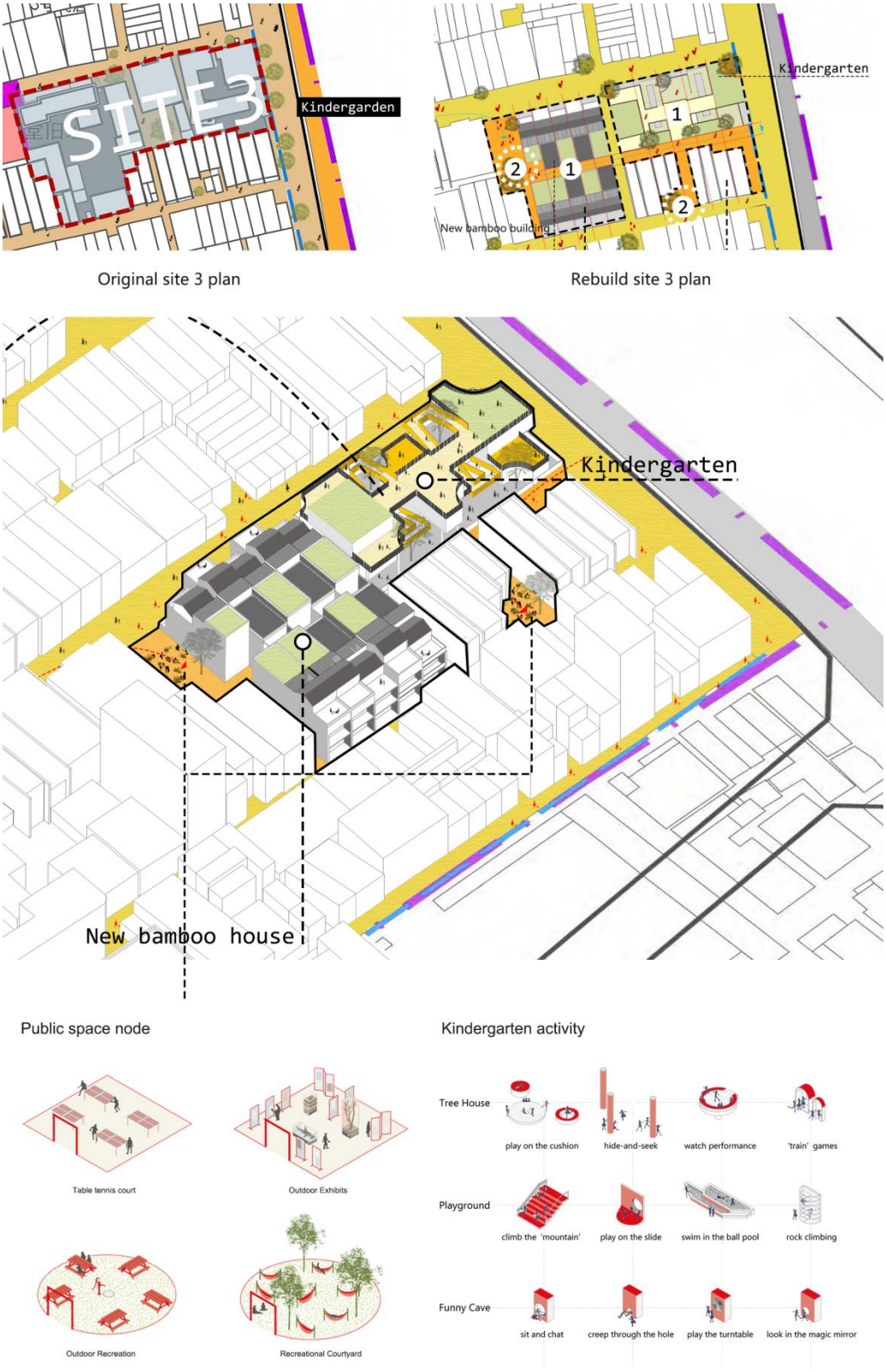


图 6-51 Site 3 公共空间活动


Office
内
环
路
Kindergarten
New bamboo house
Activity Center
Site 2
1.Old people activity center
2.square
3.Courtyard
Site 1
1.High buidling facade rebuild
2.square
3.Office building
4.Pocket park
Site 3(1)
1.Residence
2.Public space node
Site 3(2)
1.kindergarten
2.Public space node

图 6-52 场地轴测图

6.6 本章小结

本章通过制定相关策略及不同分区肌理的城市设计导则，对场地道路、地块及相关功能进行调整，并对该地区肌理单元建筑-竹筒屋，对其进行微气候被动式节能探索，针对不同地块的特殊性（建筑类型、场地条件）进行相关城市更新设计。

总结

本研究的主要目标是通过对形态类型学理论方法的“在地化”调适，建立适合广州历史文化街区更新工作的一套完整方法体系。并结合广州洪德巷历史文化街区进行具体的方法运用。

1. 创新性：基于西方形态类型学方法的在地化调适，并具体深入探讨。

基于对洪德巷历史文化街区更新中面临的各种问题的分析及形态类型学理论方法的梳理、总结，本文逐步建立起适合于洪德巷历史文化街区的形态类型学方法体系。在具体调适中，根据形态类型学理论，对场地内各元素进行演替过程梳理及总结，并基于此判断其连续性，根据不同的肌理分区制定相关设计导则，同时在具体的城市设计实践中聚焦于城市形态学与建筑类型学各元素中重叠的建筑这一元素，对广州洪德巷历史文化街区中，这一地区平面肌理典型单体元素-竹筒屋进行微气候被动式节能探索，对破坏场地肌理的公共建筑进行适应性更新，完善历史文化街区肌理，同时又提高当地居民生活质量。使源于西方城市研究的方法体系更加适合中国城市历史地段认识和诠释；推动传统形态类型学方法在中国城市历史地段研究和设计领域的发展。

2. 反思

(1). 在对形态类型学研究中，建筑历史地图的演变发展过程十分重要，但在本次洪德巷历史文化街区更新研究中，其中的具体建筑资料少且对元素的定量分析较少，这对形态类型的演变研究带来一定的困难及误差。

(2). 研究设计可以继续深化，意大利穆拉托里——卡尼吉亚学派中对于建筑类型的分析，往往会对整个区域的类型分析，因此对于类型的提炼还可以更加深入具体（进行更加细致的分类）。

最后，作者也认识到对于历史文化街区更新，是一个十分复杂的问题，为了能够解决这个问题，需要各方面如技术、政府相关制度、居民意愿等的协作配合，虽然该技术不能解决历史更新的所有问题，但其可作为一个方向，理解城市形态历史价值的重要性，为今后相关制度的完善提供重要的参考价值。

参考文献

[1] 王景慧.历史地段保护的概念和作法[J].城市规划,1998(03):34-36+63.

[2] 李晨.“历史文化街区”相关概念的生成、解读与辨析[J].规划师,2011,27(04):100-103.

[3] ICOMOS, Charter for the conservation of historic towns and urban areas(Washington Charter 1987), 1987.10

[4] Alan Colquhoun，Typology and Design Methed，Essagsin Architectural Criticism，MIT Press，1981

[5] Moudon, Anne Vernez, Getting to Know the Built Landscape: Typomorphology. in Franck, Karen A and Lynda H Schneekloth, Ordering Space: Types in Architecture and Design New York: Van Nostrand Reinhold, 1994.

[6] M.R.G.Conzen.Alnwick,Northumberland-a study in town-plan analysis. London: Institute of British Geographers. 1969

[7] J. W. R. Whitehand, British Urban Morphology: The Conzenian Tradition[J]. Urban Morphology,2001, (2): 103-109.

[8] Muratori S. Studi per una operante storia urbana di Venezia[J]. Palladio, 1959, 1959: 1-113. 22.

[9] Caniggia, Gianfranco and Gian Luigi Maffei. Architectural Composition and Building Typology -Interpreting Basic Building, Firenze: Alinea Editrice, 2001.

[10] Moudon A V. Urban morphology as an emerging interdisciplinary field[J]. Urban morphology, 1997, 1(1): 3-10.

[11] Kropf K. Aspects of urban form[J]. Urban morphology, 2009, 13(2): 105.

[12] Kropf K S. Ambiguity in the definition of built form[J]. Urban Morphology, 2014(18):41-57.

[13] Scheer B C. The epistemology of urban morphology[J]. Urban Morphology, 2016, 20(1):5-17

[14] 沈克宁.设计中的类型学[J].世界建筑,1991,(02):65-69.

[15] 魏春雨.建筑类型学研究[J].华中建筑,1990,02:81-96.

[16] 汪丽君.建筑类型学[M].天津：天津大学出版社，2005

[17] 尼跃红.北京胡同四合院类型学研究[M].北京：中国建筑工业出版社，2009

[18] 汪丽君.广义建筑类型学研究[D].天津大学,2003.

[19] 周绍文.云南传统聚落类型学研究[D].昆明理工大学,2007.

[20] 樊婧怡.类型学视角下的关中村镇传统街区设计构型研究[D].西安建筑科技大学,2011.

[21] 邓浩,朱佩怡,韩冬青.可操作的城市历史——阅读意大利建筑师萨维利奥·穆拉托里的类型形态学思想及其设计实践[J].建筑师,2016,(01):52-61.

[22] 蒋正良.意大利学派城市形态学的先驱穆拉托里[J].国际城市规划,2015,(04):72-78.

[23] 朱佩怡.可操作的历史——阅读意大利穆拉托里学派类型形态学思想以及基于城市形态学分析的设计实践初探[D].东南大学,2015.

[24] 齐文举.从房屋类型到城市形态—阅读吉安弗里科·卡尼吉亚的类型形态学思想[D].东南大学,2017.

[25] 段进,邱国潮.国外城市形态学概论[M].南京:东南大学出版社, 2009.

[26] 谷凯.城市形态的理论与方法——探索全面与理性的研究框架[J].城市规划,2001,12:36-42.

[27] 梁江,孙晖.模式与动因——中国城市中心区的形态演变[M].北京:中国建筑工业出版社, 2007.

[28] 丁沃沃,刘青昊.城市物质空间形态的认知尺度解析[J].现代城市研究,2007,08:32-41.

[29] 丁沃沃,胡友培,窦平平.城市形态与城市微气候的关联性研究[J].建筑学报,2012,(07):16-21.

[30] 韩冬青.城市形态学在城市设计中的地位与作用[J].建筑师,2014(04):35-38.

[31] 田银生,谷凯,陶伟.城市形态研究与城市历史保护规划[J].城市规划,2010,(04):21-26.

[32] 张剑涛.城市形态学理论在历史风貌保护区规划中的应用[J].城市规划汇刊,2004,(06):58-66+96.

[33] 沈克宁.建筑类型学与城市形态学[M].北京:中国建筑工业出版社,2010

[34] 陈飞,谷凯,西方建筑类型学和城市形态学:整合与应用.建筑师,2009(02):53-58.

[35] 陈飞.一个新的研究框架:城市形态类型学在中国的应用[J].建筑学报,2010,04:85-90.

[36] 陈锦棠,姚圣,田银生.形态类型学理论以及本土化的探明[J].国际城市规划,2017,32(02):57-64.

[37] [英]康泽恩(M.R.G. Conzen).城镇平面格局分析:诺森伯兰郡安尼克案例研究[M].宋峰等译.北京:中国建筑工业出版社,2011.

[38] Bienstman H. Morphological Concepts and Urban Landscape Management: the Cases of Alkmaar and Bromsgrove[D]. University of Birmingham. PhD thesis, 2007.

[39] Gianfranco Caniggia, Gian Luigi Maffei. Interpreting Basic Building [M]. Altralinea Edizioni, 2017.

[40] Gianfranco Caniggia, Gian Luigi Maffei, Composizione architettonica e tipologia edilizia. II. Il progetto nell’edilizia di base, Marsilio, Venezia, 1984

[41] Kropf K S. Ambiguity in the definition of built form[J]. Urban Morphology, 2014(18):41-57.

[42] Kropf K S. Typological Zoning[M]. Attilio Petruccioli (ed.) Typological Process and Design Theory.

Cambridge, Massachusetts: Aga Khan Program for Islamic Architecture. 1998: 127-140.

[43] Trisciuoglio, Marco; Crapolicchio, Martina; Xiao, Xiao (2023) The Form of Palermo and the Map by Pier Luigi Cervellati. In: JIANZHUSHI, vol. 221, pp. 6-12. ISSN 1001-6740 Contributo su Rivista

[44] 徐好好. 意大利波河流域历史城镇城市遗产的保护和更新研究[D]. 华南理工大学, 2014.

[45] 韩冬青. 城市形态学在城市设计中的地位与作用[J]. 建筑师, 2014(04):35-38.

[46] 阮仪三, 李红艳, 真伪之问：何谓真正的城市遗产保护, 同济大学出版社, 上海, 2016.

[47] 王静, 周璐. 岭南地区传统住宅建筑通风方式的启示[J]. 华中建筑, 2013, 31(07):53-58.

[48] 曾志辉, 陆琦. 广州竹筒屋室内通风实测研究[J]. 建筑学报, 2010, (S1):88-91.

[49] 王文棋, 拜盖宇. 基于湿热气候环境下的广州民居形式研究[J]. 中外建筑, 2014, (08):86-89.

[50] Aldo Rossi，The Architecture of the City，The MIT Press，1982

[51] 童明. 罗西与《城市建筑》[J]. 建筑师, 2007(05):26-41.

攻读硕士学位期间取得的研究成果

一、已发表（包括已接受待发表）的论文，以及已投稿、或已成文打算投稿、或拟成文投稿的论文情况：

序号	发表或投稿刊物/会议名称	作者（仅注明第几作者）	发表年份	与学位论文哪一部分（章、节）相关	被索引收录情况

二、与学位内容相关的其它成果（包括专利、著作、获奖项目等）

致谢

开拓视野，看见世界，贴近彼此，感受生活，这就是生活的目的。

3.答辩委员会对论文的评语

（主要内容包括：1.对论文的综合评价；2.对论文主要工作和创造性成果的简要介绍；3.对作者掌握基础理论、专业知识程度、独立从事科研工作能力以及在答辩中表现的评价；4.存在的不足之处和建议；5.答辩委员会结论意见等）

硕士研究生杨维桐所完成的题为《形态类型学视角下的历史文化街区更新研究-以广州洪德巷为例》的学位论文，选题具有一定的理论意义和较好的的实用价值。
作者较全面的归纳和评述了一定量的有关文献，较好的掌握了该领域国内外的研究现状和发展方向。

论文研究内容较深入，研究方法较正确，完成了下列研究成果:1.通过利用形态类型学的方法，对具体调研和调整形态类型学元素层级序列，结合相关类型学的案例分析，试图提出本土化的形态类型学应用框架。2.对广州洪德巷历史文化街区不同时期的建筑构件与材料、建筑类型及布局、肌理、街道与地块、公共空间进行详尽的定性与定量分析。3.将应用框架具体结合广州洪德巷进行在地性应用更新设计。研究成果具有一定的理论价值和实用价值。

论文概念清晰，论文结构较完整，叙述适当，分析充分。答辩中作者较好的回答了提出的问题。

答辩委员会同意通过硕士学位论文答辩，同意毕业，并建议授予硕士学位。

论文答辩日期：2023 年 9 月 4 日　　答辩委员会委员 5 人

表决票数：同意毕业及授予学位（5）票
同意毕业，但不同意授予学位（0）票
不同意毕业（0）票

表决结果（打"√"）：同意毕业及授予学位（√）
同意毕业，但不同意授予学位（　）
不同意毕业（　）

答辩成员签名	（主席）		Mauro Berta（线上参会，秘书代签）
答辩秘书签名			

申请人姓名：杨维桐