Diplomarbeit

Zwischen Offenheit und Geschlossenheit

Sozialräumliche Parameter für Stadtblöcke

Eine morphologische Analyse von Shanghai und Wien

TECHNISCHE UNIVERSITÄT WIEN

ausgeführt zum Zwecke der Erlangung des akademischen Grades
eines Diplom-Ingenieurs unter der Leitung von

Ass.Prof.Dr.tech. Dipl.-Ing. Mladen Jadric
E 253-4 Abteilung für Hochbau und Entwerfen

Eingereicht an der technischen Universität Wien
Fakultät für Architektur und Raumplanung

von

Simon Groihofer
01046164

Wien, am

ABSTRACT DE

Neben der ständigen Verbesserung der individuellen Wohnverhältnisse in Shanghai und Wien im Laufe des 20. Jahrhunderts ging die Urbanität aufgrund der Zersiedelung, des kurzsichtigen Funktionalismus und sozialen Veränderungen, die einen eher privaten als öffentlichen Lebensstil befördern, kontinuierlich zurück. Wien ist weltberühmt für seinen kommunalen Wohnbau, der laufend eine Vielzahl von hochwertigen städtischen Wohnungen schafft. Im Gegensatz zu Shanghai hat Wien die modernistische Stadtplanung größtenteils zugunsten einer urbaneren Architektur aufgegeben und ist weitgehend zum Modell der Blockrandbebauung zurückgekehrt. In Shanghai wird der modernistische Traum noch weitergeführt, wo Türme in weitläufigen, eingezäunten Parks platziert, gute Lebensbedingungen für das private Heim schaffen, während die umliegenden Straßen der Stadt, dem Verkehr überlassen bleiben. Andererseits hat Shanghai eine lange Tradition des gemeinschaftsorientierten Wohnens, während Wien derzeit versucht, Modelle für das nachbarschaftliche Miteinander zu finden. Unter anderem sind dies die Gründe, die einen Vergleich der Wohnbauten der beiden Städte für beide Seiten wertvoll machen.

Ziel der Arbeit ist es, Antworten auf zwei Fragen zu finden. Welche sozialräumlichen Parameter des städtischen Wohnbaus hängen mit dem Verfall und der Bildung von Urbanität in Shanghai und Wien zusammen und welche Morphologie des städtischen Wohnens kann soziale Räume bieten, die zur Wiederherstellung der Urbanität und nachbarschaftlicher Gemeinschaft beitragen.

Aus einem Überblick der internationalen Literatur zum Thema werden fünf Schlüsselqualitäten für eine städtischere Architektur zusammengestellt, die als Bewertungskriterien für 10 repräsentative Fallstudien von Wohnblöcken verwendet werden. Diese Qualitäten sind: 1. Durchlässigkeit als Hauptvoraussetzung für eine begehbare Stadt, die sich aus der Blockgröße und der Offenheit des Blocks zusammensetzt. 2. Strukturelle Offenheit ist die Flexibilität für Funktionsänderungen im Block, die durch das Bauen entlang des Blockrandes mit hohen Decken und einer Konstruktionsweise, die eine einfache Rekonfiguration ermöglicht, gewährleistet werden kann. 3. Bei der sozialen Kontrolle geht es darum, dass die Bewohner ein gewisses Maß an Kontrolle über ihre Umgebung ausüben können. 4. Eine eindeutige territoriale Struktur, die eine Reihe von verschachtelten Territorien um das private Heim bietet und eine Vielzahl von nutzbaren Gemeinschaftsflächen/-räumen bietet. 5. Angemessene Schwellenräume an Übergangspunkten, die Begegnungen zwischen Nachbarn ermöglichen, indem gut definierte Zwischenräume geformt werden. Nach der Analyse von 10 Fallstudien erfolgt ein grafischer und diagrammatischer Vergleich nach den genannten urbanen Qualitäten und deren konstituierenden Parametern der ein Urbanitätsranking der Wohnungstypen der beiden Städte ermöglicht. Darüber hinaus erleichtert diese Arbeit das gegenseitige Verständnis der Wohnkultur zwischen Shanghai und Wien.

Schlüsselwörter: Urbanität, Stadtblock, städtischer Wohnungsbau, sozialer Raum, Territorium, öffentlich, privat, Shanghai, Wien

ABSTRACT EN

Alongside the constant improvement of individual homes in Shanghai and Vienna throughout the twentieth century there has been an ongoing decrease of urbanity, due to urban sprawl, short-sighted functionalism and social changes that encouraged a more private than public lifestyle. Vienna is world-famous for its communal housing production, constantly creating a great variety of high-quality urban housing. Unlike Shanghai, it has mostly abandoned modernist city planning in favor of a more urban architecture, returning to the model of the enclosed urban block. In Shanghai the modernist dream is still in the making, where towers are placed in large fenced-in parks, creating great living conditions for the private home, but neglecting the surrounding city streets, which are left to the cars. On the other hand, Shanghai has a long tradition of community-oriented housing, while Vienna is currently trying to find models for stronger neighborhood communities. These are among the reasons that make a housing comparison of these two cities mutually valuable.

The aim of the work is to find answers to two questions. Which socio-spatial parameters in housing blocks are related to the decay and formation of urbanity in Shanghai and Vienna and which urban housing morphology can best provide social spaces that contribute to the redevelopment of urbanity and neighborly community.

In a review of international literature, the five key qualities for a more urban architecture are compiled to be used as evaluation criteria of 10 selected case studies of housing blocks representing the two cities. These qualities are: 1. Permeability as the main precondition for a walkable city being constituted by the block size and the openness of the block. 2. Structural openness being the flexibility for changes of functions in the block that can be ensured by building along the perimeter with high ceilings and a way of construction that allows easy reconfigurations. 3. Social control is about ensuring that residents are able to exert a certain level of control on their surroundings. 4. An unambiguous territorial structure that provides a set of nested territories around the private home offering a variety of usable shared spaces. 5. Proper threshold spaces at transition points that allow encounters between neighbors by shaping well-defined in-between spaces. Following the analysis of 10 case studies a graphic and diagrammatic comparison according to the aforementioned urban qualities and their constituting parameters. provides an urbanity ranking of the two cities' housing types. Furthermore, this work facilitates the mutual understanding of the housing culture between Shanghai and Vienna.

Keywords: urbanity, urban block, urban housing, social space, territory, public, private, Shanghai, Vienna

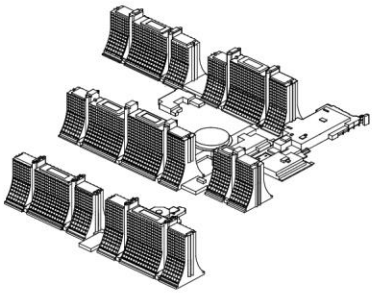
摘要 中文

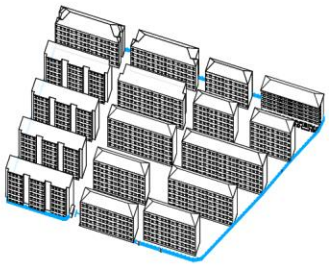
在二十世纪，尽管上海和维也纳的私人住宅的条件得到持续改善，但住宅区里的城市性却持续地下降，其原因在于城市蔓延、短视的功能主义和社会状况的变化导向了这样一种结果，认为个人的生活方式要比公共的来的重要。维也纳因优秀的社会住宅闻名于世，这个城市仍在持续地在创造多样的高品质住宅。和上海不同的是，维也纳几乎完全放弃了功能主义的城市规划模式而崇尚更为具有城市性的建筑，具体的体现就是小型的围合的住宅街块受到欢迎。在上海，现代主义的梦想仍在被追求，塔楼被放在封闭的绿地里，这种方式尽管对私人住户来说是不错的，但它完全忽略了周边的城市街道，而任由它们被汽车塞满。另一方面，上海有很强的社区住宅传统，而维也纳正在寻找更具有社区型的住宅方式。这是本论文选择做两个城市的住宅街块比较的原因。

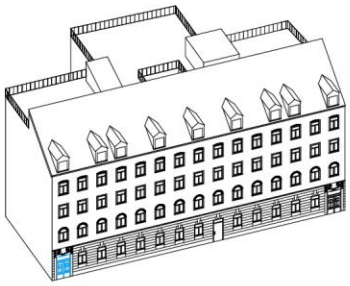
本论文尝试回答两个问题。其一，住宅街块的社会-空间参数如何影响上海和维也纳住宅的消解或形成？其二，什么样的住区形式对城市性和社区感的提升能够起到贡献。

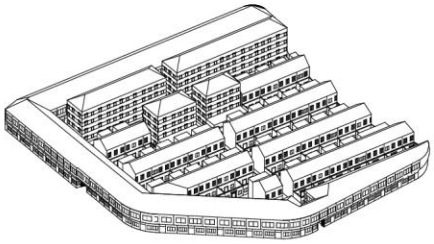
在对文献进行研究后，本论文提出了五个主要的评价标准，以此来研究维也纳和上海的 10 个案例。这五个标准是：1. 渗透性（作为步行城市的先决条件，由街块的开放性和尺度决定）2.结构的开放性(以保证对功能适应性，尤其是在街块的边缘) 3. 社会控制（保证居民能够对他的周边环境施加影响）4. 不模糊的塑造领域感的结构（提供网络状的功能空间以环绕私人住宅）5. 合适的临界空间（塑造邻居间的过渡空间） 。在案例研究的基础上，本论文提供了案例在城市性上的排名。本论文还揭示了两个城市之间住宅文化的差异。

关键词： 城市性、街块、城市住宅、社会空间、领域、公共、私有、上海、维也纳

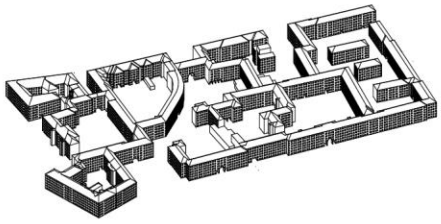




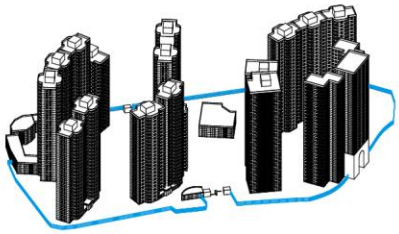




Dual-Degree Master Thesis



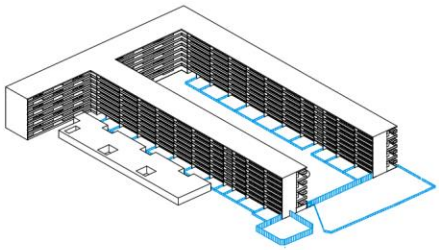
Between Openness and Enclosure



Socio-Spatial Parameters for Urban Blocks

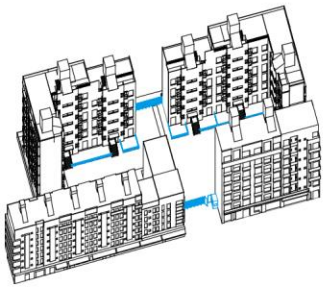
a morphological analysis of Shanghai and Vienna

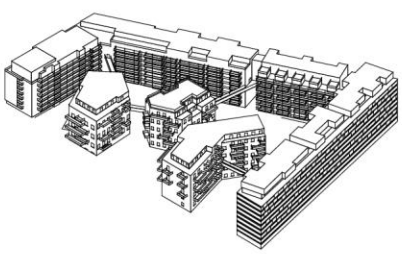
Simon Groihofer
October 2019



Tongji University Supervisor
Associate Prof. Xu Kai

TU Wien Supervisor
Ass. Prof. Mladen Jadric





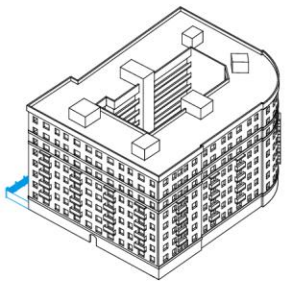


TABLE OF CONTENTS

1 INTRODUCTION

1.1. Problem Statement, Research Questions, Aims and Objectives

Alongside the constant improvement of individual homes in Shanghai and Vienna throughout the twentieth century there has been an ongoing decrease of urbanity, due to urban sprawl, short-sighted functionalism and social changes that encouraged a more private than public lifestyle. Vienna is world-famous for its communal housing production, constantly creating a great variety of high-quality urban housing. Unlike Shanghai, it has mostly abandoned modernist city planning in favor of a more urban architecture, returning to the model of the enclosed urban block. In Shanghai the modernist dream is still in the making, where towers are placed in large fenced-in parks, creating great living conditions for the private home, but neglecting the surrounding city streets, which are left to the cars. On the other hand, Shanghai has a long tradition of community-oriented housing, while Vienna is currently trying to find models for stronger neighborhood communities. These are among the reasons that make a housing comparison of these two cities mutually valuable.

The aim of the work is to find answers to two questions. Which socio-spatial parameters in housing blocks are related to the decay and formation of urbanity in Shanghai and Vienna and which urban housing morphology can best provide social spaces that contribute to the redevelopment of urbanity and neighborly community.

At least since 1961 Jane Jacobs *Death and Life of Great American cities* the awareness of the damaging impact of modernist city planning on the urban fabric and on public life has

grown. Since then many sociologists, architects and urbanists have developed strategies to bring back urban life to the cities. In a review of international literature, the five key qualities for a more urban architecture are compiled to be used as evaluation criteria of 10 selected case studies of housing blocks representing the two cities. These qualities are: 1. Permeability as the main precondition for a walkable city being constituted by the block size and the openness of the block. 2. Structural openness being the flexibility for changes of functions in the block that can be ensured by building along the perimeter with high ceilings and a construction method that allows easy reconfigurations. 3. Social control is about ensuring that residents are able to exert a certain level of control on their surroundings. 4. An unambiguous territorial structure that provides a set of nested territories around the private home offering a variety of usable shared spaces. 5. Proper threshold spaces at transition points that allow encounters between neighbors by shaping well-defined in-between spaces. Following the analysis of 10 case studies a graphic and diagrammatic comparison according to the aforementioned urban qualities and their constituting parameters provides an urbanity ranking of the two cities' housing types. Furthermore, this work facilitates the mutual understanding of the housing culture between Shanghai and Vienna.

1.2. Key Terms and Definitions

1.2.1. Urbanity

The term urbanity has a long tradition and various definitions, which will be discussed in greater detail in chapter two. For a long time, urbanity was synonymous with higher education, high culture and better manners and expressed a feeling of superiority of city people over the country people. In the course of the twentieth century, with the emergence of ideas such as Ebenezer Howard's garden city or modernist urban planning, the suburb was declared the new counter image of urbanity, which was said to combine not the advantages but only the disadvantages of urban and rural life. However, one definition relevant for this study is that of Hans Paul Bahrdt established in the 1950s. He describes urbanity as the incomplete integration of the urbanites, created by a polarity of publicity and privacy. The incomplete integration means a partial participation of the city dweller in

different groupings, without merging into one of them. Unlike in rural life, where private and public seamlessly interlock, individuals are not fully integrated. According to Bahrdt, the main characteristic of urbanity is the separation of privacy and the public. He sees this urbanity manifested above all in the form of the European city and names explicit physical qualities. He explains the "Formation of closed ring-like building blocks" in the "two worlds, which, although intimately related, but clearly separated, exist" (Bahrdt 1956). Urbanity is the main quality that is looked for in the course of this work when establishing 5 socio-spatial qualities and in the further analysis of 10 housing blocks in Shanghai and Vienna.

1.2.2. Urban Block

The urban block is the focus area for this study. The term urban block has some room left for interpretation. It is commonly used synonymously with *city block* or simply *block*. "The block is the space between the streets occupied by the private space of plots, semi-private space and sometimes public space and buildings." (Panerai, 2003 p.168). As described in Panerai's Urban Forms, on the other hand, the term *urban block* is usually used with the connotation of the classic European city and has the meaning of a compact built-up block and a continuous enclosure. As the title of the English version of the book, 'Urban Forms - The Death and Life of Urban Blocks' already suggests, the *urban block* is described as a threatened species that is being supplanted by modernist urbanism. However, the urban block should not be reduced to historical typologies and the continuous and homogenous built-up area surrounding an empty center, while ignoring the complexity and depth of the tissue. Because the closed block does not guarantee urbanity a priori more than an open block. For Panerai, as well as in this work, the *urban block* stands for a vision of a block as a basic module that has a positive impact on the urbanity of the city. The importance of the block as a basic module Kleihues describes as a "microcosm of the city" that reflects the social history of urban life and thus the urban and architectural culture of a city. (Kleihues, 1985, p. 93) The two-dimensional city map is the existential basis of the building block. The size and the cut of a contiguous buildable area form its floor plan, which is then further outlined with information about construction lines, development depths and the buildable area. Further specifications on density, building height and other building regulations are usually interpreted uncritically. Therefore, the codes defining the block are of great influence and importance.

1.2.3. Socio spatial Parameters

Social Space, for Bourdieu is not a physical space, but a relational arrangement of people and groups of people in a permanent struggle of shares, and thus in permanent motion. Thus, it is a space of relations that signifies in a similar or different habitus. (Löw 2016, p.153) His concept of "acquired physical space" or "reified social space" comes closer to the meaning of 'socio spatial' as used in the title of this research. It refers to the spatialized social space, a physical space that is characterized by social relationships and differences of its users. Curdes refers to these as social space characters, which can be divided into the three basic categories "public", "semi-public" and "private". (Curdes, 1997, p. 206) The focus in this work is only on the *social space character* of residential complexes and their immediate surroundings, leaving aside other aspects such as ecology and economy. It is observed who uses the spaces and who is excluded from their use, while categories such as public, semi-public and private in all their gradations are of relevance. The five qualities and their constituting parameters in chapter 2.3 are selected by their ability to define the social space within and around the residential compounds. The accessibility, the transition, the control and the appropriability of the spaces are examined for every case study and in the end conclusions about the causes in morphology and typology are sought.

1.3. Methodology, Process and Structure

In order to achieve the aims of the work the following methodology will be applied divided into 3 parts. Part A consists of a literature review and background information on collective housing of Vienna and Shanghai. In part B the methods of analysis are established, and 10 case studies are analyzed in detail. Finally, a case study comparison according to previously defined qualities of urbanity and a final conclusion make part C.

The literature review, in chapter 2, is about establishing a general perspective on the topic and to introduce the ideas and tools that will be used in the analysis and the conclusion. As a base of research, the ambiguous term *urbanity* is discussed in the context of history pointing out its ongoing decay since the age of industrialization. Based on Philippe Panerai's research on the dissolution of the urban block the differentiation between exterior and interior spaces that is the main character of the urban block will be discussed. In the

second part of the literature review the issue of territory, which is strongly related to the use of space, will be introduced and will form the base for the diagrammatic territorial analysis in chapter 5. In the third part of the literature review five qualities for urban blocks are extracted from the previously reviewed literature and from the city of Vienna urban development plan. These qualities will be the base for the comparison of the case studies in chapter 6. Chapter 3 provides background information about the most common collective housing types in Shanghai and Vienna as they are part of the case studies. Chapter 4 will introduce the methods of analysis applied in the case study analysis of chapter 5. Ten case studies in Shanghai and Vienna, which have been explored and documented in the process of this research are presented and analyzed in drawings and diagrams. Following up in chapter 6 is a comparison of the case studies according to the qualities compiled in chapter 2. Through diagrams and visual comparison, the cases will be tested against each other and their urban qualities are evaluated. The final chapter concludes and critically reflects on the urban practice and gives a prospect of future challenges.

1.4. Scope of Research

Even though the urban problems discussed are global ones, this research focuses specifically on Shanghai and Vienna, being unique in their history and urban development, but to some part representative of China and Europe. Object of interest is urban housing on the scale of the city block and the relationship of these basic modules of the urban fabric to the surrounding street. In two cases, not the entire city block is observed, but a single building that, because of its independent position in the organization of the block, has to be looked at independently. The case analysis focuses on spaces that are experienced on the way from the street to the building entrances. The quality of apartments layouts or private spaces are outside of its scope. Furthermore, it does not discuss any economical, ecological aspects, but focuses solely on the social space and morphological issues of the block.

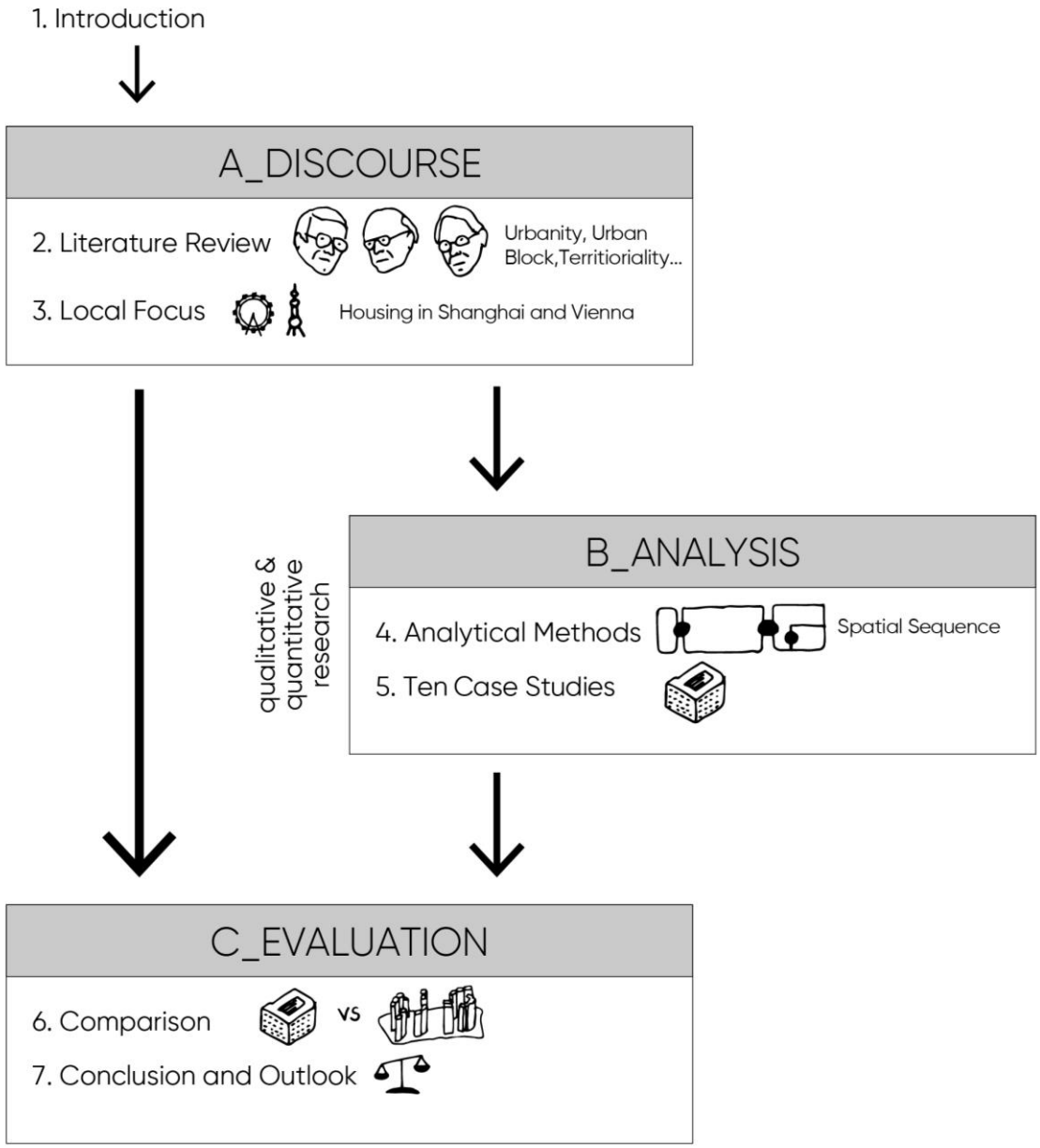


Fig. 1.3 Comprehensive research structure

PART A: DISCOURSE

2 LITERATURE REVIEW

At least since 1961 Jane Jacobs Death and Life of Great American cities the awareness of the damaging impact of modernist city planning on the urban fabric and on public life has emerged. At the same time 'urbanity' was rediscovered to be the missing quality of these new developments. The first chapter will discuss the evolution of the ideas about urbanity up until today and present the strategies how to achieve urbanity. In the second part of the literature review issues of territories in urban housing and their influence on the usage of social space are reviewed. Finally, the last part of this chapter is about establishing a set of five qualities that are derived from the reviewed literature as a foundation for the evaluation of the study.

2.1 The Death and Life of Urbanity

The term *urbanity*, in whatever context, attaches to the urban a specific value that not only sets it apart from other spheres but also raises it above them. (Sonne 2017, pp. 14-36) In contrast, *urbanism* stands for the creative planning approach. In the course of time the term urbanity has not maintained a consistent meaning and possesses a certain inaccuracy, a changeability inherent in every cultural concept. Depending on the type of science that deals with the term, the word can take on linguistic, sociological, or architectural meanings. Urban sociologists such as Richard Sennet or Jane Jacobs connect the sociological term directly with the architectural term and emphasize the interrelationships. The story of the term urbanity is a story of increasing awareness, and a precise differentiation of the qualities of the urban. Urbanity usually only becomes subject of discussion at times in which it is in danger and no longer appears self-evident. Therefore, the term became an issue whenever there were problems in the spatial-architectural structure of the city.

2.1.1 Counter-images

Apart from the judgmental term, the word urbanity has always been used to distinguish itself from a certain counterpart. In the course of history, the counter-images changed constantly, depending on the current problem situation. The ancient Greeks described with *asteiótis* the virtues of expression and tolerance of the citizens of Athens towards *ágroikos*, the clumsy peasant nature of the Spartans. (Pröfener 2017) For the Romans, who took over the meaning of the Greeks, *urbanitas*, the manners of the urban citizen, who is capable of witty speech through fine education. In contrast, stands the clumsy, violent *rusticitas* of the peasants. Here urbanity as eloquence has a cultural and political significance. In the Middle Ages, in absence of real urban settlements, the Roman concept was still used by the aristocrats and described the cultivated manners at the court. Later, in the Renaissance, the term referred to the flourishing city-states and was used in same sense with *civilitas* and *humanitas*. Thus, in addition to the cultivated behavior, urbanity also acquired an ethical dimension. Continuing this tradition, English *urbanity* in the 18th century referred to the good qualities of the gentleman who distinguished himself from peasant behavior. The meanings mentioned above were purely related to manners, but not yet to urban culture itself. This happened in Paris in the 18th century, where the colorful city life and urban diversity were celebrated, and urbanity was elevated to the epitome of the urban way of life. At the same time grew a strong opposition to the positive concept of the city.

2.1.2 City criticism and loss of urbanity

The economic boom and rapid population growth in the advent of industrialization in European cities in particular, resulted in overpopulation and shortages in the housing situation. For many, the metropolis became the epitome of misery, vice, disease and decay. Both psychologically and physically. (Krämer 2013). The criticism was eminently justified and the fact that at the same time diametrically different perceptions of the city existed points to the selectivity of the concept of urbanity. For urbanity was the life form of the bourgeois man. Women and proletarians were excluded. Even today, only those who have enough money and free time can enjoy the delights of the inner cities. (Häußermann, Siebel 1992 p. 13) While men in the urban public found room for individual development, this was not the case for women. Unaccompanied women had to meet clear expectations in the street and did not have the man's freedoms. While for men, exposure to strangers of the urban public allowed them to develop a strong personality, women where believed to run the risk of getting soiled in the clutter of the city. (Sennet 1977, p.57) Nonetheless, the

housing situation in the crowded cities at the beginning of the 20th century was miserable. In just a decade, from 1871 to 1881, Greater London's population grew by nearly 900,000. Ebenezer Howard, who loved his hometown of London and also enjoyed the city's merits, was critical of the new conditions where an entire family had to live together in just one room. As he visited the crowded parts of London with their narrow dark streets and human misery, he decided to design a new city to replace the city of chaos and disorder. (Beevers 1988, pp. 10-32). His garden city became a successful model of suburbanization in Europe and America and was soon perceived an antithesis of urbanity. Thus, Theodor Fritsch does not see any advantages in the new suburbs, but for him they only gather the disadvantages of town and countryside. Neither the benefits of solitude nor of society can be found in the suburbs. (Sonne 2017, p.21) Similar to Howard, Le Corbusier also criticized the city in a 1922 manifesto: "The decayed state of these old towns and the intensity of modern toil leads to physical and nervous sickness [...] Hygiene and moral health depend on the lay-out of cities. Without hygiene and moral health, the social cell becomes atrophied. "(Corbusier 1987, p. 68) He took Howard's garden city as a model and developed it into the concept of the *Radiant City* that in his opinion ought to completely replace the old cities. It propagated the concept of the unified tower in the park and the strict separation of functions. The automobile became an integral part of the concept. He reduced the number of roads, assuming fewer intersections would be better for the flowing traffic. The streets were designed purely for traffic, while the pedestrians should move through parks in the block interior. Jane Jacobs criticized the concept as a "mechanical toy" that in its clarity and simplicity is irresistible to planners, architects and decision-makers, but tells only lies about the functioning of the city. (Jacobs 1992, p.32). The functionalism in urban planning initiated with Le Corbusier became the main factor for the decline of urbanity in the cities of the world. For smooth traffic management, Le Corbusier demanded the dissolution of the complex urban fabric in favor of a 400 x 400 m block grid. (Corbusier 1987, p.116) The new functionalist cities should combine the advantages of city and countryside while providing enough light, air and sun for each dwelling. As the sole advantage of the city, however, only the jobs were listed. Individuality was condemned by the functionalists for their endeavor to create social equality through the mass production of standardized products. In doing so, irrational and emotional impulses were suppressed by a ruthlessly objective aesthetic. The restriction to the practical and the total renouncement of the ornament were themselves growing to become a style of architecture and urban planning. (Häußermann, Siebel 1992 pp. 24-28). These ideas were widely applied in 1950s' America.

In New York, it was the urban planner Robert Moses, who wanted to demolish the old neighborhoods and replace them with new modernist residential complexes and city highways. In response, journalist Jane Jacobs became active and wrote in her article, *Downtown is for the People* (1958), about the new projects: "They will have all the attributes of a well-kept, dignified cemetery." Subsequently she explicitly declared urbanity to be the goal of urban planning. In her major work, The Death and Life of Great American Cities, published in 1961, she challenged the prevalent ideas of functional segregation and gave city planners an abundance of clues how to re-urbanize the cities. Instead of banishing the pedestrians from the streets and turning them into mere traffic routes, she makes the street the focal point for the activities of city life. Her concepts are taken on in chapter 2.3 when formulating qualities for urban blocks.

2.1.3 Urbanity as polarity

Just as Jane Jacobs addressed her suggestions directly to city planners and architects, sociologist Hans Paul Bahrdt in Germany shortly after addressed architects with a new definition of urbanity. Specifically, he declares the formation of a public and a private sphere as a criterion for the formation of cities. (Bahrdt 1998, p. 83) According to Bahrdt, the main feature of urbanity is the separation of privacy and the public. In areas that can neither be described as public nor as private, urbanity is lost. He sees the urbanity manifested in the form of the medieval European city and the names of explicit physical qualities. Especially in the formation of closed ring-like building blocks that allow street access for each single unit and so create “two worlds, which, although intimately related, but clearly separated, exist" (Bahrdt 1998, p. 117). To Bahrdt the ideal image of urbanity was already destroyed by the enormous densification of building blocks and the conversion of family houses into collective housing in the wake of industrialization in the 19th century. Philippe Panerai, Jean Castex and Jean Charles Depaule chose the same point of departure for their observations on the decay of the urban block. They also define the contrast between public and private in the outside and inside of the pre-Hausmannian Paris building block to be the characteristic of urbanity in the block. On the exterior the dense edge of the block was understood as a place of exchange and as the clearly regulated representation space, while the interior of the block was kept hidden and at a distance from the street. It didn’t have any representative function and was transformable and the loose rules for the backside left room for private appropriation. (Panerai 2003, pp. 25-29) The opposition between exterior

and interior established a system of differences, that served to organize the complexity of the urban tissue. While the dense perimeter was carefully subdivided the center space of the block was a place for larger land use, that could accommodate garages, gardens, schools, public facilities and various other functions. These interior spaces could be organized as a sequence with a deep hierarchy. In the urban renewal plan of Haussmann in Paris of the 19th century, the new monofunctional blocks introduced let the richly articulated interior spaces disappear and lead to an erosion of the urban block. Workspaces formerly included in the block were separated from the private residential block. In the Haussmannian block the public was overvalued at the cost of the private open spaces. All the streets, even the ordinary ones, were turned into monumental public space and businesses were driven out. This made the street space abstract and free of the formerly common daily bustle. Internally the differences in use, and externally, the differences to the road ceased to exist. While the old city block was subdivided into many small plots of different buildings and functions, the Hausmannian block gave rise to the mono-use block and in further consequence to the single-building block as it is very common nowadays.

External	Internal
façade on street	façade and garden
continuous and special	fragmented and ordinary
accessible	nonaccessible
urban reference	reference to dwelling
representation	private life
exposed	hidden
the architect's input	the inhabitants' input

Fig. 2.1.3.1 Clear Relationships in the early Berlage blocks (Panerai 2003)

Another observation about the dissolution of the urban block the authors made on the example of Berlage's south Amsterdam extension plan from 1913-1934. (Panerai 2003, pp. 81-88) The project consisted of continuous rectangular perimeter buildings which encircle an unbuilt space. The average width of the blocks was between 40 and 60 meters while the length could be up to 200 meters. The architects were trying to give each working-class family an individual dwelling that would resemble the traditional Dutch house, with a ground floor opening directly to the street and a small garden to the back. Therefore, in

Berlage's plan the three to four story buildings provide direct street access, back gardens for the ground floor units and balconies to the courtyard for the upper floors. Like in the old Parisian houses the differentiation of exterior and interior is very clear. The architect's composition of the street facade makes reference to the city, while the back facade and the courtyard's private gardens are left entirely to the appropriation of their inhabitants. The organization of the plan also allowed easy transformation of the ground floors into shops.

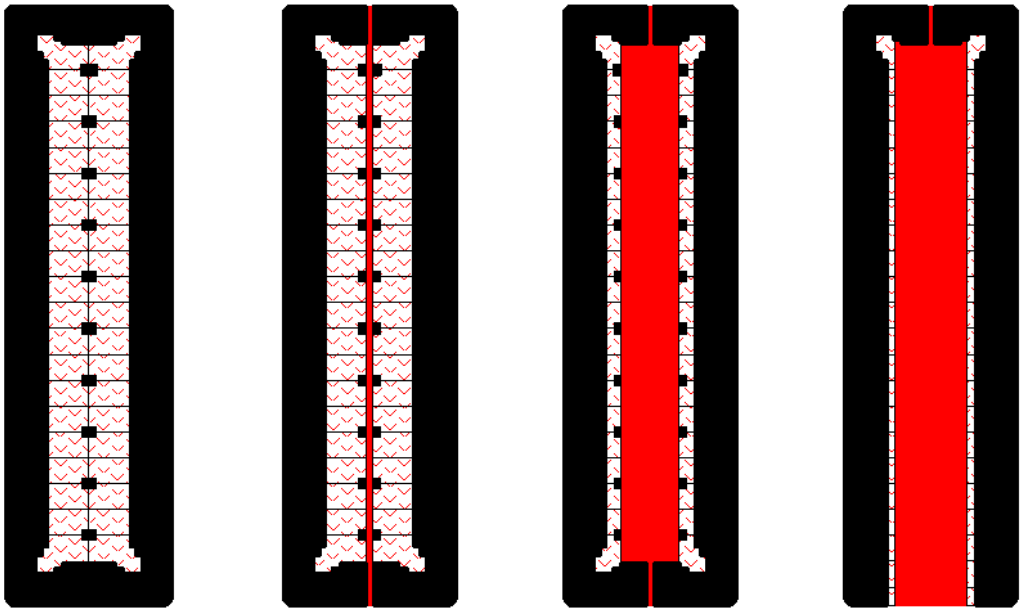
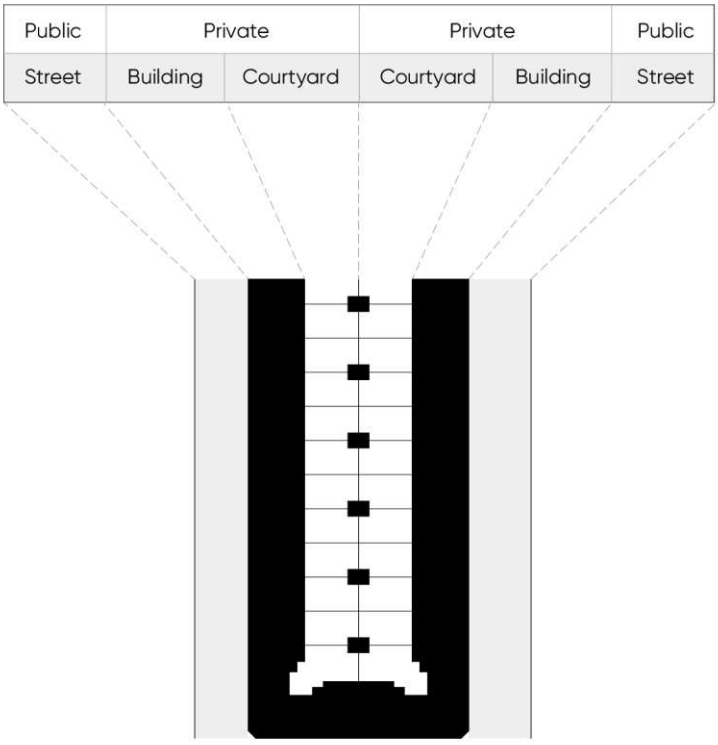


Fig. 2.1.3.2 The dissolution of the Amstel block showing the decrease of private gardens in favor of a collective space inside the block (Panerai 2003, edited by the author)

The dissolution of the strong polarity began with the introduction of interior lanes that allowed direct garden access without having to walk through the dwelling units. In later projects these interior lanes became collective gardens with play areas for children pushing back the private gardens to a minimum until they became simple balconies. With the creation of a collective space that could be accessed through a passage that could be controlled or kept closed the relationship between exterior and interior became more complex and ambiguous. In the case of a unrestricted courtyard N. John Habraken criticizes this new collective space as quasi-community space, because the commitment of the adjacent inhabitants can only be minimal, if they are not in control of access anymore. (Habraken 1998, p. 177) With the increase of collective backyards, the distinction between formal front and more protected back becomes unclear and ambiguous.

On the example of Ernst May's Siedlung Westhausen in Frankfurt the further dissolution of the block is pointed out by Panerai. (Panerai 2003, pp. 105-113) Even though the Siedlung is not built in a perimeter block anymore but as row housing, it still showed the arrangement of public fronts and private backs. With the opening up of the ends of the block the buildings ended up being just a back-to-back combination of two rows. The space between turned from private gardens into a collective space and in further consequence into a public road. The changes from the first Berlage Blocks to the late Frankfurt rows are summarized in five steps below:



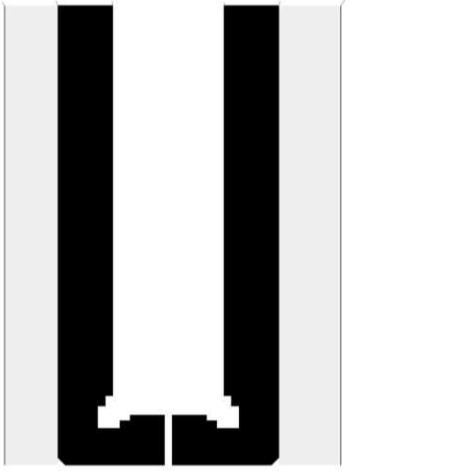
Hoofdorppleinbuurt, Amsterdam

Step 1:
Spatial distribution with high polarity in early Berlage blocks...

Fig. 2.1.3.3 Table and plan: dissolution of the urban block (Panerai 2003, edited by the author)

Fig. 2.1.3.4 Image: Urban Block in Hoofdorppleinbuurt, Amsterdam (Google maps)

Public	Private	Collective	Private	Public
Street	Building	Garden	Building	Street

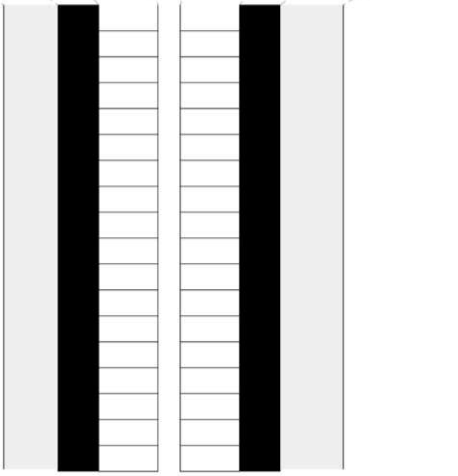


Landlust, Frankfurt

Step 2:

...the substitution of the private gardens with a collective space in the late Berlage blocks blurred the differentiation of exterior and interior...

Public	Private		Collective	Private		Public
Street	Building	Small Garden	Lane	Small Garden	Building	Street



Siedlung Rödelheim, Frankfurt

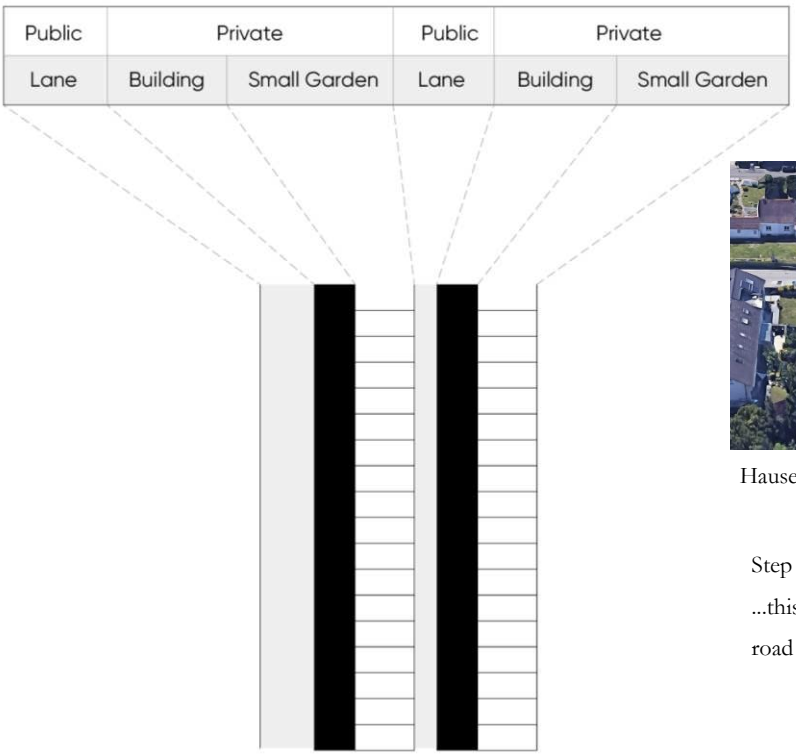
Step 3:

...the first row houses in Frankfurt featured a collective lane between the private gardens...

Fig. 2.1.3.5 Tables and plans: dissolution of the urban block (Panerai 2003, edited by the author)

Fig. 2.1.3.6 Top image: Urban Block in Landlust, Amsterdam (Google maps)

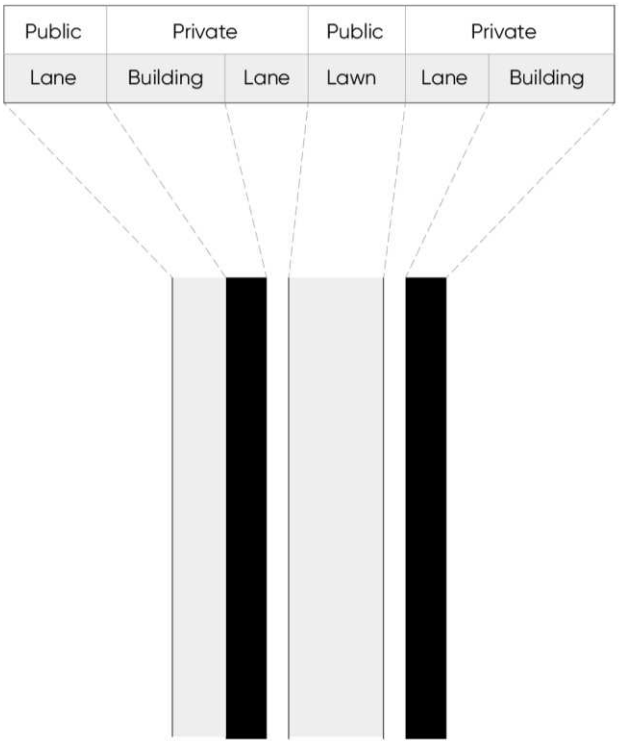
Fig. 2.1.3.7 Bottom image: Siedlung Rödelheim, Frankfurt (Google maps)



Hausen, Frankfurt

Step 4:

...this lane was later turned into a public road eliminating the collective space.



Hedderheim, Frankfurt

Step 5:

...finally, no private open spaces were provided on the ground but only as balconies.

Fig. 2.1.3.8 Tables and plans: dissolution of the urban block (Panerai 2003, edited by the author)

Fig. 2.1.3.9 Top image: Hausen, Frankfurt (Google maps)

Fig. 2.1.3.10 Bottom image: Hedderheim, Frankfurt (Google maps)

2.1.4 Paradox of visibility and isolation

This development of decreasing subdivision in the city in favor of more totally public spaces Richard Sennet describes as a social "isolation directly produced by one's visibility to others." (Sennet 1977, p. 15) He gives the example of the taking away of office walls so that whole floors will be joined into one vast office. This is supposed to increase the office efficiency because all the employees are less likely to gossip and chat when they are visually exposed to each other. Since the employees feel observed by everybody else, keeping silence is the only way to protect themselves. The paradox of visibility and isolation says that, the more borders there are, the more sociable people will become in the office. In the same way, private open space, that is displayed to the public becomes useless. Setting back a building to create visually unprotected front yards was historically for all practical purposes, useless. (Habraken 1998, p. 151)

2.2 Territories in Urban Housing

The decrease of the private spaces in favor of collective or public space as described on the example of Amsterdam and Frankfurt is a form of changing the territorial structure. According to Oberzaucher, the essence of territoriality is control. Our territories allow us to control our resources and their usage. (Oberzaucher 2017 p. 115) In Architecture territorial spaces are often classified as private, semiprivate, semipublic and public. But private and public only refers to spaces, not to the territory itself, because territory is a unit of spatial control. Therefore, one territory can include public and private spaces at the same time. (Habraken 1998, pp. 137-141) In Fig. 2.2. Territory A (which is the entire square including B and C) could be an apartment building. B can be a flat and C would be a single room of a child that considers its room as its own territory. In this hierarchy A contains B and B contains C and so on. The territorial depth is measured by the number of boundaries crossed, which is indicated by the arrows of the figure. Each of the territories are controlled by one person, but this person does not control the territories outside its own. Public and private become relative to your position in the hierarchy. If you are in C1, stepping out to B2 is going from private to public. On the other hand, going from A down the hierarchy to B2 is going from public to private. In this case B2 can be public or private depending on the point of view. Except in a prison going up the hierarchy is always unrestricted, while going down the hierarchy one is normally stopped by boundaries that are set up by the owners to control their territory.

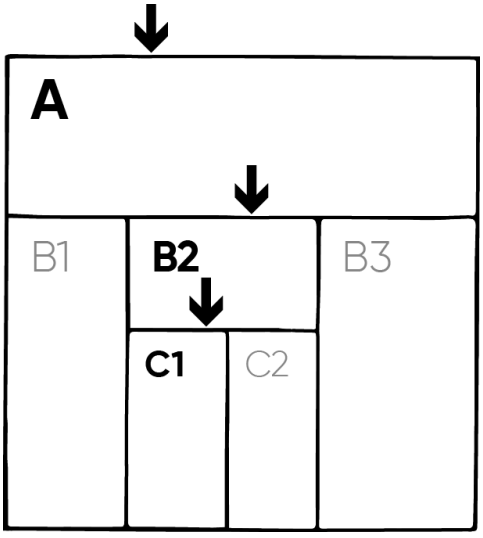


Fig. 2.2 Territorial depth (Habraken 1998)

2.2.1 Examples of territorial city structures

The Amsterdam canal row house produces a rather shallow territorial structure. It can be used as a single-family house with one entrance or multi-unit house with several entrances to the public street serving the units. In its room layout it is very neutral and flexible, so that it would be able to accommodate boarders, creating a deeper territorial structure. (Habraken 1998, pp. 144-149)

In the ancient Beijing courtyard houses however, the territorial hierarchy is much deeper from the start. The houses are within gated walled-in compounds which are accessed by residential streets that are themselves entered through gates from the main street. Even inside the compound one courtyard after the other may be arranged hierarchically creating an extensive hierarchy of depth 6 or more.

Similarly, the historic quarter of Tunis as an example of a North African city has a very deep territorial structure. From the public street one can access smaller dead-end streets that have their own gates. From these streets a number of individual houses can be reached. This houses then are comprised of a central courtyard surrounded by rooms. The rooms themselves have a main area and niches on the side that echo the courtyard pattern, with a relatively public center surrounded by more private spaces.

In comparison, the Amsterdam house is basically like a container in a shallow urban space, that does not reflect a predetermined territorial structure, but it can easily accommodate different lower level territorial situations. Beijing and especially Tunis have more depth of urban spaces and the houses in Tunis are very territorial in form. Meaning that they do not leave a lot of room for changes in use because they perfectly adopted their form to the specific inhabitation.

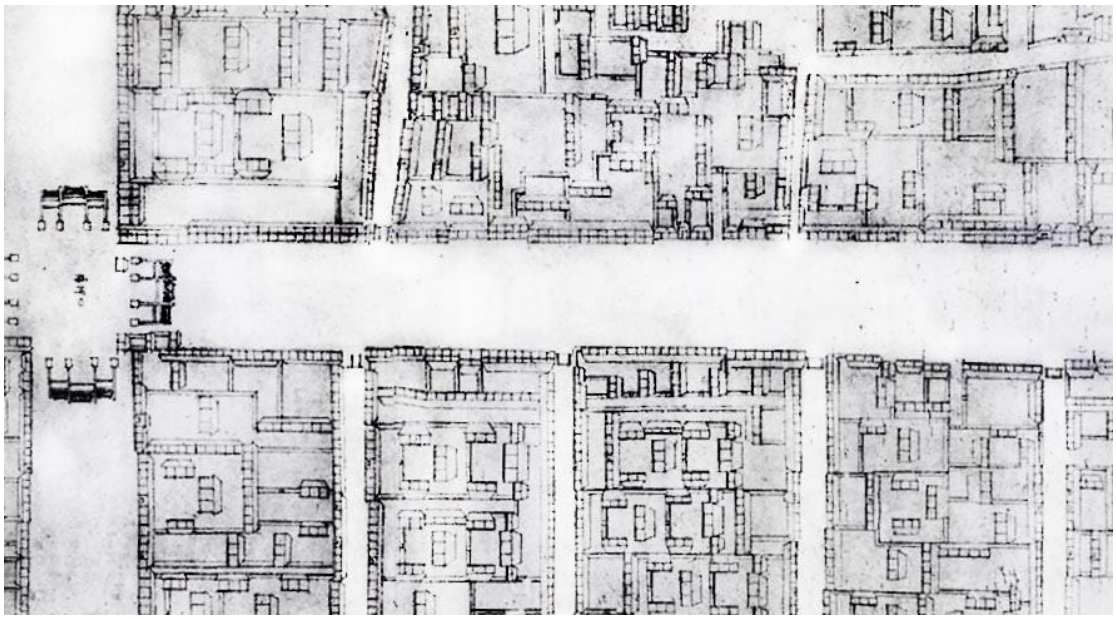


Fig. 2.2.1.1 Beijing 1750 – Detail of the Complete Map of the Capital City during the Qianlong Era, showing deep territoriality with main streets and gated side streets and sequences of several courtyards (Habraken 1998)

Fig. 2.2.1.2 Tunis: Example of deep territorial structure (Habraken 1998)

2.2.2 Urban block territorial structure

In case of a simple house with a front yard it is not necessarily the front door that marks the territory. In a house with a front yard set back from the street edge, the territory already starts on the yard even before you reach the front door. In an urban environment building and street are in a close relationship. What makes the architecture *urban* depends on how it negotiates the narrow margin between the territorial boundary and the building facade. This margin can be a small piece of green, arcades, steps or anything else that smoothens the transition between the street and the building. When the house wall and the territorial boundary are one and the same, an important tension is lost. (Habraken 1998, pp. 165-178)

In Fig. 2.2.2 Diagrams (a) to (f) show different organizations of urban blocks. Six houses grouped around a courtyard represent a perimeter block that normally consists of more than six houses, but it is simplified for this purpose. The 6 houses are congruent with their 6 territories. In version (a) all the spaces in the backyard are privatized and are attached to each one of the houses. This organization resembles the early Berlage block discussed in chapter 2.1.3. The block is made up of many territories that are working totally independently. In version (b) and (c) the house territory shows dual orientation. The territorial distribution is still the same, but a back alley enables garden access from the courtyard. This can be useful to bring a bicycle there without having to cross the interior space of the building. If the alley does not differ much from the main street, this can blur the differentiation between outside and inside (see chapter 2.1.3.) But if it is an alley, the structure remains clear and disorientation is avoided. In (c) gates at the entrance of the alley create another territory. This layout creates a situation of territorial overlap, which happens when there are multiple territorial depths for one territory. The house can now be entered from the street, which would be depth 1 or from the back crossing the alley gate and the garden, in this case counting depth 2. Pictograms (d) and (e) show a collective courtyard space that can be entered through the private units and from the street with a connecting alley. The difference between the two is that in (d) the residents can control the entrance of strangers to the courtyard while (d) is completely open to the public. This is a quasi-community space that is problematic, because the residents are unlikely to show any commitment in maintaining this space. Both (d) and (e) create an ambiguous dual orientation that disturbs the distinction between a formal front and a more protected back. Diagram (f) is a territorial model that is unambiguous and is highly suitable for low-rise high-density urban forms. It can be observed in the traditional Tulou houses of southern China.

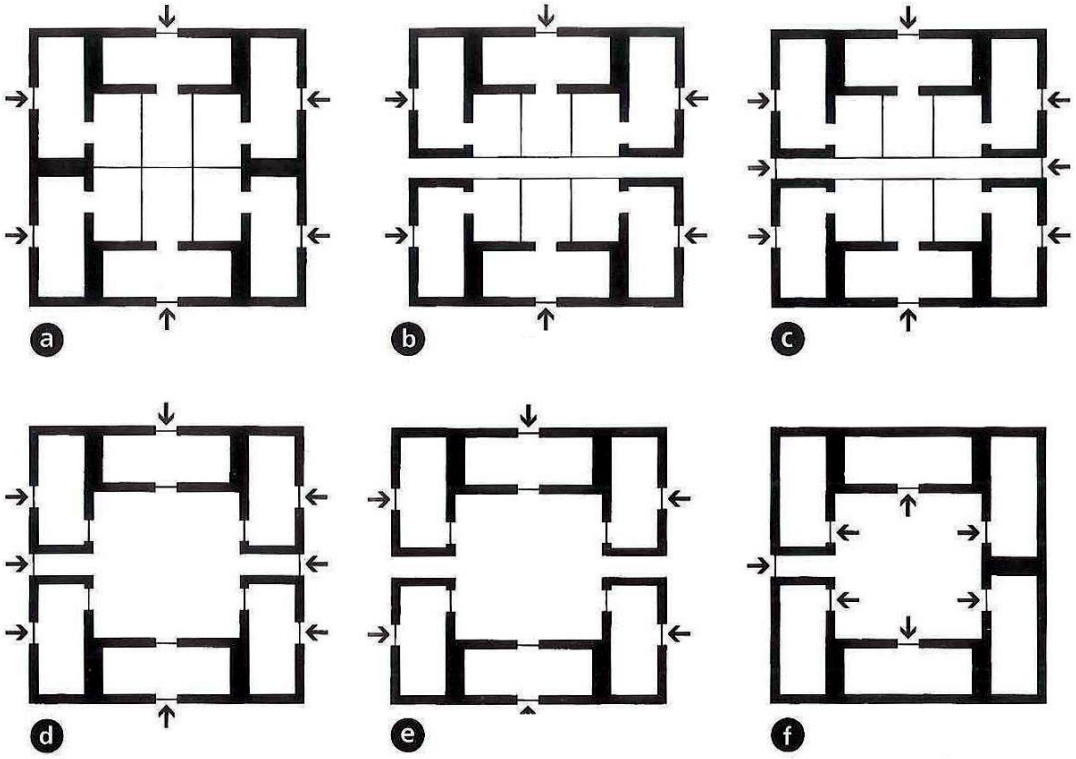


Fig. 2.2.2 Territorial variations on the urban block (Habraken 1998)

2.3 Socio-spatial qualities for urban blocks

This section will extract socio-spatial qualities that constitute the urbanity of a city block. They are selected by their ability to define the social spaces on the inside and around residential compounds. Whereas the qualities themselves are constituted by one or several parameters. The qualities of the urban block are highly interrelated and cannot be fully isolated from each other. Thus, sometimes one quality can become a parameter itself contributing to the formation of another quality. The selection of the qualities is based on the literature reviewed above and on ideas applied by the city government of Vienna in their urban development plan 2025. In chapter 6 the qualities and parameters will be used to compare the 10 case studies of chapter 5. The qualities are: *permeability, structural openness, social control, unambiguous territorial structure* and *proper thresholds.*

2.3.1 Quality 1: Permeability

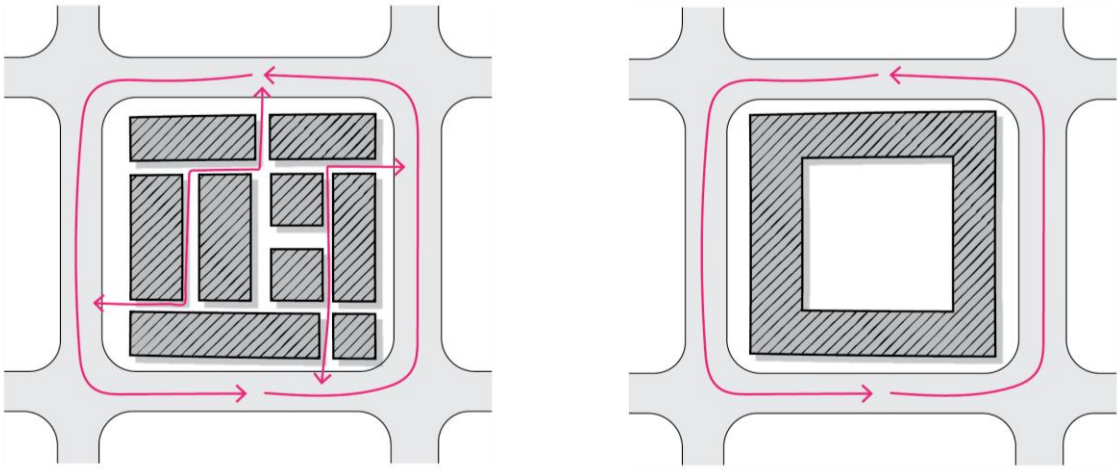


Fig. 2.3.1 Openness and Enclosure in terms of permeability

Small blocks are one of Jane Jacobs conditions for city diversity (Jacobs 1992, p. 180) Small blocks imply a higher connectivity and better walkability in the urban fabric. Thus, they encourage people to walk on the streets supporting increased social activity of city streets. In Fig. 2.3.1 two new town projects in Shanghai and Vienna are compared at the same scale. On the left side Songjiang New City with and average block size of 400 x 400 meters compared to the comparatively small blocks of Seestadt Aspern with an average block size

of 90 x 90 meters. In Songjiang the street network is unwalkable and laid out in favor of car traffic. By counting the number of street intersections the difference becomes clear. In one section of Songjiang just 11 intersections can be counted whereas Seestadt's number of intersections in the same area is about 100, making it a much more walkable city. Seestadt Aspern has been developed according to the guidelines of the city of Vienna, that aim for more urbanity. In Vienna's Guidelines for their 2025 urban development plan a dense pedestrian network should be achieved with a block size of maximum 150 x 150 meters and in case blocks have to be bigger, shortcuts through the blocks have to be provided. (Damyanovic 2013, p. 36) Small blocks are also part of the Charter of New Urbanism, thus in their coding guidelines the author promotes a block size of 600 meters in perimeter which corresponds to the above mentioned 150 x 150 meters. (Duany 2003, p. 42)

Another way of achieving higher permeability is to create openings in the block perimeter to encourage people to take short cuts through the block. This is what Christian de Portzamparc called the *ilot ouvert* or open block. The buildings are aligned along the street line to shape an urban city scape, but they are not connected, thus creating a more permeable urban fabric. (Lucan 2012)

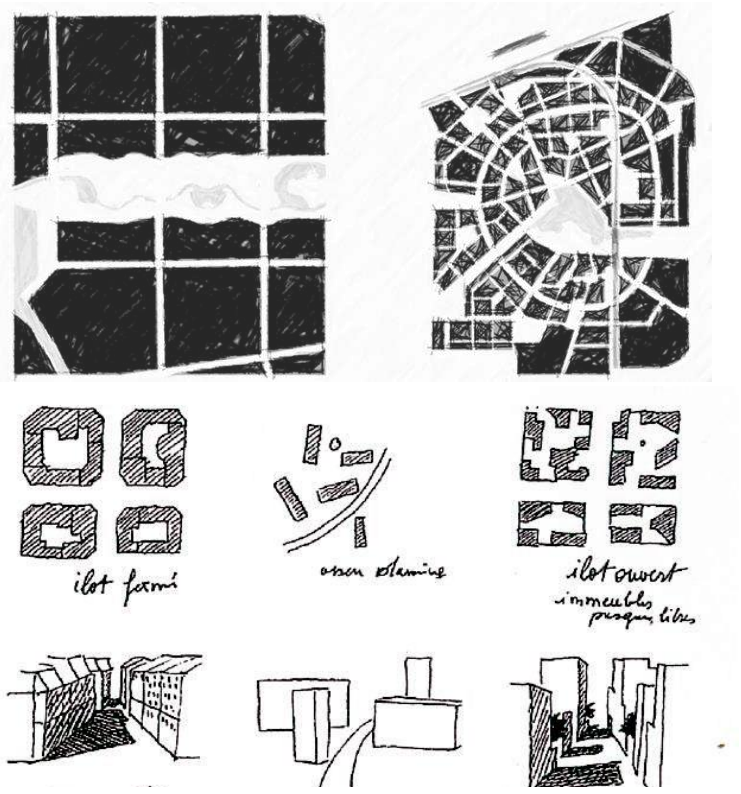
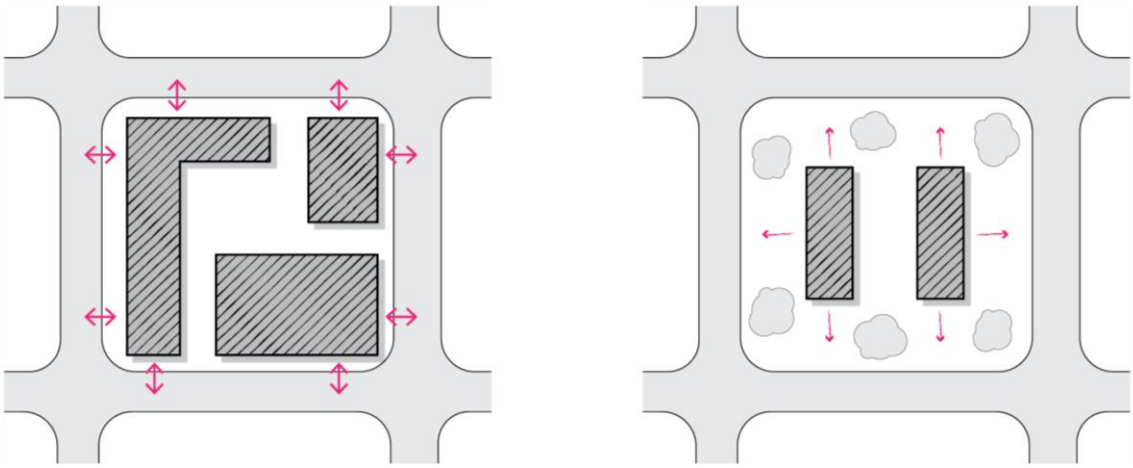


Fig. 2.3.1.1 Block size - same scale, Songjiang New City and Seestadt Aspern (by the author)

Fig. 2.3.1.2 The three ages of city and the open block by Christian de Portzamparc (Lucan 2012)

2.3.2 Quality 2: Structural openness / Open for functional change



Open to flexible use

Closed to street interaction

Fig. 2.3.2 Openness and Enclosure in terms of structural openness

Besides small blocks, Jane Jacobs also demanded mixed-use as one of the 4 principles for city diversity. (Jacobs 1992, p. 152) But planned mixed-use has found its limitations when planners are trying to determine specific uses for a certain location that are supposed to stay unchanged in the future. In this way they create specialized spaces that can become difficult to use in a way other than the original intended function. We need to be able to react to the dynamics of change and since the city is too complex to foresee all the future requirements, every program will become obsolete at a certain point in time. Finally, it will be overwritten by another program. (Lampugnani 2013) Viennese Architect Erich Raith together with a local architectural firm has developed the concept of a *New Townhouse* that incorporates his ideas about structural openness. It is derived from the Vienna *Gründerzeit* houses of the 19th century that proved to be flexible for the changes of time. Even though at the time when these houses were built the living conditions due to overcrowding were miserable, today they are the most popular urban typology in Vienna. The reason is that the construction allows the easy removal of walls and the high ceilings can accommodate almost any use. Concrete apartment buildings with room heights of just 2.20 meters as they were usually built throughout the 20th century have proven unsuitable for any other use than housing. The story height of the *New Townhouse* being over 3 meters and the ground floor height being 4.80 meters make it ready for whatever new uses and needs may come in the future. Because we do not know what people will need tomorrow. (Philipp

2013) Structural Openness increases the lifespan of buildings and so does the ecological and economical balance. For the Vienna new town project *Seestadt Aspern* (introduced in section 2.3.1) the guidelines demand a room height of 2.8 -3.0 meters and in certain areas for increased public function the ground floor height has to be 4.0 m to promote a vibrant public space. (Raith 2011)

Fig. 2.3.2 The New Town House by Erich Raith and nonconform Architektur (Philipp 2013)

2.3.3 Quality 3: Social Control

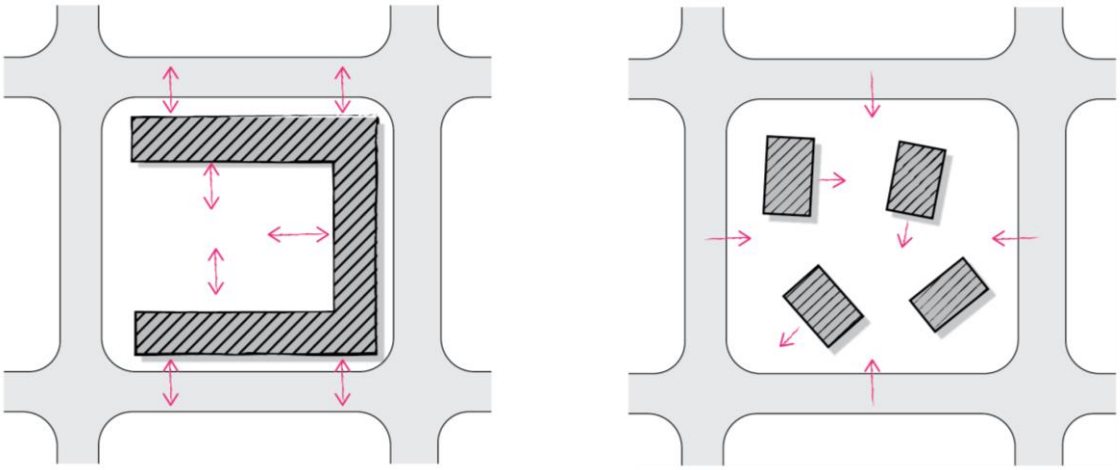


Fig. 2.3.3 Openness and Enclosure in terms of social control

Social control or more visually described *eyes upon the street* is one of the measures of safety that Jane Jacobs points out in *The death and life of great American cities* (Jacobs 1992 p. 35) A feeling of security promotes the use of public spaces and enables walkability. Well oriented blocks, direct access, proper illumination and vibrance create an atmosphere of security in the public space. In the guidelines for the *Vienna urban development plan 2025* the following strategies for social control are pointed out (Damyanovic 2013 p. 44):

- Space enclosing structures and a direct relationship from the windows and the entrances to the street facilitate the observation of the environment. Street facing windows, which have been avoided because of street noise, should be reconsidered and architectural solutions ought to be found.
- Visual connections between inside and outside can be created with entrance zones visible from the street. Social eyes in the form of vibrant ground floor zones like shops and cafés will naturally create a safer environment.
- Large blocks with monotonous facades and few passageways should be avoided.
- Entrance zones and important footways must be well lit.

In 1972 Oscar Newman created the term *Defensible Space* in reaction to the high crime inside notorious modernist housing blocks like *Pruitt Igoe* in St. Louis, that was a failure and finally

had to be torn down only 20 years after it was built. He suggests that the space without clear territorial claim is the breeding ground of crime. Thus, he related territoriality to safety. The larger the number of people sharing the same territory, the less each individual feels responsible for it. (Newman 1996, p. 17) Newman promotes private open spaces, rather than large communal space, because nobody will take care of it or use it for anything but walking through and it is easy for outsiders to take over. In this way spaces for private appropriation in the collective space can promote people to take responsibility and if the others are taking responsibility oneself is more likely to do so. (Oberzaucher 2017)

Even though video surveillance as a space and time independent control system does have positive effects on crime prevention, it cannot fully substitute social control. Video surveillance is a panoptic power monopoly where the observer is hidden from the observed and there is no mutual contact between them. Thus, the residents cannot be sure that someone is watching at the very moment via CCTV it is a disadvantage for their subjective feeling of safety. (Veil 2001 p. 115)

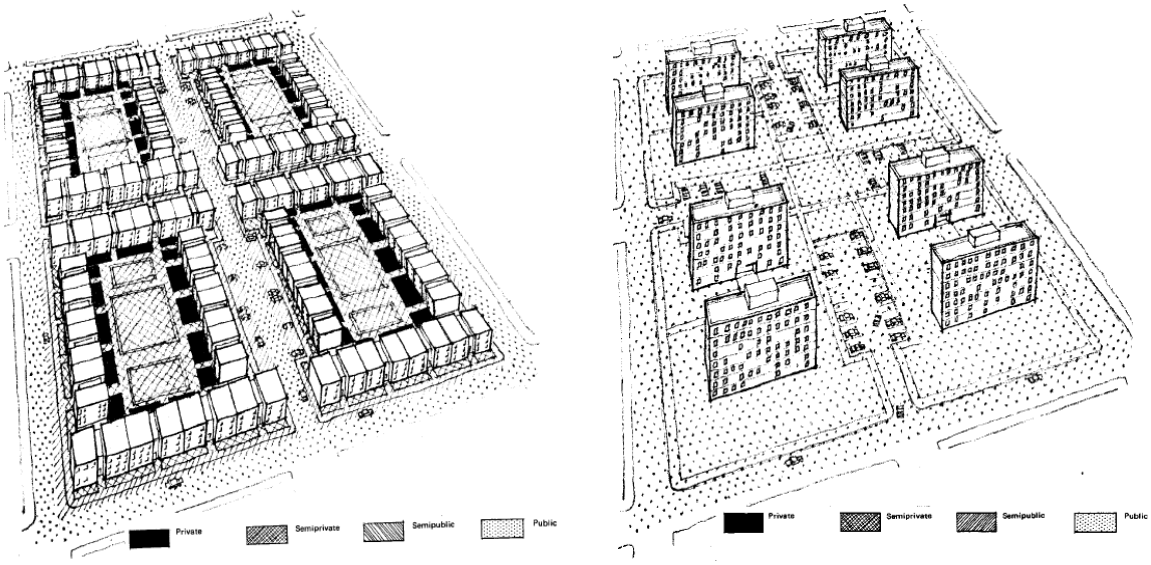
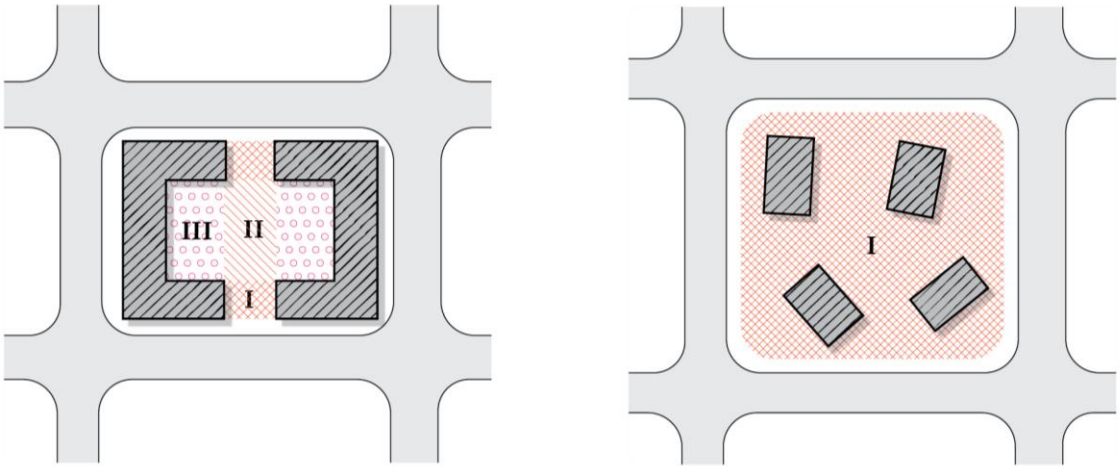


Fig. 2.3.3.1 Defensible Space. Left: spaces are private and defensible; Right: all of ground floor is public and nobody is taking responsibility for it (Newman 1996)

2.3.4 Quality 4: Unambiguous territorial structure



Enclosure: structured territoriality

Openness: unstructured territoriality

Fig. 2.3.4 Openness and Enclosure in terms of territorial structure

Unambiguous territories encourage the appropriation and use of spaces and thus are one of the main contributing parameters to safety but also to vibrance in the block. *Unambiguous* refers to the certainty for the users and non-users about who is allowed to use the space and to which extent. Ambiguity leads to conflict, waste of space and makes people feel insecure and move them to a state of self-defense, rather than making them proactive users of their surroundings. Certainty about which space is public, semi- public, semi-private and private and a certainty about who are the user groups owning rights to each space is important to engage the users. According to Kevin Lynch there are 5 degrees of possible spatial rights:

1. The right of *presence*, which gives people the right to be in a place
2. The right of use and *action*, which allows them to use the space's facilities
3. The right of *appropriation*, which allows taking the resources for oneself and denying it to others
4. The right of *modification*, which enables users to make changes to the place
5. The right of *inheritance*, which allows the person in control to pass his or her right on to somebody else (Lynch 1981, pp. 205-207)

Important for the usability of a space is the number of people owning rights to the space. If the number of people sharing one space is too high, their spatial rights will decrease to the sole right of presence, but if the number is small enough it is possible to grant everyone the right for appropriation or even modification. According to Oscar Newman, building size is statistically directly related to the usage of public areas in a housing project. In high-rise buildings the use of public areas, the social interaction with neighbors and the sense of control over the interior and exterior public areas is much lower than in low housing developments. (Newman 1996, p. 29) The vast park space in *Pujiang Mingdi* tower block (see chapter 5.2) is an example of an ambiguous space in a high-rise development. It is a territorial vacuum. There is no clear distribution of spaces to smaller groups, but it is equal to all people of the block (900 units). Facilities are not located adjacent to one building and thus, not implying any specific user group. The walk-up parallel block *Yunguang Xiaoqu* (see chapter 5.3) on the other hand, offers several cul-de-sac spaces that are shaped by the morphology of the block. These spaces are naturally only used by the residents of the adjacent building (30 units) making them able to appropriate the space for themselves. The users of the adjacent building own the rights to appropriate the space by placing their furniture out on the lane and the adjacent ground floor residents even hold the right of modification by adding small built structures like sinks and kitchen infrastructure. In this case the space is territorially less ambiguous, which encourages people to use it and to identify with it.

Encouraging a territorial structure

By encouraging a territorial structure social interaction will increase. (Oberzaucher p. 155) The territories from the private dwelling to the public space should be structured in a way that space can be subdivided into physical and social sub-territories of increasing publicness. (ibd. p. 170) With appropriate structural measures, a step-like territoriality can be created that enables an informal regulation of urban life. When people are granted rights in the public space, they can identify with it and take responsibility for it to maintain it themselves. Social control and interaction between neighbors increase while less maintenance personnel needs to be hired.

Fig. 2.3.4.1 Photos: Left, Pujiang Mingdi, Right, Cul-de-sac in Anshan Xincun

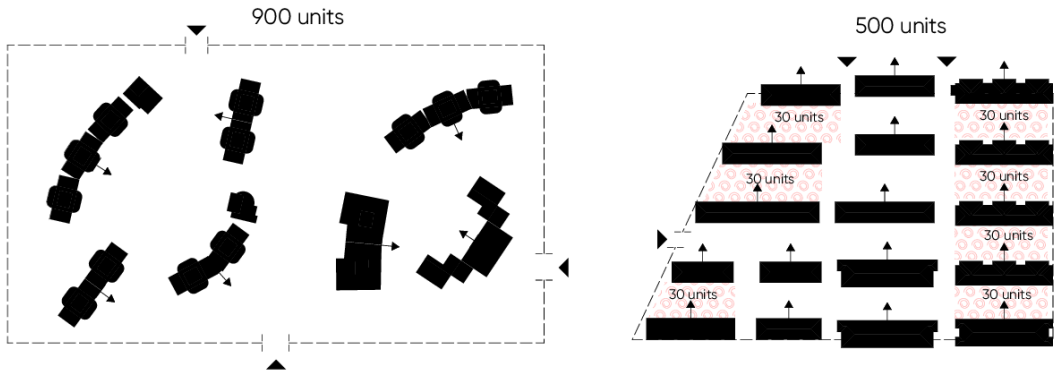
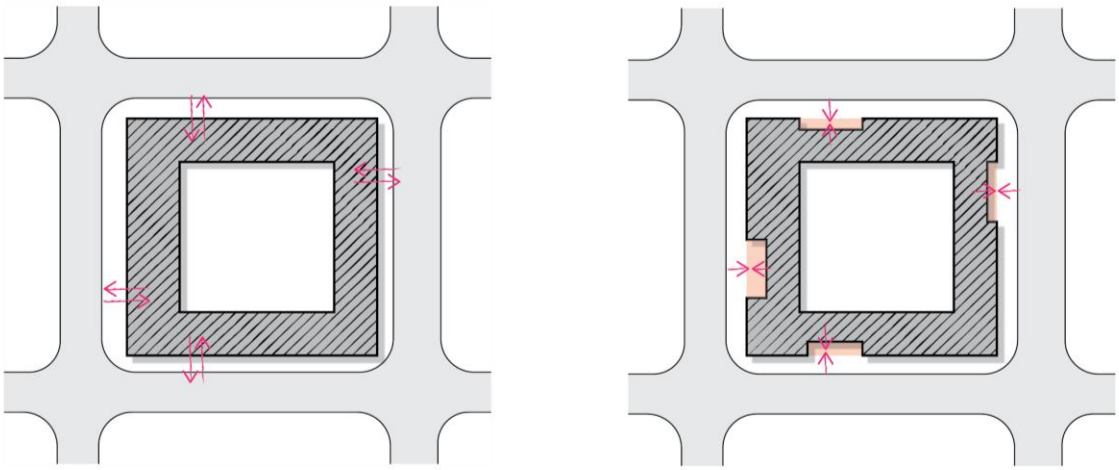


Fig. 2.3.4.2 Diagrams:
Left: Tower block (Pujiang Mindi), ambiguous block morpholgy
Right; Parallel block (Yunguang Xiaoqu), less ambiguous morphology

2.3.5 Quality 5: Threshold / Soft borders



Closed to interaction at transition zones

Open to interaction at transition zones

Fig. 2.3.5 Openness and Enclosure in terms of thresholds

It is social contact that turns collective space into social space. (Hertzberger 2010, p. 135) The clear separation of public and private complicates human interaction. Blurring the edges between two different territories (public and private) and creating a threshold zone between them can create opportunities for interaction that can strengthen the bonds between neighbors. According to Venturi, "transition must be articulated by means of defined in-between spaces which induce simultaneous awareness of what is significant on either side. An in-between space in this sense provides the common ground where conflicting polarities can again become twin phenomena." (Venturi 1977, p. 82) Since people want to protect their private living areas, semiprivate spaces have to be created, where residents can control the amount of interaction to strangers. (Boettger 2014, p. 126) Figure 2.3.5.2 illustrates a threshold zone in front of the private unit of an elderly home designed by Herman Hertzberger that enables the residents to sit outside and facilitates social interaction with passersby neighbors. In large collective housing projects, there it is not only the threshold between landing corridor and private unit that has to be considered. But there are at least three different kinds of transition zones that we can encounter in any collective housing project.

1. The transition from the street to the block,
2. the entrance from the collective grounds to the building and

3. the entrance from the public staircase or landing corridor into the private unit.

It is the formation of threshold zones at these boundaries that is crucial for the formation of a social space that makes interaction possible.

Border

Similar but slightly different is the notion of the porous border or membrane. Richard Sennet differentiates two kinds of edges. Boundaries, which are closed and define the end of a space and borders, which are porous edges where different groups interact. (Sennet 2018, p. 220) Like the thresholds these borders are in-between-spaces that mediate between two territories. In the case of the block these borders are more beneficial for the public life, when they are more porous. In line with this Jan Gehl directly relates the number of doors within a certain street section to the attractiveness of the street. (Gehl 2010 p. 241)

Fig. 2.3.5.1 Top: Three different transition zones: Block entrance, Building entrance, Unit entrance

Fig. 2.3.5.2 Bottom: Threshold zones in an elderly home (Hertzberger 2010)

3 LOCAL FOCUS

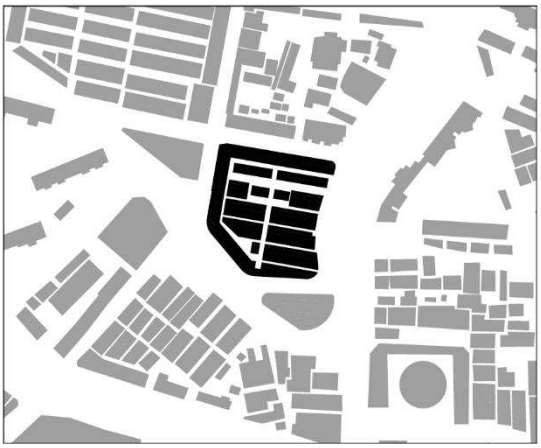
3.1 Collective Housing in Shanghai

In Shanghai there are three prevailing collective housing typologies today. They will be introduced chronologically according to their appearance in history. Firstly, the *Lilong*, a remain of colonial Shanghai, consists of row houses along narrow alleys that are bounded in a perimeter housing block. Secondly, the parallel block walk-up apartments from the early socialist times and thirdly, the now popular apartment towers will be discussed.

3.1.1 The Lilong

The Lilong, also known as Linong or Longtang, is an urban housing type that has been built from the 1860s to the 1930s and combined traditional Chinese housing with a western structure. It was the only collective housing prototype applied in Shanghai before the Liberation. (Guan 1996, Chapter 2.2) At that time the whole city was engaged in trade and most of the people were involved in some kind of business activity. That explains why the Lilong perfectly integrates trading and dwelling activity in a very clearly defined spatial organization. There was an outer belt-shaped space, that is working as a commercial street along high traffic roads. And on the inside, enclosed by the belt are the houses, 2-3 storeys high and organized along narrow alleys in a fishbone-like spatial pattern. The backbone being a main thoroughfare through the block that is the arterial connection for several smaller and more private dead-end alleys. From these alleys, that run from east to west, the buildings are entered on the south side. After crossing a small courtyard, the building unfolds as a rowhouse with a gable roof. To access the Lilong alleys from the surrounding streets one has to pass one of the guarded gates.

Because the Lilong houses are not very spacious but packed closely next to each other, the lanes are used as a living space by the Lilong inhabitants. You can encounter various activities of communal life, such as Tai-Chi and commercial activities like hawker business and barbers, cooking, playing cards, laundry drying, eating, sewing. (Arkaraprasertkul 2009, pp. 20-21) The basic units were originally 60 to 105m^2 in size and spread across two to three floors. (Rowe, 2005 p.124) However over time in the second half of the 20th century, due to lack of housing, each unit was subdivided to house more families and commercial activity was widely decreased. This resulted in overcrowding and worsening of living condition. The change of lifestyle and inadequate maintenance led to the deterioration of many of the Lilong. Most structures were not initially built to be permanent and thus are in a bad state and need total upgrading to suit modern needs. Preservation for continued residential use is unprofitable for developers, so over the last decades the process to replace them one after another with modern standard high-rise is under way.



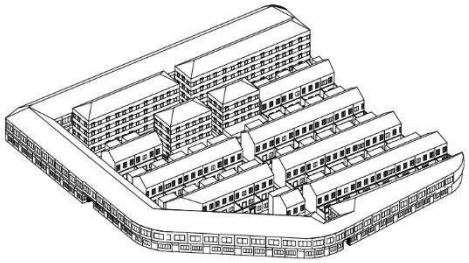


Fig. 3.1.1.1 Photos 1-2: Lilong main inside thoroughfare, Qing Yuan Xiaoqu 2018

Photo 3: Lilong commercial perimeter, Qing Yuan Xiaoqu 2018

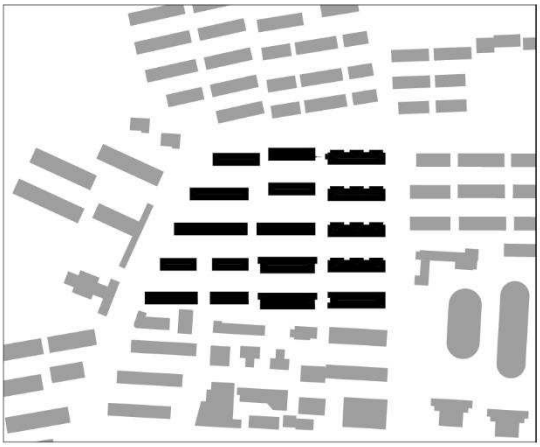
Fig. 3.1.1.2 Figure ground and axonometric of Qing Yuan Xiaoqu (see chapter 5.5)

3.1.2 Parallel Block Units

The danwei (单位) or work-unit system is an administrative unit that was introduced in 1951 to Communist China. (Rowe et al, 2016 pp. 43-44) The danwei was at the same time the place of employment, but also should provide housing, safety, welfare, health care, culture, education and financial support for workers. By 1957 90% of the urban workforce belonged to a danwei. The sizes of the danwei were varying. The largest danwei of the early communist period was the Wuhan Steelworks, that employed 140 000 workers, with their housing estates, schools, hospitals, cinemas, canteens and community services. The housing and other facilities were built in close proximity to the factories to reduce commuting time and increase efficiency. The people living and working in these communities spent most of their time there. In the buildings there was a hierarchy of residential arrangements: Toilets and kitchens were shared by three to five households within each basic housing unit; Bicycle sheds, laundries and open space for recreation was shared by every two to three buildings. Canteens, kindergartens, elementary schools, clinics, bathhouses, sport grounds and meeting halls were shared with the entire danwei. As a visitor from outside one had to be identified and recorded upon entering. The walls and gates create a feeling of a closed community for the people living and working together. They could run all their daily errands without having to leave their neighborhood.

Architecturally, the basic unit of the living quarters were the enclosed residential superblocks with parallel residential slabs and open space for recreation. The parallel blocks of apartments that were initially built after the soviet model are usually three to five storeys tall with walk-up access. The soviet model had a central corridor and because it was regarded poor in regard of ventilation and sunlight it soon was changed to a corridor on the north side. Over the years the floorplan was optimized to more economical and comfortable layouts. All of the units were enjoying southern exposure and each unit had a balcony facing south. The staircase connects to open corridors on the north side from which the apartments can be accessed. Having toilets and kitchen to the north the habitable rooms were facing south with good ventilation at a narrow building width of 10 to 12 meters. (Rowe et al, 2016 pp. 55-56) Since these narrow buildings are organized in slabs running from east to west, they had 'open flanks' on the east and west side. These open flanks are either closed off by a wall or a fence. (Hassenpflug, 2010 p.75) In this case there are not many active frontages to the street of such a neighborhood are. To improve that, occasionally the open flanks are also closed by strip buildings to create commercial facilities for

the local supply, activating the street and creating an enclosing effect for a better sense of security, enclosure and protection from noise and dirt. The inner organization of the block consists of neighborhood lanes that are just used by the residents and include spaces for gathering, hanging laundry, parking, sitting outside. Thus, even though these parallel block gated communities are not as open to outsiders as the Lilong, they are very actively used by the residents and there is a good sense of community inside.



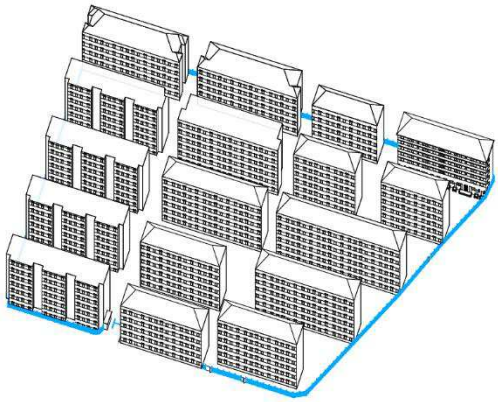


Fig. 3.1.2.1 Anshan Xincun parallel block in 2018

Fig. 3.1.2.2 Figure ground plan and axonometric of Yunguang Xiaoqu (see chapter 5.3)

3.1.3 Tower Block Units

The apartment tower is the most recent urban housing type in China and started with the reform and opening up period in 1978. At that time the economic circumstances in China improved, and a new diversity of housing became affordable. Since then until today apartment towers have become increasingly popular and nowadays, due to lack of space, it is the most common type for newly developed areas. High-rises of thirty floors in landscaped gardens have become commonplace in the high-tier-cities in China. When there had been still prejudices against high-rise living 25 years ago this has now fully disappeared. (Rowe et al, 2016 pp. 61-62)

The new real estate developments incorporate elements of the previous era. So did they continue to use walls to fortify the borders of their residential blocks. Like in the danwei guests would have to register and identify themselves if they were recognized as outsiders. Like in the danwei the new micro districts would still feature various social facilities such as nurseries and community clubs, gyms and parks for leisure activity. Along the protecting walls there are also controlled gates with even more sophisticated security measures than their parallel block predecessors, including 24 hour policing and high-tech alarm systems. (Lu, 2006 pp.139-141) The parks, or neighborhood courtyards of the compounds receive special importance. They are landscape gardens featuring bodies of water, pavilions, pergolas, playgrounds, sculptures and benches. (Hassenpflug, 2010 p.54) The residents walk their dogs or play with their children. But the interconnection of the private apartment, that is now high up in the sky, with the ground floor space, that had still existed in the work-unit-style apartments, is gone. The spaces in between the buildings is vast and the towers seem to be floating points in this space without relating to each other.

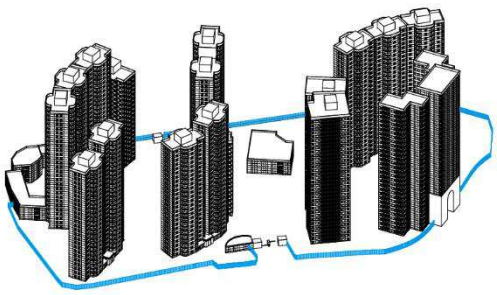


Fig. 3.1.3.1 Figure ground plan and axonometric of Pujiang Mingdi (see chapter 5.2)

Fig. 3.1.3.2 Tower block Zhongyuan Liangwancheng 2018

Fig. 3.1.3.3 Plaza inside the tower block Pujiang Mingdi 2018

3.1.4 Shift to the private sphere

In many cultures and so in Chinese culture, the degree of enclosedness symbolizes status. Like in the Forbidden city in Beijing, where the countless enclosures represent the power of the emperor. In the Lilong, even though it shows the characteristics of enclosure, it does not meet modern Chinese requirements of order. Many of these aged settlements are thought to be contaminated with chaos (乱 luan). The shift from Lilong to Danwei and finally to the towers brought about an atomization of the households where the necessity of sharing amenities and communal space has decreased. The private space got more comfortable and independent by acquisition of new technologies such as television and air conditioning. This and the increased floor space per person promoted the retraction of each family to their individual household. (Bhatia, 2008 p.73) Compared to the old housing that was considered infested with chaos, the new housing manifested the shift to a rationalized lifestyle where the apartments have proper plumbing and wiring and self-contained unit with private kitchen, private laundry and bathroom. Therefore, the tower did no longer required interaction between the neighbors. Also, the morphological organization of the compounds makes interactions less likely. In many towers the elevator only allows access to the very own floor and the vast landscaped parks that flow in between the towers are too huge to provide a sense of community with the other buildings. Whereas the Lilong on the other hand was filled with life, not only because of shared facilities, but also because of the public, space being the immediate sphere of contact to the private unit. This concept still lived on in the work-unit parallel blocks of the mid-20th century. While the older types were filled with sales activities, leisure, housework and discourse in a relatively compact space, the parks in the new tower blocks have lost the diversity of street programs. They are reduced to activities like walking the dog, child play and exercise, that do not require the interaction of strangers. This new luxury of not having to interact, that is a result of increased wealth, signifies the rise of the private sphere. The function of social control through neighborhood surveillance has disappeared. It has in fact become impossible since the windows are not facing the streets anymore or are too high up to see what is happening on the ground. The residents are giving up this responsibility of watching after each other to the security systems and CCTV. Since 1978 the thought of being modern became synonymous with being private. This privatization of the psyche disconnects the individual from the public realm. With this disconnection the harder it gets for the individual to express feelings and to understand the public realm, which according to

Hannah Arendt leads to a decreased sense of reality. Still, the ongoing destruction of the old Lilong quarters is inevitable because of the pressure of densification in the face of population growth. The shift to the new housing typologies leads to what residents describe as alienation and isolation. But community as it is glorified in the wake of the growing alienation within cities, has also a downside that is easy to be forgotten. In historical China communities were installed by the government to have people control each other. People who failed to report or prevent their neighbors' misconduct were punished in the same way as criminals. As early as Qin Dynasty, communities were administrative units responsible to enforce mutual supervision. The ones who stepped out of the line were prosecuted. This created a constant atmosphere of fear and coercion. (Rowe et al, 2016 p.50) Much later, in the years of the great famine from 1958 to 1962 the established people's communes revealed the dark side of community. In some cases, neighbors were beaten or even drowned when they were considered not working hard enough. Even though the residents committees were initially established to increase mutual aid and cooperation between neighbors and to create a sense of community, they turned into the opposite. This shows that community can also become an authoritarian tool of suppression as it has happened at times in Chinese history. The new shift to the private sphere is therefore a new breaking out of the cycle and can also be seen as an emancipation form traditional administrative control mechanisms.

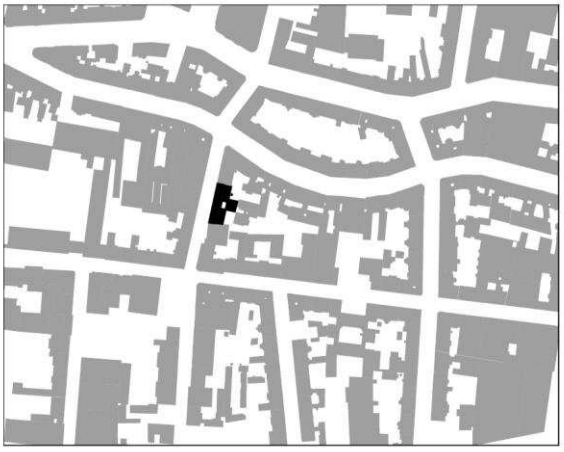
3.2 Collective Housing in Vienna

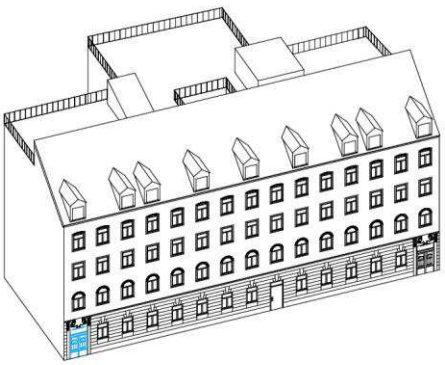
In this chapter the history of urban Housing in Vienna will be looked into, which can be characterized in four main periods in housing production. The most defining period is the Gründerzeit between 1848 and 1914 where most of the housing structure was built. After world war I the first boom years of Red Vienna's socialist housing began. The third period is the 1960s and 1970s that brought about the short-lived trial and error of new types on the outskirts of the city which were again abandoned around 1980. Since then Vienna is pursuing a development of soft renewal within the existing old fabric and types that support the urban character of the city.

3.2.1 Gründerzeit blocks

Even though they were only built between 1848 and 1914 the *Gründerzeit* houses are by far the most common housing type up until today, making up 38% of all housing in Vienna. (Hannappel 2018 p. 18) *Gründerzeit* literally meaning founders' age refers to the time of the starting industrialization in the second half of the 19th century that led to an unprecedented growth of cities. To house the growing working class a large number of rental flats was built in dense perimeter blocks at a high coverage rate. They were developed under private capitalist interests and served the profit of building speculators. (Weihsmann 1985, pp. 16-17) Thus, the rent was almost unaffordable for the working class and the living conditions were miserable in the tiny apartments. To afford the rent the tenants subleased beds to even poorer people which led to situations where three adults and two children were sharing just two beds. While the inner-city dwellings had higher standards, the houses of the workers districts on the edge of the city provided only the most basic amenities. These houses were called *Bassenahaus*, named after the shared sink on the long corridor (*bassena*), the only water supply in the building. Also, toilets were to be shared by several apartments and located on the corridor. The long corridors from which all of the apartments were entered directly into the kitchen were places of communication, but they were not valued at that time, because of constant friction between the neighbors sharing the same facilities and the resulting lack of privacy. Another severe problem was the poor lighting and ventilation. Due to the high coverage rate of 85% only narrow light shafts (3 x 4 m) could be provided to bring daylight and air into the apartments. At an average height of four to five

stories they were not nearly sufficient to light the lower floors. Because people tended to throw garbage from their windows into the shaft, which could not be properly cleaned, it became a breeding ground for diseases. (Weihsmann 1985, p. 19) It is hard to imagine that this very typology today is Vienna's most popular type of housing and regarded as a model for future developments. This is mainly because over time these houses were equipped with elevators, private toilets and water supply, apartments were merged and the square meter per capita increased. Originally constructed in a way that only the wall to the corridor and the street wall were loadbearing, they were flexible to adjust to the new requirements of changing times. The facade design that was inspired by the decoration of Italian renaissance palaces give them a noble appearance that modern urban housing was never able to provide. (Jäger-Klein 2010, p. 121) Even though most of the Gründerzeit houses still do not offer private open spaces for their residents they are valued for their high ceilings up to 4 meters which still remains unequalled compared to later housing developments. It is the ceiling height in the ground floor and the flexibility of the structure that makes the Gründerzeit building a model for structural openness, that can accommodate most possible functions. The block is subdivided in rather small plots of 15-20 meters width. In the back of the building there are sometimes small courtyards large enough to serve as bicycle parking for the users. Every building is an independent unit, that has no relation to the adjacent buildings except being part of the same block. The rather fine subdivision of plots forms a diverse street facade of the block that is more human scale then the monotonous facades of single building blocks. The example of a Bassenahaus in Bergsteiggasse discussed in chapter 5 will give a better understanding of the spaces in the Gründerzeit houses.





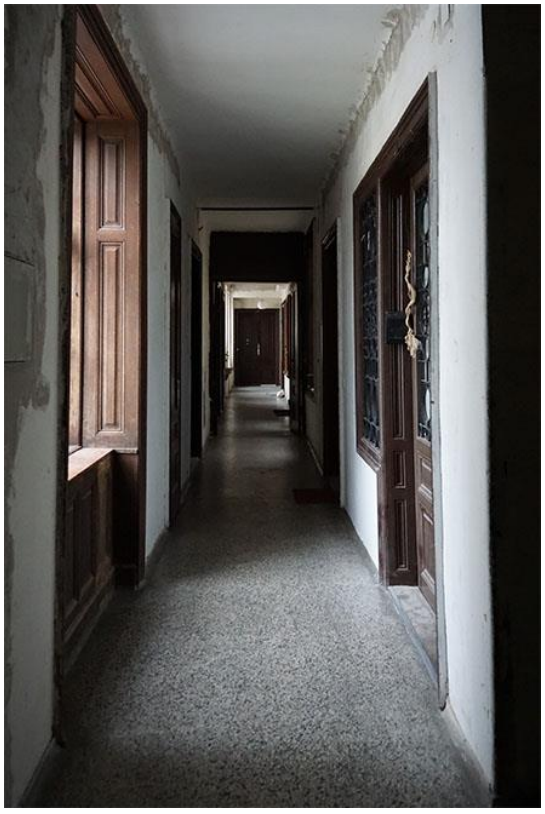


Fig. 3.2.1.1 Figure ground plan and axonometric of a Bassenahaus (see chapter 5.2)

Fig. 3.2.1.2 Gründerzeit block in Vienna's 17th district (Google Maps)

Fig. 3.2.1.2 Left: Entrance corridor of a Bassenahaus 2019

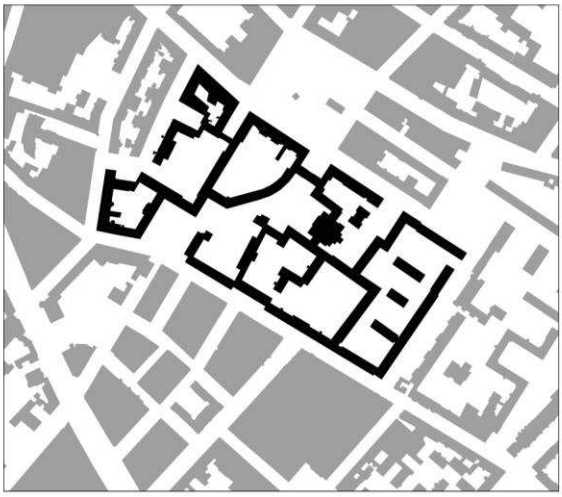
Right: Landing corridor of a Bassenahaus 2019

3.2.2 Red Vienna courtyards

In 1918, after World War I and the breaking apart of the Austro-Hungarian empire Vienna was no longer the capital of a 56 million great power, but just of the 6.5 million country that is today's Austria. Since the pressing housing problem has never been solved up to this point, the newly elected socialist government made every effort to provide adequate housing for the lower classes. Referring to the socialist city government, the city was nicknamed Red Vienna. In the period from 1923 to 1933 the construction of more than 60 000 tenements was funded by the city government. (Weihsmann 1985 p. 111)

The communal courtyard block emerged as a new housing typology and was designed to solve all the problems of the much criticized Gründerzeit houses. North-only orientation was forbidden and proper exposure to sunlight mandatory. It provided slightly bigger apartments and a different layout, including water supply and toilets in the flat. Since the toilet was not supposed to be entered from the living room, the city government clarified in the new building guidelines that the creation of a new small front hall had to be included in the layout. This front hall additionally serves as a buffer zone between the public staircase and should provide greater privacy to the tenants. More privacy was part of the program to create a refuge for the working class for recreation after a hard working day. Another measure showing that trend was the removal of the long corridor of the Bassenahaus in favor of a staircase that directly gave access to maximum four apartments from a small landing. The fact that there would be less opportunity for neighborly chat was celebrated at that time. (ibid. p. 42) The block was turning from the extroverted Gründerzeit block to an introverted block with a large collective garden on the inside. All the entrances to the staircases which were formerly out on the street were now inside the courtyard creating a new type of communal territory that has not existed before. The unit of the housing block creating a sense of identity was something unprecedented in Vienna where the block had always been made up from several independent buildings. The formation of communities was supported by a variety of communal service facilities such as playgrounds, childcare, markets, shops, libraries and laundries. The courtyard buildings offered a high living quality affordable for those who are in need and were highly popular. Like the Gründerzeit house private open space in form of balconies was not common in this housing type. Morphologically the courtyards were laid out as superblocks built up with connected perimeter structures sometimes bridging over streets with large portals to form enclosed courtyards. Many of them were shaped with strict axiality in a monumental way referencing to the

historic royal palace architecture and were also decorated in that way. Other communal courtyards like Sandleitenhof and Rabenhof were built in a more sensible way imitating a naturally grown city structure that easily blended in with the surrounding city. The subdivision of a block in small plots, that was common before, was not carried on and the blocks were normally built with a single continuous structure. Most of them have been renovated and upgraded to modern living standards and are popular for their affordability and good living conditions and their pronounced facade design up until today. Deeper insight of this topic will be given in chapter 5 with the case study of Rabenhof.



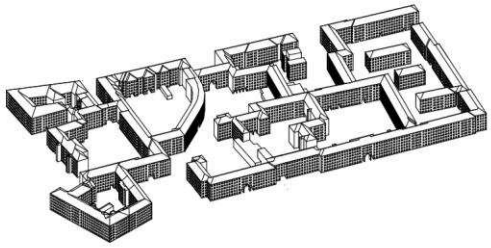


Fig. 3.2.2.1 Figure ground plan and axonometric of Rabenhof (see chapter 5.9) (by the author)

Fig. 3.2.2.2 Rabenhof consists of several open and closed courtyards (Google maps)

Fig. 3.2.2.3 Collective compound open to the public, Rabenhof 2019 (by the author)

Fig. 3.2.2.4 Entrance to a staircase, Rabenhof 2019 (by the author)

3.2.3 Parallel Blocks and Superstructures

From the 1950s until the 1980s Vienna was following international building trends of modernism when they pursued parallel blocks as main housing type to improve the situation of sunlight and ventilation and provide equal apartments with further improved floor plans. (Jäger-Klein 2010, p. 136-139) The communal green space as it had been introduced in the Red Vienna courtyards was to be turned into public green. With the rise of motorized traffic, the buildings turned away from the noisy and polluted streets. Instead of orientation along the street edge they were now oriented according to the sun, ignoring the context of the city. Many new projects were situated on the outskirts of Vienna and disconnected from the city, while not trying to establish a new urban fabric. Due to the lack of regulations the new projects built in prefabricated construction method reached monumental scales and turned into superstructures, some of them becoming social problem zones. (Kreid 2017) One noteworthy and unique project of this time is the Wohnpark Alterlaa a parallel slab highrise block that is highly popular among its residents, because of its many communal facilities creating a village-like community among the neighbors. Further insight on this project will be provided in the case study of Wohnpark Alterlaa in chapter 5.

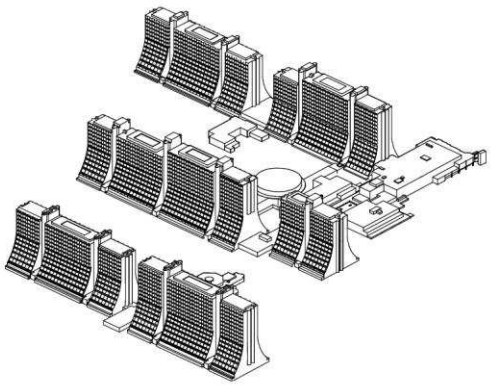


Fig. 3.2.3 Figure ground map and axonometric of Wohnpark Alterlaa (see chapter 5.8)

(by the author)

Fig. 3.2.3 Inside the park of Wohnpark Alterlaa 2019 (by the author)

Fig. 3.2.3 Parallel block of Per Albin Hansson Siedlung Ost 2019 (by the author)

3.2.4 New Urban Blocks

Since the 1980s there has been a revival of the values of urbanity and a renewed appreciation of enclosed courtyards with a defined street edge to shape the city fabric. (Tabor 1988, p. 137) The focus was on developing city quarters split up in many smaller plots developed by a large variety of architects not only providing housing but also providing good quality urban public space. The new blocks are reconsidering some characteristics of the old urban types of Gründerzeit house and Red Vienna courtyard while offering improved floor plans and communal spaces that can reactivate good neighborly relations and reverse the steady withdrawal to the private sphere. Contrarily to previous ideas, the buildings should not face their backs to the street but provide active ground floor zones with commercial use to the public. Even balconies facing the street are part of the concept of Seestadt Aspern, creating a more informal public space. (Raith 2011, p. 85) The block size is rather small with a recommended maximum of 150 x 150 meters to improve city walkability. Further insight on this type will be provided in the case study of Living Room Sonnwendviertel in chapter 5.

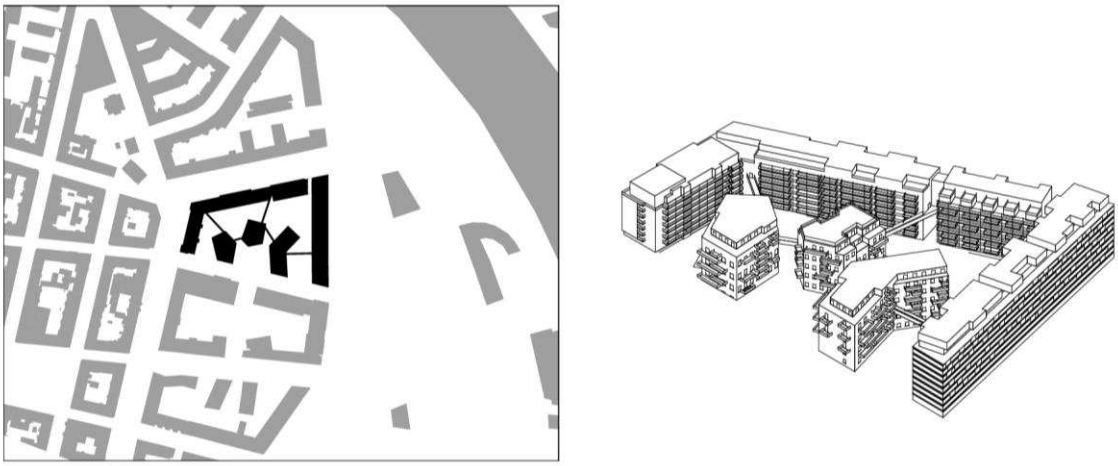


Fig. 3.2.4.1 Figure ground and axonometric of'Living Room' Sonnewendviertel (by the author)

Fig. 3.2.4.2 Aerial view of a new town in Vienna: Seestadt Aspern (Google maps)

PART B: ANALYSIS

4 ANALYTICAL METHODS

In this chapter the methods used in chapter 5 for analyzing the 10 case studies are introduced.

4.1 Selection criteria and site research

The projects were selected with the intention to draw a holistic picture of the most common housing types in the respective city. Even though this is of course not possible by discussing just 5 projects in each city, it is still possible to point out the most important issues that are defining both cities. In the process of this research about 30 projects in both cities have been visited and documented. The selection of them was partly based on recommendations of my professors, on literature research and also on personal convenience, since two of the projects discussed were once my home. The analysis in chapter 5 mainly builds on personal observations of the housing blocks and their social spaces. Since the site visits have been punctual and during a certain time of the day this analysis does only rely on these one-time observations and may not be able to convey a universal state.

4.2 Presentation order

The order of presentation will be first by city and secondly by age. Shanghai will go first as it is first in alphabetical order. The order of the projects is from the most recent going back in time to the oldest. This should avoid a historical reading of the projects and prevent a preoccupation about their socio spatial arrangement, because most features are timeless and deserve impartial reconsideration.

4.3 Components of the analysis

The components of the analysis follow a repeating pattern as listed below:
1. Axonometric diagram, 2. Legend and Barrier Icons, 3. Map, 4. Spatial Sequence Diagram, 5. Spatial Sequence description, 6. Enclosure map, 7. Street interface map, 8. Exterior, 9. Interior, 10. Building

4.3.1 Axonometric diagram

The axonometric diagram gives an overview of the project and its surrounding. The social spaces are highlighted with red hatches that correspond to the spaces described in the legend. Barriers like fences and walls are highlighted in blue. The two-letter combinations in white boxes like [Sr] are abbreviations for social spaces, that are listed in the legend.

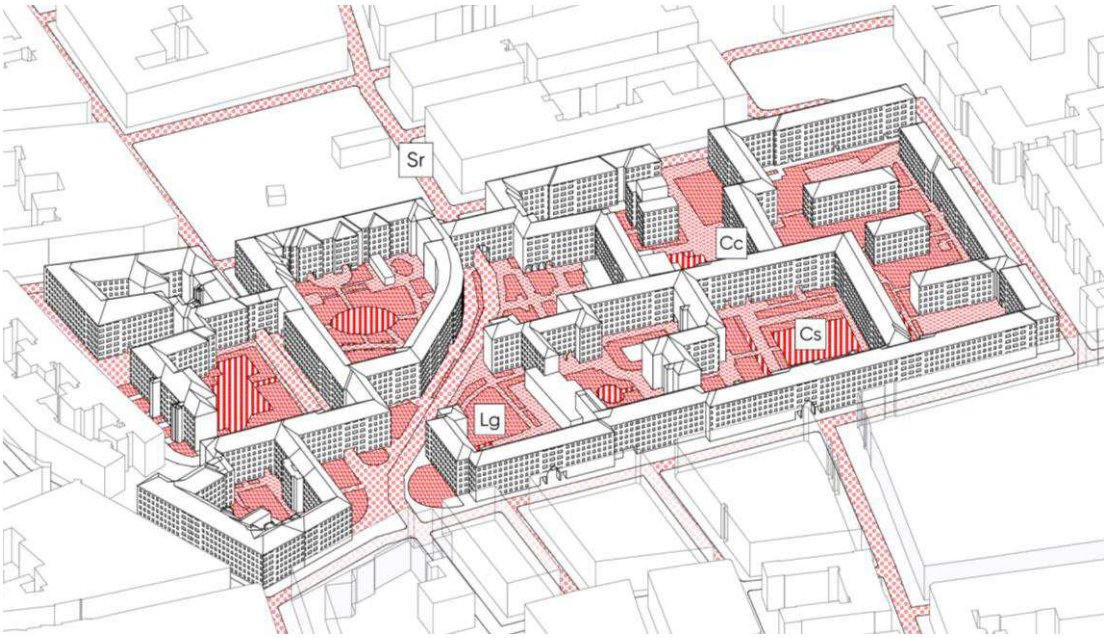


Fig. 4.3.1 Example of an axonometric diagram: Rabenhof

4.3.2 Legend and Barrier icons

The legend lists all the barriers occurring in the project in a column on the left and all the different types of social spaces on the right. Spaces inside the buildings are also part of the list, although they are not visible in the axonometry nor the map.

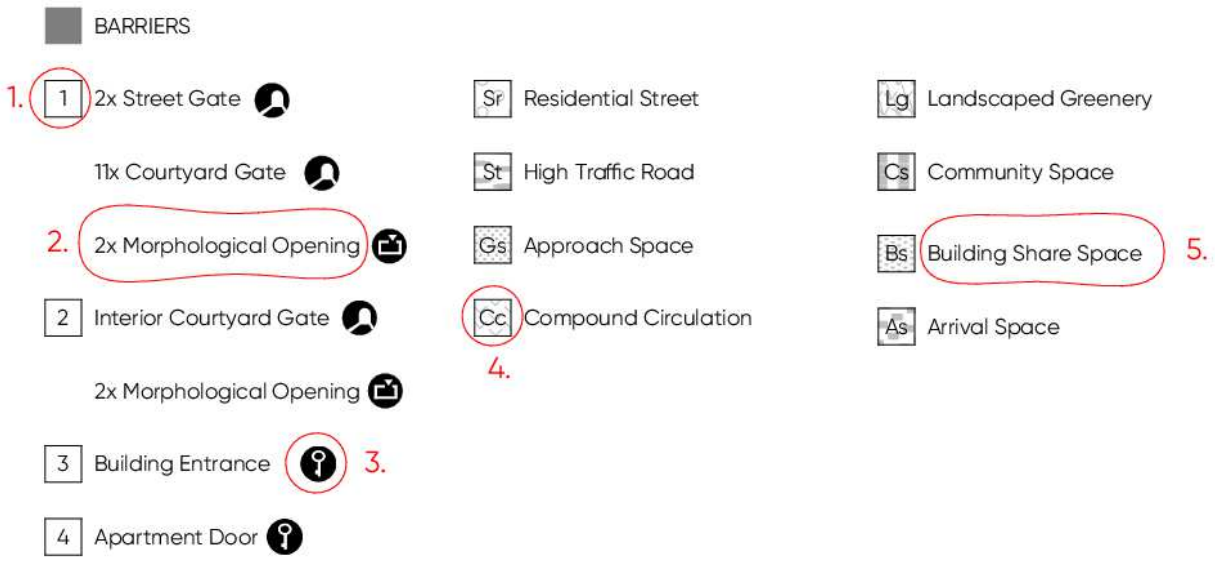


Fig. 4.3.2.1 Example of a legend: Rabenhof

1. = BARRIER COUNT. The barrier count provides an overview of all barriers in the project and puts them in a hierarchy starting with [1] at the street. The number of gates may vary from one project to another and indicates the depth of territory. One number may include several gates in the same hierarchy. If there are multiple entrances to a compound from the street, they are all contained in number [1].

2. = BARRIER NAME. The barrier names describe the type of gate and vary from one project to another. They are complementing the barrier icon.

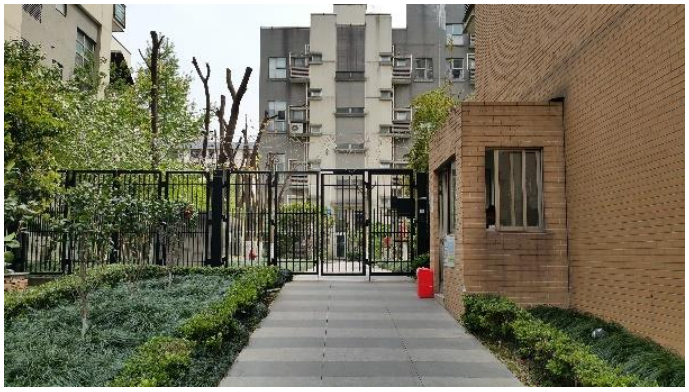
3. = BARRIER ICON. The barrier icons are a system to standardize the barrier types and facilitate the comparability between the projects. The following icons will be used, listed according to their degree of closure:

a) LOCKED GATE OR DOOR

This key icon is used for all types of gates and doors that can only be opened by keyholders. Gates that are permanently locked and therefore unusable are not considered as locked gates.

b) GUARDED AND LOCKED GATE

The icon depicting a guard and a key refers to a gate that is locked and guarded. Non-keyholders can be admitted by the guard upon request.



c) GUARDED GATE

Guarded gates can be entered freely without key. The guard is observing the entrance and may forbid the entry to strangers.

d) UNLOCKED OR OPEN DOOR

Unlocked doors or open doors are clear barriers for strangers, but they do not physically restrict the entry.

e) PASSAGEWAY

Passageways through a building are physically open to enter but are psychological barriers for strangers.

f) MORPHOLOGICAL OPENING

Morphological openings are gaps between buildings that allow free entrance into the compound interior. Depending on their size the degree of psychological barrier varies.

g) TOPOGRAPHICAL OPENING

This icon indicates openings in topographical barriers like embankments or mounds raised to keep out street noise.

Fig. 4.3.2 Examples for barriers
8 photographs taken by the author

4. = SOCIAL SPACE ABBREVIATION. The two-letter abbreviations in the hatched boxes are describing the different social spaces from public to private. There are reoccurring abbreviations to enhance the comparability between the projects, but some are unique to one project.

5. = SOCIAL SPACE NAME. The names describing the social spaces are more specific than the abbreviations and are specific to each project.

4.3.3 Map

The map is complementing the axonometry and giving additional information about the entrances to the compound that are symbolized by black triangular arrows. The numbers in the boxes like [1], indicate the position of the gate in the hierarchy of gates.

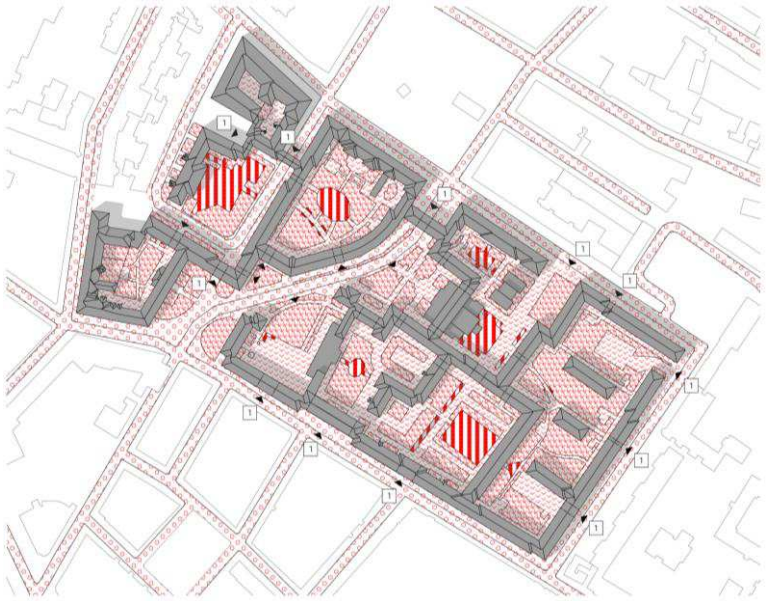


Fig. 4.3.3 Example of a map: Rabenhof

4.3.4 Spatial Sequence Diagram

Part of the spatial sequence diagram is based on Habraken's diagrams of territory (introduced in chapter 2.2.2), while giving additional information about the gates, the social spaces and their arrangement. Since Habraken's diagrams are plan diagrams they are limited to the comparison of very similar arrangements. By further abstraction the spatial sequence diagram is enabling comparability of all kinds of housing, very different in size and typology, but still showing the spatial relations inside. In most of the cases, there is more than one possible way to walk from the street to the home and the spatial sequence diagram is trying to depict the most common routes. But since the spatial sequence diagram is a sequential diagram, it cannot properly show all possible territorial overlap as described in chapter 2.2.2. Thus, the territories count always refers to the longest possible sequence, even when there are shorter ways to reach the private unit. In the end it always ends in only one specific kind of apartment, even though one housing compound may consist of several different types of buildings with different types of staircases, corridors and so on. Therefore, the spatial sequence diagram can just depict several, but not all representative scenarios of walked through and passed-by spaces on the way home.

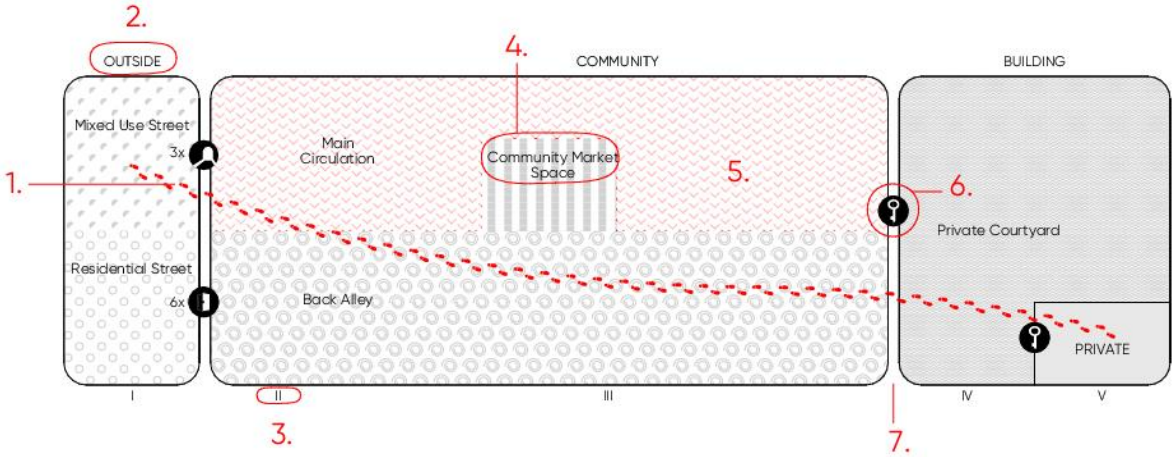


Fig.4.3.4 Example of a Spatial sequence diagram: Qing Yuan microdistrict

1. = SEQUENCE PATH. The diagram is read from left to right and symbolizes the path a person walks from the street to their apartment.

2. = MAIN CATEGORIES. The words 'OUTSIDE', 'COMMUNITY' and 'BUILDING' on top of the diagram describe the 3 different main categories of the blocks social spaces that are manifested morphologically. To provide a standardized frame for comparison, these categories remain constant within all the cases presented, while the social spaces inside may vary.

3. = TERRITORIES COUNT. The Roman numbers I,II,III,IV... are indicating the number of territories crossed by the resident on their way to their private home. The territories count always refers to the longest possible sequence, even when there are shorter ways to reach the private.

4. = SOCIAL SPACE NAME. The texts in the hatched spaces are describing the different social spaces from public to private.

5. = SOCIAL SPACE HATCH. The different hatches symbolize different social spaces that differ in publicness, user groups or physical space.

6. = TRANSITION ICON. For every transition from one territory to another there is an icon that indicates the type of transition (gate, passage, etc.)

4.3.5 Spatial Sequence description

The spatial sequence descriptions inform about the address of the project and its construction year, if known and provides a textual interpretation of what can be read from the spatial sequence diagram.

4.3.6 Enclosure map

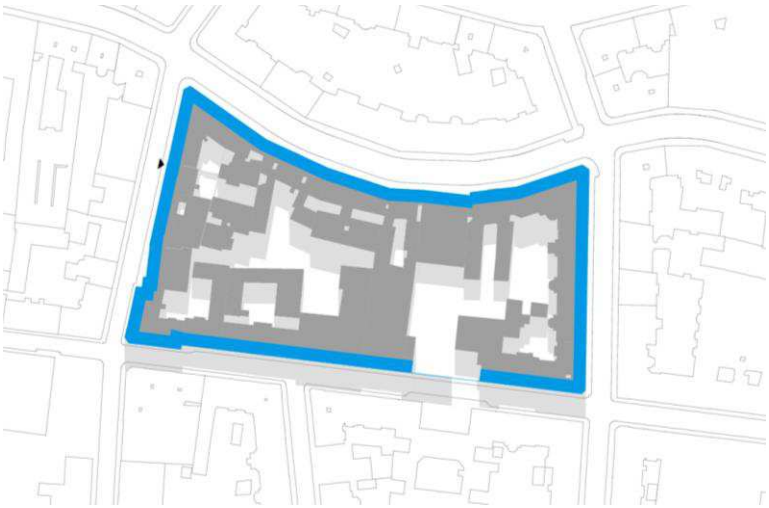


Fig. 4.3.6 Example of an enclosure map: Gründerzeit block

The enclosure map shows the level of enclosure in a plan view. There are four different levels of enclosure that may occur in the projects and their percentage share of the perimeter is calculated.

MORPHOLOGICAL ENCLOSURE

- is the enclosure formed by building masses.

OPAQUE WALLS

- are separate structures, that are not part of the building and serving the purpose of a physical and visual barrier.

TRANSPARENT FENCES or LOW LOOKOVER WALLS

- are similar to the walls, but they only enclose the compound physically, not visually.

OPEN SIDES

- allow free access for anybody turning the compound interior into public territory.

4.3.7 Street Interface map

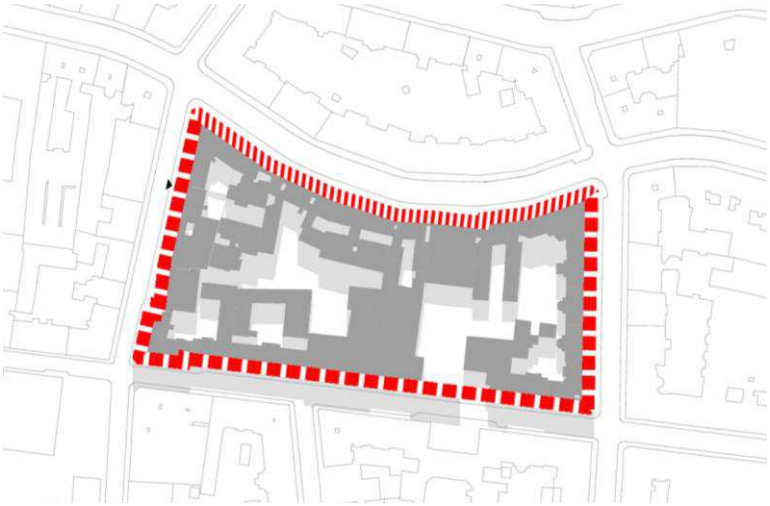


Fig. 4.3.7.1 Example of a street interface map: Gründerzeit block

The street interface map is showing the attractiveness of the exchange zone between building and city with a dashed red border around the perimeter of the block. The categorization in 4 different types is based on a toolbox provided by Jan Gehl, that classifies interfaces by their level of detail and usability of the ground floor zone. (Gehl 2010, pp. 240-241)
Based on Jan Gehl's toolbox the following classification will be applied:

A - active

Small units, many doors, large variation in function. No blind and few passive units, lots of character in facade relief.

B - mixture

Large and small units, few doors. Modest variation in function. Some blind and passive units. Modest facade relief. Few or no details.

C - inactive

Large units, few or no doors. No visible variation of function. Blind or passive units. Uniform facades, few or no details.

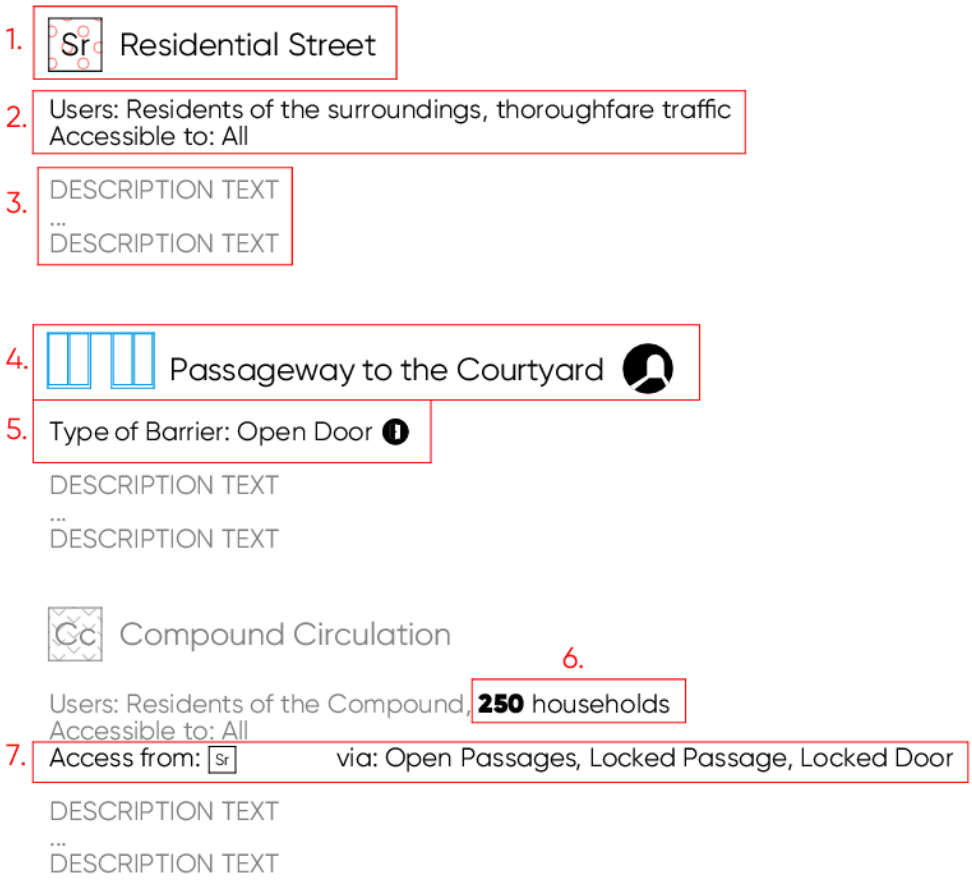
D - no building interface

Fences, walls, or mounds are forming a border and keeping the street at a distance from the buildings of the block.

Fig. 4.3.7.2 four photographs taken by the author:
active – Daxue Road, Shanghai
mixture – Baumgasse, Vienna
inactive – Paltaufgasse, Vienna
no building interface – Tongzhou Road, Shanghai

4.3.8 Exterior, Interior and Building

The final 3 pages of each project are discussing the spatial sequence in detail and provide illustrations of the exterior, interior and building. The structure will be as follows:



1. = ABBREVIATION and SOCIAL SPACE NAME. The hatch in the box is matching the hatches in the drawing above to facilitate the readability of description and drawing.

2. = USERS and ACCESSIBILITY. The 'users' refers to the group of people who are normally using this space while the accessibility refers to the people who are able to enter that space without obstruction. If there is a specific number of households entitled to access, then the number will be given as shown in 6.

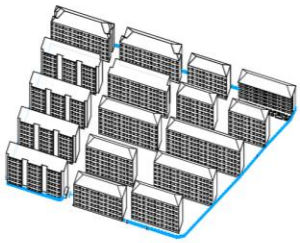
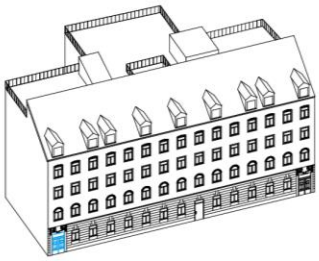
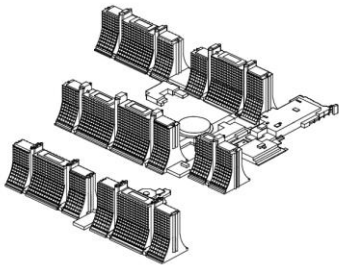
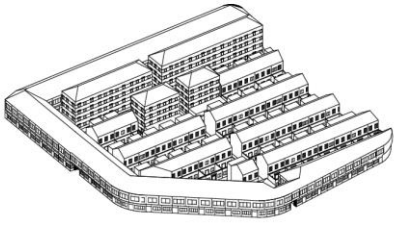
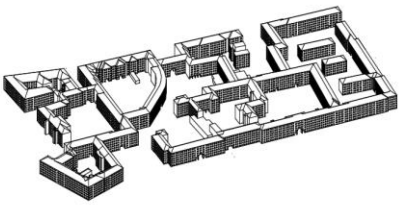
3. = DESCRIPTION TEXT. A short description of each space is given that may include judgments about the quality of the spaces.

4. = BARRIER. Drawing. Name. Icon. A small drawing of the door or gate helps to identify it in the drawing above. The name gives a specific description of the door or gate and the icon helps to categorize it into one of seven barrier categories.

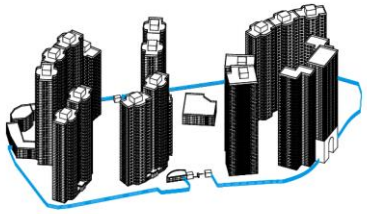
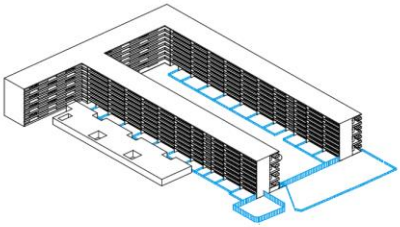
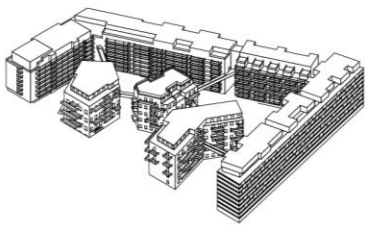
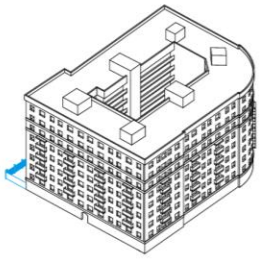
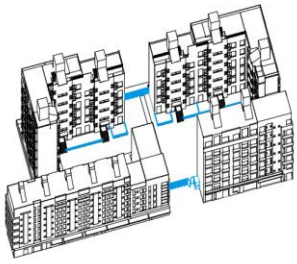
5. = TYPE OF BARRIER. Is a categorization more specific than the 7 categories of icons and shows another small icon that may differ from the icon above. For example, when the barrier is a passage with a gate. In this case there are two different icons used.

6. = see 2.

7. = ACCESS FROM. This shows from which space the access to a space is possible and 'VIA' shows how the transition takes place. There can be one or several ways to enter a space.

5 TEN CASE STUDIES

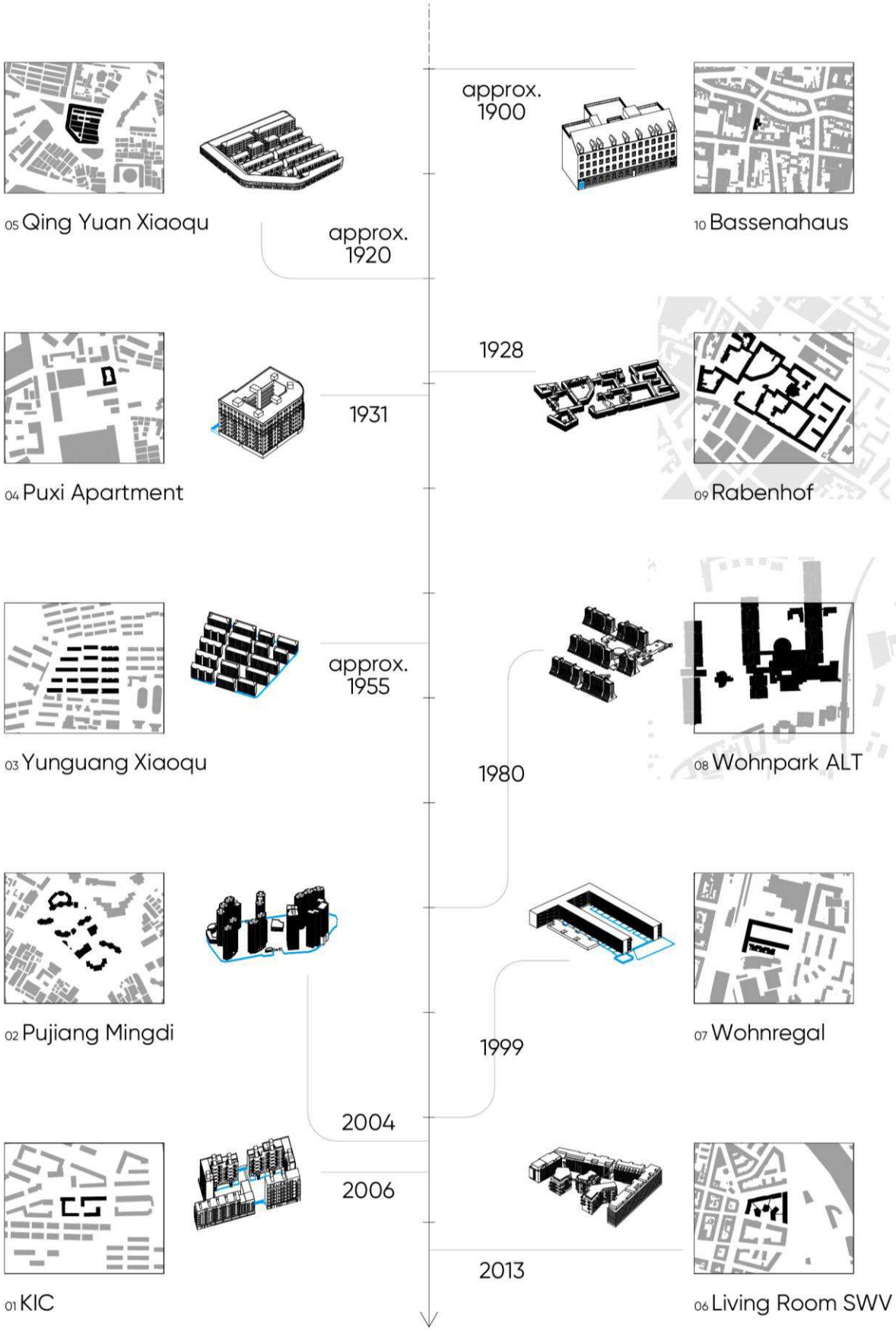
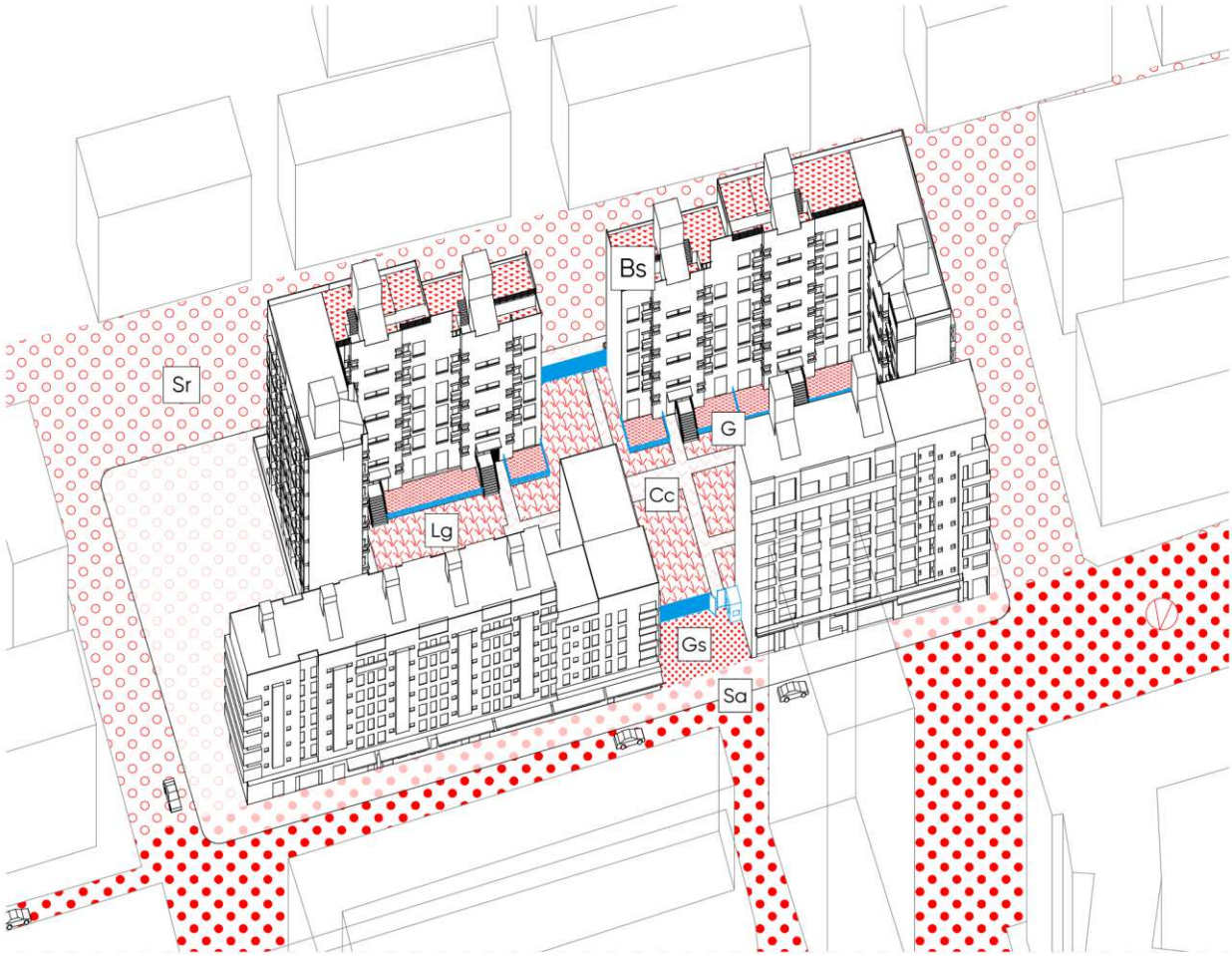


Fig. 5 Timeline: Left Shanghai, right Vienna

5.1 Case 01: **KIC Phase 2 South District** 创智坊(二期南区)



Barrier

Lg Landscaped Greenery

Sr Residential Street

Cs Community Space

Sa Active Commercial Street

G Private Gardens

Gs Gate Setback Square

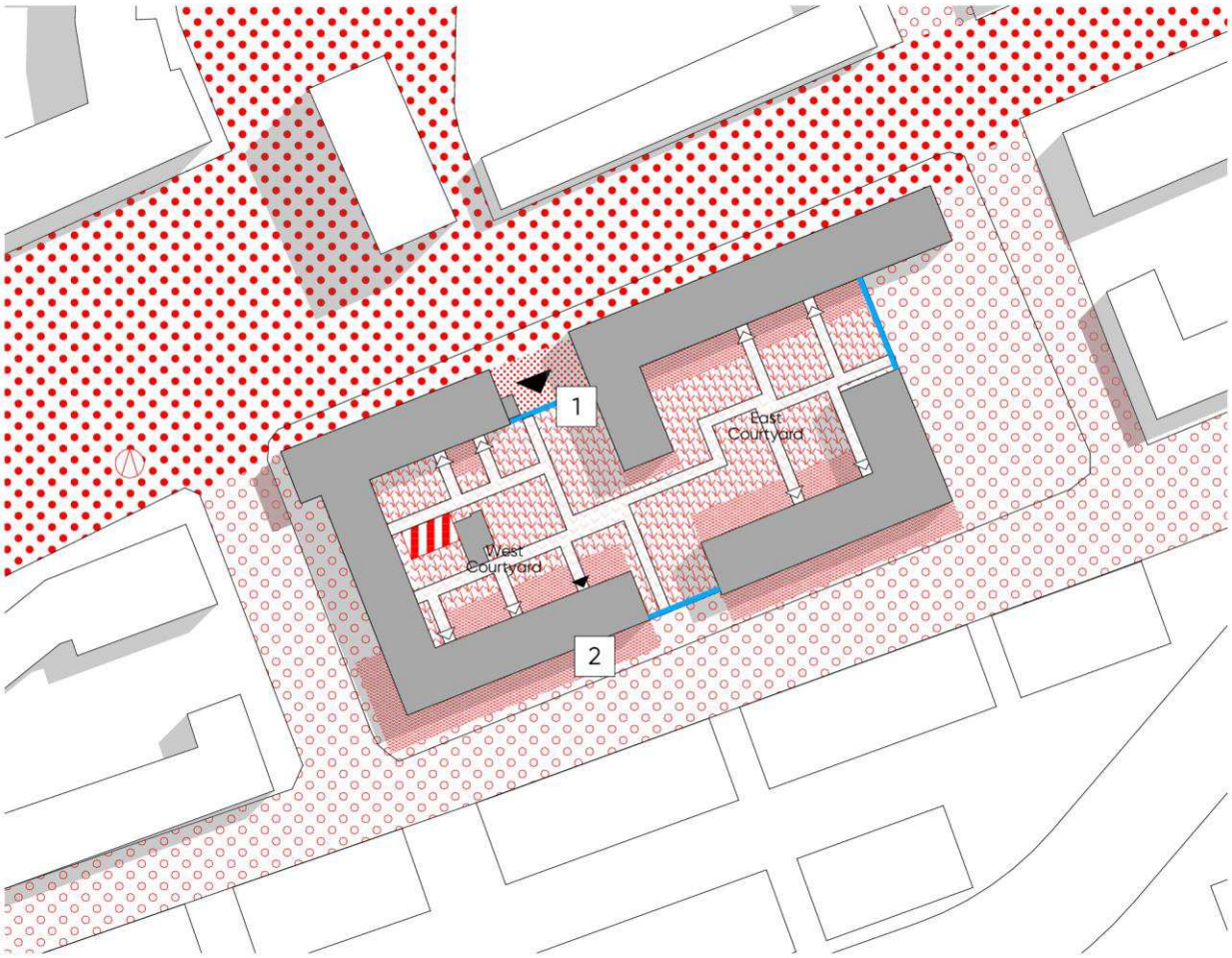
Bs Building Share Space

Cc Compound Circulation

As Arrival Space

Figures in this chapter:

Map 01 KIC Phase 2 South District 创智坊(二期南区)

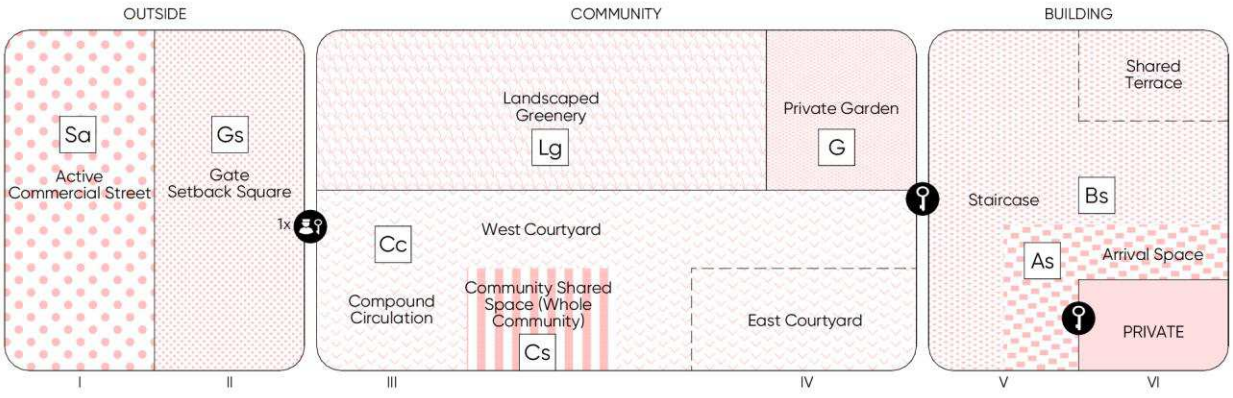


1 Main Entrance Gate

2 Building Entrance

3 Apartment Door

Spatial Sequence Diagram



Spatial Sequence Description Case 01

Construction Year: 2006

Address: Shanghai, Yangpu, Wujiaochang, Daxue Road 187
上海-杨浦-五角场北-大学路 187 弄

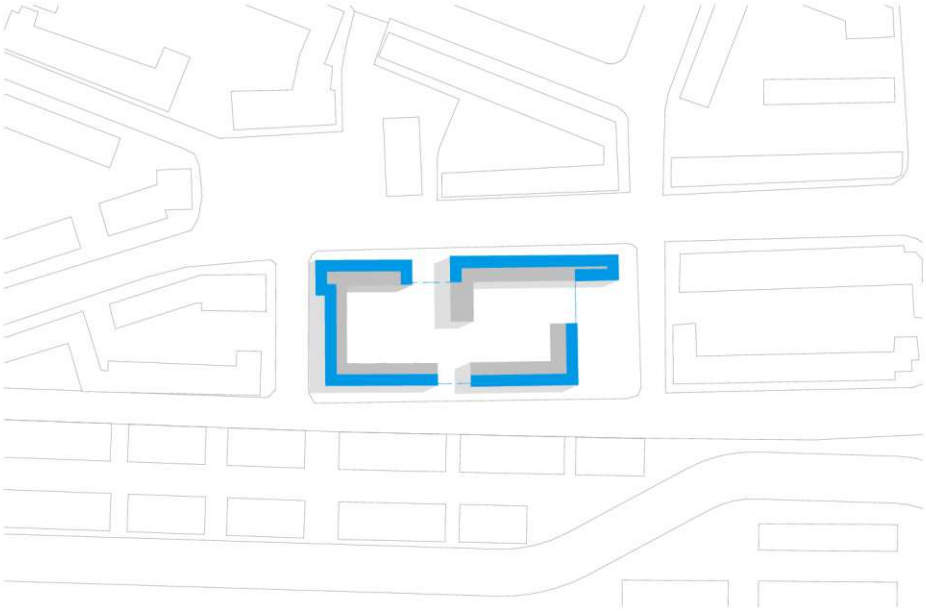
The *KIC Phase 2 South District* is located in *Daxue Road*. Literally meaning university road it is part of the Wujiaochang area - the center of Northern Shanghai. The block is a core part of the KIC Knowledge and Innovation Community, and the bars, restaurants and offices of the street attract students and employees of local companies until late night.

From this highly active street the residents of the compound first access a small square that is set back from the street and roughly 12x12 meters in size. It is planted with trees and forms a buffer zone from the fast-flowing stream of pedestrians on the sidewalk to the calm community area on the other side of the main gate. The setback square is slightly rising up from the street to the main gate of the compound. The gate is locked and can be opened by the resident's electric chip key or the guard can open it for visitors. Even though the block morphologically opens up at 3 sides of the compound and gates have been installed on every side, there is only this one main gate on the north side of the block working as an actual gate. The other two gates, on the south and on the east side, are permanently locked with iron chains. Upon entering the main gate, one accesses the shared courtyard, that is exclusive to the 140 households of the adjacent buildings. This courtyard can be morphologically divided into two parts. The west courtyard section that everybody enters when walking through the gate and the more private east courtyard section that is entered after crossing the west courtyard section and walking around the corner. Both courtyards equally consist of three main elements. Firstly, paved paths, taking residents from the compound entrance to their building entrance. Secondly, landscaped areas with grass and trees on each side of the path that are unwalkable. And thirdly, fenced off private gardens all along the edge of the buildings' ground floor. Their fences are not directly bordering the paths but have some landscaped greenery as a buffer in between. So, the main pedestrian path, which is the only commonly useable space of the three, is distanced from the building perimeter by gardens and some buffer green. The path only meets the buildings with its small branches that stretch out to the entrances of the buildings. Additionally, to the paths,

in the west courtyard we can also find a small paved sports court as a shared common space. But apart from that there are no other spaces for the community of the courtyard, neither playgrounds nor park benches. Arriving at the building entrance door one has the choice of entering in the ground floor or taking a few steps up to the second floor. Entering directly in the second floor from outside is a privilege for the second-floor apartments that normally is only available for the ground floor. Also, it gives more independence to the ground floor, which is not connected to the rest of the staircase, only the elevator connects to the rest of the building. The building door is opened by key and gives access to the staircase leading up to the shared rooftop. On every floor there is a small landing space with two apartment doors facing each other. This results in a very direct relationship to the other unit sharing the same floor, while with the rest of the 14 units in the building just the rooftop is shared. The rooftop is appropriated for barbecue, growing vegetables and hanging clothes.

In Shanghai this project is a rather rare example of a modern perimeter block in a time when tower blocks are the predominant form of housing development. The idea of the porous open block implicated by the block morphology has not been carried out to the end, when two of the block's openings were permanently locked. The courtyard space mainly is a circulation space rather than a community leisure area.

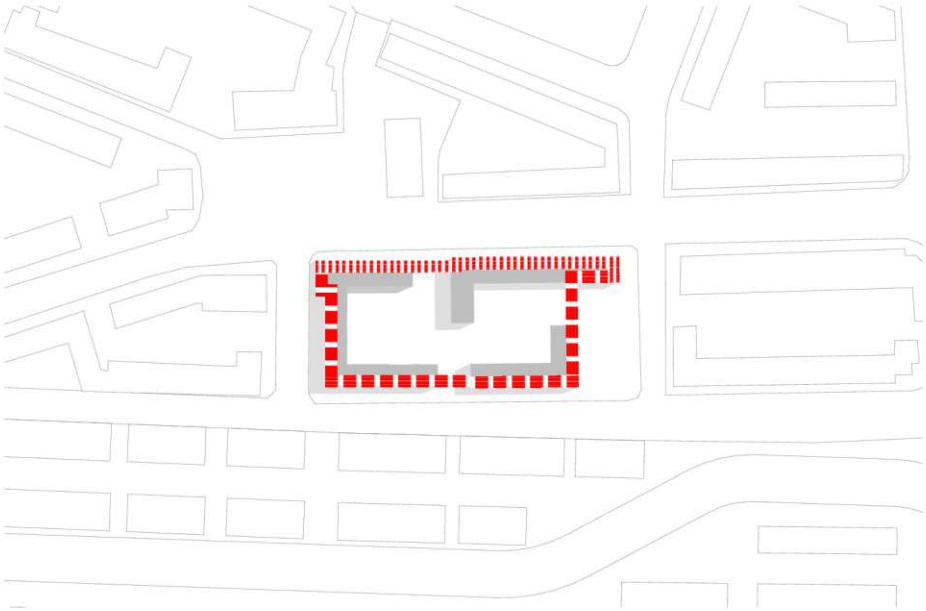
Exterior 01 KIC Phase 2 South District 创智坊(二期南区)



Enclosure

Morphological: 87%
Opaque Wall: 5%
Transparent Fence: 8%
Open: 0%

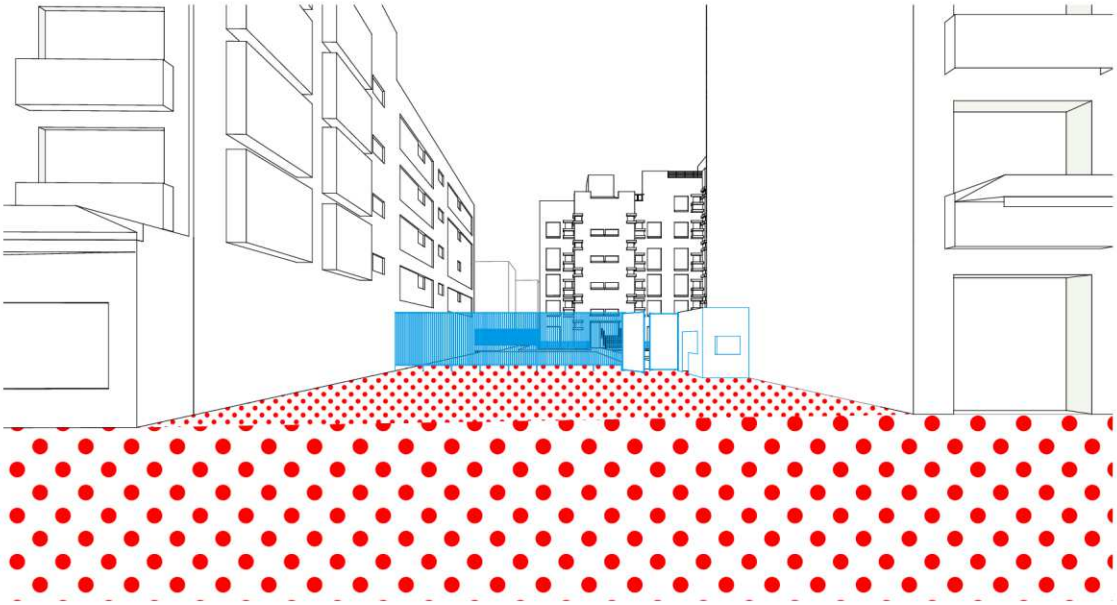
Physical Enclosure: 100%
Visual Enclosure: 92%



Street Face

A - active
B - mixture
C - inactive
D - no building interface
not facing street

Compound Entrance 01 KIC Phase 2 South District 创智坊(二期南区)



Sa Commercial Street: Daxue Road

Users: Citizens of Northern Shanghai
Accessible to: All

The Daxue Road is an active street with a lot of restaurants and bars in the ground floor and offices on the other floors all along the street facade. The street is active from early morning until late night and attracts students of the nearby Fudan University as well as employees of the many businesses in the district and people of northern Shanghai who spend their leisure time in the close-by Wujiaochang shopping centers.

Gs Gate Setback Square

Users: Residents of the Compound **140** households
Accessible to: All
Access from: Sa via: borderless transition

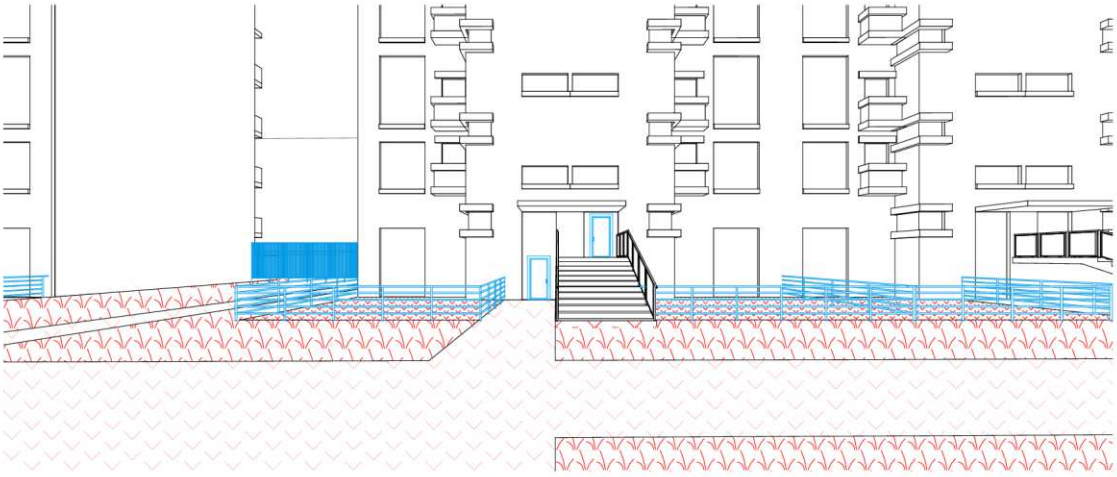
The Gate Setback Square is a transition space that forms a buffer zone between the Commercial Daxue Road and the shared residents courtyard. It is only frequented by the residents themselves and distances the courtyard from curious eyes of outsiders. Even though outsiders are not restricted to go there they are unlikely to do so, because it is not assiciated to the public. Leaving the compound it is like a small bay where you can adjust before you are taken by the fast flowing stream of pedestrians of the bustling Daxue road.

Main Gate

Type of Barrier: Guarded Gate

This Main Gate on the north side of the compound is operated by a single guard who can open the electronic gate to the residents. The compound technically was designed to have a south gate and an east gate which both are permanently locked now by a chain.

Compound Interior 01 KIC Phase 2 South District 创智坊(二期南区)



Cc Compound Circulation (Paths)

Users: Residents of the Compound, **140** households
Accessible to: Residents of the Compound, **140** households
Access from: Gs via: Guarded gate

The Compound Circultaion consists of paths along landscaped spaces, private gardens and a small paved sports court. It is also used for people walking their dog or child-play. There are no signs of appropriation of this common space.

Private Garden Fences

Type of Barrier: Fence, Gate access optional

The fences of the private gardens are appropriated in different ways by the owners regualting their need of privacy. Popular types are man-high bamboo fences that are totally opaque and ensure visual privacy or simple one-meter-high wooden fences that dont give any visual privacy.

G Private Gardens

Users: Residents of ground floor apartments, 1 household
Accessible to: Users only
Access from: 1F apartmentsvia: Garden door
or from Cc via: additional Fence gate (rare)

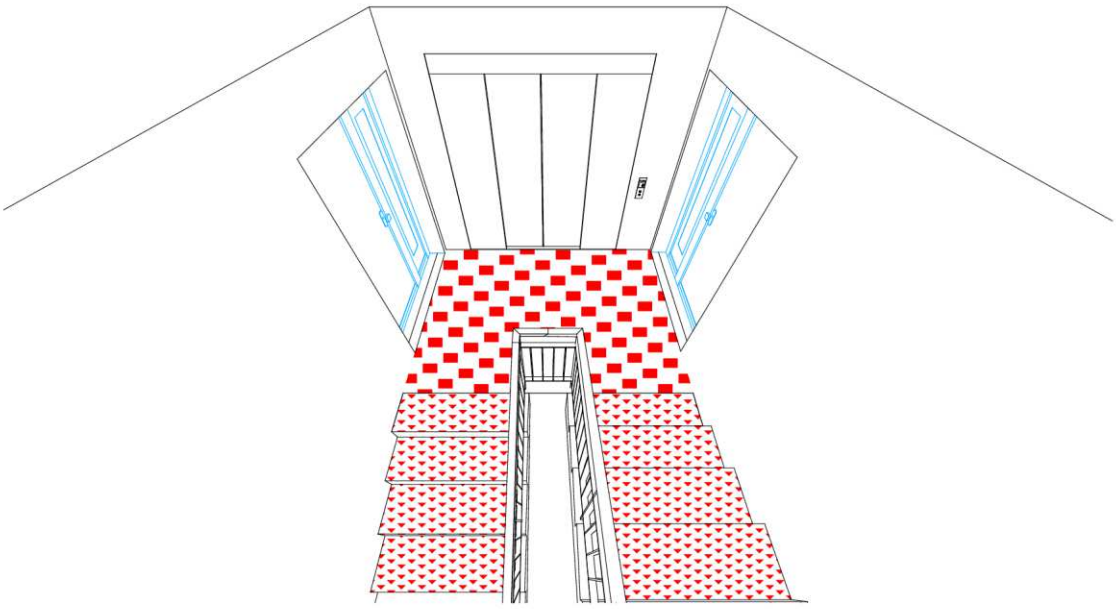
The fenced off private gardens are aligned along the ground floor facade of all buildings. They are keeping the main path of the courtyard in at a safe distance of 5 meters from the buildings. They are accessed by a secondary garden door from inside the ground floor apartments.

Building Entrance Door

Type of Barrier: Key access

There are 2 different entrances. One for the ground floor and one for the upper floors. Both can be used to access the elevator. The key to the door entitles to the use of the staircase and the shared rooftop terrace.

Building 01 KIC Phase 2 South District 创智坊(二期南区)



Bs Building Share Space

Users: Residents of 1 Building, **14** households
Accessible to: Residents of the building, **14** households
Access from: Cc via: Key access

The building share space consists of a small corridor at the building entrance, a 7 storey staircase and a shared rooftop terrace. The rooftop terrace is used for hanging clothes, barbecueing or growing plants. The way in and out of the building are held as short as possible and neighborly contact in the staircase is therefore unlikely and more likely to take place on the rooftop.

As Arrival Space

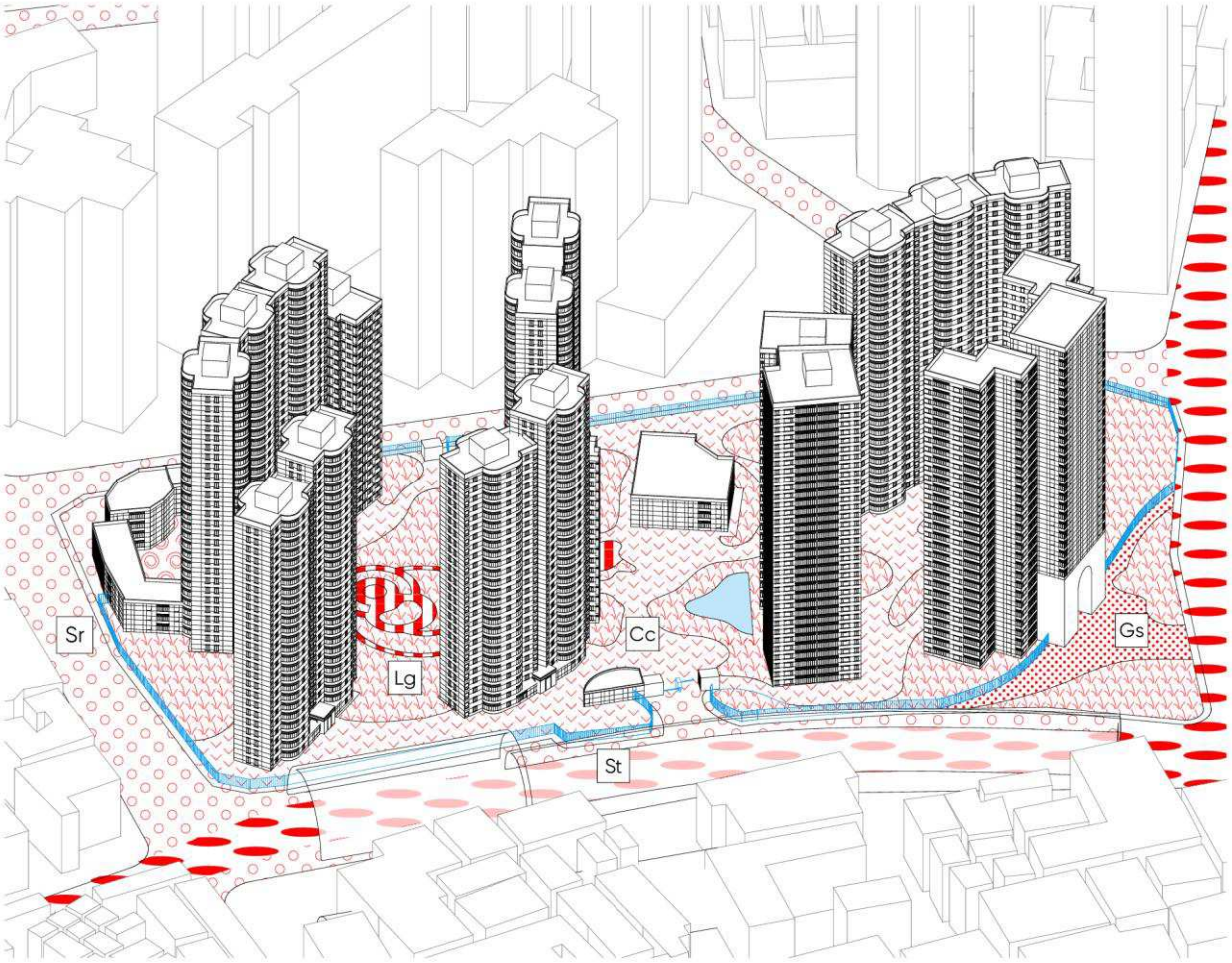
Users: Residents of 1 floor, **2** households
Accessible to: Residents of the building
Access from: Bs via: borderless transition

The Arrival Space can classified as a part of the building share space, but it is especially designated to the two units living on the respective floor. Apart from dormats and sporadic pairs of shoes their is no private appropriation of this space. There is also hardly enough room for anything more. But it is a social connection to the one other apartment on the same floor. It elevates the floor neighbor over all the other neighbors in the relationships between the neighbors of one building.

Apartment Entrance Door

Type of Barrier: Key access

5.2 Case 02: **Pujiang Mingdi** 浦江名邸



Barrier

Sr Residential Street

St High Traffic Road

Gs Approach Space

Cc Compound Circulation

Lg Landscaped Greenery

Cs Community Space

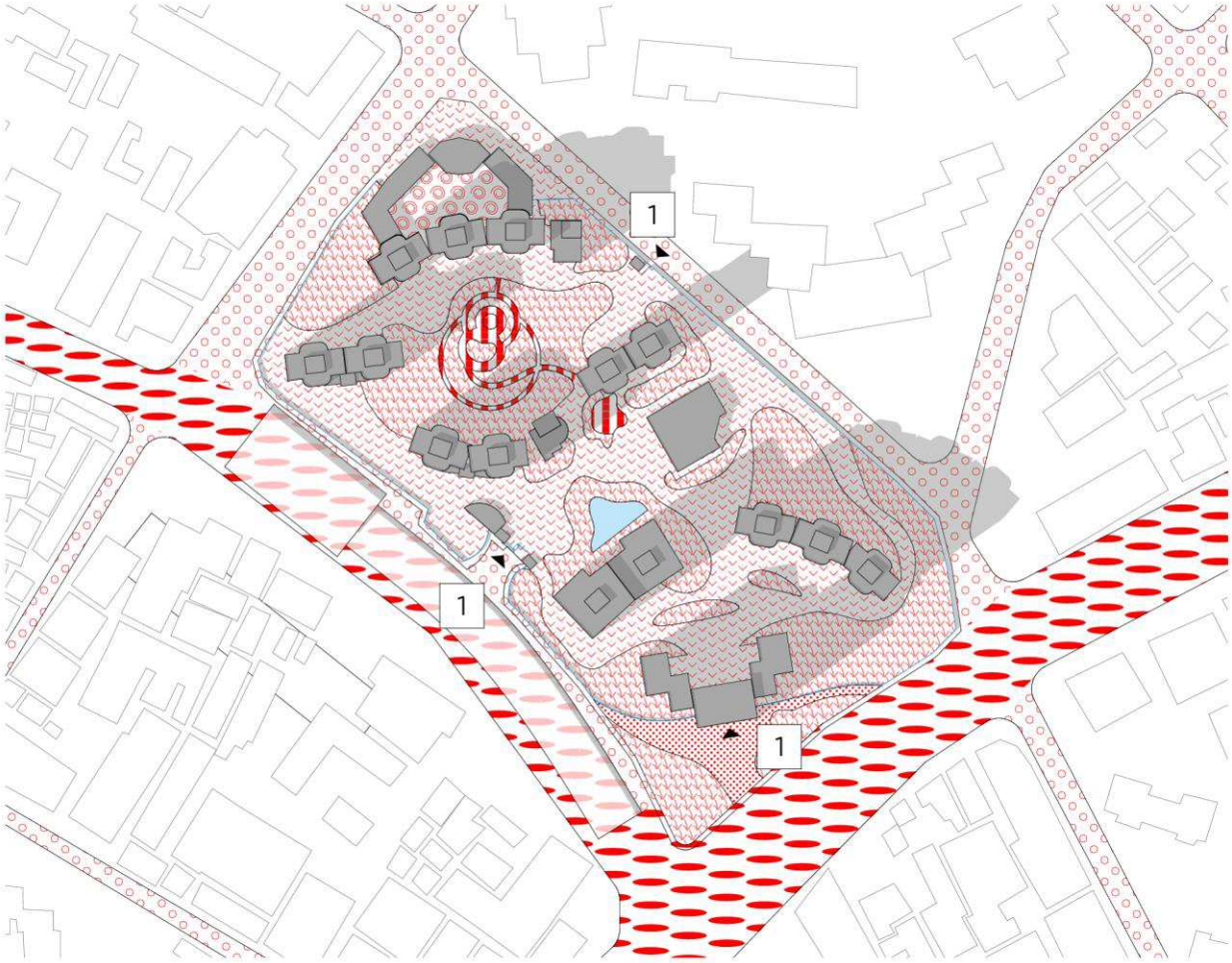
Bs Building Share Space

As Arrival Space

Figures in this chapter:

Fig. 5.2.1 Axonometric diagram, Fig. 5.2.2 Map, Fig. 5.2.3 map of enclosure, Fig 5.2.4 Map of street interface, Fig. 5.2.5 Compound Entrance diagram, Fig. 5.2.6 Compound Interior Diagram, Fig. 5.2.7 Building Diagram

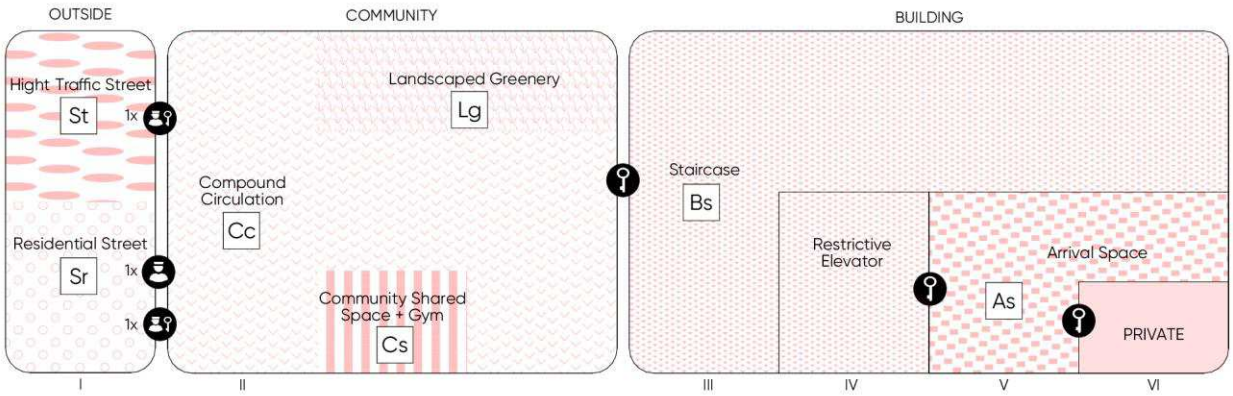
Map 02 Pujiang Mingdi 浦江名邸



1 2x Guarded Gate 2 Building Entrance 3 Elevator Activation 4 Apartment Door

1x Guarded Portal Gate

Spatial Sequence Diagram



Spatial Sequence Description Case 02

Construction Year: 2004

Address: Shanghai, Hongkou, Hailun Road 88
上海市虹口区海伦路 88 号

The *Pujiang Mingdi* is located in southern Hongkou District in a residential area and bordered by major traffic roads to the west and to the south. The roads around offer basic infrastructure such as a convenience store, a barber shop and a car mechanic, but for many other goods and amenities residents have to go further away. This is not a problem for them since most of the upper middleclass residents have a car and the compound is perfectly suitable for car owners, offering many on-ground and abundant underground parking.

Residents can enter the compound through one of the three guarded gates. During daytime all of them are open to enter, while during the night only the west gate remains open. The west gate can be entered at all times freely but observed by a guard. At the other two gates turnstiles are installed and residents have to use their electronic chip-key, or have the turnstile released by the guard. The fact, that there are only 3 gates for a 300m x 160m block indicates a higher demand in security and a decrease of walkability in the city. Because all of the entrances are guarded, they are very unlikely to be crossed by outsiders, who would like to take a shortcut through the block or enjoy the benefits of the compound's park.

Upon entering through one of the gates the resident reaches the circulation of the compound which is the second level of the sequence. The compound is organized as a huge park in which 8 apartment towers of 25 floors and more are distributed freely. It is home to 900 households. The circulation is not organized in streets or alleys, but in free-flowing paths meandering through the park. Cars are parked along the main circulation and landscaped areas are establishing its limits. The residents are living rather anonymously due to the high number of residents and the absence of a clear order among the open spaces of the compound. The shared community facilities of Pujiang Mingdi include a gym in a separate building, a playground for children and benches all along the paths through the park. In the middle of a landscaped park a roman-style rotunda pavilion was placed.

The apartment building door is unlocked and the entered corridor divides into two corridors for two independent parts of the building, each having their own staircase and elevators. To reach the staircase and the elevator residents have to use their chip key to open another door. The staircase and elevators are the third level of the spatial sequence. The elevator can be entered freely by all the residents of the building, but they can only activate it by using their electronic chip key, and it then only takes them to their own floor. Thus, residents are restricted to go to their own floor only. Technically it is possible to go to any floor by using the staircase, but with 25 floors walking stairs is not an option for most residents. Every floor is shared by only two apartments, which makes the relationship to the floor neighbor very unique and exclusive, since they are the only people you are likely to meet outside of your apartment.

As in other *tower in the park* compounds, in Pujiang Mingdi residents are losing the connection to the ground. Firstly, because of the physical disconnection between the private unit and the collective open space, due to the impossibility to walk up and down by foot but only being able to get there using an exclusive elevator. Secondly, the visual disconnection of being too high up to see what is going on in front of the building and interacting with people in the collective grounds, eliminates any possibility of social control of the collective space. And thirdly, the freely floating allocation of the buildings in the park, creates a situation where there is no clearly articulated front and back of buildings or any clear urban structuring of the ground floor space that could encourage private appropriation of the collective space. Unlike in older housing types in Shanghai, where it is common to place private chairs on the alley in front of the building or drying laundry outside. This cannot be found in such large-scale tower apartments. Another reason for that is that the private apartments are much bigger in size and better equipped nowadays, so that residents can get everything done within their apartment. But mainly it is because the private unit is encapsulated so deep in the spatial sequence, that it is physically too far away from the outside to extend the private into the community life.

Exterior 02 Pujiang Mingdi 浦江名邸

Enclosure

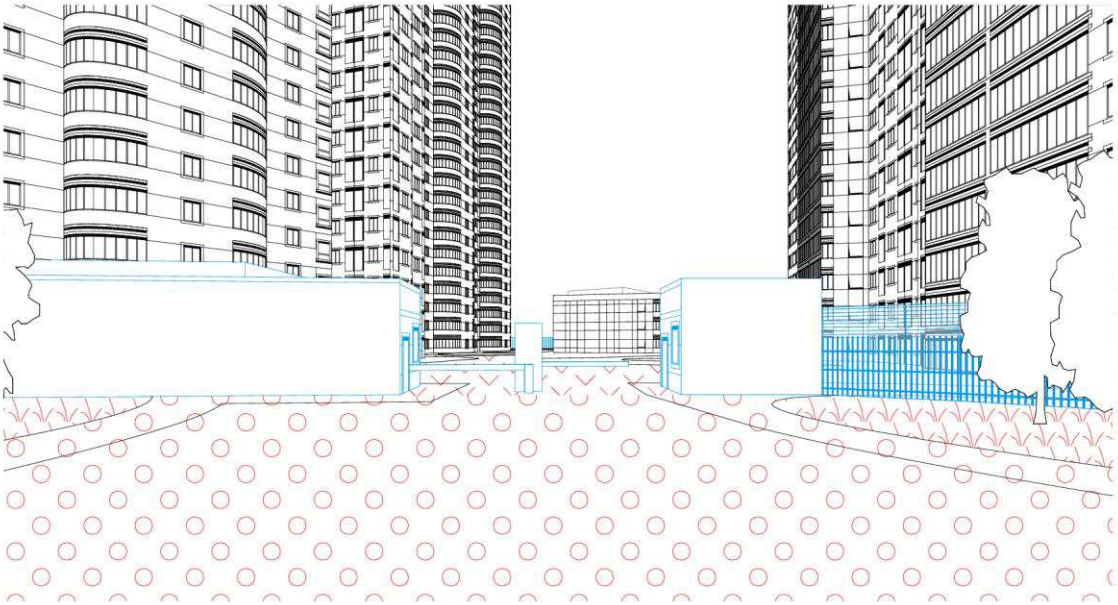
Morphological: 19%
Opaque Wall: 0%
Transparent Fence: 81%
Open: 0%

Physical Enclosure: 100%
Visual Enclosure: 19%

Street Face

A - active
B - mixture
C - inactive
D - no building interface
not facing street

Compound Entrance 02 Pujiang Mingdi 浦江名邸



Sr Residential Street (Hailun Road)

Users: Citizens of the surrounding blocks
Accessible to: All

Hailun Road to the south is a narrow two lane one way road squeezing in next to a roofed road which is the endpoint of a road tunnel crossing under the Huangpu river. This tunnel roof forms a wall along the west side of Pujinang Mingdi. To the south side is a 10 lane high traffic road and to the north and east side are calmer low activity residential streets that offer few commercial infrastructure.

Electric Fence

Type of Barrier: 2 meter high fence + 1 m electric fence

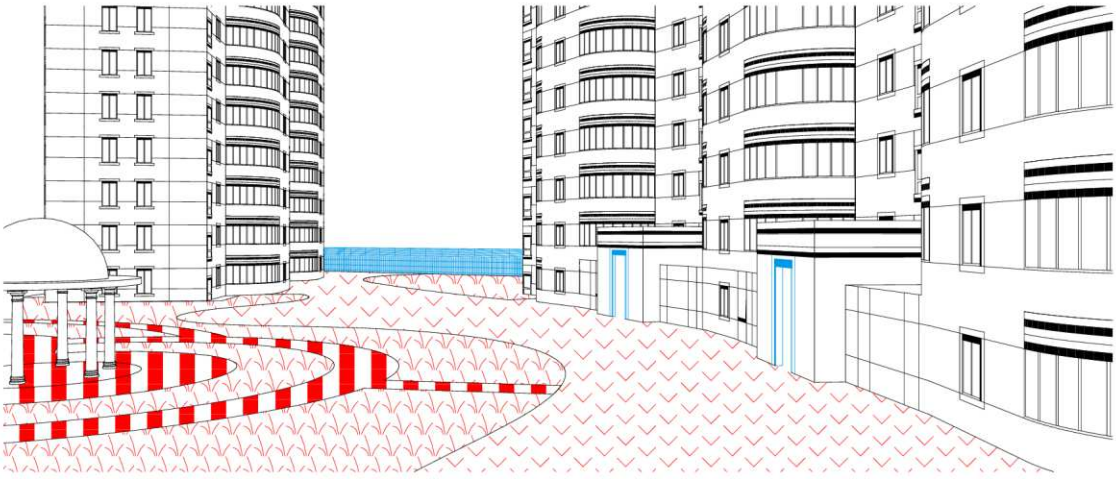
As if fencing in the compound was not enough security. On top of the fence a 1 m high installation of electric wires with warning signs are keeping any hypothetical intruder from trying to get in. This measures seem out of proportion, also because anyone can easily enter the compound by just passing the guard at the west gate.

Main Gate (West Gate)

Type of Barrier: Guarded Gate

This Main Gate is the only gate for cars to enter and exit the compound and also the only gate where residents can enter at day and night. At the main gate pedestrians can enter freely, just being observed by the guard, while at the other two gates they have to walk through turnstiles, using their chipkey.

Compound Interior 02 Pujiang Mingdi 浦江名邸



Cc Compound Circulation

Users: Residents of the Compound **900** households
Accessible to: All
Access from: Sa via: Guarded gate

The Compound circulation is the main route from the gate to the buildings for pedestrians and cars. Cars are parked along the way of the freely meandering roads. Compared to older types of housing in Shanghai it is significant that the roads inside this compound are only used for movement and are not likely to be active meeting spots or spaces for housework.

Cs Community Shared Space

Users: Residents of the compound, **900** households
Accessible to: Users only
Access from: Cc via: borderless transition

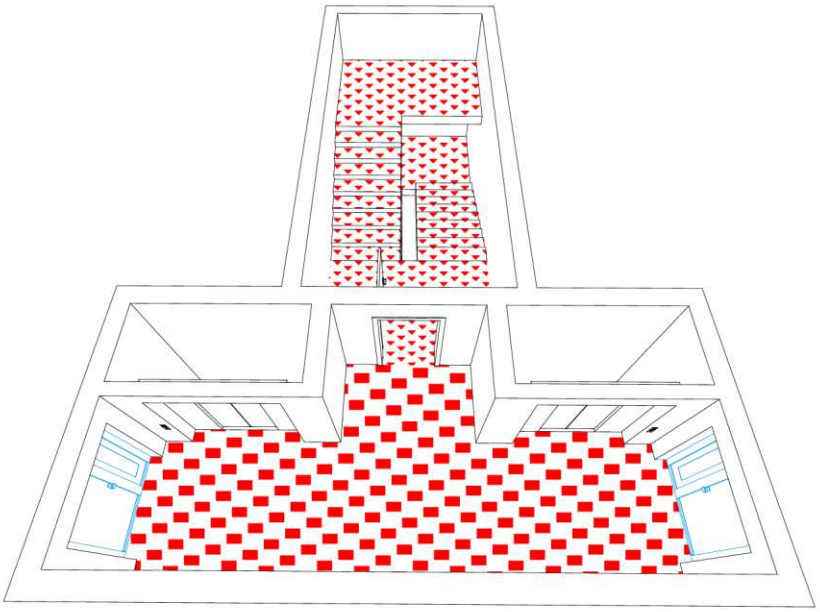
Apart from the circulation spaces the compound is mainly a vast landscaped park with walking paths finding their way through the greenery. In the middle of the circular park is a little roman-style rotunda pavilion as a space to rest and meet neighbors. These paths are used especially by people walking their dogs or young parents with their children. For children there is also a playground and right next to it there is a large gym in a separate building as a meeting point for the people of the compound.

Building Entrance Door

Type of Barrier: Key access

To enter the building residents first enter a door shared by two paired towers which is always unlocked. Then the path splits in two and they will follow a corridor to their own building entrance door, which has to be unlocked by an electronic chipkey.

Building 02 Pujiang Mingdi 浦江名邸



Bs Building Share Space

Users: Residents of 1 Building, **50** households
Accessible to: Residents of the building, **50** households
Access from: Cc via: Key access

The building share space starts in the ground floor in a small lobby with two elevators and a door to the staircase. The elevator only starts when it is activated by the residents' chipkey and will only take them to there very own floor. Any other floor can only be accessed by walking the stairs. Walking the stairs however is an exhausting undertaking, because the towers are 25 floors or higher. The rooftop, which is not intended for residents use is open but hard to reach using staircase or elevator.

As Arrival Space

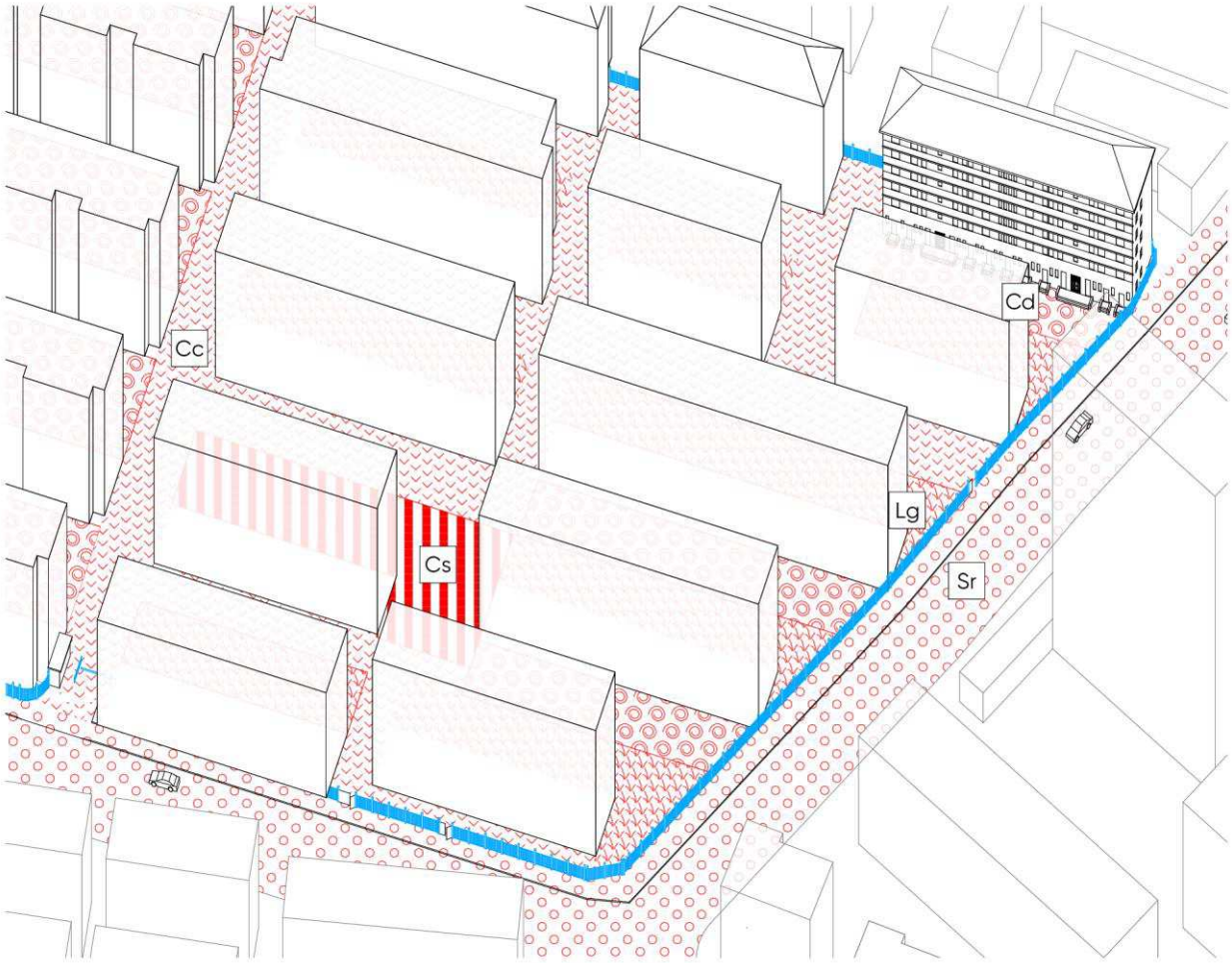
Users: Residents of 1 floor, **2** households
Accessible to: Residents of the building
Access from: Bs via: borderless transition

Every floor is shared by only two apartments, which makes the relationship to the floor neighbor very unique and exclusive, since they are the only people you are likely to meet outside of your apartment. Apart from dormats and sporadic pairs of shoes their is no private appropriation of this space.

Apartment Entrance Door

Type of Barrier: Key access

5.3 Case 03: **Yunguang Road Microdistrict** 运光小区



Barrier

Cs Community Space

Sr Residential Street

Cd Cul de Sac

Sa Active Commercial Street

G Private Gardens

Cc Compound Circulation

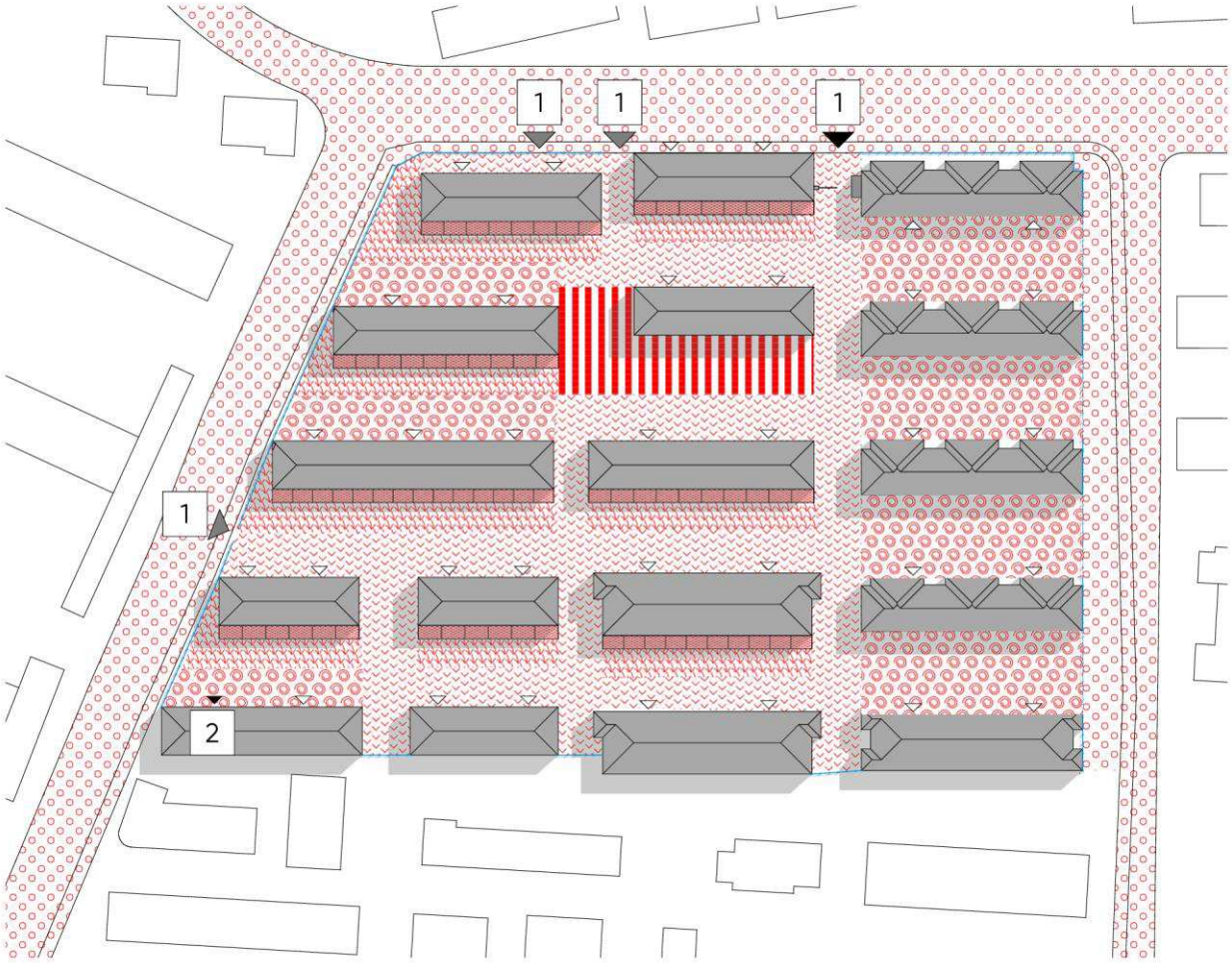
Bs Building Share Space

Lg Landscaped Greenery

As Arrival Space

Figures in this chapter:

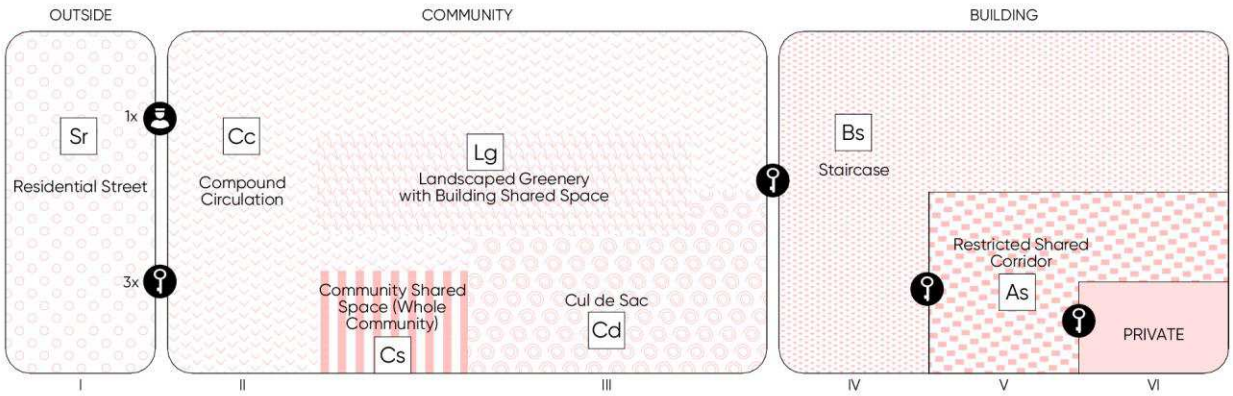
Map 03 Yunguang Road Microdistrict 运光小区



1 1x Main Entrance Gate 2 Building Entrance 3 Floor Door 4 Apartment Door

3x Secondary Gates

Spatial Sequence Diagram



Spatial Sequence Description Case 03

Construction Year: 1950s

Address: Shanghai, Hongkou, Yunguang Road 63
上海市虹口区运光路 63 弄

The *Yunguang Microdistrict* is located in the Hongkou District north of Tongji University. As part of a large agglomeration of housing blocks the area can be characterized as residential mono-use. The block has an almost square layout. Its west and north side are facing an active residential street with abundant local infrastructure. The east flank is facing a narrow pedestrian path and the south is immediately facing another housing block with just a separation wall in between.

The main gate access happens from Yunguang Road in the north of the block. The gate is formed by the ten-meter-wide gap between 2 buildings. The right hand side building houses a 24h convenience store, making the main gate an active place all around the clock. Upon entering by foot, one passes by the guard in his little guard house and a boom barrier regulating car access. At day and night residents and strangers are able to enter through this gate. They will be observed by the guard but never will be stopped. It is a psychological rather than a physical barrier. Apart from the main gate there are three more secondary gates. Two on the north side and one west side. These iron doors only allow access to electronic chip-key holders.

When passing one of the gates one enters the compound circulation which is organized in a grid of two north-south alleys and four east-west alleys. The alleys are directly defined by the parallel slab type 5-6 story walk-up apartment buildings. Even though the circulation area is all equally accessible it can be divided hierarchically into two different types of social space. The first one is the circulation path that is a thoroughfare for all the residents of the compound, while the second type is a cul-de-sac which is exclusively frequented by the residents of the adjacent buildings. Also exclusively used by the residents of one-building is the landscaped-greenery in front of every building, which also includes a small paved area that can be used publicly with iron clothes poles for publicly hanging laundry. As a matter of fact, these areas in front of the houses are mostly used by the residents of the

adjacent ground floor units. Since the ground floor units directly give onto the alley, their residents tend to expand their living space into the collective space. During the day there are many people sitting outside, chatting with their neighbors or doing repair works in front of their buildings.

There is no underground parking, so large parts of the alleys are occupied by parked cars. About in the middle of the compound a paved plaza with benches on the side is shared by the whole community and used frequently for public square dancing.

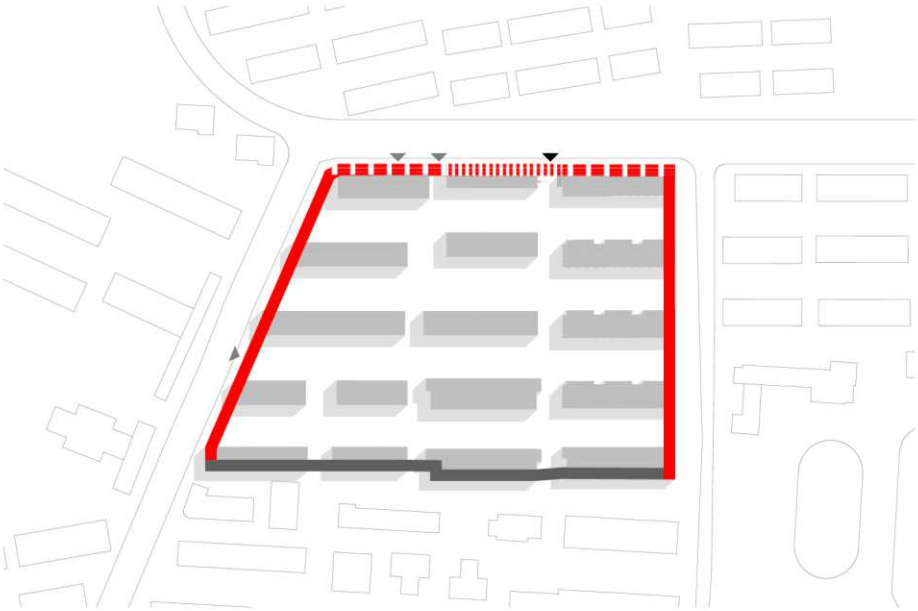
All of the buildings have two-step-high porches in front of their doors, which create a smooth transition from the alley to the building space. Via key residents can open the door and access the narrow staircase. The staircase which is shared by all the residents of one building does not yet give access to the apartment units. Walking up the stairs, on every floor there are two locked metal gates on each hand side that give access to a short open landing balcony. On this landing balcony there are 3 apartment doors which then can be opened via code lock.

This is a very common type of Shanghai housing that can be found throughout the city. It provides a very fine gradation of territories and a variety of public, semi-public and private areas. The ground floor units that open up to the alleys facilitate community interaction. Due to the arrangement of north-south orientated slabs, the east-west flanks remain open and cannot provide an active street interface. Compared with newer developments in Shanghai like tower blocks, this type is less restricted and has a denser community life. While it has a lot to offer inside the walls, the fragmented street interface of the block is hardly contributing to the urban life.

Enclosure

Morphological: 67%
Opaque Wall: 16%
Transparent Fence: 13%
Open: 4%

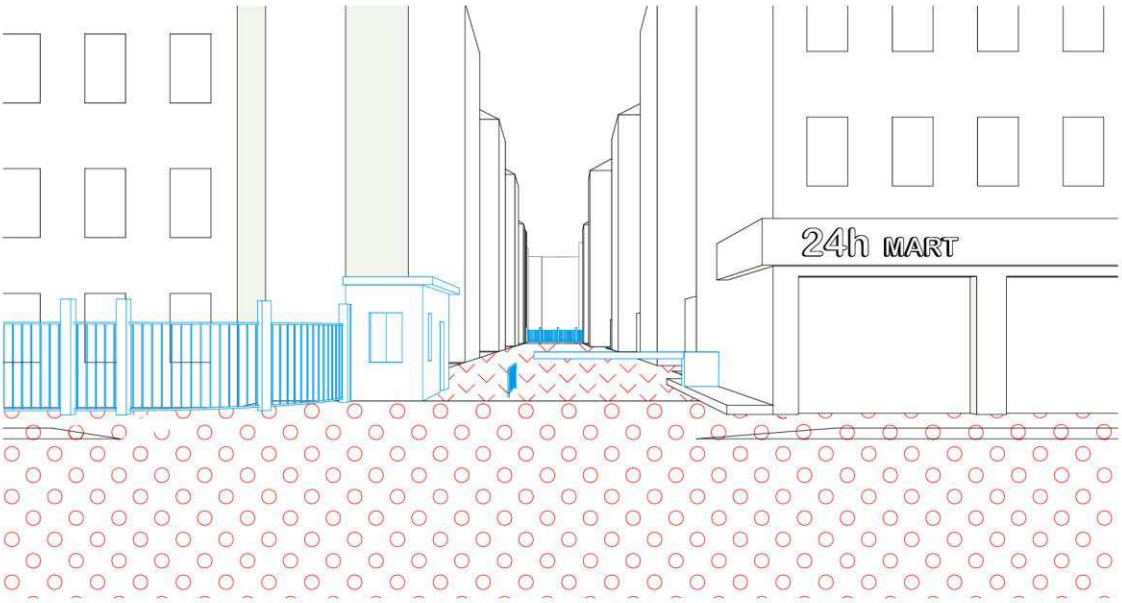
Physical Enclosure: 96%
Visual Enclosure: 83%



Street Face

A - active
B - mixture
C - inactive
D - no building interface
not facing street

Compound Entrance 03 Yunguang Road Microdistrict 运光小区



Sr Residential Street: Yunguang Road (north), Yiminhe Road (west)

Users: Citizens of the surrounding residential area
Accessible to: All

Yunguang Road to the north and Yiminhe Roads to the west of the compound are very active residential neighborhood streets. They offer all daily life amenities, such as convenience stores, a bakery, key makers, real-estate agency, barber shop, car mechanics, grocery market or a hardware store. The commercial infractructure only attracts locals of the surrounding housing blocks.

Main Gate

Type of Barrier: Guarded Gate (always open)

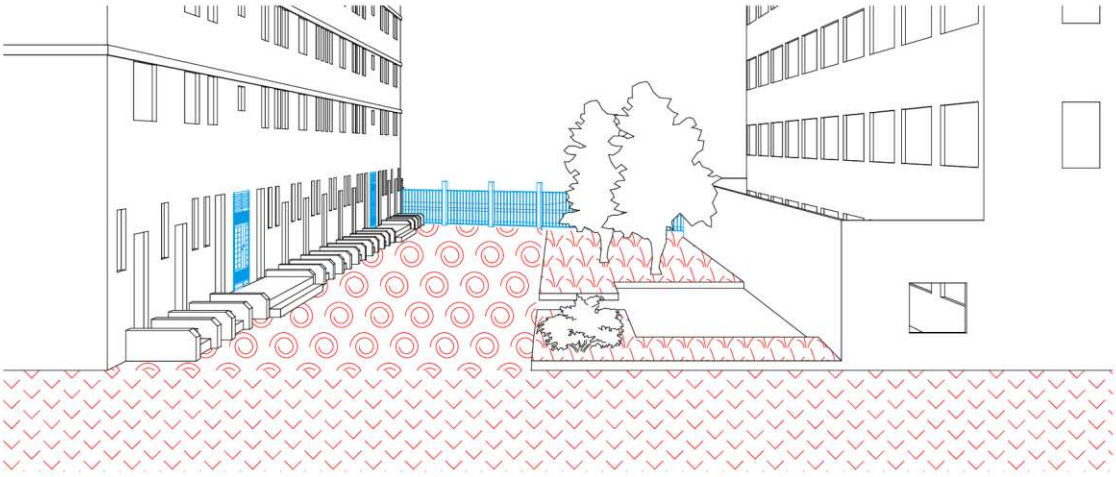
This Main Gate on the north side of the compound is operated by a guard who is watching everyone entering and leaving the compound 24 hours a day. There is no physical restriction just the psychological restriction of being observed.

3 Secondary Gates

Type of Barrier: Electronic Chip-Key

There are two secondary gates on the north side and one west-gate. They can be used by residents of the compound all around the clock. To unlock the gate they need an electronic chip-key.

Compound Interior 03 Yunguang Road Microdistrict 运光小区



Cc Compound Circulation

Users: Residents of the Compound, **500** households
Accessible to: All
Access from: Sr via: 1 Guarded gate + 3 Secondary Gates

The compound circulation is organised in a street grid defined by the layout of the slab-type apartment buildings. The circulation paths are layed out directly in front of the building entrances and are therefore also used as an expansion of the ground floor living space. Since there is no underground parking, most parts of the paths are occupied by parked cars. Iron poles for hanging the clothes are placed all along the path and used by the ground floor residents.

Cd Cul de Sac

Users: Residents of Adjacent Building, **30** Households
Accessible to: All
Access from: Cc via: borderless transition

The Cul de Sac streets are just another type of the Compound circulation, only their location is different. Since they are dead-ends, they do not have any passersby, but only the people in the adjacent building frequenting the street. This makes them more calm and private then the rest of the Compound Circulation.

Lg Landscaped Greenery with Building Shared Space

Users: Residents of Adjacent Building, **30** Households
Accessible to: All
Access from: Cc Cd via: borderless transition

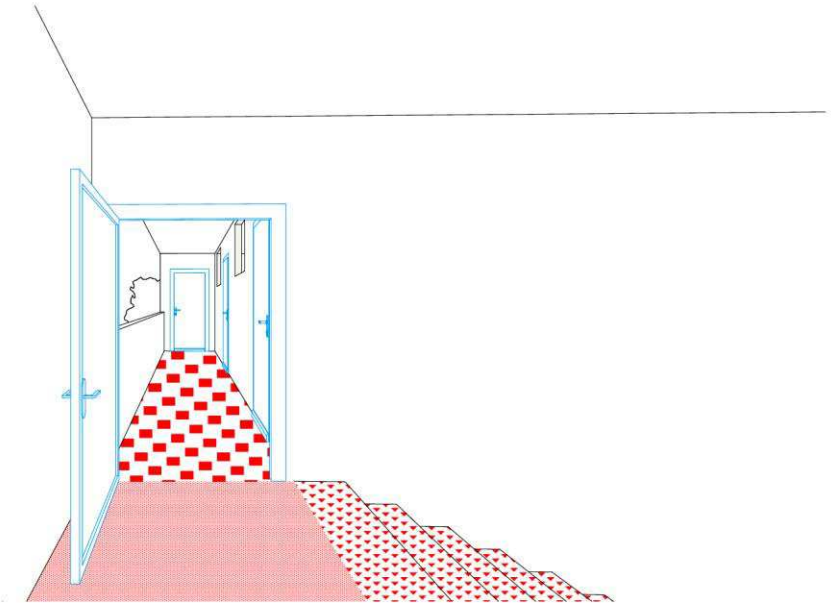
Aligned between two building rows, landscaped gardens of about 6 meters width are placed along the backside of the buildings. They enclose little paved plazas that can be accessed by narrow paths from the front-side-facing building row. These plazas are semi-public spaces for the residents of the adjacent building, offering them space to do outside work or resting.

Building Entrance Door

Type of Barrier: Key access

The entrance has a small roofed porch that makes a smooth transition from the outside to the inside.

Building 03 Yunguang Road Microdistrict 运光小区



Bs Staircase

Users: Residents of 1 Building, **30** households
Accessible to: Residents of the building, **30** households
Access from: Cc Cd via: Key access

Entering the staircase does not give access to any apartment door yet. On every floor there is just a minimum landing space and one iron bar gate on the left and one on the right hand side, which lead to shared landing balconies. There is no elevator and there is no roof access through the staricase.

Landing Balcony Gate

Type of Barrier: Key access

As Arrival Space (Shared Landing Balcony)

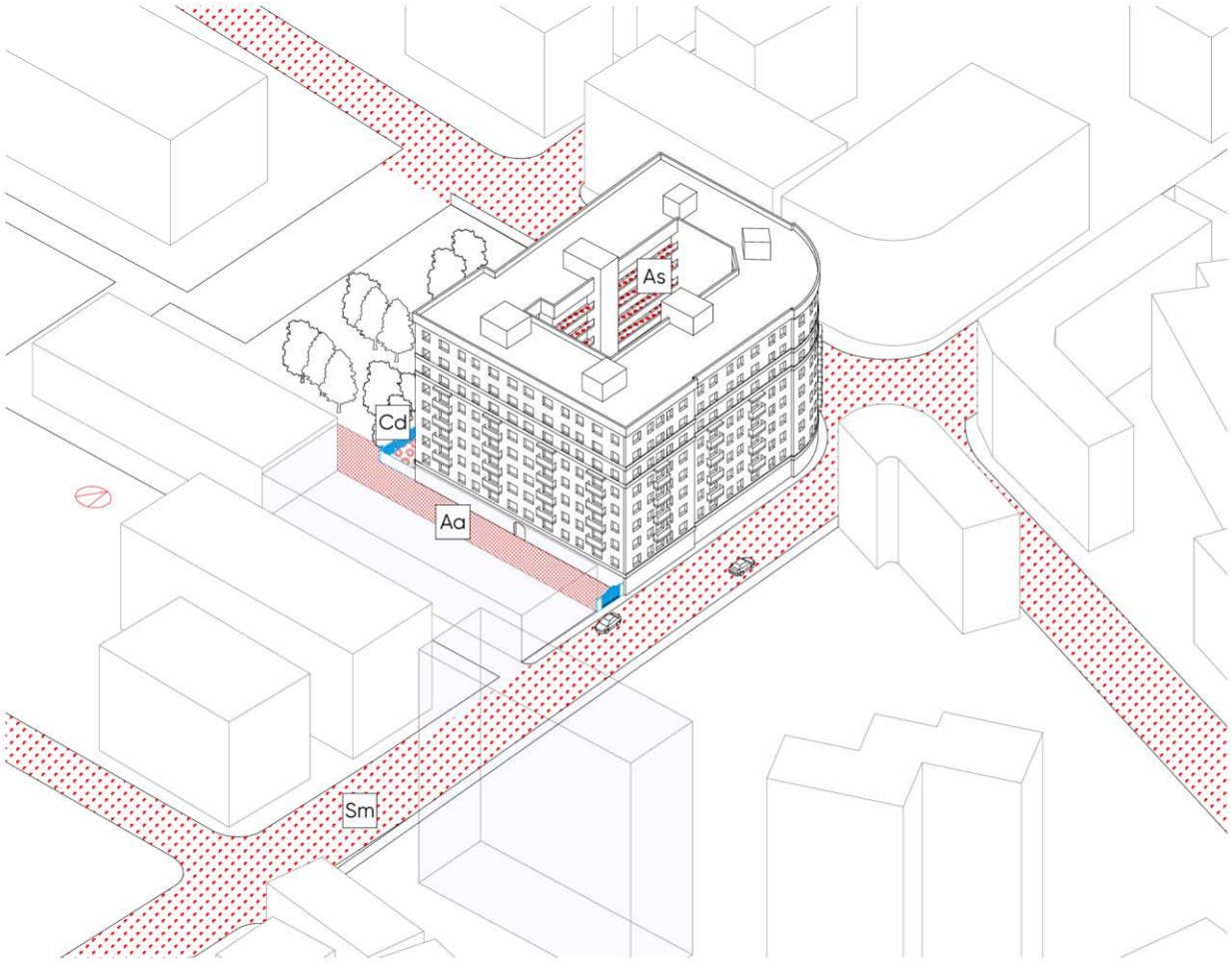
Users: Residents of 1 shared landing balcony, **3** households
Accessible to: Residents of 1 shared landing balcony **3** households
Access from: Bs via: Key access

The shared landing balcony creates an additional sense of security, because of all 30 households in the building, only the 3 in your landing balcony can knock at your door. Also this Corridor is used as an expanded living space. People have their washing machines outside or hang their clothes. Since it is an very exclusive space used by only 3 neighbors, they do not mind leaving their door open for ventilation while cooking.

Apartment Entrance Door

Type of Barrier: Door Code

5.4 Case 04: **Puxi Apartment** 浦西公寓



Barrier

Sm Mixed-use Street

Aa Arrival Alley

Cc Courtyard

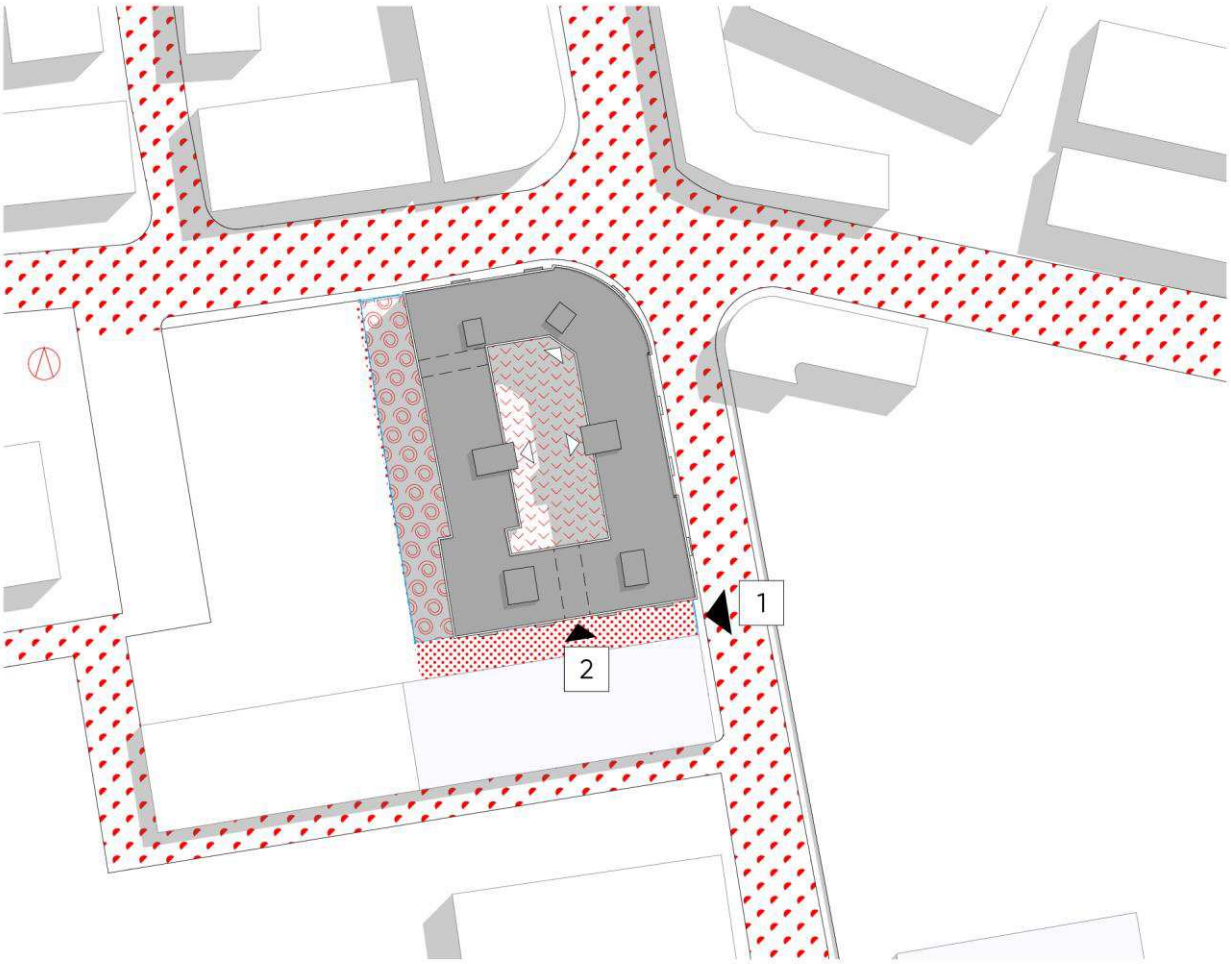
Cd Cul de Sac

Bs Building Share Space

As Arrival Space

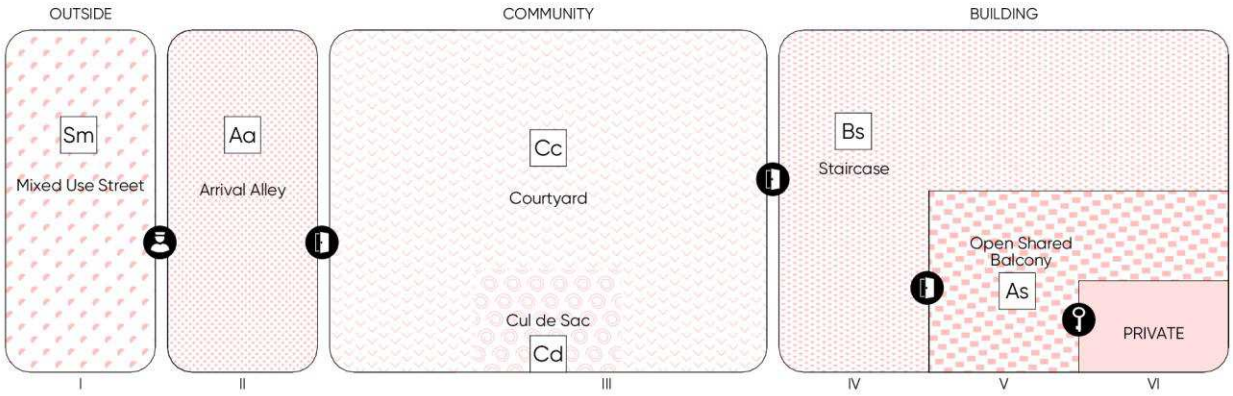
Figures in this chapter:

Map 04 Puxi Apartment 浦西公寓



1 Compound Gate 2 Courtyard Gate 3 Building Door 4 Door to Balcony 5 Apartment Door

Spatial Sequence Diagram



Spatial Sequence Description Case 04

Construction Year: 1931

Address: Shanghai, Hongkou, Pánlóng jiē 26
上海市虹口区蟠龙街 26 号

Puxi apartment was constructed in colonial times by the British Shanghai Land Investment Company in 1931. At that time, it was also known as Pearce Apartments. Together with the adjacent 'apartments on Arbury Lane' to the south it makes Puxi Microdistrict.

The courtyard building is located on the northwest corner of a large block and is bordered by Danggu Road and Zhapu Road. Situated in the southern part of Hongkou district in close proximity to the center of Shanghai the streets are part of the historically grown mixed-use urban fabric. Originally there have been multiple entrances to the building's several staircases from the streets. Today, all but the southern entrance are permanently locked. The ground floor units facing the streets are all used commercially and are housing a large variety of shops.

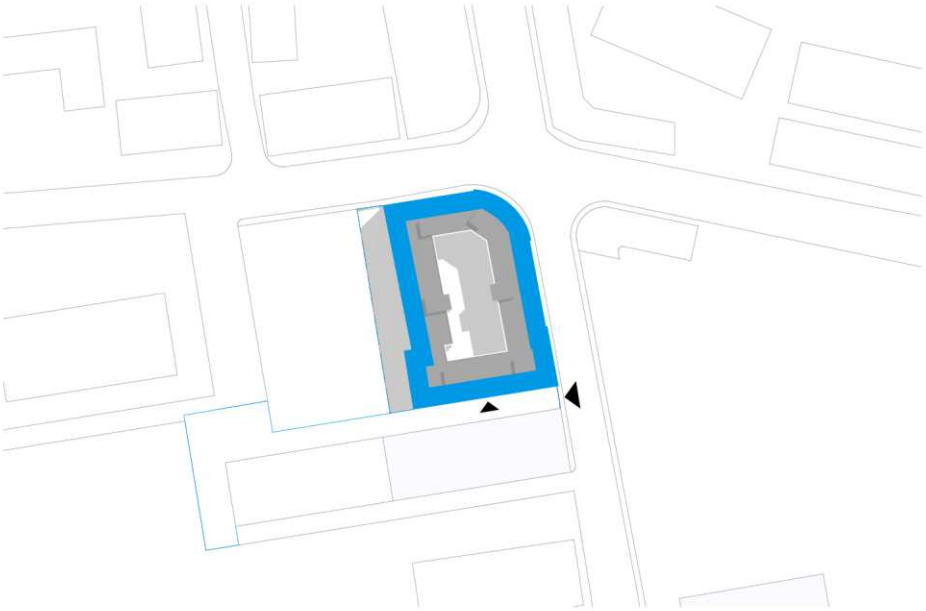
From Zhapu Road the residents can enter the narrow alley between Puxi Apartment and a two-story apartment building through an open iron gate, that can be closed at night. Even though the gate is open, it is a clear visual manifestation that you are entering a non-public property. The alley gate is a psychological barrier for passersby not to enter. The building's main gate is an arched eclectic ornamented portal which is open at all times. On the right side of the portal a convenience store is providing a feeling of safety to those who enter at day and night. Entering through the arched portal one reaches a small lobby with letter-boxes on the wall. From there an iron bar gate, that is unlocked during the daytime can be opened an will take you to a corridor leading to a staircase on every side, or if you keep walking straight you will exit the passage through another portal into the inner courtyard. Entering the courtyard means entering a panopticon, from where you can see all of the circulation balconies and most of the apartment entrances of the lower floors. There you are an observer, but at the same time you will be observed by many eyes. The courtyard is used mainly for parking bikes and scooters. From there another 3 staircases can be accessed as well as a passage at the rear end, that leads to a fenced back alley at the west side of the

building. This alley, where some people grow plants in pots, has a gate to Danggu Road, which is permanently locked.

From the courtyard the staircases can be accessed through unlocked doors. On every floor there are two apartment doors to the left and right and one glass door to the front giving onto the landing balconies, which are the most characteristic feature of Puxi apartment. They are only one meter wide, connecting the 3 staircases on the east side and the two on the west and are serving as the main access route for most of the apartments. Besides being circulation spaces, the balconies serve as extensions of the private units and are adapted by the tenants for growing plants, storage or hanging clothes from the railing.

Together with Longchang Apartments, Puxi Apartment is a unique type of courtyard housing in Shanghai. It is the archetype of built social control, where every resident can be observed by everyone, from the moment they leave their apartment until they leave the building.

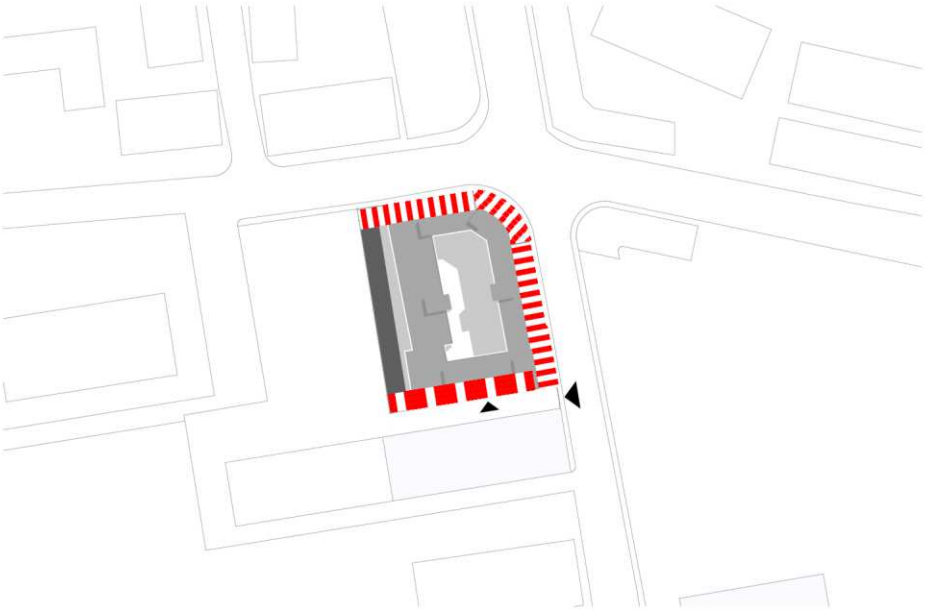
Exterior 04 Puxi Apartment 浦西公寓



Enclosure

Morphological: 100%
Opaque Wall: 0%
Transparent Fence: 0%
Open: 0%

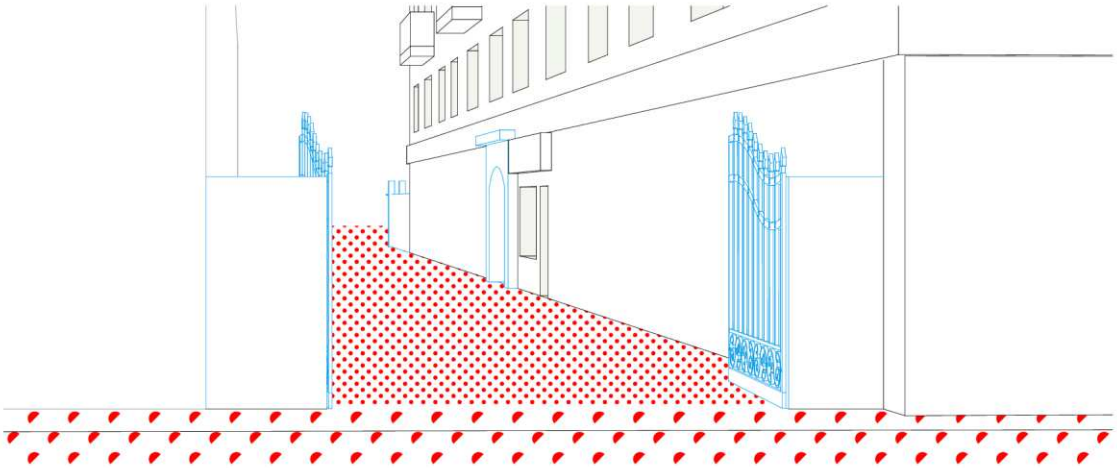
Physical Enclosure: 100%
Visual Enclosure: 100%



Street Face

A - active
B - mixture
C - inactive
D - no building interface
not facing street

Compound Entrance 04 Puxi Apartment 浦西公寓



Sm Mixed-use street (Zhapu Road)

Users: Citizens of the district
Accessible to: All

Zhapu Road to the west of the compound is an active mixed-use street that is defined by a variety of buildings from different periods. Along the ground floor there are various shops that offer all daily life amenities, such as convenience stores, groceries, barber shops, clothes, flowers and shoes. As a part of old Shanghai the street is dimensioned at a more human scale than contemporary streets and the street face is more varied. The street is in close proximity to central Shanghai and frequented by locals and visitors.

Compound Gate

Type of Barrier: Guarded Gate (always open)

The building cannot be entered from the main roads (Zhapu Road and Danggu Road) but only from the narrow Panlong alley on the south side. This alley can be closed off by an iron gate, even though it usually remains open. Behind the gate is a guard house with a guard on watch 24 hours.

Aa Arrival Alley (Panlong jie)

Users: Residents of Puxi Unit, 2 buildings **140** Households
Accessible to: All
Access from: Sm via: Guarded Gate

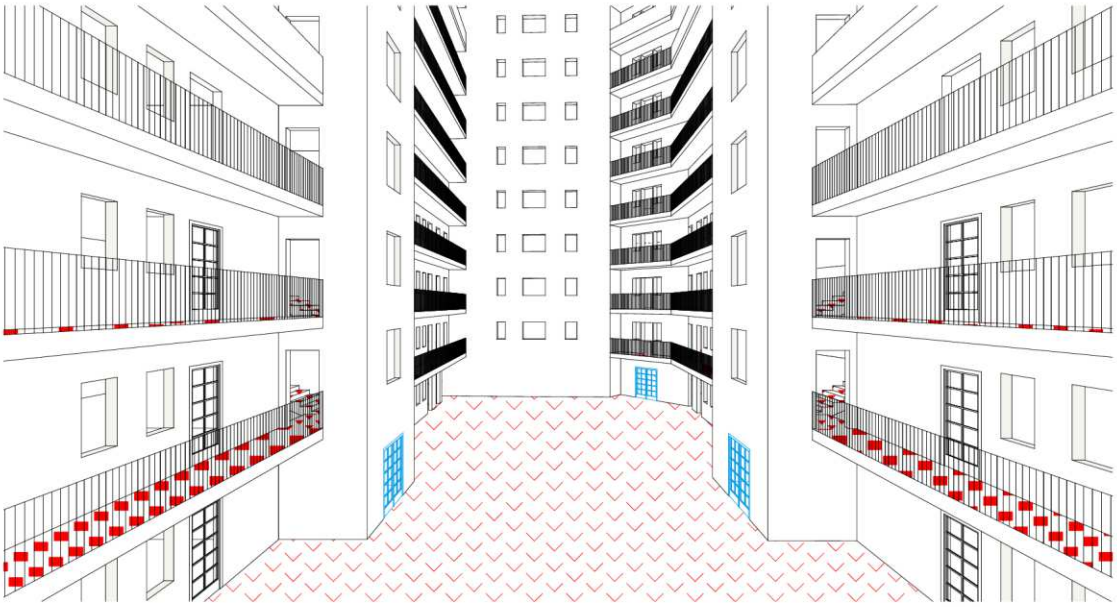
The Panlong alley is a residential back alley to Zhapu road, that is an interior road of Puxi microdistrict. It is used for on-street parking by the residents of the microdistrict. There is one convenience store right next to the big entrance gate of Puxi Apartment.

Courtyard Gate

Type of Barrier: Unlocked Gate

The main gate of Puxi Apartment is a portal-like entrance gate to the front part of the building and a passage to the interior courtyard.

Compound Interior 04 Puxi Apartment 浦西公寓



Cc Courtyard

Users: Residents of the Building, **110** households
Accessible to: All
Access from: Aa via: Building Gate

The courtyard is a panopticon-like space that establishes an atmosphere of seeing and being seen. Other than in contemporary CCTV surveillance systems, which work just in one direction, the courtyard works in two ways. It is mainly used as a parking space for bicycles and scooters and as circulation space to access 3 staircases. In the rear end of the courtyard there is a passage to a semi-public back-alley on the west side of the building.

Cd Back Alley (Cul de Sac)

Users: Residents of the Building, **110** Households
Accessible to: All
Access from: Cc via: open passage

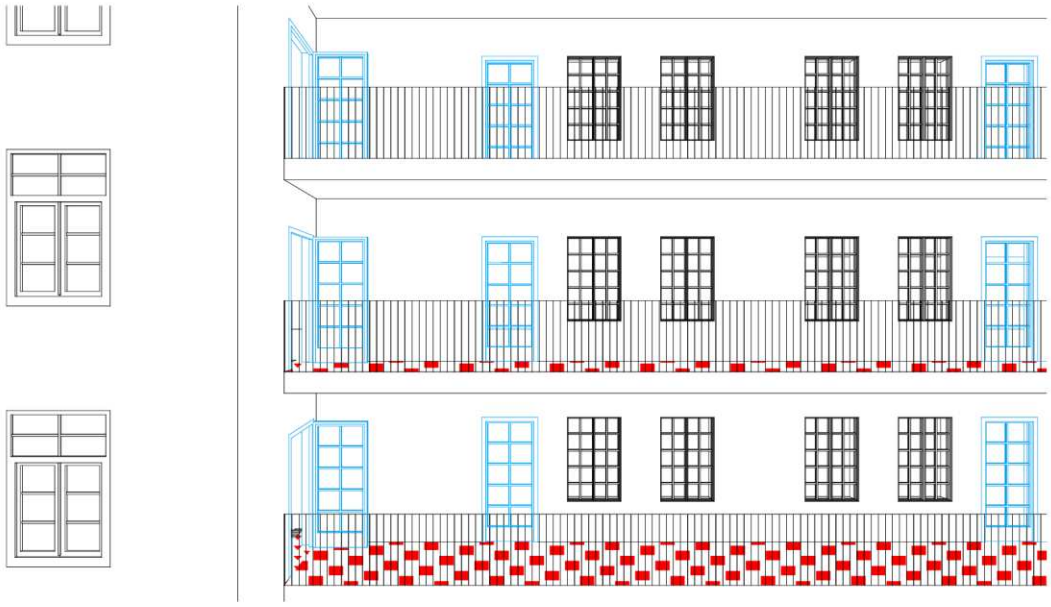
The back alley is a semi-public space on the west side of the building. It has a permanently closed iron gate towards Danggu Road and is fenced to the adjacent small park. It is used by residents for keeping potted plants and as a parking space for bicycles.

Building Entrance Door

Type of Barrier: Unlocked Door

The building entrace door is always unlocked. It gives access to the staircase.

Building 04 Puxi Apartment 浦西公寓



Bs Staircase

Users: Residents of 1 Staircase, **18** households
Accessible to: All
Access from: Cc via: Unlocked Door

The staircase has two glass exit doors on every floor. These doors lead to the open circulation balconies that are aligned around the courtyard.

Balcony Door

Type of Barrier: Open door

As Shared Circulation Balcony (Arrival Space)

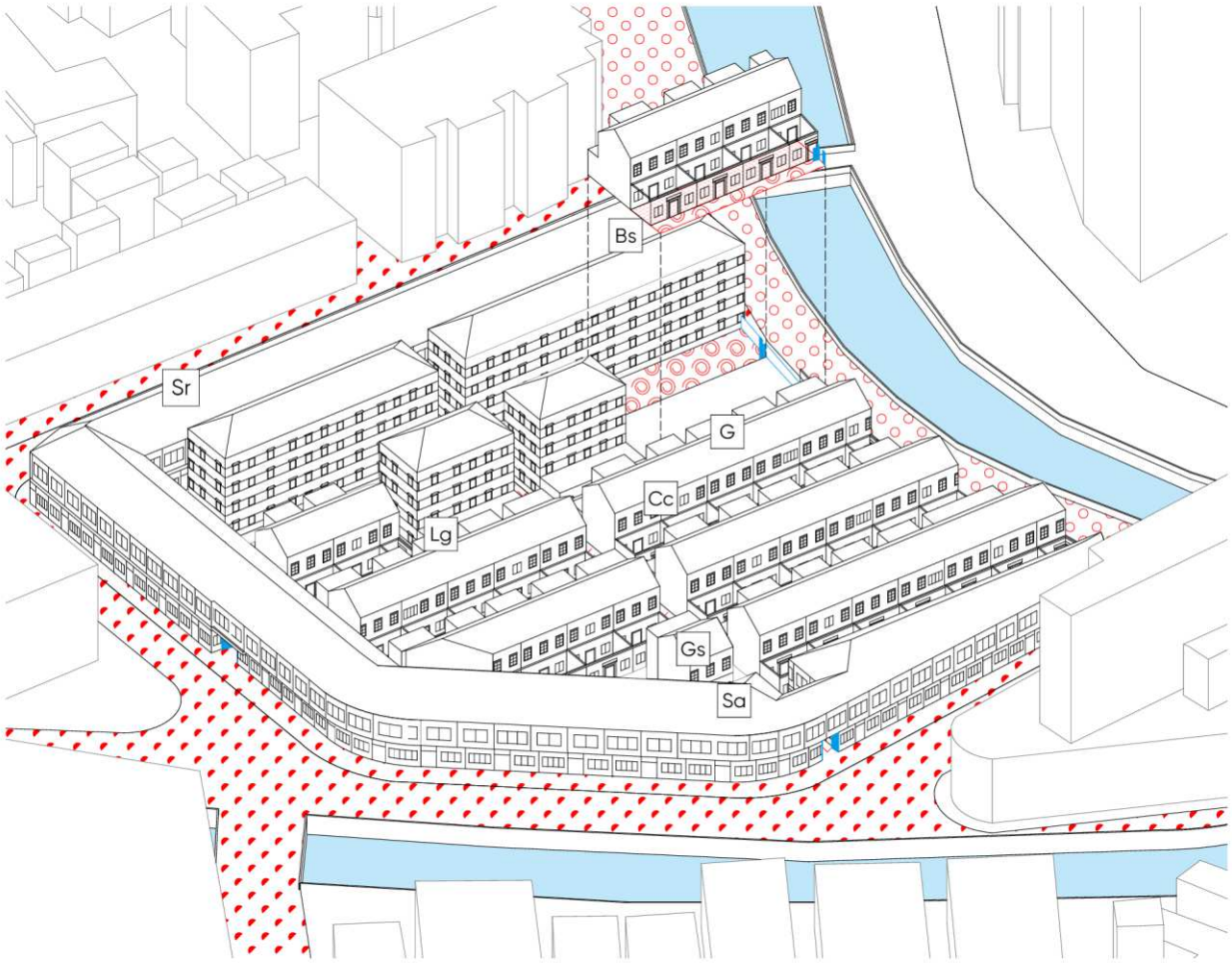
Users: Residents of 1 balcony section, **2** households
Accessible to: All
Access from: Bs via: Open Door

The shared balconies are the most characteristic feature of Puxi Apartment. They are only 1m wide and connect the 3 staircases on the east side and the 2 on the west side, serving as the main access route for most of the apartments. The balconies are a semi-public circulation space, but at the same time an extension of the private space. They are adapted by the tenants for growing plants, storage or hanging clothes from the railing. As soon as you are stepping out of your door to the public balcony you are exposed to the surveillance of all the residents of the building.

Apartment Entrance Door

Type of Barrier: Key access

5.5 Case 05: **Qing Yuan Microdistrict** 庆源小区



Barrier

Cd Back Alley

Sr Residential Street

Cs Communtiy Market Space

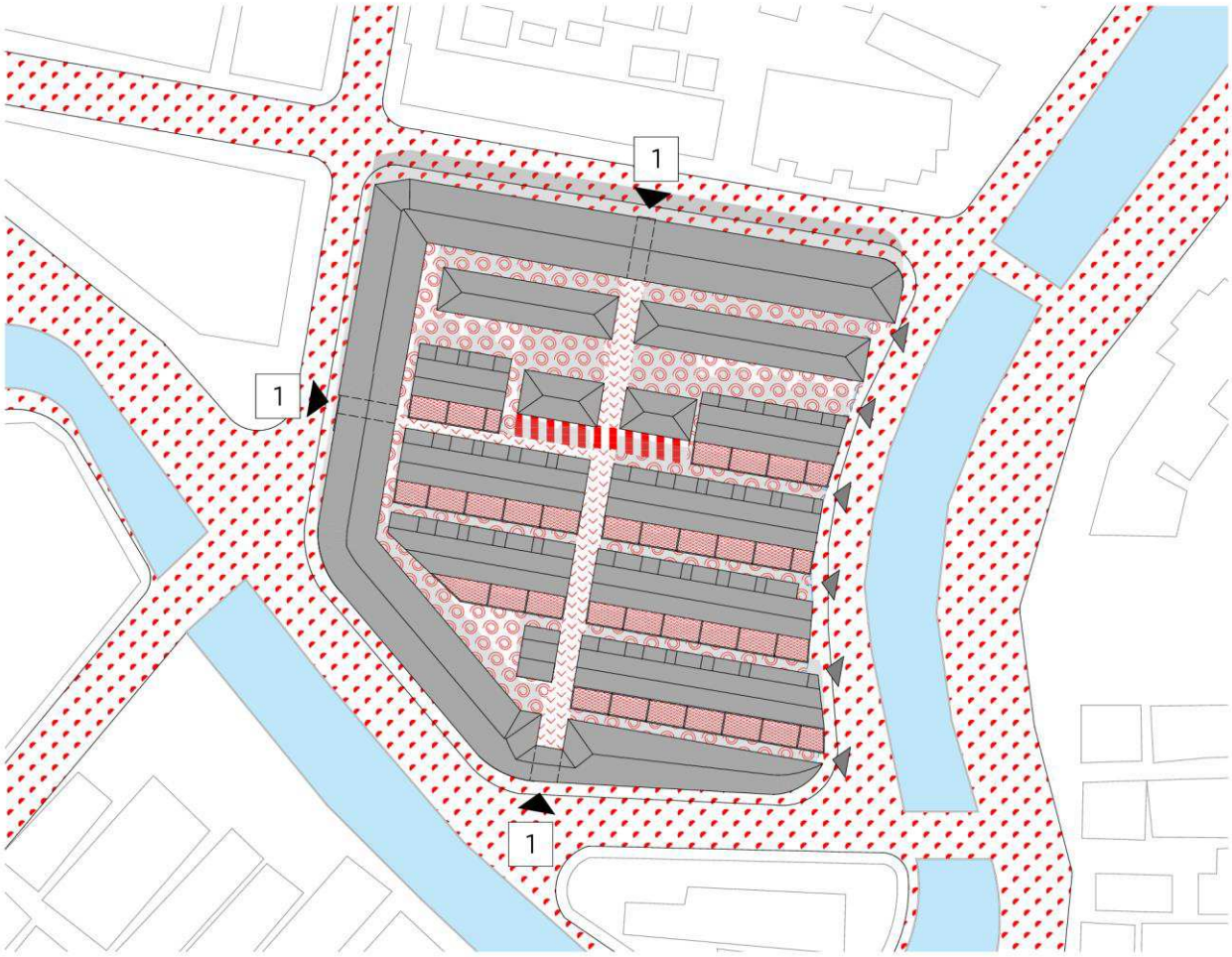
Sm Mixed Use Street

Pc Private Courtyard

Gs Main Circulation

Figures in this chapter:

Map 05 Qing Yuan Microdistrict 庆源小区



1 3x Main Entrance Gate

2 Courtyard Entrance

3 Apartment Door

5x Side Entrance Gate

Spatial Sequence Diagram

Spatial Sequence Description Case 05

Construction Year: unknown, approximately 1920

Address: Shanghai, Hongkou, Jiaxing Road, Lane 304, 1-113

上海-虹口区嘉兴路 304 弄 1~113 号(近辽宁路)

The Qing Yuan Microdistrict is a Lilong housing type (for *Lilong* see chapter 3.1.1). It is located in the south of Hongkou District along the bustling Harbin Road to its west side. That road offers many restaurants and bars and is active at day and night, attracting people from all over Shanghai. On the south side it is bordered by Zhegao road and on the east side by Liaoning road, both aligned along a canal. Jiaxing road stretches along the north edge of the block. Like other Lilong blocks, Qing Yuan Microdistrict has a built block perimeter, except its east side facing the canal is left open. Along the perimeter there are many shops and active units.

Like other Lilong blocks it is open to anyone to enter or cross freely. And because it has many open gates all around the perimeter, it is inviting strangers to take shortcuts through the block. From the first level of the sequence, the street, the residents of the compound can enter the interior of the block through one of the three main gates or 6 side gates on the east side. One on every other side the three main gates are deep passages through the building perimeter equipped with iron gates that will remain open during the day. The 6 side gates are all located on the east side, where there is no built perimeter. They are iron bar gates closing off the back alleys to the street, remaining open during the day and only being closed at night. Between the northern and southern main gate, a very narrow but highly frequented cardinal alley stretches out. This main circulation axis is the second level of the spatial sequence. In this main alley there are no entrances to buildings, but all the back alleys connect to it like fishbones. Because of the high frequency of people, there are outdoor exercising facilities and public toilets along that alley and a small grocery selling spot has been established at the point where the main alley intersects with the alley to the west gate. This point can be considered as the main meeting point of the compound.

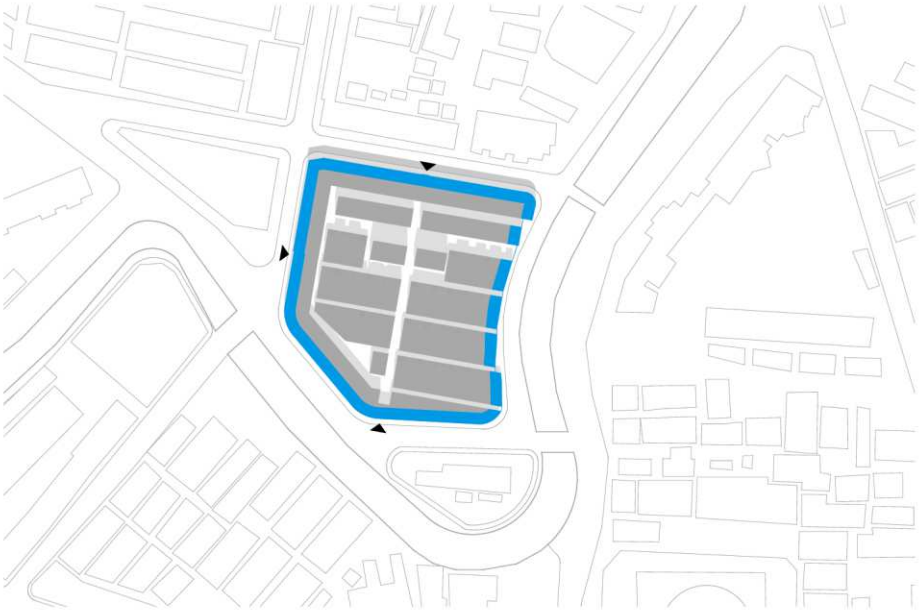
The fishbone-like side alleys running from east to west are the third level of the spatial sequence and are characterized by a lower frequency of people and more private usage of the alley space. These back alleys are used for growing plants, keeping bicycles or chatting

with the neighbors while sitting outside in a chair. At the east end of the six alleys, side gates are giving onto the street during the day. At night they can be closed to regulate pedestrian traffic and turn the alley into cul-de-sacs providing a feeling of increased security to the residents.

On each side along the alley there are doors to enter the buildings. To the north large stone gates lead into the private courtyards of each row house and to the south there are simple backdoors to enter the building. Via key you can open the courtyard gate and enter the courtyard, the fourth level of the sequence. This level is already associated with the private unit but it is still exterior space. It is used as a garden for growing plants or a paved courtyard for storage or outside work. Very often it has been roofed and included in the private unit as an extension of living space. In this case windows are cut into the wall facing the alley. From the courtyard, through another door the resident enters the private interior, the fifth and final level of the spatial sequence.

The Qingyuan Microdistrict is a typical Lilong block and has a great level of exterior quality, by offering many commercial units along its street face. The interior is very densely packed offering several community facilities and a vibrant community life, even though the space is very limited. The morphological enclosure, but at the same high level of porosity, makes it a successful type of block contributing urbanity of the city and to the residents needs of security and community.

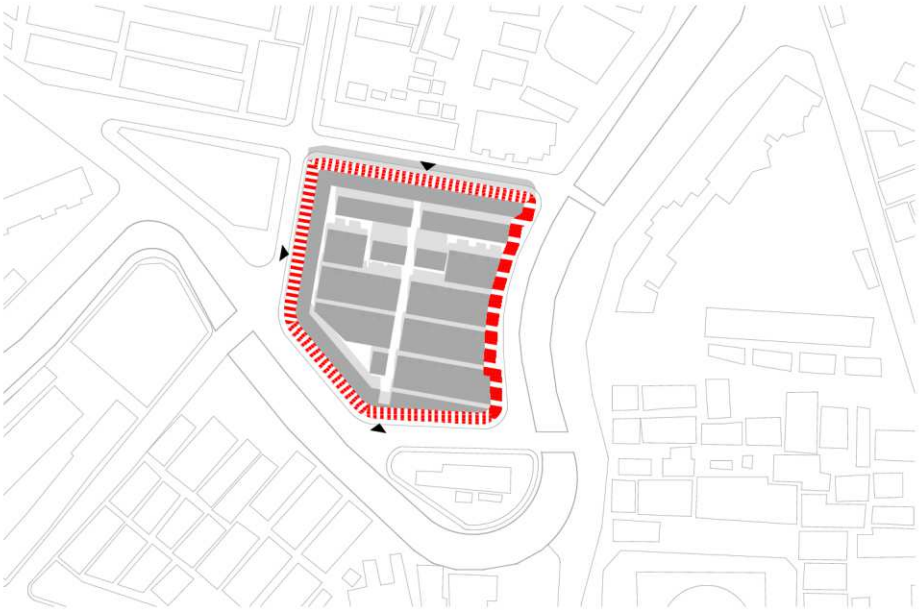
Exterior 05 Qing Yuan Microdistrict 庆源小区



Enclosure

Morphological: 95%
Opaque Wall: 0%
Transparent Fence: 5%
Open: 0%

Physical Enclosure: 100%
Visual Enclosure: 95%



Street Face

A - active
B - mixture
C - inactive
D - no building interface
not facing street

Compound Entrance 05 Qing Yuan Microdistrict 庆源小区

Sm Mixed-use Road

Users: district wide attraction
Accessible to: All

Of the roads outside the main gates, especially Harbin Road is a very attractive street to young and old at day and night. It offers many bars and restaurants, small shops, massage parlors, and even a theater. It attracts from people central and northern Shanghai and the nearby 1933 slaughterhouse attracts many tourists to the area. There is only slow and few car traffic around the block and many pedestrians.

Main Gate

Type of Barrier: Open Passage

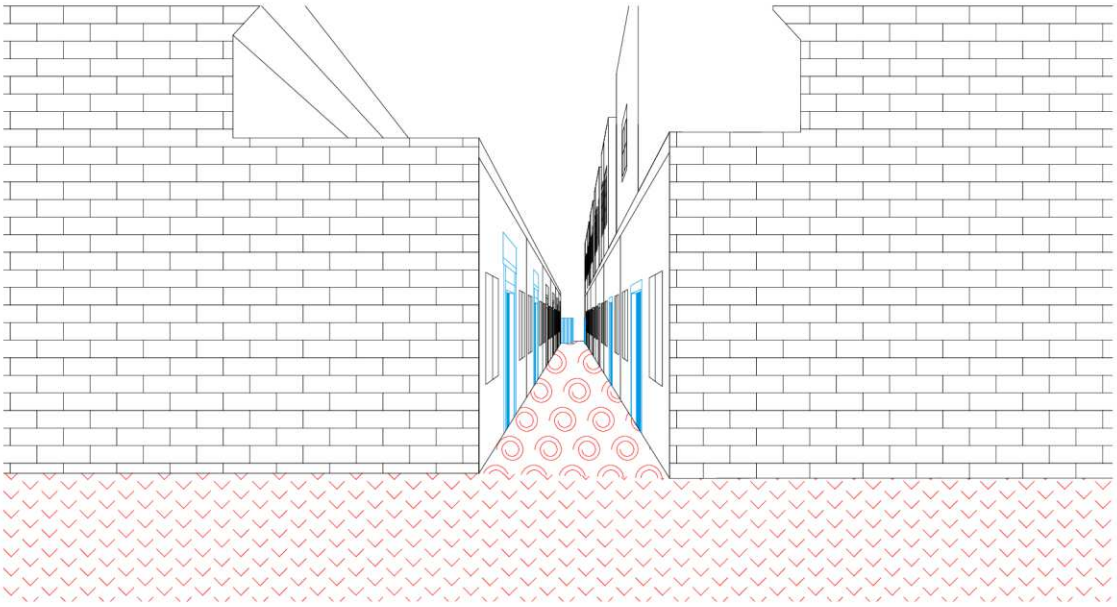
The main gate is operated without a guard but has an iron gate that could be closed, even though it normally stays open. Residents can read announcements on the walls of the passage. Built as a passage, the gate emphasises the entrance from the public street to a residential space, into a more exclusive community that has to be respected by strangers.

Cc Main Circulation

Users: Residents of the Compound **200** households
Accessible to: All
Access from: Sm via: borderless passage

The main circulation alley is the backbone of a fishbone-like pattern of interior streets. Many residents cross it on their way home and therefore it is the place with the highest frequency of people in the compound. Along the narrow alley there are public toilets, public exercising machines and a little market square. There are no private doors facing that alley but many parked bicycles and scooters.

Compound Interior 05 Qing Yuan Microdistrict 庆源小区



Cs Community Market Space

Users: Residents of the Compound, **200** households
Accessible to: All
Access from: Cc via: borderless transtition

At the intersection point of the main circulation alleys, a temporary grocery market has been established. Vendors lay out their vegetables on the floor to present it to passerbys. Even though this intersection is quite narrow people have put up comfortable chairs to chat and meet at the hottest place of the compound.

Cd Back Alley

Users: Residents of the Alley, **24** households
Accessible to: All
Access from: Cc via: borderless transition

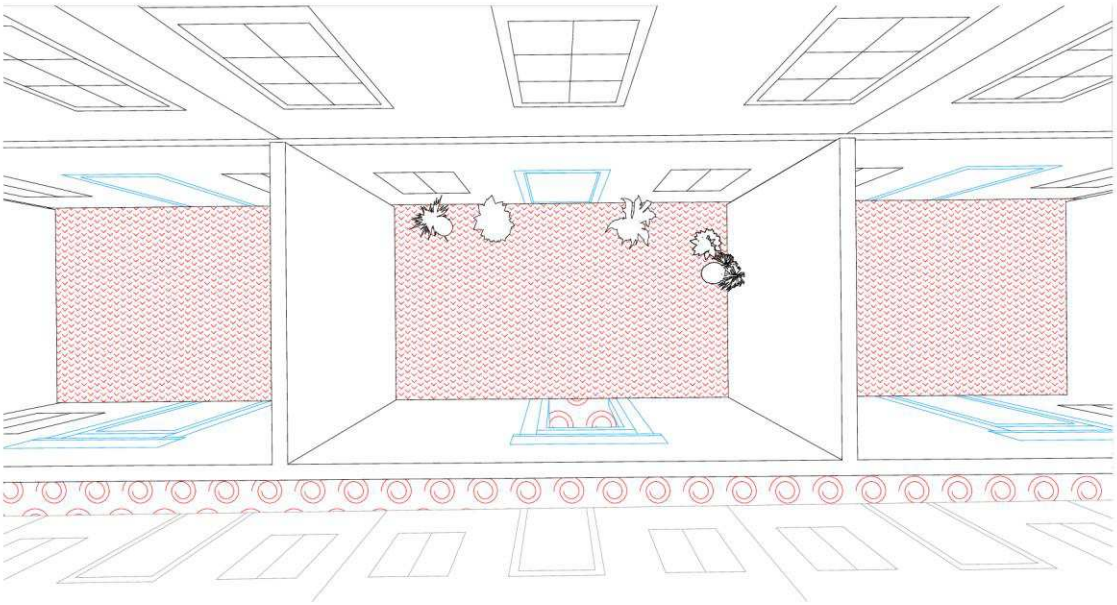
The alleys spread like fishbones from the backbone of the main circulation path. During the day they will be open to the east street, but at night their gates will be closed and they become cul-de-sac alleys. They are mainly used by the people who live in that alley and are somewhat and extended living room for all of the individual units. Even though they are hardly two meters wide, they are packed with potted plants, chairs, bicycles and scooters.

North Apt. Entrance Door

Type of Barrier: Key access

On the north side of every row-house, there are two back doors, that access the two different units of every row-house. For the ground floor unit this north door is just a secondary entrance, since the main entrance gate is on the south side of the building.

Building 05 Qing Yuan Microdistrict 庆源小区



Private Courtyard Gate

Type of Barrier: Key access

The courtyard gate, in the south of every row house, is a large stone gate with a wooden door. When the coutyard has been roofed and reapropriated as a room, there are also windows next to the gate.

Pc Private Courtyard

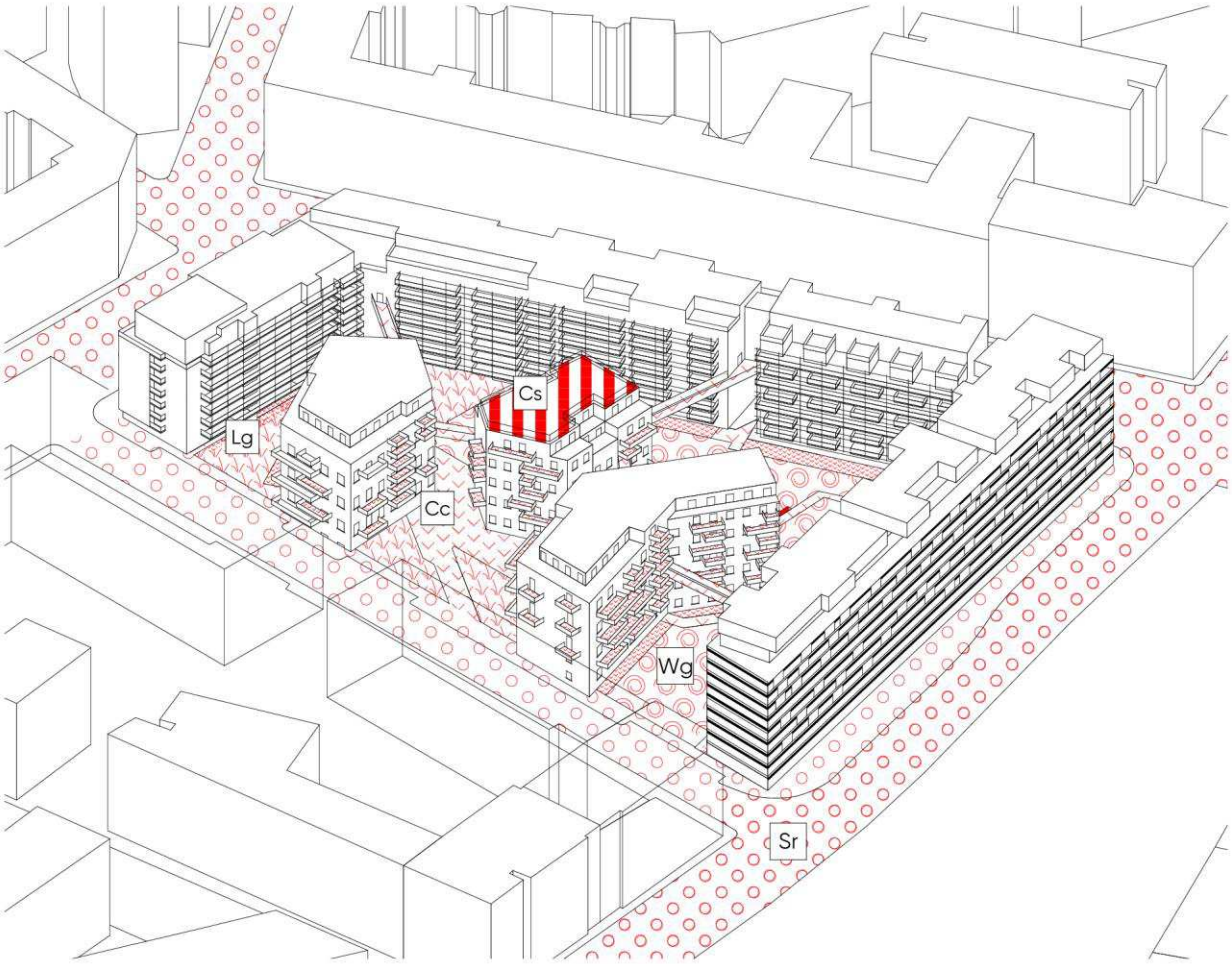
Users: Residents of 1 Unit, **1** household
Accessible to: Residents of 1 Unit, **1** household
Access from: Cd via: Key access

The private courtyard is a buffer zone between the alley and the living space. It is sometimes used as a garden for growing vegetables or flowers, or as a paved courtyard for doing housework outside. Due to the lack of space it can also be used as a storage space. Quite often these spaces have been roofed and reapropriated as an interior space living space.

House Entrance Door

Type of Barrier: Key access

5.6 Case 06: **'Living Room' Sonnwendviertel**



Sr Residential Street

Cc Compound Circulation

Wg Walkable Greenery

Cs Community Share Space

Lg Landscaped Greenery

Lg Private Gardens

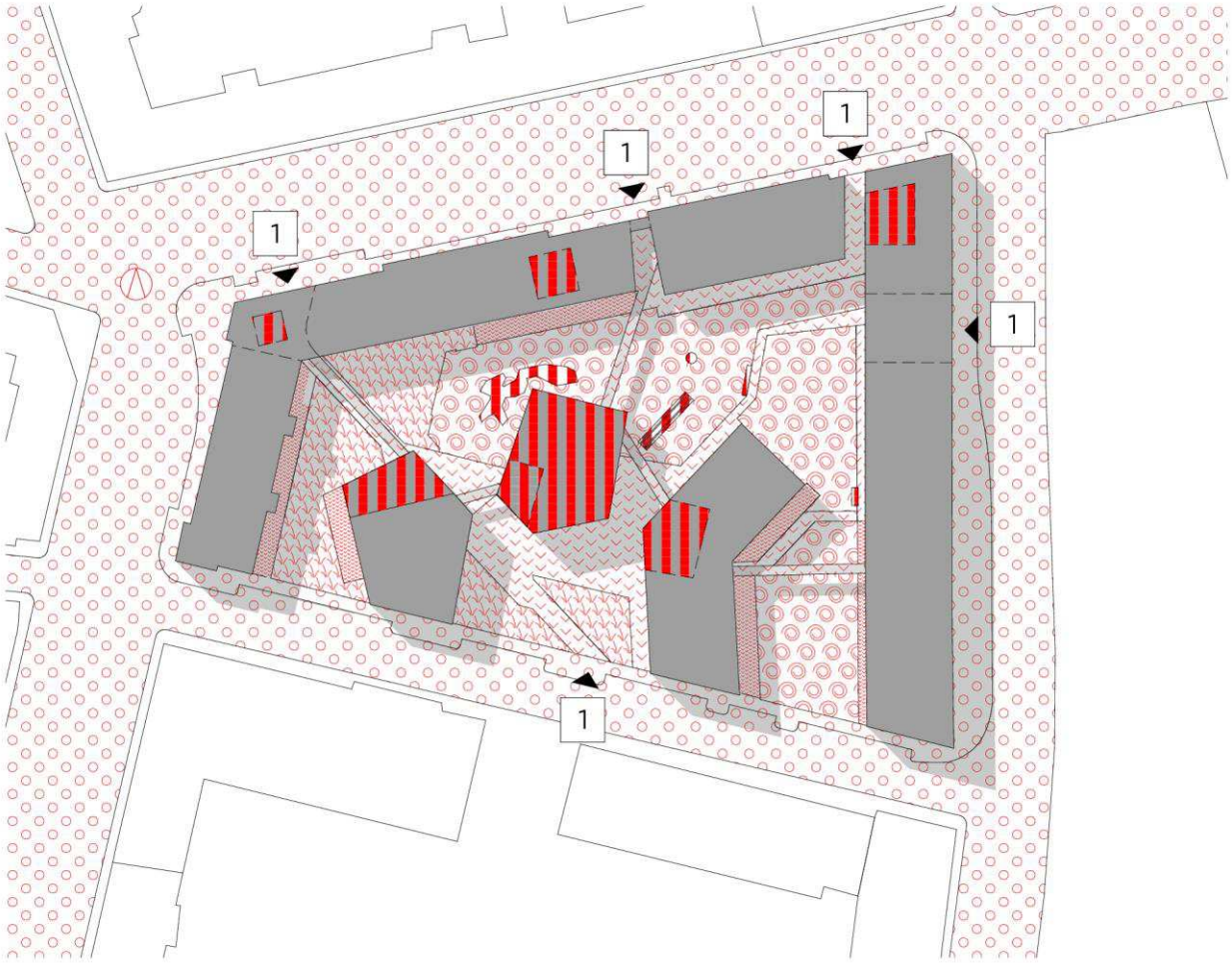
Bs Building Share Space

As Arrival Space

Figures in this chapter:

Fig. 5.6.1 Axonometric diagram, Fig. 5.6.2 Map, Fig. 5.6.3 map of enclosure, Fig 5.6.4 Map of street interface, Fig. 5.6.5 Compound Entrance diagram, Fig. 5.6.6 Compound Interior Diagram, Fig. 5.6.7 Building Diagram

Map 06 'Living Room' Sonnwendviertel

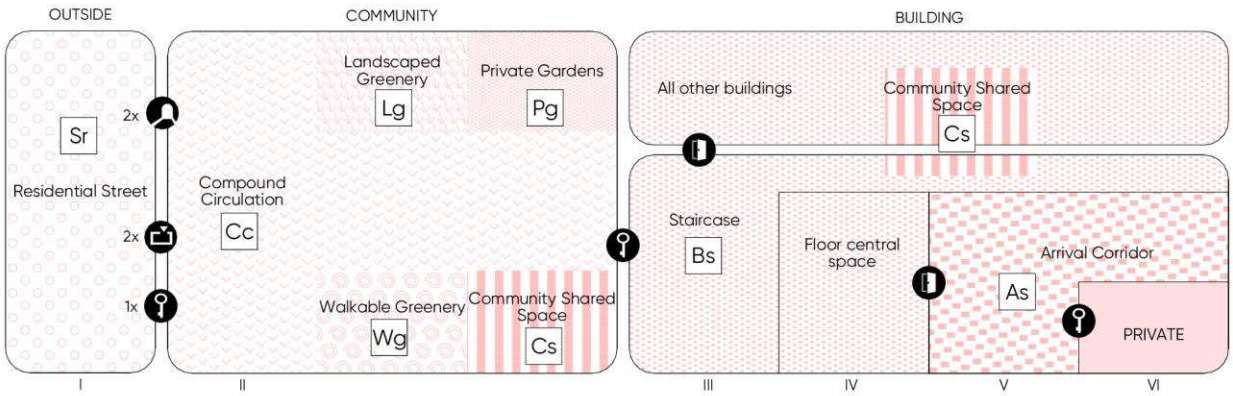


1 2x Open Passage 2 Building Entrance 3 Arrival Corridor Door 4 Apartment Door

2x Morphological Opening

1x Through the Building

Spatial Sequence Diagram



Spatial Sequence Description Case 06

Construction Year: 2013

Address: Sonnwendgasse 21, 1100 Vienna

The living room Sonnwendviertel is an example of a contemporary perimeter block in Vienna. The block, built in between two other new housing blocks to its north and south, is one of several housing projects in the newly developed area around Vienna's main railway station. To the north and to the east the block is bordered by high traffic streets, whereas to the south there is a very quiet residential street with many parking lots. On the west side, the block borders the large Helmut Zilk Park. The edge facing the park houses an office, a café and a kindergarten in the ground floor zone. Other than the fully transparent café, which is contributing to the life in and outside the compound, the office and the kindergarten are closed off and not establishing any relationship to the park. Similarly; the north and west side has no active units and is characterized by monotonous facade design. The street in the south has the character of an interior circulation rather than a public street as it gives many insights into the collective courtyard through the open block edge. Here another café is activating the street.

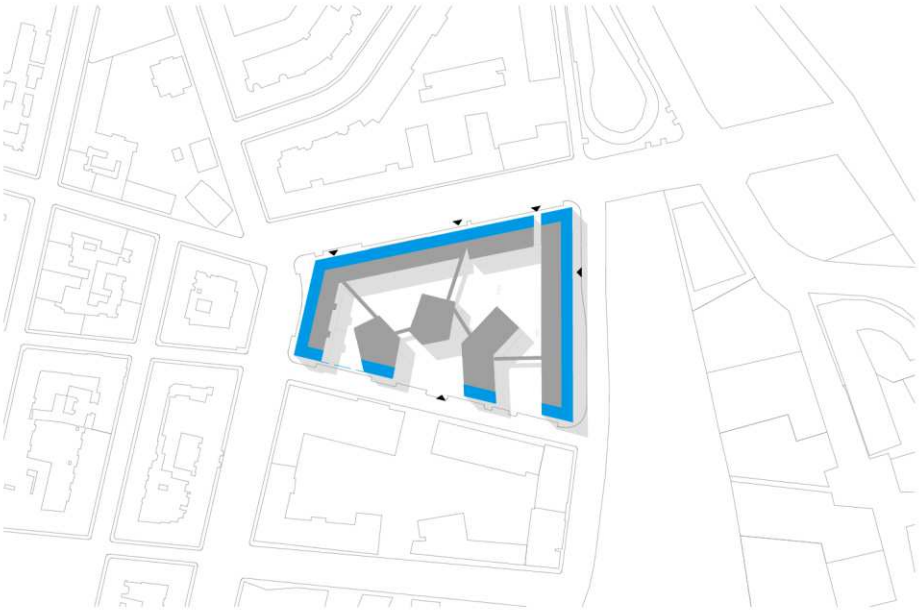
At this point you can enter the block on a slightly ascending path. There are further entrances to the interior courtyard from all sides, through passages or through gaps between the buildings on the north and south sides. Access is completely unrestricted and unobserved. Half of the park are unusable landscaped green areas while the other half consists of lawns that can be used for leisure and sports. On these lawns there is a barbecue place and a large table that encourages communal meals with neighbors and hammocks were installed for public use. Along the paved circulation paths there are numerous benches and playground equipment for children. At the edges of the courtyard private gardens are allotted to the inhabitants of the ground floor, who have already installed different types of privacy protection.

The block edge buildings can be entered through entrance gates from the streets while the two freestanding buildings are entered from within the courtyard. Entering one building not only means access to your staircase and finally your apartment, but also access to the network that connects all the buildings of the block offering a variety of common areas.

These so-called social rooms are distributed over all buildings and include a cinema, a vertical children's playroom, 3 laundry rooms, a climbing gym, a girls' room, a market, a communal kitchen, a theater and a youth room. Before of the easternmost solitaire building, one passes the theater, before entering via a locked door to the staircase and the lift. The single-flight staircase leads to shared central spaces on every floor with daylight from two sides. From these spaces two corridors behind unlocked glass doors take you to the apartment doors. These glass doors are indeed unlocked, but a very clear sign that strangers are not welcome there. Because of the single-flight stairs mean you have to cross the central spaces of each floor on the way down. The paths are thereby extended but at the same time make opportunities to meet neighbors in the generous central spaces. On the third floor of the building is a light-flooded 2-storey winter garden full of plants from which doors lead in two directions to the outside. They take you to the bridges that connect to the neighboring buildings.

Apart from its spectacular appearance with the bridges spanning the block like a spider web, the living room Sonnwendviertel is an ambitious project that takes efforts to enable neighborly community in the city without sacrificing any of the modern private amenities.

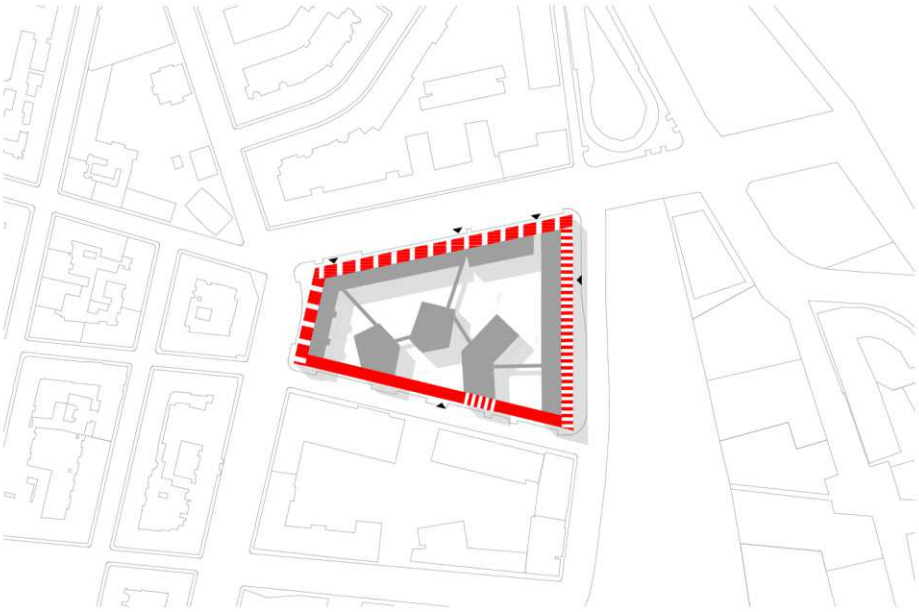
Exterior 06 'Living Room' Sonnwendviertel



Enclosure

Morphological: 80%
Opaque Wall: 0%
Look-over wall: 5%
Open: 15%

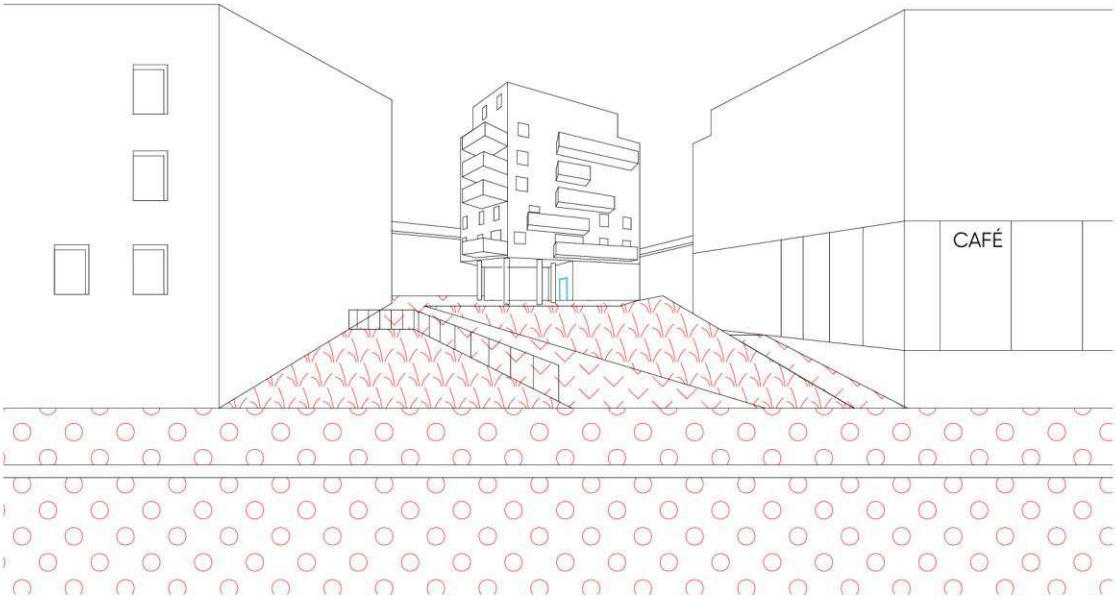
Physical Enclosure: 85%
Visual Enclosure: 80%



Street Face

A - active
B - mixture
C - inactive
D - no building interface
not facing street

Compound Entrance 06 'Living Room' Sonnwendviertel



Sr Residential Street

Users: Residents of the surrounding blocks
Accessible to: All

The surrounding streets are mainly frequented by locals. In the north and west, there are roads with few active street units. In the east, the block opens with a wide passage and a café to a park, which will form the center of the large residential district in the future. While the block is closed on three sides, it opens on the south side, where the pictured entrance is next to a café. The entrance is accessible via a slightly ascending path and invites both residents and strangers to enter the park in the courtyard.

Morphological Opening

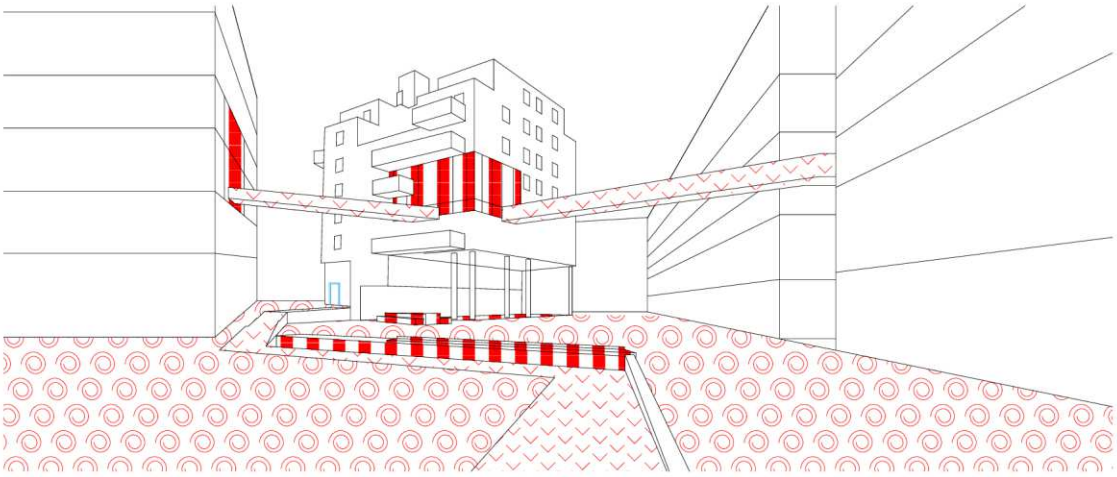
Type of Barrier: Borderless transition

Cc Compound Circulation

Users: Residents of the Compound **427** households + Visitors
Accessible to: All
Access from: Sr via: Open Passages, Morphological Openings

The freely accessible circulation paths wind their way through the park in zig-zags, past numerous communal areas such as the barbecue area or the communal table. In the middle, they form a square shape, where the market place is located under the central building. In addition to the circulation on the ground, there is a secondary circulation network on the third floor of the building. It connects the buildings and their common areas with bridges. However, this network is not freely accessible.

Compound Interior 06 'Living Room' Sonnwendviertel



Wg Walkable Greenery

Users: Residents of the Compound **427** households + Visitors
Accessible to: All
Access from: Sr Cc via: Borderless transition

Half of the inner courtyard consists of inaccessible landscaped gardens in the western part and the other half of accessible grass areas in the eastern part. These can be used for sunbathing areas or as play areas for children. In the center of them there is a barbecue area and a long table for meeting and eating together with neighbors. In the eastern part some hammocks and a children's swing were set up.

Cs Community Shared Space (outdoor)

Users: Residents of the Compound **427** households + Visitors
Accessible to: All
Access from: Cc Wg via: Borderless transition

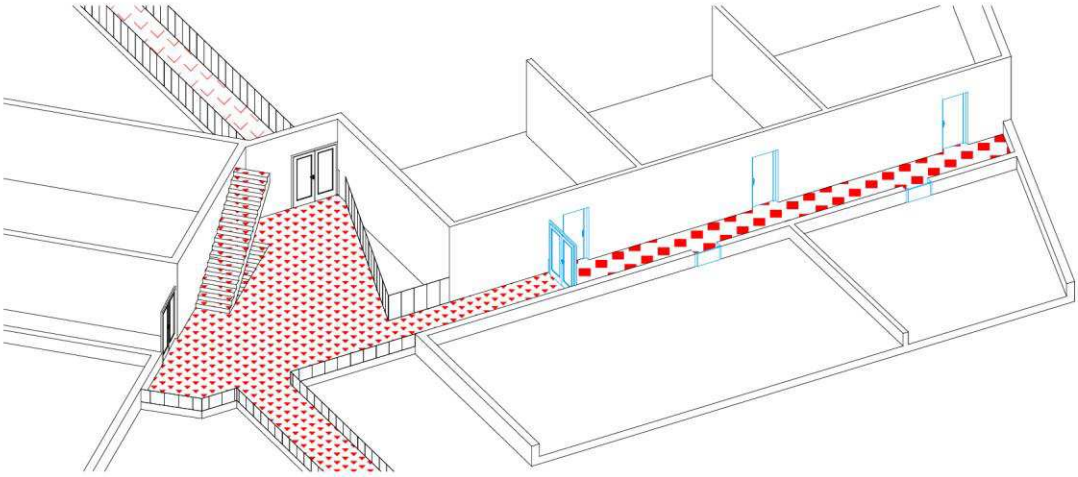
There are many common spaces in this project. They are distributed over the entire area of the courtyard. Benches along the paths, the communal barbecue area, the large table or a small marketplace under the central structure. In addition to these rooms, which are accessible to all, there are so-called 'social spaces' inside the building, which are accessed via an internal network of corridors and bridges between the buildings. These include a cinema, a theater, a spa in the basement or communal washrooms. In addition to the social spaces, there is also a winter garden and a shared roof terrace.

Building Entrance

Type of Barrier: Key access

The entrances to the perimeter block buildings are located on the street side, while three the solitary buildings are entered from the middle of the courtyard. Entry is via key and gives access to all buildings in the complex, which are connected in network of bridges on the third floor.

Building 06 'Living Room' Sonnwendviertel



Bs Staircase

Users: Residents of the Compound **427** households
Accessible to: Users only
Access from: Cc via: Key access

The staircase not only provides access to the residential units, but also to all the other buildings of the 'Living Room Sonnwendviertel', which are connected by bridges. This network provides easy access to all common areas without having to go through the yard. The bridges thus form a counterpart to the freely accessible courtyard circulation system, because they are only accessible to residents and exclude strangers. The staircases are different in each building. The drawing depicts the eastern solitaire. There, the staircase runs single-flight from floor to floor, always leading through a spacious central room, from which 2 doors lead into the corridors with the apartments. The spaciousness of the two-sided illuminated central halls invites to linger and interact with the neighbors. However, there has not yet been any appropriation of these spaces.

Arrival Corridor Door

Type of Barrier: Unlocked Door

As Arrival Corridor

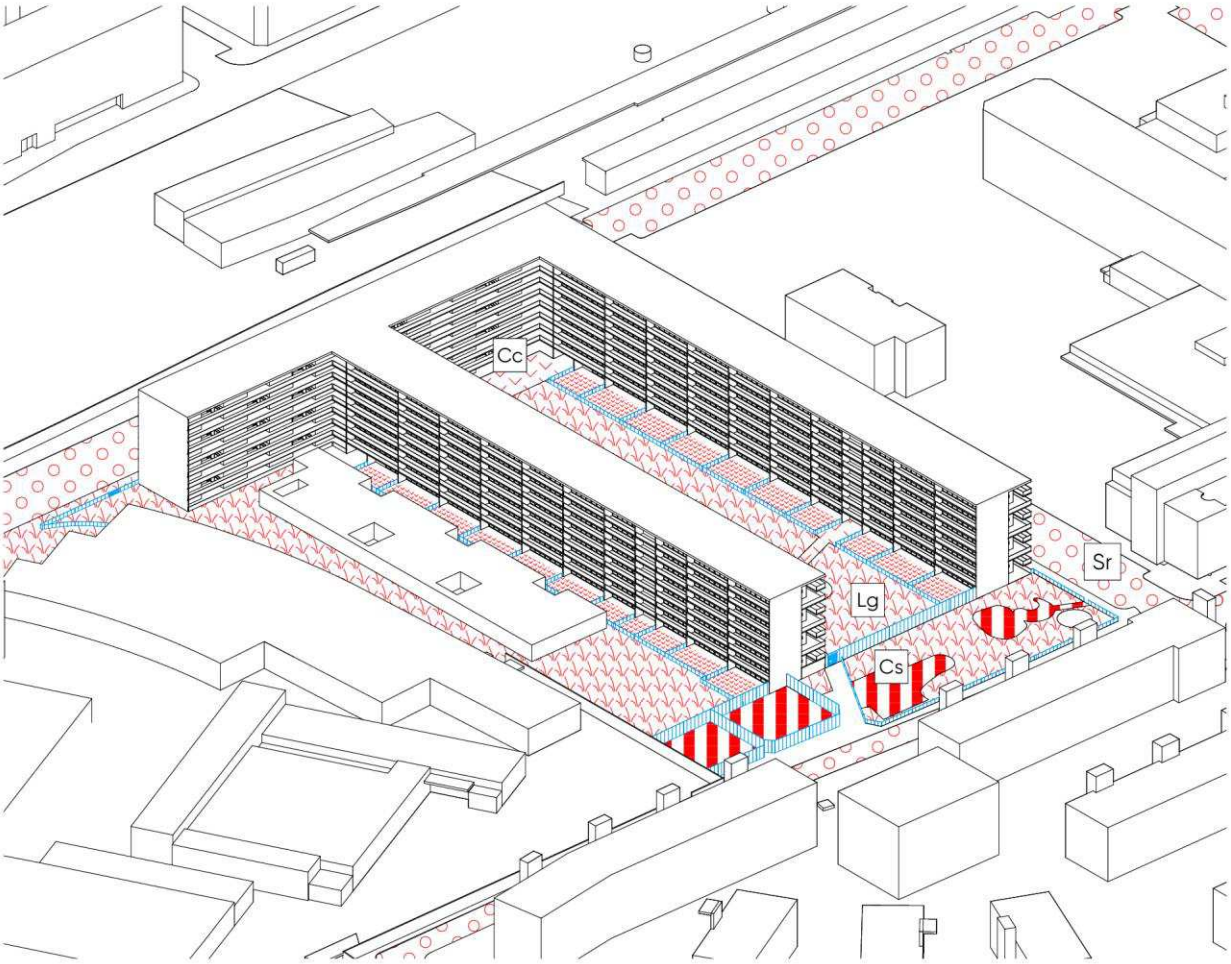
Users: Residents of 1 corridor, **5** households
Accessible to: Residents of the Compound 427 households
Access from: Bs via: borderless transition

The Arrival Corridor for every 5 units is separated by a door from the central hall. Although it is unlocked, it is a clear signal for strangers not to enter this area. This is relevant insofar as the stairwells are accessible to all 427 households and the sense of security is increased with this separate corridor. Despite the exclusivity of these dead-end corridors, there are still no signs of appropriation by the inhabitants.

Apartment Entrance Door

Type of Barrier: Key access

5.7 Case 07: **Wohnregal** Housing Shelf



Barrier

Sr Residential Street

Cc Compound Circulation

Lg Community Lawn

Cs Community Share Space

Pg Private Gardens

Bs Building Share Space

As Arrival Space

Pp Private Porch

Figures in this chapter:

Fig. 5.7.1 Axonometric diagram, Fig. 5.7.2 Map, Fig. 5.7.3 map of enclosure, Fig 5.7.4 Map of street interface, Fig. 5.7.5 Compound Entrance diagram, Fig. 5.7.6 Compound Interior Diagram, Fig. 5.7.7 Building Diagram

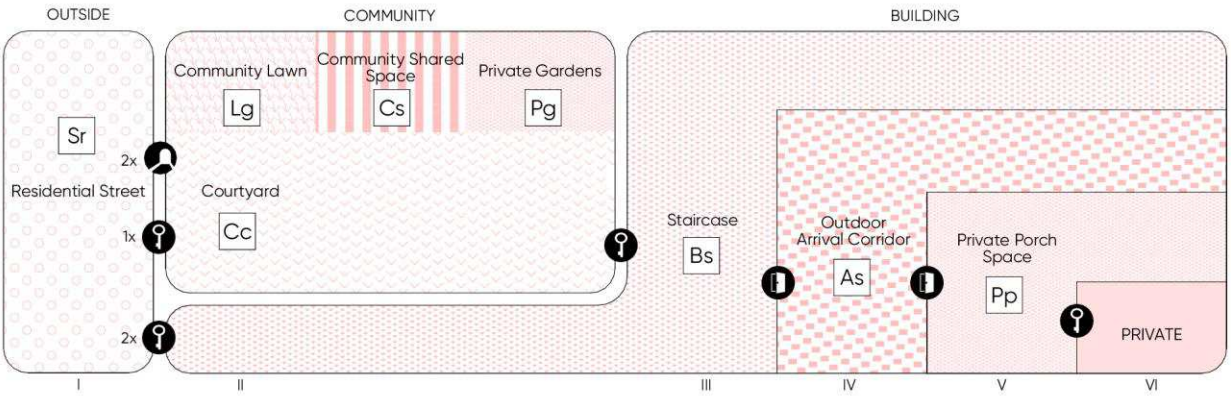
Map 07 Wohnregal ‘Housing Shelf’

1 2x Open Passage | 2 Staircase Entrance | 3 Arrival Corridor Door | 4 Private Porch Door | 5 Apartment Door

1x Locked Fence Gate

1x Locked Passage

Spatial Sequence Diagram



Spatial Sequence Description Case 07

Construction Year: 1999

Address: Koppstraße 103, 1160 Vienna

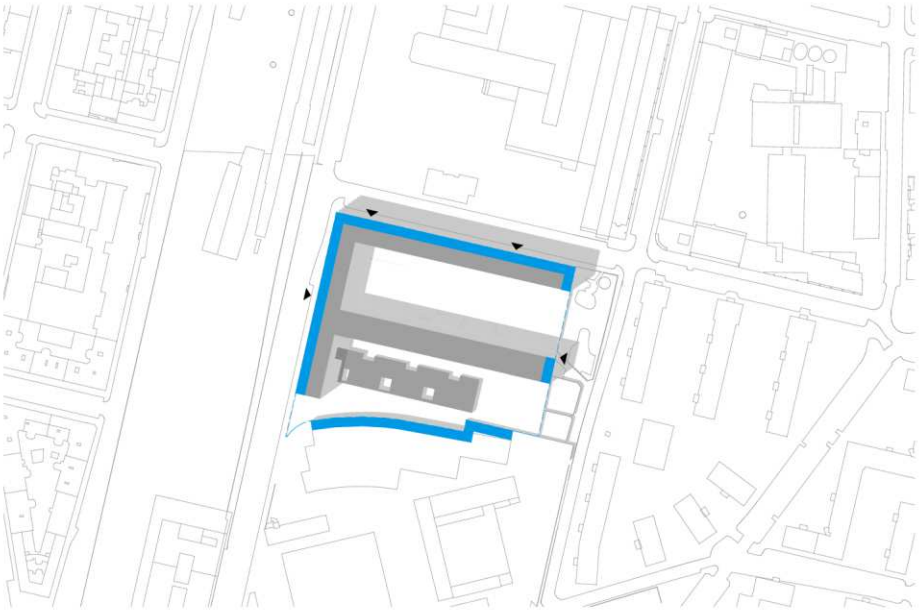
The Wohnregal (German for 'housing shelf') is surrounded on 3 sides by quiet streets, while in the south it borders the wall of a large tram depot. The street facade is very closed to the north and west and there are no active units along the street interface apart from the 3 entrances. The building is designed in an 'F' shape that forms 2 courtyards. The southern courtyard houses a public childcare facility, while the northern courtyard serves as the central communal area for the building community. On the east side, the comb structure of the building is left open. There a small park with a playground and two small sports cages forms a buffer zone between the interior courtyard and the street. The little park is a visual extension of the collective courtyard but is physically separated by a fence as a transparent membrane. However, the courtyard benefits from the bustle of the small park in front of it, which is like a permanent theater stage for the residents, who can watch the spectacle from the safe distance of their balconies. After passing the park, you can enter the fenced courtyard through the locked lattice gate via key. In addition to the lattice gate, there are further entrances to the courtyard in the form of passageways through the building on the west and north sides.

The passages can be entered through an unlocked door to reach the courtyard with its large lawn, park benches and some playground equipment. This courtyard is clearly designed for the residents and the use by strangers is theoretically possible, but the morphological demarcation and the locked lattice door to the open side of the courtyard speak for themselves. Along the north side of the courtyard are the private gardens of the ground floor apartments. Above that are the intensively used private loggias, which were adapted and individualized by the users. On the other two sides of the courtyard there are eight stories of arcades all around filled with the stacked front porches and the entrances of all the other apartments. The active use of the privately appropriated façades makes you feel watched from all sides and exposed to the social control of all your neighbors. From the courtyard you can enter one of the 4 staircases with a key. The single-flight staircase is designed as a light-flooded atrium. On each floor you can step outside through unobstructed doors in two directions. Now you are on the arrival arcade with all the private

porches of the apartments lined up one after another. They are protected by low fences with locked lattice gates and occupied by the tenants seating, plants or cabinets and objects stored outside. Only from the porch you get to the apartment door, which can be unlocked by key.

The Housing stack give residents the feeling of living in a small family home that can be accessed from outside and private open spaces on the front and back offer the possibility of cross-ventilation. Unlike an ordinary city apartment, the areas in front of the apartment can be fully appropriated by the users. The all-encompassing arcades overlooking the courtyard allow a high visibility of the residents and cause the feeling of living together instead of living next to each other. It also exerts a strong social control on the courtyard below. According to the architects, the building offers a multi-purpose structure that can be interpreted by users and creates a multi-layered urban quarter that reflects the diversity of modern society. The arcades create a distinct street space and symbolize the coming together of the people in the city. (Wimmer Website)

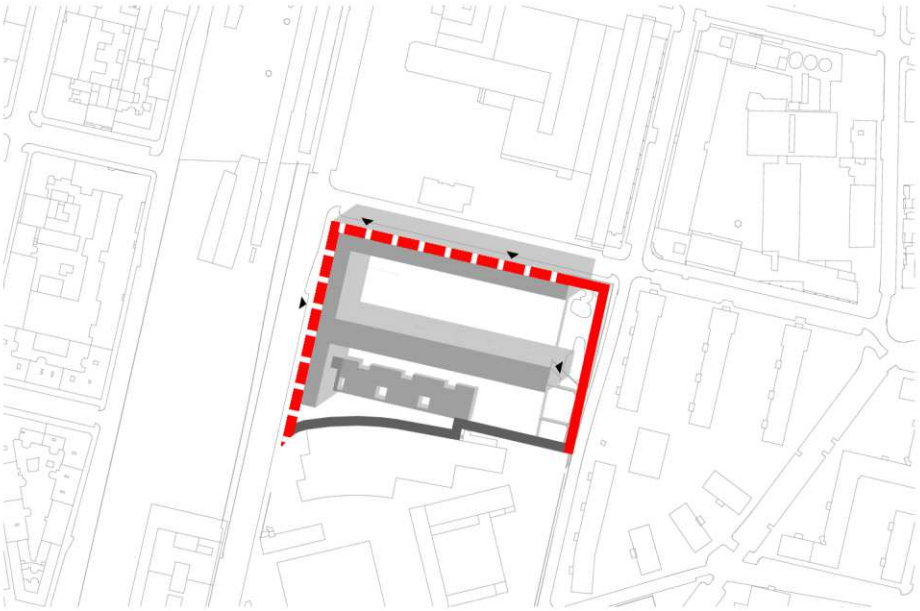
Exterior 07 Wohnregal ‘Housing Shelf’



Enclosure

Morphological: 76%
Opaque Wall: 3%
Transparent Fence: 21%
Open: 0%

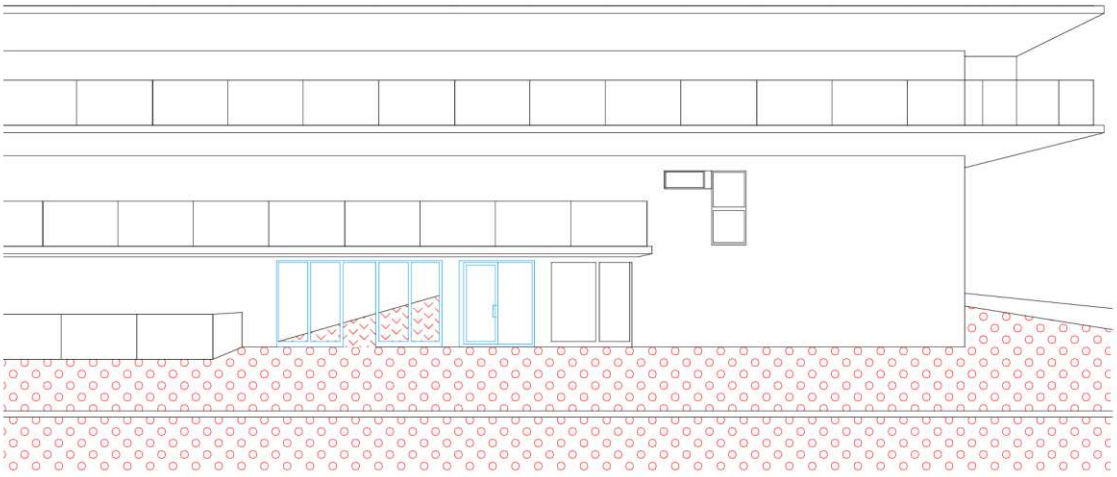
Physical Enclosure: 100%
Visual Enclosure: 79%



Street Face

A - active
B - mixture
C - inactive
D - no building interface
not facing street

Compound Entrance 07 Wohnregal 'Housing Shelf'



Sr Residential Street

Users: Residents of the surroundings, thoroughfare traffic
Accessible to: All

The Koppstraße to the north is a one-way street with parking spaces on each side of the road. Opposite the building is the car park of a tobacco factory separated by a fence from the street. There are scattered cafés and snack bars in the surrounding streets. The active district center and the subway station are within 5 minutes walking distance. The road is mainly used by neighbors and does not exert any attraction on surrounding residential areas. Only the small public park on the west side of the block forms a local center for the families from the surrounding blocks.

Passageway to the Courtyard

Type of Barrier: Open Door

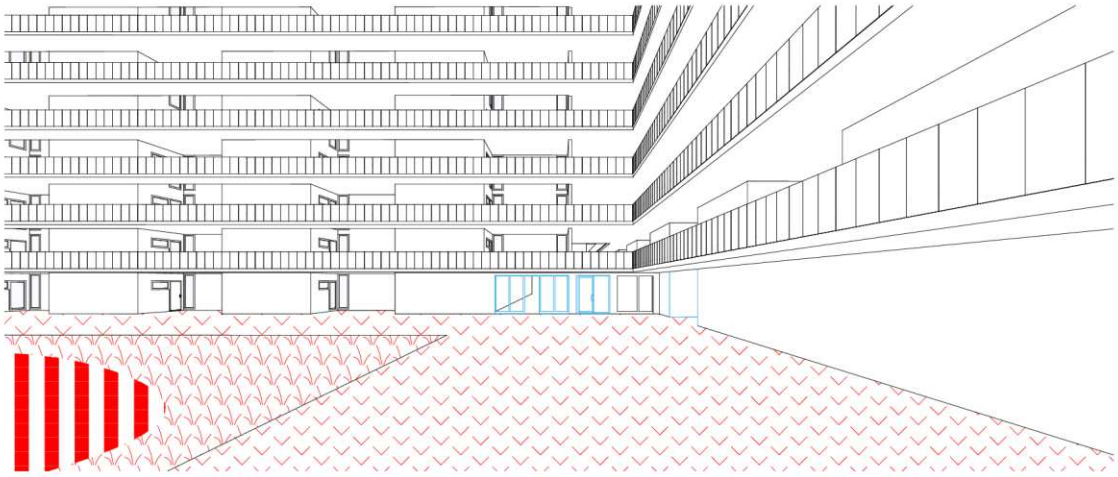
From Koppstraße there is a passage through the building into the courtyard. Since this is also the entrance to reach the public childcare center in the rear courtyard, the door to the passageway is always open, allowing parents and children to walk through the yard to the childcare facility. Otherwise, the closure of the passage with a door clearly acts as a barrier to keep out strangers.

Cc Compound Circulation

Users: Residents of the Compound, **250** households
Accessible to: All
Access from: Sr via: Open Passages, Locked Passage, Locked Door

The circulation of the block happens on paths along the building line and leads in straight roads to the building entrances. Although it is generally accessible, it is intended only for residents. The encircling arcades and balconies around the courtyard provide strong social control with many eyes on the compound's paths down in the courtyard.

Compound Interior 07 Wohnregal 'Housing Shelf'



Lg Community Lawn

Users: Residents of the Compound **250** households
Accessible to: All
Access from: Cc via: Borderless transition

In the middle of the yard is a large lawn, which forms the green heart of the block. It is planted with trees along the circulation path and forms a generous buffer zone between the private gardens and the path preserving the privacy of the ground floor dwellers.

Cs Community Shared Space

Users: Residents of the Compound **250** households
Accessible to: All
Access from: Cc via: Borderless transition

There are benches and various play equipment for children scattered across the lawn. These allow the protected play under the eyes of the residents in the yard. However, the small park just outside the open side of the courtyard enjoys much higher activity and a wider public.

Building Entrance

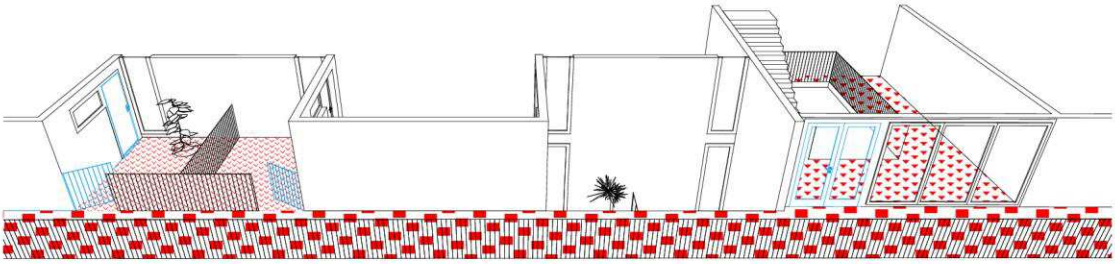
Type of Barrier: Key access

With a key you get access to the 4 staircases from the inner courtyard while two of them can also be reached from the Koppstraße.

Bs Building Shared Space

Users: Residents of the Compound **250** households
Accessible to: Users only
Access from: Cc Sr via: Key access

The single-flight staircases are designed as an atrium with an elevator moving up and down in the hollow middle. This light-flooded, 8-storey connecting airy spatial continuum, as a vertical street, lands on each floor with a door giving onto the outside landing balconies, the arcades. All staircases are connected through them.



Arrival Arcade Door

Type of Barrier: Unlocked Door

As Arrival Arcade

Users: Residents of 1 arcade, **10** households
Accessible to: Residents of the Compound 250 Households
Access from: Bs via: Unlocked Door

An unlocked door leads to the outside onto the arcade. The arcades are no dead ends but run into at a staircase on each end. They are normally used only by the occupants of the respective arcade, but are accessible to all residents of the building complex.

Private Porch Door

Type of Barrier: Key access

Pp Private Porch

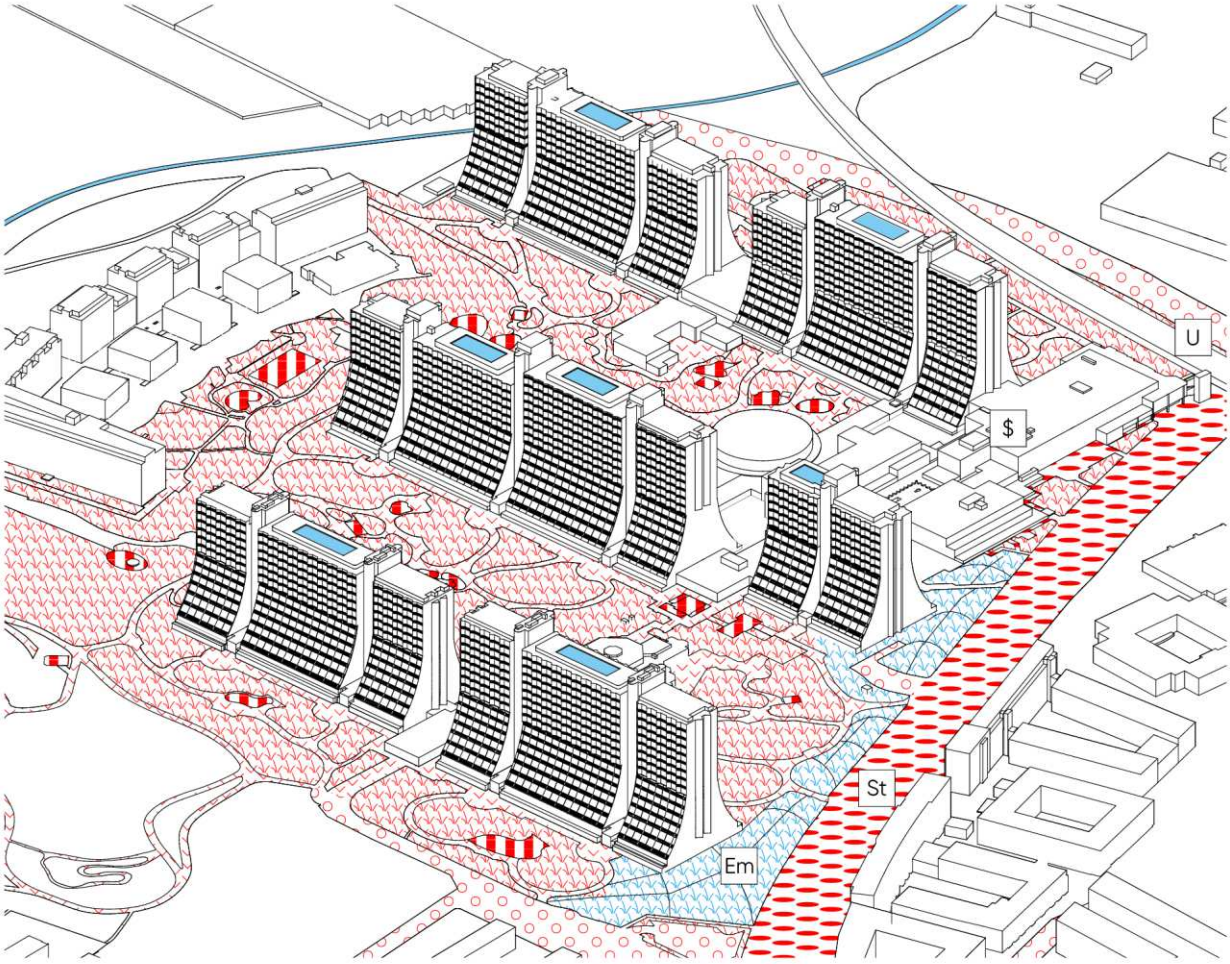
Users: **1** household
Accessible to: Users only
Access from: As via: Key access

Through a small locked garden gate you can access the small front garden, which has been appropriated by the residents and is usually equipped with seating or plants. Many also use this area as a storeroom. This private front garden creates a feeling close to that of living in a single-family home. Only from this space you reach the apartment entrance door.

Apartment Entrance Door

Type of Barrier: Key access

5.8 Case 08: **Wohnpark Alt-Erlaa**



St High Traffic Street

Em Noise Protection Embankment

Sr Residential Street

U Subway Station

$ Shopping Center

Cc Compound Circulation

Cs Community Share Space

Lg Landscaped Greenery

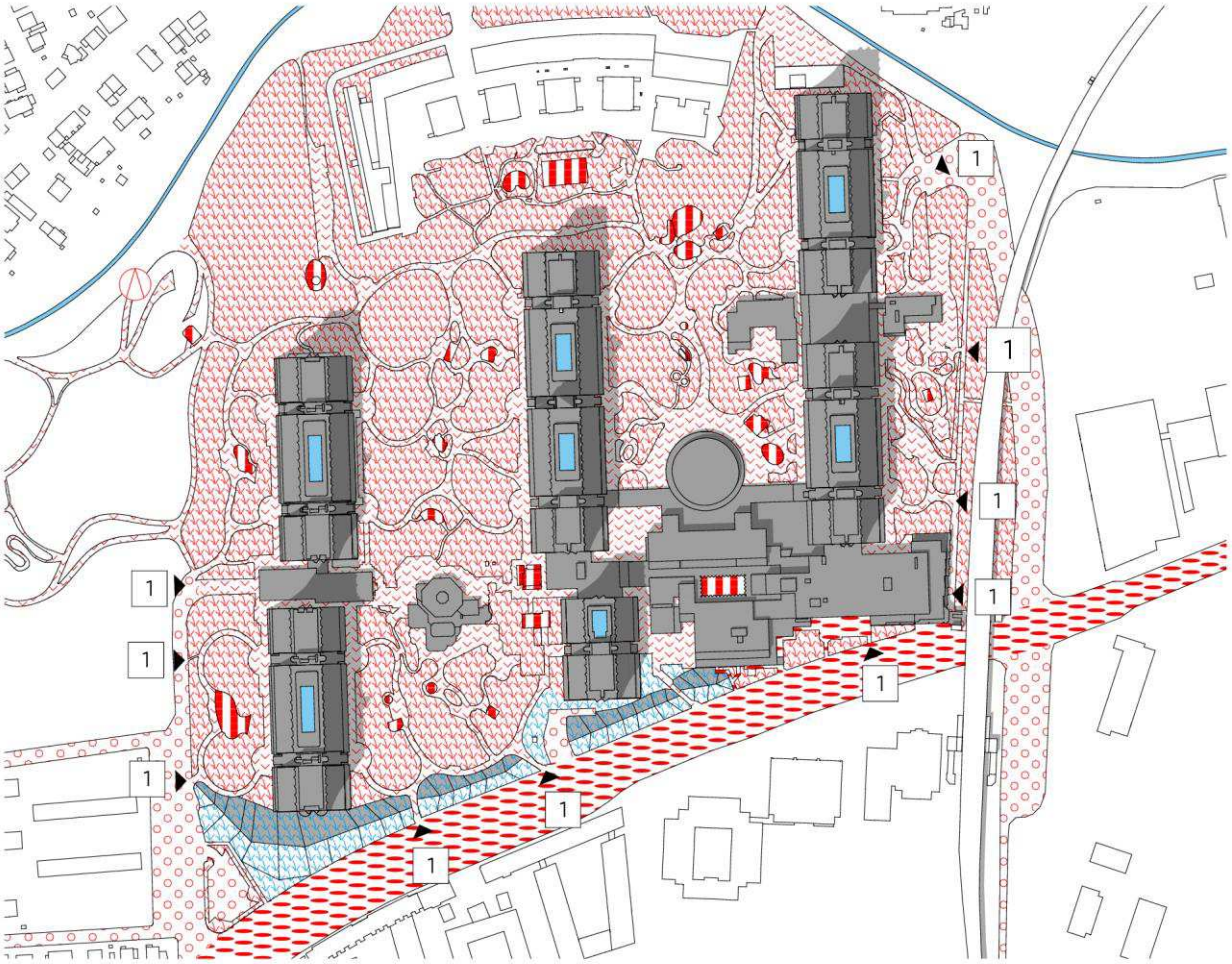
Bs Building Share Space

As Arrival Space

Figures in this chapter:

Fig. 5.8.1 Axonometric diagram, Fig. 5.8.2 Map, Fig. 5.8.3 map of enclosure, Fig 5.8.4 Map of street interface, Fig. 5.8.5 Compound Entrance diagram, Fig. 5.8.6 Compound Interior Diagram, Fig. 5.8.7 Building Diagram

Map 08 Wohnpark Alt-Erlaa



1 3x Topographical Opening

2 Building Entrance

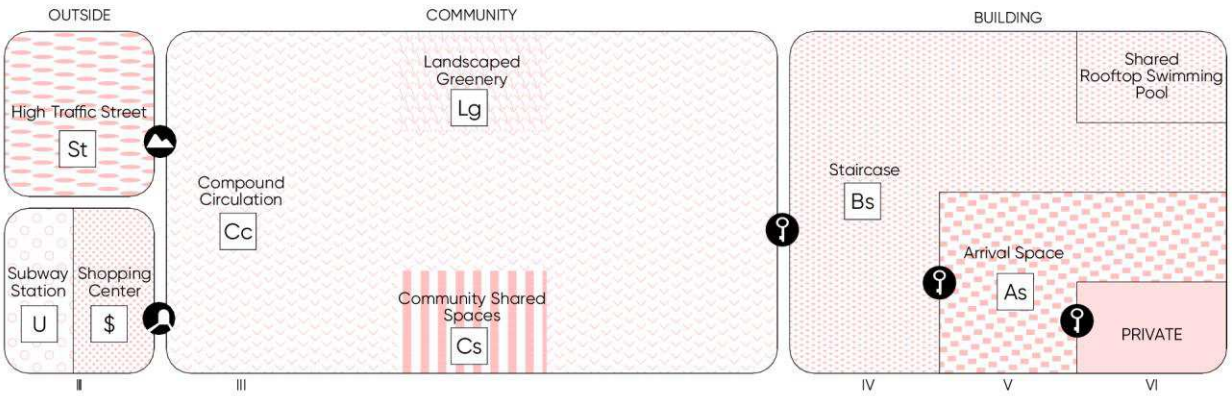
3 Arrival Corridor Door

4 Apartment Door

2x Open Passage

6x No Barrier

Spatial Sequence Diagram



Spatial Sequence Description Case 08

Construction Year: 1976-1985

Address: Anton-Baumgartner Strasse, 1230 Vienna

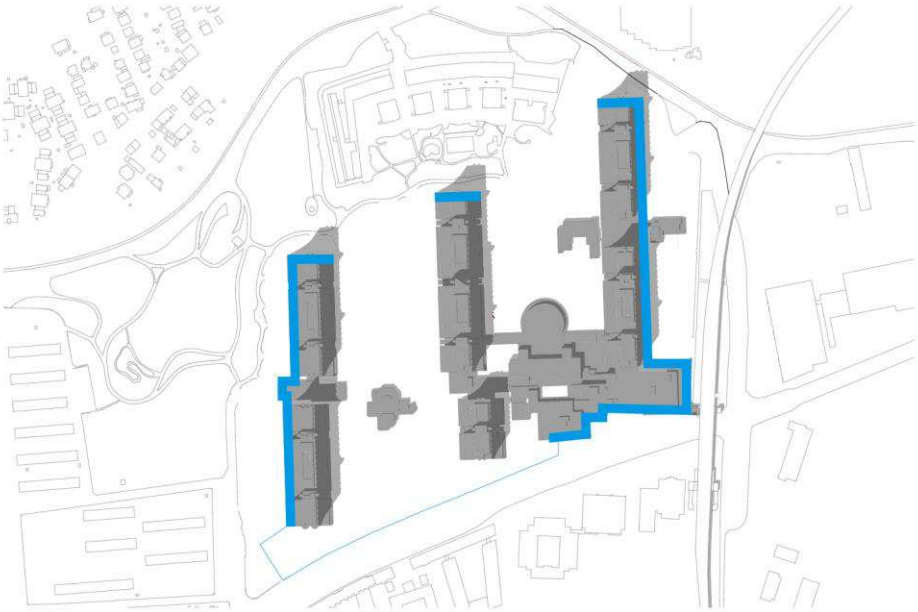
The Wohnpark in Alterlaa is an untypical residential compound for Vienna. Although similar large-scale projects have fallen into disrepute soon after their construction because of social problems, the Wohnpark Alterlaa enjoys great popularity to this day. Located in the south of Vienna and housing 3172 units, it combines the advantages of suburban individual housing and those of high-rise buildings, combining high-density with private yard area for every household. Residents can use a number of public facilities like rooftop pools, saunas, hobby clubs, a shopping center, preschools, a medical center and a dedicated subway station. (Förster 2016, p. 63). The architect's idea was that the building should offer all the recreational opportunities that a good holiday hotel offers. The compound measures 550m x 450m and consists of 3 parallel rows of high-rise slabs with east-west orientation. To the south it is bordered by the busy Anton-Baumgartner-Straße and in the east by the Wohnparkstraße, a dead end which serves only the access of the apartment block. The other sides have no clear border as they fade into a park. Since the buildings are set back far from the street by wide buffer landscapes, there is no street frontage. At the southeast corner of the block a shopping center is connected to the subway station. First of all, people arriving by subway always cross the shopping center before walking through one of the vast parks between the towers to the building entrances. Along most of the blocks south edge, a five-meter high embankment protects the collective parks from street noise.

The embankment opens in two places and gives access to the large park, flanked by two rows of high-rise slabs. No physical barriers restrict the entrance to the park and its vastness provides an anonymity that turns the collective park into an extensively public space. Countless paths meander through the park with many designed community spaces and children's playgrounds scattered alongside them like islands. The path from the park entrance to the closest building entrance is relatively long with several forks along the way. Thus, there is no given path, but residents can choose among several options for their way home. Although a straight-line main path connects all three building slabs and extends directly through the shopping center to the subway station. Along this path there are also several public places, the sports center and the church. In front of each building entrance

there is a small paved forecourt from which you climb wide stairs to the front door. With an electronic key you can enter the building and get access to the entrance hall. In the lower floors there are numerous themed recreation rooms that can also be used by the residents of other buildings in the compound. Four lifts can take you a small arrival room on each floor, from where the corridors with the apartment entrances lead away in 2 directions. These two corridors are again accessible only with an electronic key for the respective 6 residential units of each corridor. On the rooftop of each building swimming pools can be used freely by the residents. According to the architect Harry Glück, the swimming pools are the main reason for the good community life in the block. Because there, people, not wearing clothes that could indicate their social status, meet completely without prejudice.

Measured by its contribution of urbanity to the surrounding city Wohnpark Alterlaa is clearly underperforming. But this cannot hide the fact that the satisfaction level is still one of the highest among residential areas in whole Vienna and the identification with the project is very strong. The reason for that is not only the private balcony gardens, that are part of each apartment, but especially the strong sense of community among residents, who come together in the numerous community facilities. What makes the leisure and community spaces so successful is that instead of providing a general common room per building, there are very specific spaces of interest distributed to all buildings. There is a larger audience and a stronger motivation to pursue a specific hobby. Lastly, this project is so well-regarded by its residents, because of the perfect maintenance of the numerous facilities that is handled by a team of permanently employed caretakers.

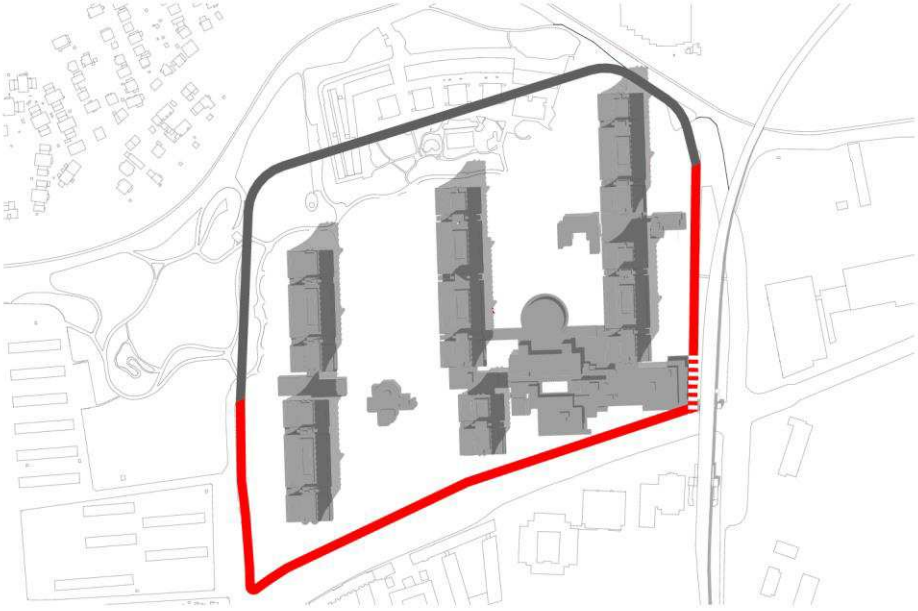
Exterior 08 Wohnpark Alt-Erlaa



Enclosure

Morphological: 61%
Opaque Embankment: 24%
Transparent: 0%
Open: 15%

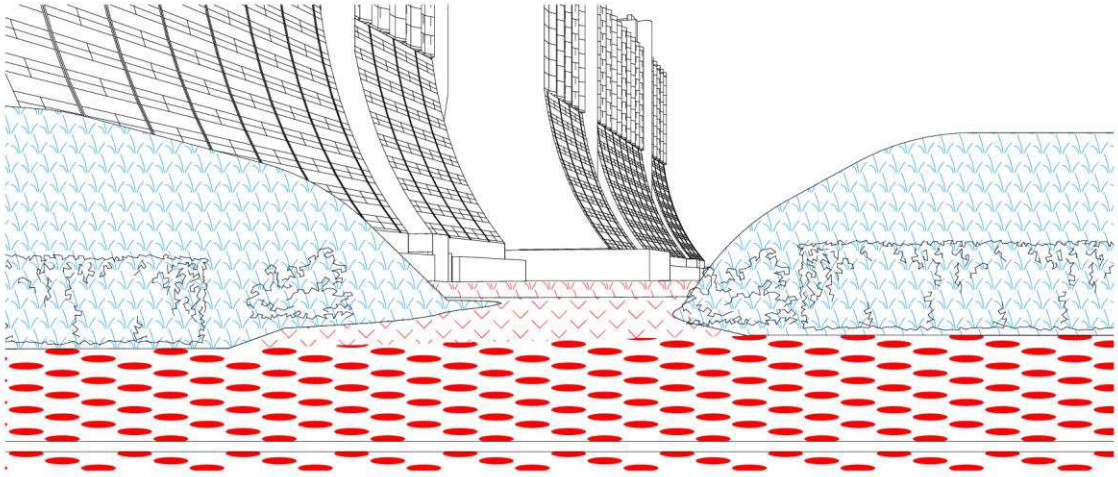
Physical Enclosure: 85%
Visual Enclosure: 85%



Street Face

A - active
B - mixture
C - inactive
D - no building interface
not facing street

Compound Entrance 08 Wohnpark Alt-Erlaa



St High Traffic Street

Users: Residents of the surroundings, thoroughfare traffic
Accessible to: All

The Anton-Baumgartner-Straße is a busy 6-lane street. A traffic island and a fence in the middle of the road complicate easy crossing. The street is mainly a traffic road and offers little strolling quality.

Em Noise Protection Embankment

Type of Barrier: Topographical Opening

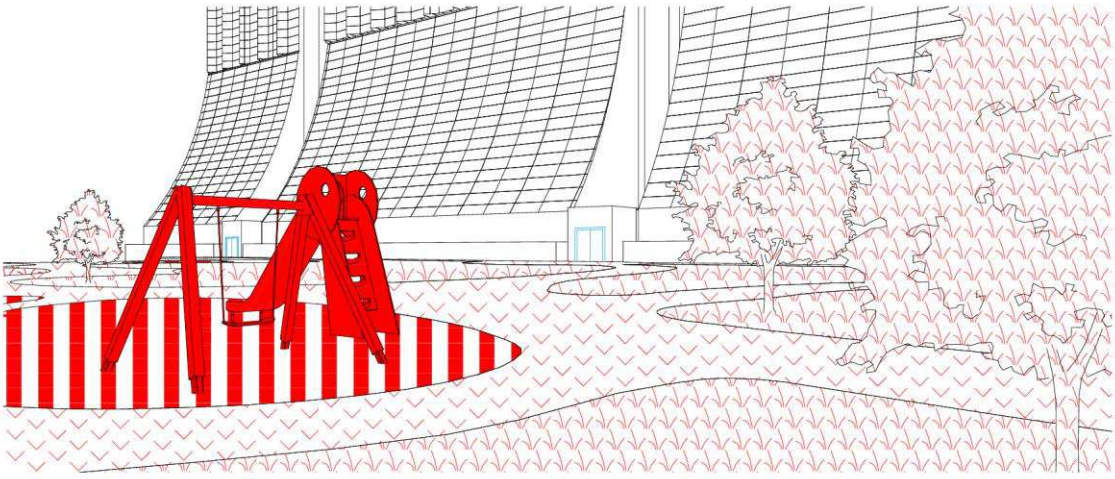
Along the Anton-Baumgartner-Straße, at the lower end of the block, a 5-meter-high embankment covered with shrubs and trees serves as soundproofing and as visual closure of the inner park of the residential complex. In this embankment there are three openings which allow the level entry into the park for residents and strangers. A staircase leads from the inside up to the top of the embankment from where a pedestrian bridge connects accross the road to the other side of Anton-Baumgartner-Straße.

Cc Compound Circulation

Users: Residents of the Compound, **3200** households + Visitors
Accessible to: All
Access from: St Sr $ via: Open Passages, Topographical Openings, borderless transition

The circulation of the block takes place on paths winding through the park and paths along the edge of the building. A main path leads straight across the complex from east to west and connects all 3 building slabs of the compund. It leads past several public squares, the church, the sports hall and through the shopping center to the subway station. On the way to their building the inhabitants have many variants for the way home because of the many forks in the path.

Compound Interior 08 Wohnpark Alt-Erlaa



Lg Greenery

Users: Residents of the Compound **3200** households + Visitors
Accessible to: All
Access from: Cc via: Borderless transition

The 180m wide gap between the high-rise slabs consists mostly of green areas, which are partly landscaped and on the other part is made of walkable grassy areas that can be used for play and sports. Although the areas are generally accessible, but hardly used by strangers because of the isolated location of the block.

Cs Community Shared Space (outdoor)

Users: Residents of the Compound **3200** households + Visitors
Accessible to: All
Access from: Cc via: Borderless transition

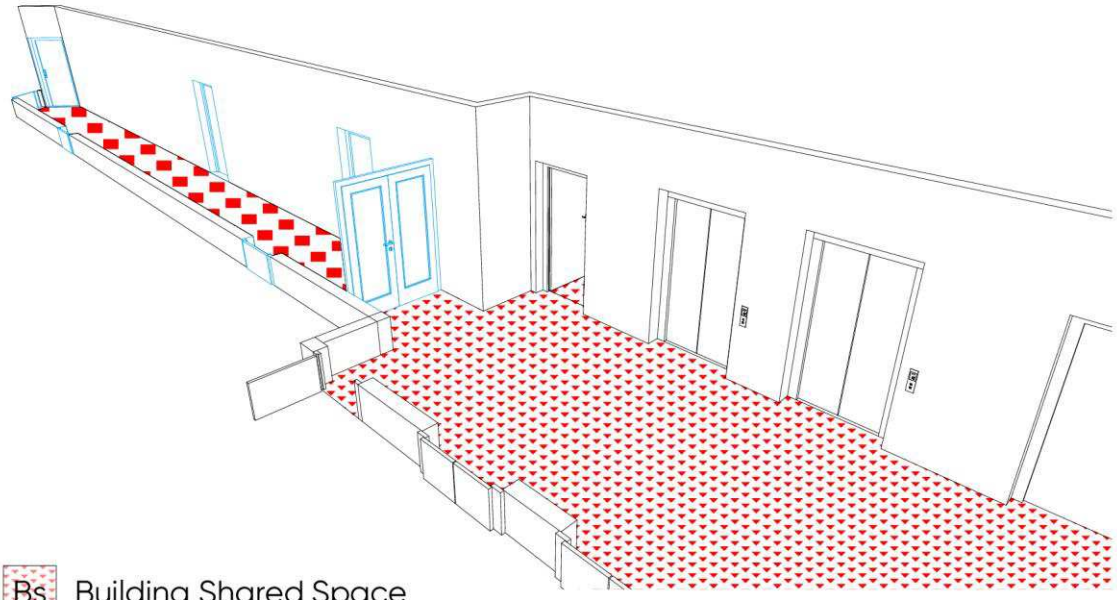
Along the access routes there are numerous public places with park benches or playgrounds for children. These places are spread over the whole park. There are also sports fields, a sports hall, a church, a youth room and a medical center with 20 doctors from different disciplines. However, the most important community-building element is the recreation rooms inside the residential buildings, which can be used by all residents of the facility.

Building Entrance

Type of Barrier: Electronic Chip-Key access

Every core for the stairwells and elevators has an entrance from each the east and the west side of the buildng. In front of the entrances there is a semicircular plaza and a wide outside staircase leading up to the front door. Admission is via electronic key. Not only residents of the building have access here, but also users of the various recreation rooms in the lower floors of the building.

Building 08 Wohnpark Alt-Erlaa



Bs Building Shared Space

Users: Residents of the Compound **3200** households
Accessible to: Users only
Access from: Cc via: Electronic Key access

The staircase and the lifts not only allow access to the apartment floors, but also to the numerous recreational areas and indoor playgrounds on the lower floors of the building. The building is therefore not only accessible to residents, but also for visitors from outside the residential complex. On the roof of each building is a communal swimming pool which is free for the residents. It is symbolic for the numerous leisure activities and the good community life in this residential complex.

Arrival Corridor Door

Type of Barrier: Electronic Key access

As Arrival Corridor

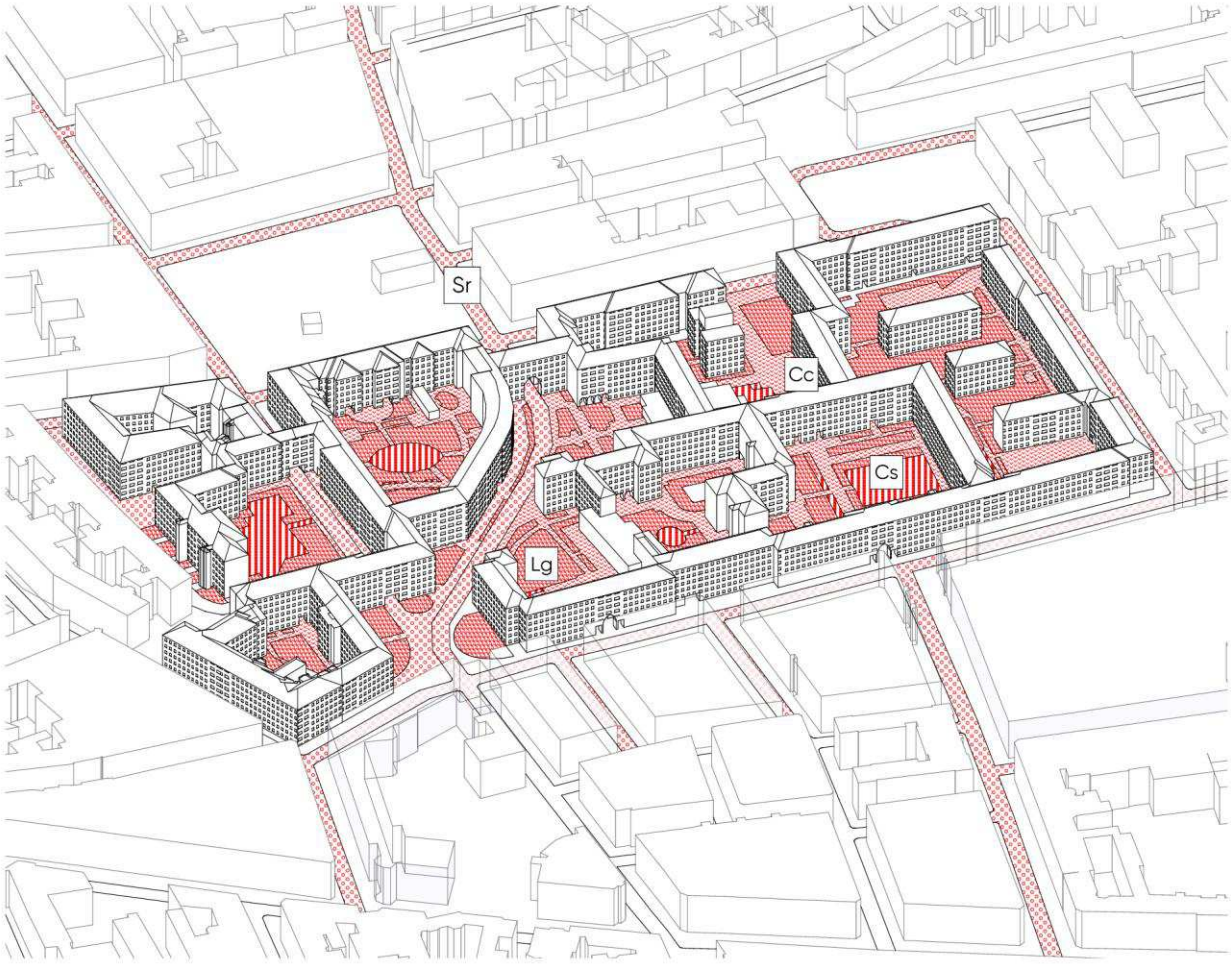
Users: Residents of 1 corridor, **6** households
Accessible to: Users only
Access from: Bs via: Electronic Key access

On each floor there is a small arrival hall for the 4 lifts from which 2 corridors lead to the apartments. These arrival corridors are restricted with a locked door that can be unlocked with an electronic key. The arrival corridor is only accessible to the 6 units of the corridor residents. Since there are 320 housing units per elevator shaft and an unmanageable number of other people can enter the house, this security measure is necessary.

Apartment Entrance Door

Type of Barrier: Key access

5.9 Case 09: **Rabenhof**



Sr Residential Street

St High Traffic Road

Gs Approach Space

Cc Compound Circulation

Lg Landscaped Greenery

Cs Community Space

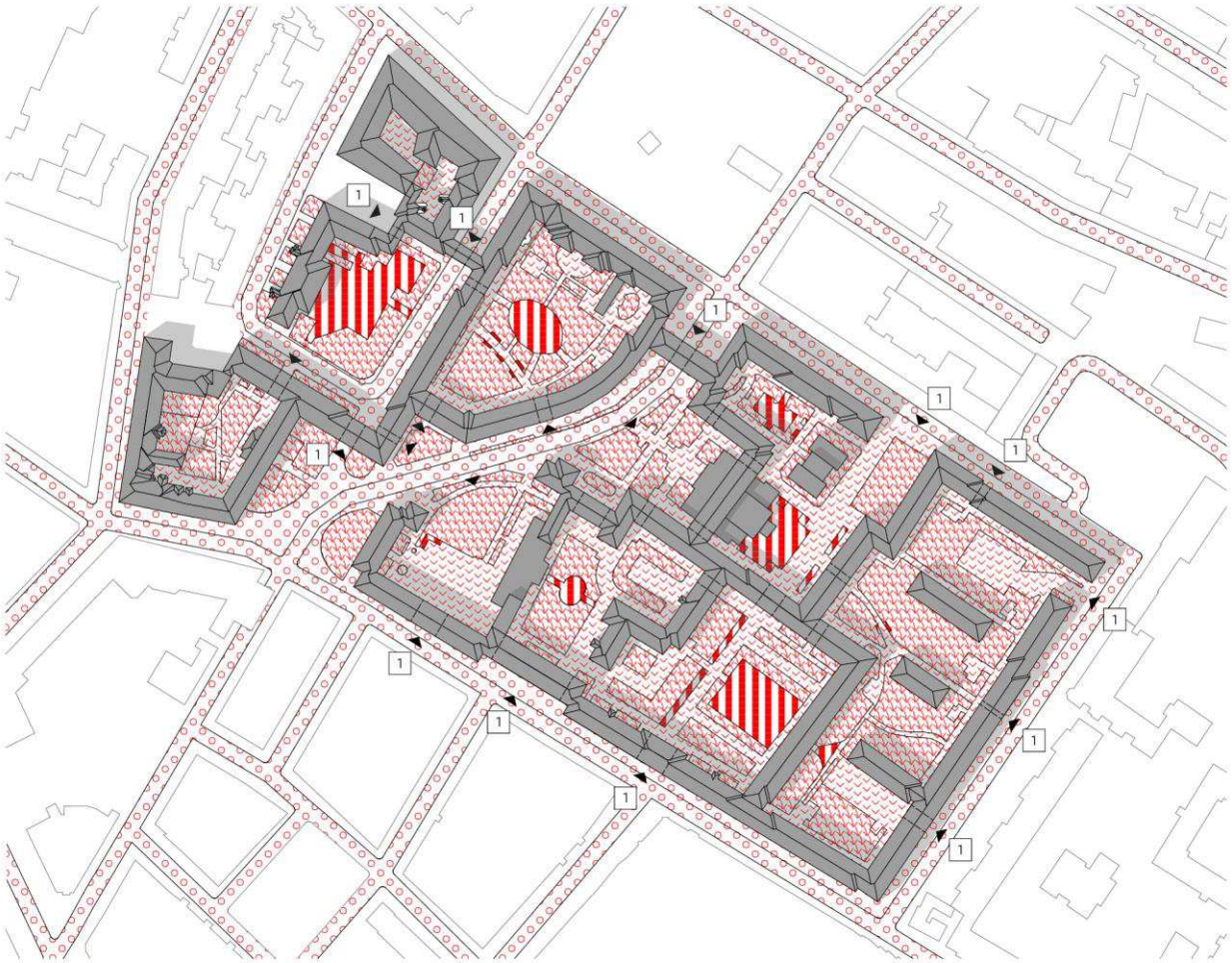
Bs Building Share Space

As Arrival Space

Figures in this chapter:

Fig. 5.9.1 Axonometric diagram, Fig. 5.9.2 Map, Fig. 5.9.3 map of enclosure, Fig 5.9.4 Map of street interface, Fig. 5.9.5 Compound Entrance diagram, Fig. 5.9.6 Compound Interior Diagram, Fig. 5.9.7 Building Diagram

Map 09 Rabenhof



1 2x Street Gate

2 Interior Courtyard Gate

3 Building Entrance

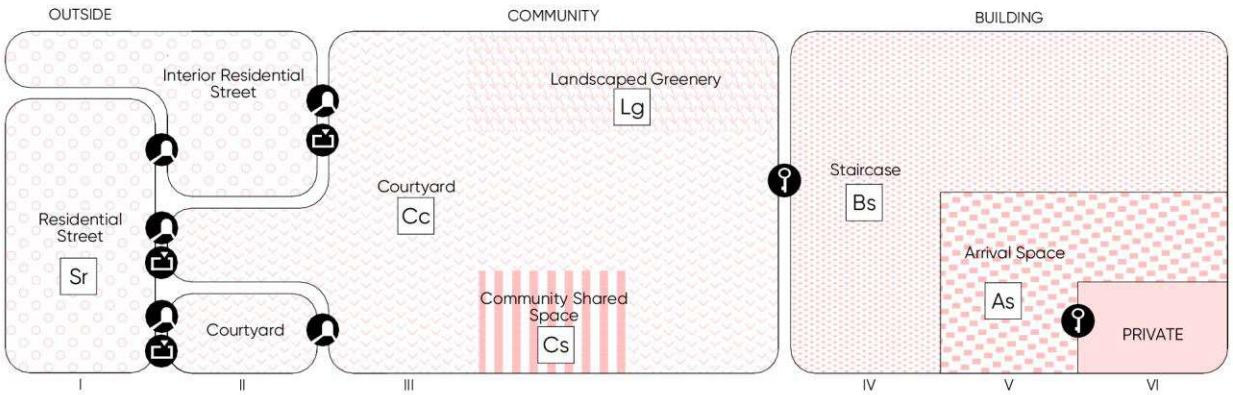
4 Apartment Door

11x Courtyard Gate

2x Morphological Opening

2x Morphological Opening

Spatial Sequence Diagram



Spatial Sequence Description Case 09

Construction Year: 1928

Address: Baumgasse 29-41, 1030 Vienna

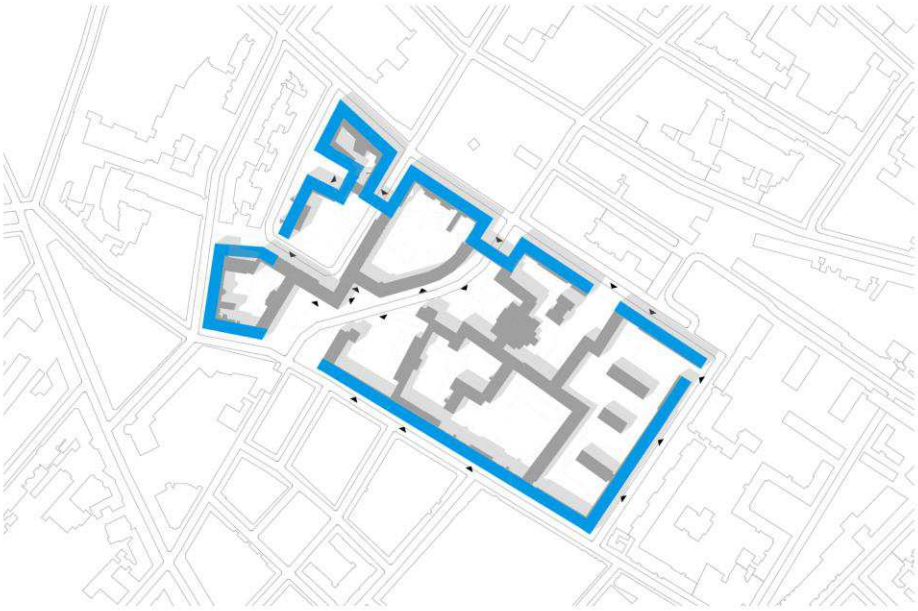
The Rabenhof falls within the category of Red Vienna courtyards, which were built mainly in socialist Vienna after the World War I. (see chapter 3.2.2 for Red Vienna courtyards) Unlike other large housing courtyards of the time, which resembled the architecture of imperial palaces, the Rabenhof was organized based on old streets and city structures. As a single connected entity, the building winds its way along and across streets, forming a variety of inner courtyards, open courtyards and public squares. (Sonne 2009, p. 83) The surrounding streets are predominantly residential streets with scattered business premises. The Rabenhof includes flower shops, tobacco shops, cafes and several small businesses along its 700-meter-long street face. The Rabengasse, a street which cuts across the Rabenhof from north to south, offers a cafe, a library, a hairdresser and the Rabenhof Theater, which is known all across Vienna. To its north the Rabenhof borders Kardinal-Nagl-Platz, a park with a same-named subway station.

Coming from there you can enter the Rabenhof along the Rabengasse through an oversized arched gate building. After entering, you are still on an urban street, but at the same time already inside the complex. This outside-inside space characterizes the second level of the spatial sequence. Rabengasse, in its character as an urban street is also the place where most of the public facilities of the complex are concentrated. There is a cafe, a theater and a library and individual staircases can be entered from here. Three courtyards open courtyards are aligned along the street and further courtyards can be reached through passages to the west. The whole complex consists of 9 partially open and closed courtyards connected by open passages. Along these paths there are green areas, park benches and playgrounds for children. The courtyards, depending on their size and location within the compound have different degrees of privacy. The large southeast courtyard, with a big playground in the middle and several passages connected to it feels more public then for example the one on the very west side, which has only one entrance passage and no playground. Therefore, it is not used by outsiders, unlike the bigger courtyard, which also attracts young mothers with children from outside Rabenhof. Every courtyard is equipped with carpet rails and there is a laundry shop for the whole complex. All outdoor spaces can

be entered freely, without access control or monitoring. However, every passage has iron gates, but they are permanently open. Not least because of the iron gates, but also because of the closed arrangement of the buildings, housing courtyards of that time in Vienna are often compared to fortresses. Depending on which staircase you live in, you go through 1,2 or 3 levels of the territorial sequence, before you reach it. The first moment when you need a key to unlock a door is when entering your staircase. The staircases are narrow and on each floor, there are up to 4 units to enter from a minimum landing area. Optionally elevators can be used, which have been added during recent retrofitting. Since there are no corridors in the house, but the apartments are accessed directly from the stairwell, you have to pass all the doors in the house below the own floor, if you walk to the apartment. The last level of the spatial sequence, your own apartment, you will enter again with a key.

Although the building, a superblock of 300m x 100m, was a massive intrusion into the historically grown urban structure, it was well integrated into the urban fabric through the use of well-established urban elements. These elements include, streets, courts, forecourts, corners and passageways. All the spaces are clearly defined and not left vague, so the users have a natural understanding of how to use them. Moreover, the high porosity with the possibility to easily cross through the block, and the citywide fame of the Rabenhof Theater make the Rabenhof a successful residential complex in Vienna, which is perceived as part of the city in contrast to more closed off examples.

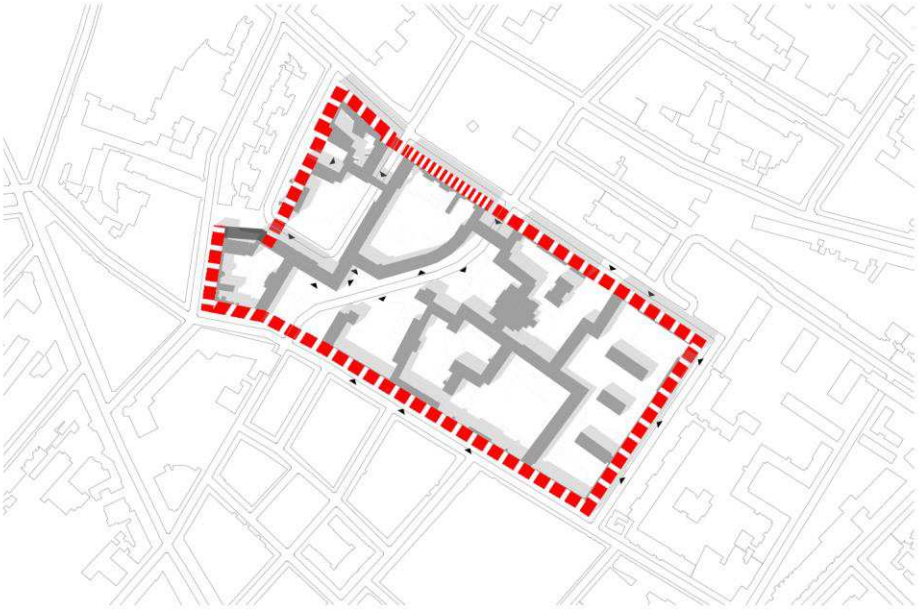
Exterior 09 Rabenhof



Enclosure

Morphological: 92%
Opaque Wall: 0%
Transparent Fence: 0%
Open: 8%

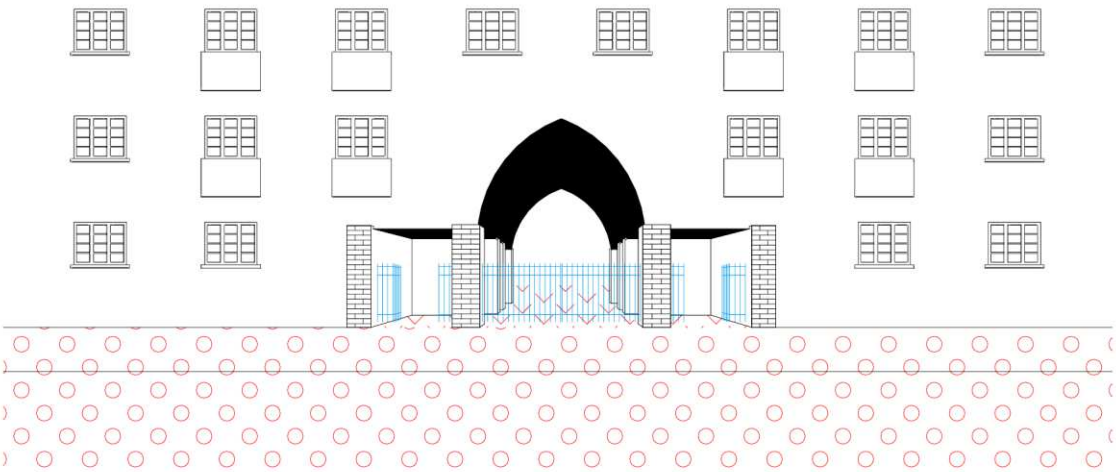
Physical Enclosure: 92%
Visual Enclosure: 92%



Street Face

A - active
B - mixture
C - inactive
D - no building interface
not facing street

Compound Entrance 09 Rabenhof



Sr Residential Street

Users: Citizens of the surrounding blocks
Accessible to: All

The Hainburger Strasse in the north and the Baumgasse in the south are quiet streets with predominant residential use. There are some business premises and small businesses as well as cafes, flower and tobacco shops. A special case is the Rabengasse, which cuts through the block from north to south. It is the activity center of the Rabenhof and offers a library, a cafe and a theater. The Rabenhof Theater is known throughout Vienna and has also made Rabenhof a household name.

Passageway

Type of Barrier: Open Passage

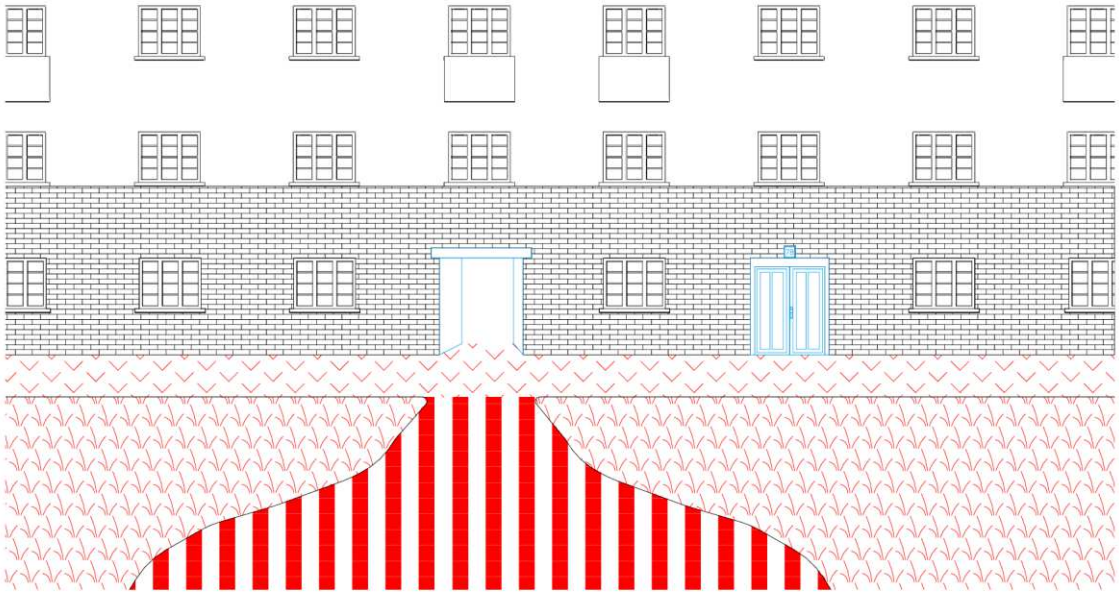
There are over 20 such passages in the Rabenhof. They have iron gates, but they are never closed. They give the residents an increased sense of security and privacy. But at the same time they create the great porosity of the block and allow access and easy passage through the block by strangers.

Cc Compound Circulation

Users: Residents of the Compound **1100** households + Visitors
Accessible to: All
Access from: Sr via: Open Passages

The circulation through the block happens on wide main paths leading past playgrounds and park benches between green areas in the middle of the courtyards. At the edges of the block there are narrow side paths leading to the staircases. Depending on the location and size of the courtyard, they have a more public or private character. In courts with more access passages, there is higher passenger traffic and an increasingly public character than in courts with only one access.

Compound Interior 09 Rabenhof



Inter Courtyard Passage

Type of Barrier: Open Passage

A multitude of inter-couryard-passages allow free movement throughout the block, increasing the porosity and public utility of the individual yards.

Cs Community Shared Space

Users: Residents of the compound, **1100** households + Visitors
Accessible to: All
Access from: Cc via: borderless transition

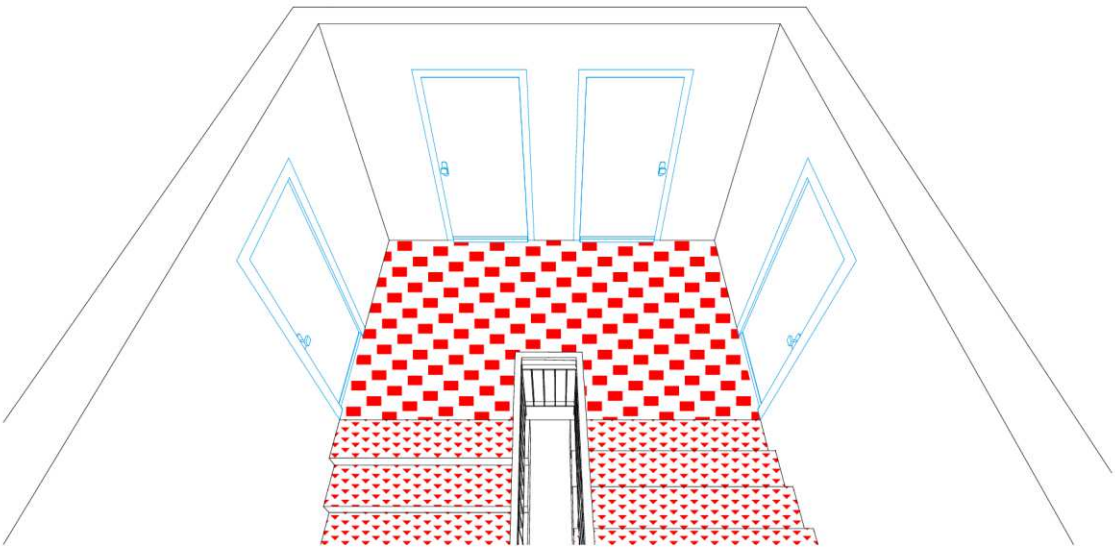
The courtyards have the character of a public park. Along the paths there are park benches and several children's playgrounds. Strangers and residents use these spaces to the same extent. Each courtyard also has carpet rails for the residents, as well as numerous bicycle parking. There are no private appropriations.

Building Entrance Door

Type of Barrier: Key access

The entrance to the staircases happens mainly from within the courtyard. This causes a greater sense of security as well as a sense of comfort to be a part of the entire court. A few staircases are accessed from passgages. Access is via key.

Building 09 Rabenhof



Bs Building Share Space

Users: Residents of 1 Staircase, **14** households
Accessible to: Residents of the staircase, **14** households
Access from: Cc via: Key access

In the entrance area, there is a short corridor, where post boxes and information posters are located. The staircase leads you over an intermediate landing to the next floor where there are 4 apartment entrances accessed directly from the small landing area of the staircase. There is also a recently constructed lift added to the stairwell. If you use the staircase to get to your own flat, you will inevitably pass by all the apartment entrances on the lower floors. In the building there is no place to stay, it is a space for movement only.

As Arrival Space

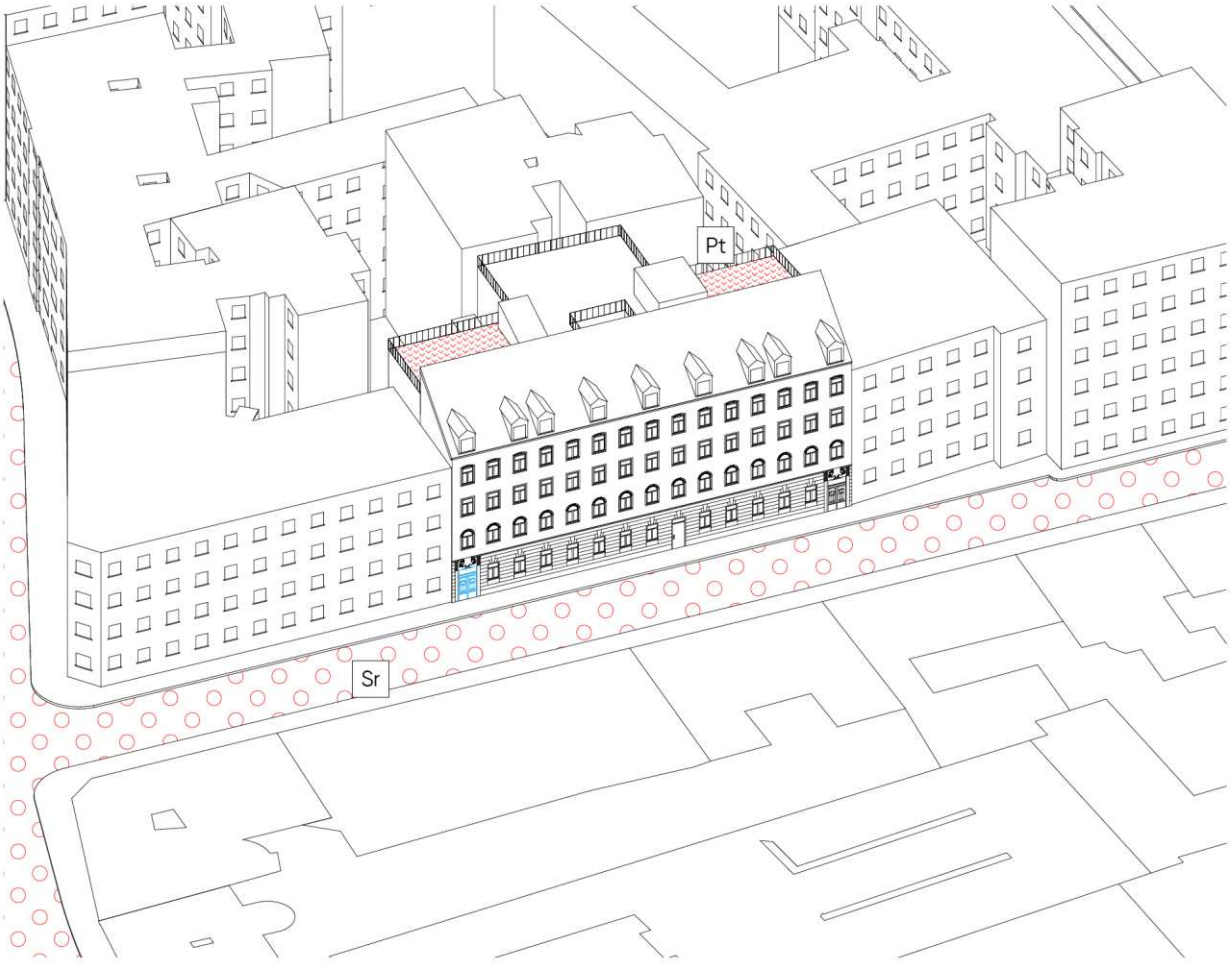
Users: Residents of 1 floor, **4** households
Accessible to: Residents of the building
Access from: Bs via: borderless transition

The arrival space is where 4 apartment entrances accessed directly from the small landing area of the staircase. The minimum arrivals area does not permit any appropriation by the occupants, except for a doormat. It is very likely to get to know the floor neighbors because of the very close location of the entrances.

Apartment Entrance Door

Type of Barrier: Key access

5.10 Case 10: **Bassenahaus** Gründerzeit block



Barrier

Cs Shared Courtyard

Sr Residential Street

As Floor Corridor

Bs Entrance Corridor + Staircase

Pt Private Rooftop

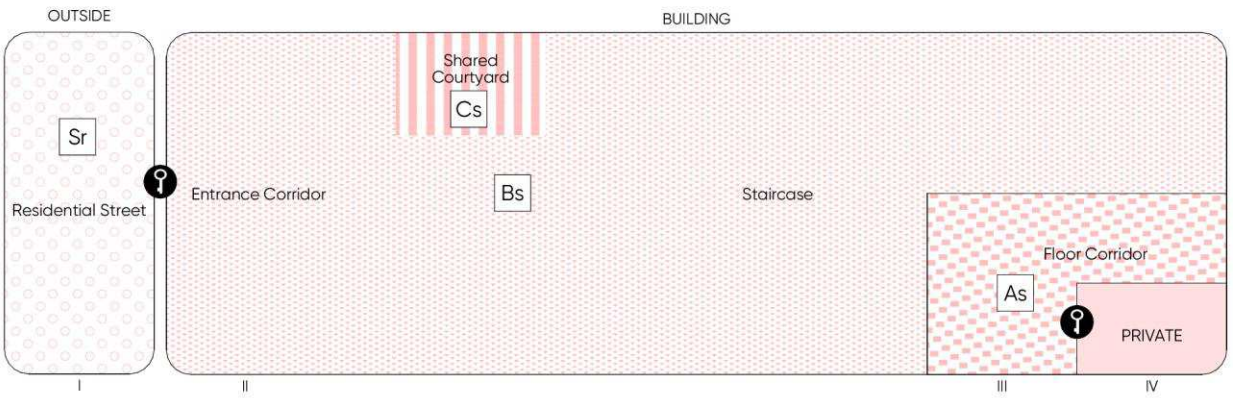
Figures in this chapter:

Fig. 5.10.1 Axonometric diagram, Fig. 5.10.2 Map, Fig. 5.10.3 map of enclosure, Fig 5.10.4 Map of street interface, Fig. 5.10.5 Compound Entrance diagram, Fig. 5.10.6 Compound Interior Diagram, Fig. 5.10.7 Building Diagram

Map 10 Bassenahaus Gründerzeit block

1 Building Door 2 Apartment Door

Spatial Sequence Diagram



Spatial Sequence Description Case 10

Construction Year: before 1904

Address: Bergsteiggasse 26, 1170 Vienna

This block is by definition a Gründerzeit block type, that consists of several independent building plots. (for Gründerzeit blocks see chapter 3.2.1) Therefore, this case focuses on one particular building within the block which according to its building type is referred to as Bassenahaus. These buildings were the first mass housing developments in Vienna and were built from the late 19th century to World War I, in a time when Vienna experienced its greatest period of growth. Therefore, the Gründerzeit apartments are still the most widespread apartment type in Vienna. The observed block has dimensions of 190m x 100m and is a nearly fully built perimeter block. On three sides it is bordered by residential streets, while only the Hernalser Hauptstraße in the north is a mixed-use street with restaurants, shops, theaters and businesses of all kinds in the ground floor zone. The Bergsteiggasse itself, where the observed building is situated, is a residential street that accomodates a pizzeria, a hotel and a Chinese philosophical school, which is located in the ground floor of the Bassenahaus. There is little traffic in this one-way street, but there are cars parked on both sides all along the sidewalks. From a narrow sidewalk you can enter the Bassenahaus building through the tall entrance gate on its left end. An identical gate on the right end is permanently closed. The gate in the middle of the building belongs to the Chinese philosophical school and is not an entrance gate for the residents.

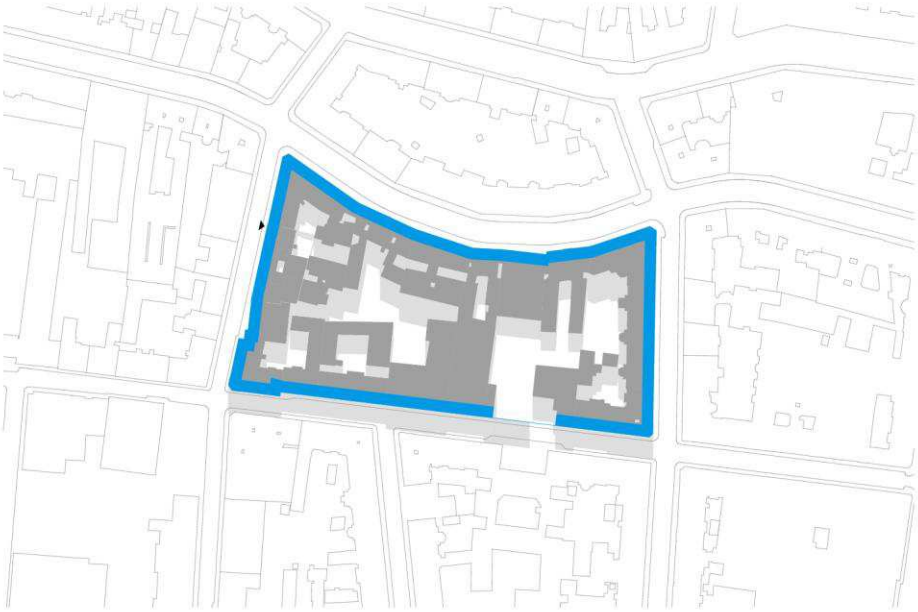
As the second level of the spatial sequence you enter a long corridor that is a passage through the building to the backyard. At the end of the corridor, a colorful glass door leads out into the backyard which serves as a garbage collection point and bicycle parking. Moreover, a small tree grows in the center next to a communal carpet bar and some residents have keep potted plants there. Since the apartments in the house have no private outdoor spaces, the courtyard is the only place they can do manual work in the open air. However, it cannot serve as a meeting place, not least because every word spoken there echoes in all adjoining apartments of the small courtyard.

Connecting to the end of the long entrance corridor is the stairwell with lift. On each floor another long corridor leads to 8 apartment doors. It is lit by windows to three different

courtyards and offers 2 public toilets and a public sink. Around 1900, when the house was built, all the residents shared the toilets and the sink in the corridor, as there was no tap water inside the apartments yet. Today, most of the apartments have modern sanitary facilities, but a few apartments still use the WC in the hallway. A second stairwell connects to the back end of the corridor in a symmetrical arrangement, but since its lower part is privatized it is not fully useable and therefore a little used area of the building. Thus, it happens that the residents at the back end of the hall are more inclined to occupy the hall space than at the end of the main staircase. They park their bicycles there and place their plants on the windowsill in the corridor. The length of the hallway and the large number of doors feels vast and does not produce any obvious close relationships between the neighbors on the same floor. Apart from the next-door neighbor, the other neighbors of the floor remain in the same distant status of any other household of the building. The apartment door, as the last step of the spatial sequence, can be entered via key.

This apartment building has a relatively short spatial sequence, as it is not part of a larger complex and can be entered directly from the street. It does not offer any private outdoor spaces such as balconies, while the two existing rooftop terraces are privately used by the top floor units.

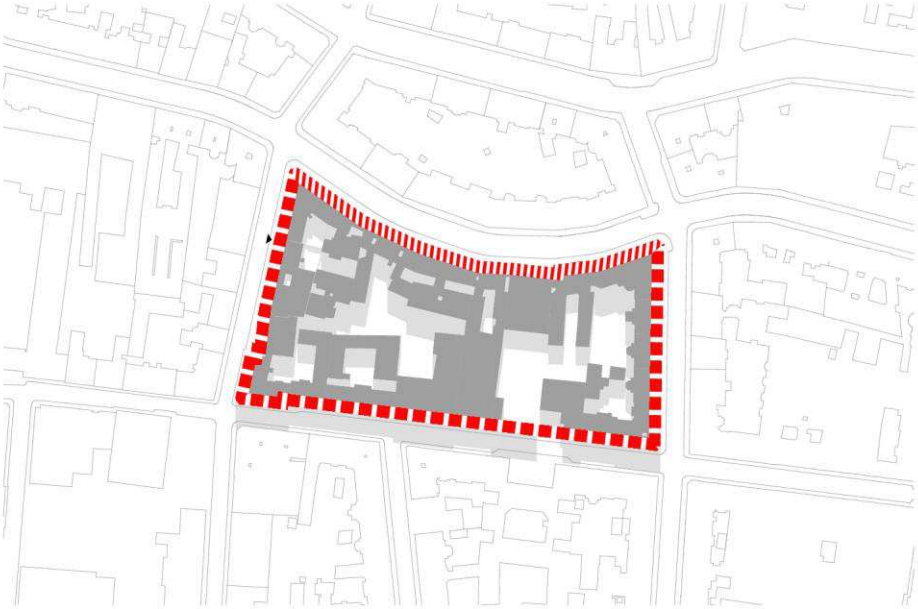
Exterior 10 Bassenahaus Gründerzeit block



Enclosure

Morphological: 95%
Opaque Wall: 5%
Transparent Fence: 0%
Open: 0%

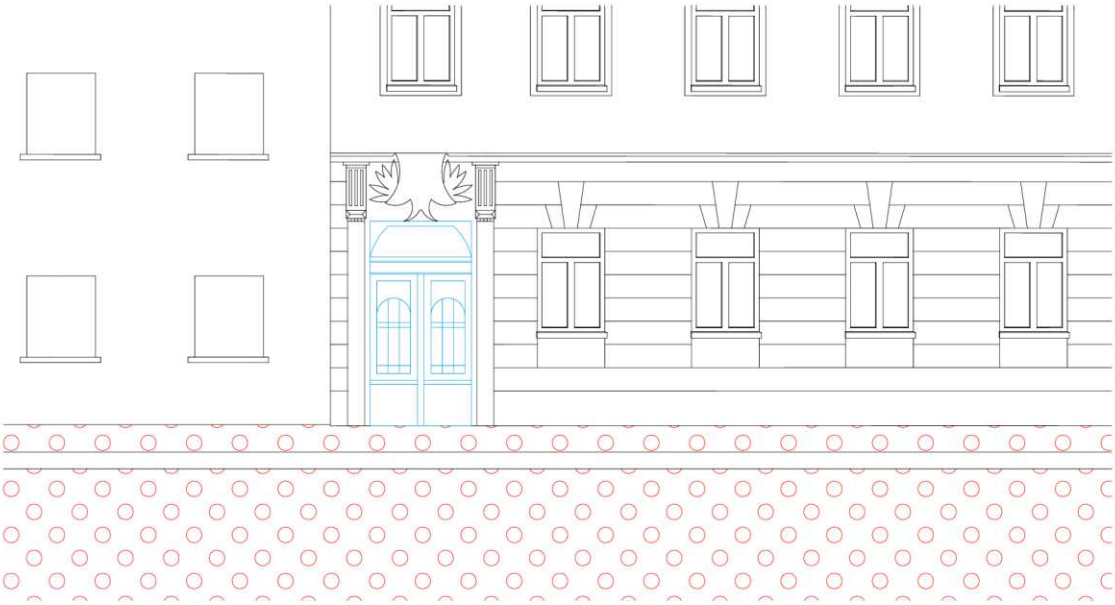
Physical Enclosure: 100%
Visual Enclosure: 100%



Street Face

A - active
B - mixture
C - inactive
D - no building interface
not facing street

Building Entrance 10 Bassenahaus Gründerzeit block



Sr Residential Street

Users: Citizens of the surrounding blocks
Accessible to: All

The Bergsteiggasse is primarily a residential street with a few commercial units. There is a hotel, a bakery, a pizzeria opposite and in the building itself is a Chinese philosophical school. The street is a one-way street with moderate traffic. Much of the area is occupied by cars parking on both sides. From a narrow sidewalk you reach the front door.

Building Door

Type of Barrier: Key Access

The front door at the left end of the building is a locked door that can only be opened with a key, or when residents unlock it via intercom. Due to the symmetrical structure of the building, there is an identical door on the right end of the building, but it is now privately owned and not accessible to the general public.

Compound Interior 10 Bassenahaus Gründerzeit block

Bs Entrance Corridor

Users: Residents of the building **28** households
Accessible to: Users only
Access from: Sr via: Key access

A long, very high corridor with stucco decorations on the ceiling and on the walls testifies of the original splendor of the building. However, this has largely been lost as the maintenance of the building's common areas has been neglected. The corridor houses the paper garbage disposal and mailboxes for the residents. It is a passage through the entire depth of the building and at its end leads through a door into the communal courtyard.

Courtyard Door

Type of Barrier: Open Door

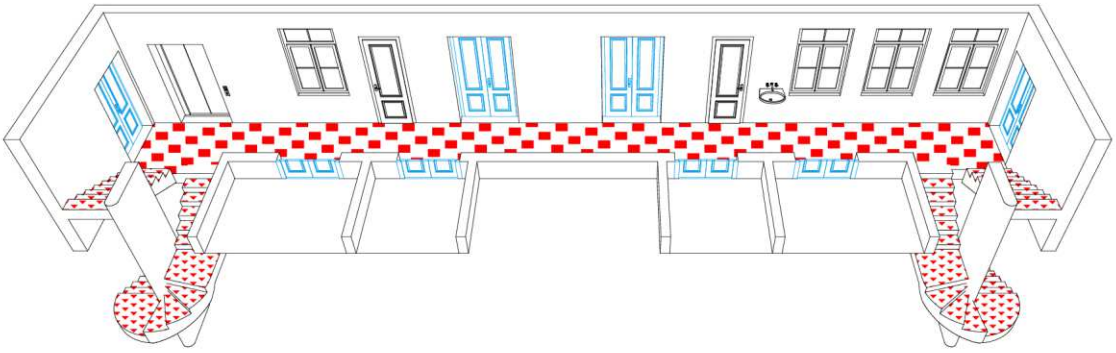
The door ornamented with colored glass is often open in the summer to ventilate the staircase. Otherwise, it always remains unlocked.

Cs Shared Courtyard

Users: Residents of the compound, **28** households
Accessible to: All
Access from: Bs via: Open door

The courtyard fulfills several functions. It serves as a garbage collection point for residual waste in several large garbage cans. Moreover, it is common bicycle parking for the residents of the house and has a communal carpet bar. In the middle of it a tree grows and some residents keep their potted plants in the yard. For most residents of the building who do not have private outdoor spaces, it is the only place to do outdoor manual work.

Building 10 Bassenahaus Gründerzeit block



Bs Staircase

Users: Residents of the building, **28** households
Accessible to: Users only
Access from: Sr via: Key access

There are two staircases that are symmetrically arranged at the two ends of the building. However, the right staircase is only partially open to the public and is not connected to an building entrance. This results in a nearly exclusive use of the left staircase.

As Arrival Corridor

Users: Residents of 1 floor, **8** households
Accessible to: Residents of the building, **28** households
Access from: Bs via: borderless transition

Due to the increased use of the left staircase there is an imbalance in the distribution of privacy in the corridor. The apartments near the right stairwell are much quieter because they have a lower user frequency. For this reason, there are much more appropriations in the right-hand section than in the left-hand section. Bicycles are parked in the right area and the windowsills are decorated with private potted plants. Such appropriations are not found on the busy left side. In the corridor there are in addition to the 8 apartment entrances still 2 shared toilets and a communal sink. These come from a time when the apartments have not yet had private sanitary facilities. Even today there are still a few apartments without private toilets, whose users then use the toilet in the corridor. These people are then more often in the corridor and it is very likely that they are encountered by neighbors. The length of the corridor promotes relationships only with the next door neigbors. The remaining neighbors of the floor are psychologically no closer than other neighbors in the house.

Apartment Entrance Door

Type of Barrier: Key access

PART C: EVALUATION

6 COMPARISON

6.1 **Permeability** in the urban context

The Quality of urban permeability is formed by 2 parameters. Block size is the main parameter, while block openness is the supporting parameter that only becomes relevant if the block size does not fulfill the maximum requirements. (for permeability see chapter 2.3.1) The two parameters are graded with [-],[+] and [++] and then combined to an overall result of permeability, in which the openness is only counted if the block size is not sufficiently small.

1. **Block size** is a quantitative parameter which can be measured by length times width in rectangular layouts or by measuring the perimeter length, which is applicable to any shape of block. Here the perimeter length is measured, due to the high variation of block shapes among the case studies. A favorable block size is 150 x 150m or smaller which can be translated to 600m perimeter length as constituted in chapter 2.3.1. A block size bigger than 600m perimeter length will be counted as [-] while block sizes below will be counted as [+].

2. **Openness** is the supporting parameter for this observation. It is a quantitative parameter that is constituted by the number of entrances that are publicly accessible without restriction. An area is only felt to be public and thus can only be considered public when anybody can answer the hypothetical question about their reason for being here. For example, that they have something to do in this area. (Häussermann 1992, p. 45) A closed block is graded [-] an open block [+] and a highly porous block [++]

The comparison shows a quite significant difference between Vienna and Shanghai. Taking aside case *01 KIC*, which is a rather exceptional case in Shanghai, the newer block types of parallel block and tower blocks do not fulfill the requirements of a permeable city, not because of morphological reasons, but because of their walled borders that are highly exclusive to the residents and are successfully keeping out strangers. *01 KIC* is also gated, but because of its very small block size it can be considered a favorable example for a walkable city. *05 Qing Yuan Xiao Qu*, which represents the Linong housing type is small enough to easily walk around and at the same time porous, making it an excellent part of the city fabric. Large parts of Vienna are made up from Gründerzeit blocks similar to case *10 Bassenahaus*. They are not open, having totally private interiors, but with a block size of less than 600 meters in perimeter they are highly sufficient for a walkable city. The communal courtyard types of Red Vienna like *09 Rabenhof* are very large in size but their interior is open to the public making them even more walk-friendly then the Gründerzeit blocks. *08 Wohnpark Altererlaa* which was built at the height of modernist city planning has an enormous block size but is quite porous to the public. It is used as a public park, but it is not embedded in a healthy city fabric, giving no reason to cross the vast park space of the interior for passersby and the enormous length of the inactive border makes it a less favorable urban type. *07 Wohnregal* is not part of a homogenous residential block but is combined with a large-scale tramway depot. This industrial area is not accessible and the Wohnregal compound neither is public ground, making this block a negative example of walkability in Vienna. Compared to the scale of adjacent blocks in this district, it is exceptionally big. *06 Living Room Sonnewendviertel* which was completed in 2013, is a result of Vienna's new urbanity directed planning. The block is very small, and the interior is accessible from two sides. There are facilities like the public bath in the basement that actively attract outsiders to the block making it a truly public space.

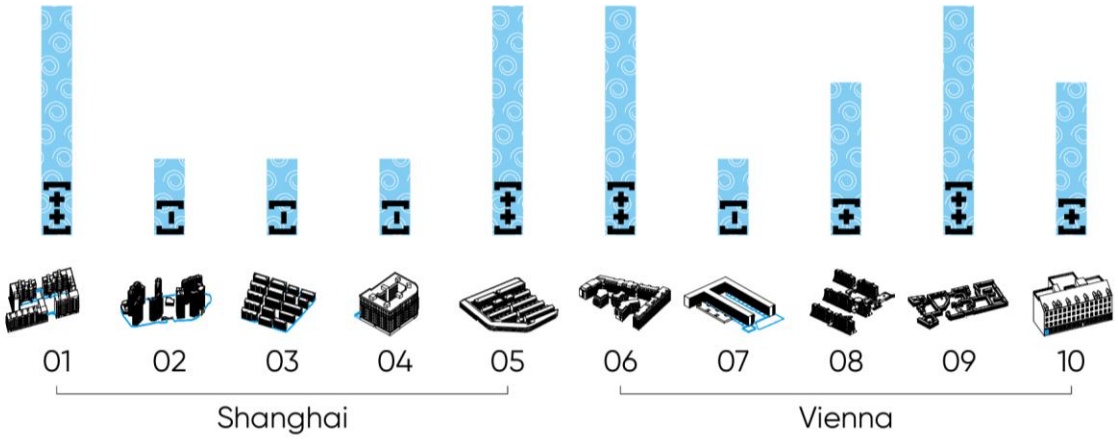
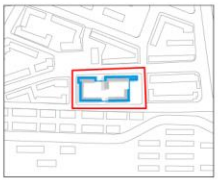


Fig. 6.1.1 Results *Permeability*

Permeability in the urban context



01 KIC
Perimeter: 410 m
Openness: (-)
Permeability: **[++]**

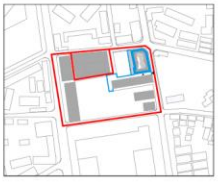
06 Living Room SWV
Perimeter: 390 m
Openness: (+)
Permeability: **[++]**

02 Pujiang Mingdi
Perimeter: 830 m
Openness: (-)
Permeability: **[-]**

07 Wohnregal
Perimeter: 750 m
Openness: (-)
Permeability: **[-]**

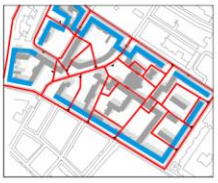
03 Yunguang Xiaoqu
Perimeter: 930 m
Openness: (-)
Permeability: **[-]**

08 Wohnpark ALT
Perimeter: 1780 m
Openness: (+)
Permeability: **[+]**



04 Puxi Apartment
Perimeter: 660 m
Openness: (-)
Permeability: **[-]**

09 Rabenhof
Perimeter: 1170 m
Openness: (++)
Permeability: **[++]**



05 Qing Yuan Xiaoqu
Perimeter: 400 m
Openness: (++)
Permeability: **[++]**

10 Gründerzeit
Perimeter: 560 m
Openness: (-)
Permeability: **[+]**

Fig. 6.1.2 Graphic Comparison *Permeability*

6.2 **Structural openness** of the ground floor

The quality of structural openness as described in chapter 2.3.2 is evaluated using a main parameter and a side parameter. The main parameter is the degree of built perimeter and the side parameter is its level of support for commercial functions. The main parameter is essential, while the side parameter is supporting the structural openness and therefore not sufficient without a high degree of built perimeter. Both parameters combined are graded as follows: [-] *insufficient structural openness*, [+] *sufficient structural openness* and [++] *excellent structural openness*.

1. **Built perimeter degree** is the main parameter which is measured as percentage of the total street perimeter of the block. *[In the 2 exceptional cases of 04 Puxi Apartment and 07 Wohnregal, which are single buildings in a larger inhomogeneous block the building is regarded as a block itself being bordered by streets on three sides. The fourth side is not regarded as a part of the street perimeter since it is facing a park.]* Although a high degree of built perimeter is favorable, it does not necessarily imply a high degree of structural openness, because some parts of the perimeter may be unusable for commercial activities. Thus, the supporting parameter has to be considered.

2. **Support of commercial use** is the supporting parameter which is applied to examine the usability of the ground floor perimeter units for commercial purpose. If only little can be used for commercial purpose, they are rated with [-] if most of the built perimeter can be used it is rated [+] and if there is already an existing commercial infrastructure in most of the perimeter it is rated [++]

The comparison of Shanghai and Vienna points to a neglection of structural openness in the tower and slab housing types *02, 03, 08*, because of their missing built perimeter. Even though the little parts of their perimeters that are facing the street are almost entirely commercialized, they are not sufficient for expansion of commercial activities along the street. Parallel blocks like *03 Yunguang Xiaoqu* and tower blocks like *02 Pujiang Mingdi* are among the most common types of housing in Shanghai today, making large parts of the city insufficient for structural openness, in a way that they cannot easily change to accommodate other uses than housing. *08 Wohnpark Alterlaa* is representative for slab housing like it was constructed in the 1960s and 70s in the periphery of Vienna. The commercial functions

are bundled in an introverted shopping center at the edge of the compound making only 3% built perimeter. All other sides of the block have large setbacks between the building and the street. The other projects all have a mostly built perimeter making them suitable for any ground floor use. *01 KIC* has a highly active commercial front with restaurants, cafés and bars along facing Daxue road. The other sides are used for residential but could be easily transformed for commercial purposes. *05 Qing Yuan Xiaoqu* is used in commercial and residential ways all around its perimeter, making it a good example of the structurally open Linong typology. In Vienna the *10 Gründerzeit* blocks which are constituting most parts of the traditional city are easy to accomodate public function wherever needed. The analyzed example is located further away from the city center and thus accomodates mostly housing in the ground floor with most commercial units clusterd along the arterial road on its north side. *09 Rabenhof* is similarly structured and would be able to have its mostly residential ground floor perimeter easily transformed to commercial units. *07 Wohnregal* is has a built perimeter along two of its three exposed sides and has good preconditions for commercial use. But there are no existing commercial units and the structure would need quite some changes to be transformed for commercial units. The newest project *06 Living Room Sonnwendviertel* has a fully commercial east side facing a park but the other sides appear rather closed and are not clearly intended for commercial use even though they could be easily transformed in such a way.

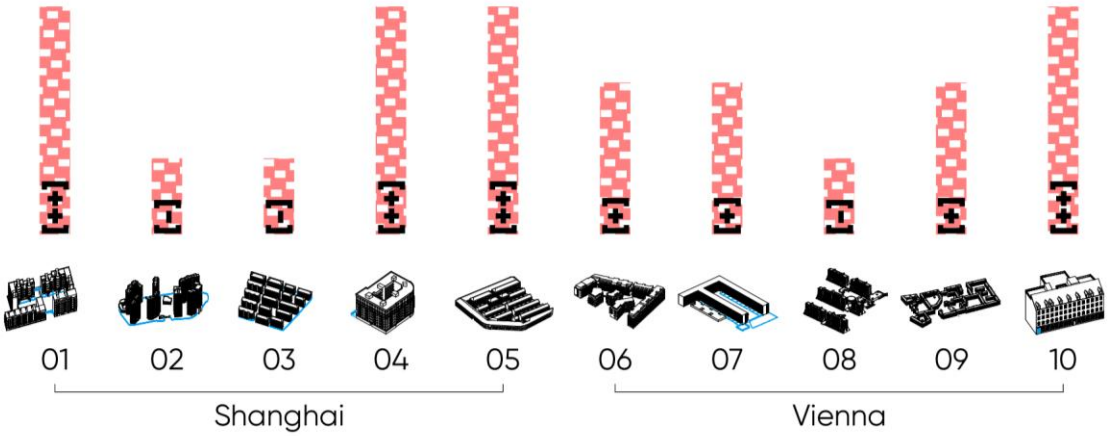
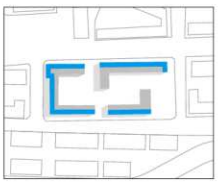


Fig. 6.2.1 Results Structural Openness

Structural openness of the ground floor



01 KIC

Built Perimeter: 61%

Supports commercial: (+)

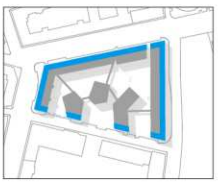
Str. openness: **[++]**

06 Living Room SWV

Built Perimeter: 80%

Supports commercial: (+)

Str. openness: **[+]**



02 Pujiang Mingdi

Built Perimeter: 18%

Supports commercial: (+)

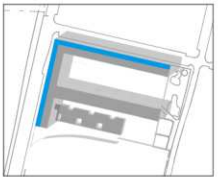
Str. openness: **[-]**

07 Wohnregal

Built Perimeter: 66%

Supports commercial: (-)

Str. openness: **[+]**



03 Yunguang Xiaoqu

Built Perimeter: 54%

Supports commercial: (-)

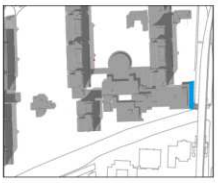
Str. openness: **[-]**

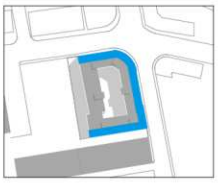
08 Wohnpark ALT

Built Perimeter: 3%

Supports commercial: (+)

Str. openness: **[-]**





04 Puxi Apartment

Built Perimeter: 100%

Supports commercial: (++)

Str. openness: **[++]**

09 Rabenhof

Built Perimeter: 92%

Supports commercial: (+)

Str. openness: **[+]**

05 Qing Yuan Xiaoqu

Built Perimeter: 95%

Supports commercial: (++)

Str. openness: **[++]**

10 Gründerzeit

Built Perimeter: 95%

Supports commercial: (+)

Str. openness: **[++]**

Fig. 6.2.2 Graphic Comparison *Structural Openness*

6.3 Social Control inside and outside the compound

The quality of Social Control as described in chapter 2.3.3 is measured on two different levels. Firstly, the social control on the main circulation routes inside the compound. Secondly, the social control outside the compound on the surrounding streets. Both areas are graded according to the amount of social control and added together to form the overall quality of social control.

1. **Social Control inside the compound** is evaluated according to the following parameters: the number of private units in the ground floor that give onto the collective circulation space, the number of balconies in a close distance to the collective circulation space.

2. **Social Control outside the compound** is evaluated in the same way using the parameters of number of private or commercial units giving onto the street and the number of balconies in a surveillable distance to the street.

The comparison of the ten cases shows clearly the two oldest Shanghai cases to be the most socially controlled. *05 Qing Yuan Xiaoqu* is highly socially controlled on the inside, because of the many private unit doors giving onto the narrow alleys, that are moreover used as an extension of the private space, making it naturally watched out for by the adjacent residents. The outside is equally controlled. All along the perimeter are entrance doors either from active commercial units or from private homes. The street is used as an extension of the units by people placing furniture outside. The shop owners and of the ground floor residents are the natural eyes of the street. In *04 Puxi Aparment* the exterior control is totally given to the shop owners who cover the whole street facade of the building. The interior works like a panopticon. The small courtyard allows to see most of the circulation balconies with the private units' entrance doors. Also, from any point on the circulation balconies it is possible to see the entire other side of the building's circulation space. It is impossible to enter your home without being seeing by someone before. This can be an example of social control taken too far. In each Shanghai and Vienna one newer project has achieved outstanding levels of social control. *01 KIC* has a great exterior social control, due to the fully commercial front to Daxue road, that is mainly restaurants and cafés

creating a great number of social eyes for the street. In the interior courtyard private gardens are place all along the circulation paths. The only weakness is that these gardens are not the main entrance to the ground floor units and sometimes can be totally closed off erasing any view connection. There are many balconies on the north facade keeping a watchful eye on the courtyard. In Vienna case *07 Wohnregal* has great interior control, due to many private units adjacent to the courtyard and circulation balconies like in *04 Puxi Apartment* on one side and private balconies on the other side of the courtyard. The street is also faced by circulation balconies with the private front porches of every private unit making it well watched, despite the lack of active commercial units in the ground floor. *03 Yunguang Xiaoqu* has a well-controlled interior space due to many ground floor units giving onto public space it is full of watchful eyes all around the clock. But the outside is mostly just turning a fence to the street, which allows view connection to the inside, but does not encourage watchful eyes. *09 Rabenhof* has some commercial units along the perimeter and few balconies to the street side. On the interior there are no private units in the ground floors and some balconies, but the surveillance level is rather low. The least level of social control is found at *02 Pujiang Mingdi* and the *10 Bassenahaus*. In *02 Pujiang Mingdi* there are no ground floor units giving onto the circulation routes and the balconies, if they have not been turned into closed verandas, they are too high up to establish a control function with the ground. On the exterior the block is closed off by a fence with additional hedges erasing any view connection to the inside and almost no commercial units that could serve as a social control of the street.

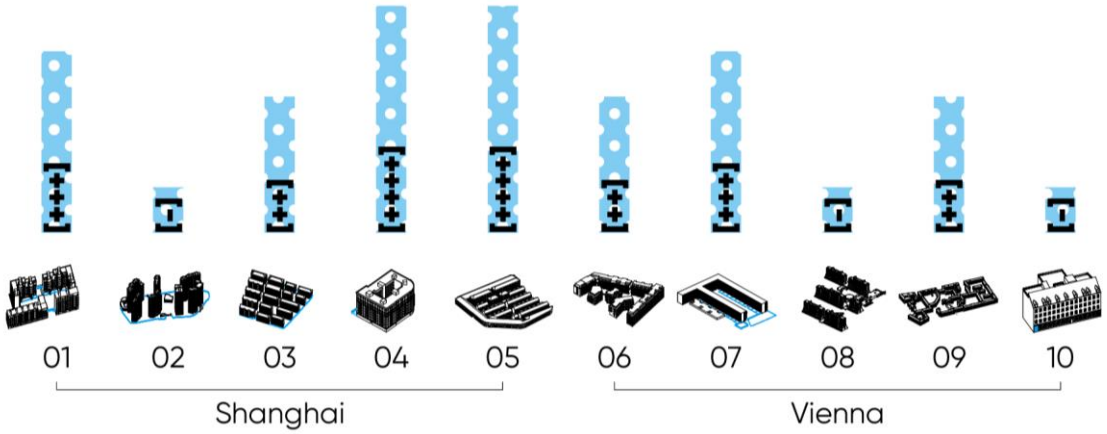


Fig. 6.3.1 Results *Social Control*

Social Control **inside the Compound**, a) Shanghai

01 KIC

private gardens along the circulation paths

Social control **[+]**

02 Pujiang Mingdi

no private gardens or private entrances along the main circulation

---

Social control **[-]**

03 Yunguang Xiaoqu

many private unit doors along the main circulation

Social control **[++]**

04 Puxi Apartment

many private units open to the main circulation paths

Social control **[++]**

05 Qing Yuan Xiaoqu

many private units with outside appropriation along main paths

---

Social control **[++]**

Fig. 6.3.2 Shanghai, inside the Compounds

Social Control **inside the Compound**, b) Vienna

06 Living Room SWV

balconies + few private units on ground floor face circulation paths

---

Social control **[++]**

07 Wohnregal

private ground floor units + circulation balonies + private balconies

---

Social control **[++]**

08 Wohnpark Alterlaa

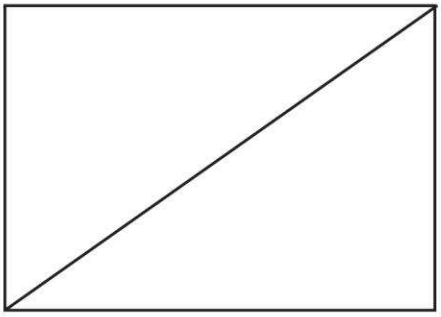
private balconies are far away from the circulation routes

Social control **[-]**

09 Rabenhof

some private balconies look onto courtyards

Social control **[+]**



10 Bassenahaus

no compound

Social control /

Fig. 6.3.3 Vienna, inside the Compounds

Social Control **outside the Compound**, a) Shanghai

01 KIC

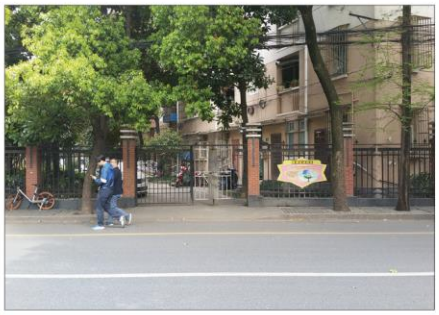
many commercial units
along the street

Social control **[++]**

02 Pujiang Mingdi

inactive street, hedges
alow no view connection
with the inside

Social control **[-]**



03 Yunguang Xiaoqu

some view connections
to the inside exists but
distance is big

Social control **[-]**

04 Puxi Apartment

many commercial units
facing the street

Social control **[++]**

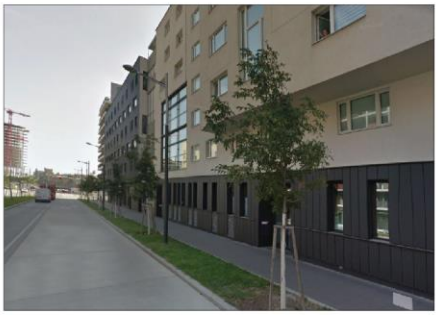
05 Qing Yuan Xiaoqu

many commercial + many
private unit doors give
onto the street

Social control **[++]**

Fig. 6.3.4 Shanghai, outside the Compounds

Social Control **outside the Compound**, b) Vienna



06 Living Room SWV

few commercial units and no balconies or private units give onto street

---

Social control **[-]**

07 Wohnregal

open circulation balconies with private front porches face street

---

Social control **[+]**

08 Wohnpark Alterlaa

no active units nor private units face street. buildings are far away

---

Social control **[-]**

09 Rabenhof

some commercial units and few balconies face street

Social control **[+]**

10 Bassenahaus

no commercial units and no private units face street, no balconies

---

Social control **[-]**

Fig. 6.3.5 Vienna, outside the Compounds

6.4 Unambiguous territorial structure

The quality of unambiguous territorial structure as described in chapter 2.3.4 is evaluated examining two parameters of equal importance. The first parameter is examining the nested character of the territorial structure and the second is the spatial rights that residents hold in each of these territories. In the end both parameters will be combined to grade if the blocks provide a sufficient territorial structure.

1. **Nested territorial structure** is a parameter that looks at the number of territories that enclose the private unit and examines if the structure follows a step-like organization that provides territories of increasing publicness. The Russian doll principle illustrates this scheme. The quality is graded [-] if the structure takes too big steps placing a territory shared by a small group within a space that is shared by a disproportionately larger group. It is graded [+] if the pattern takes proportional steps from small to big and it is graded [++] if the structure offers a multitude of small steps to provide a maximum nestedness of the private in the territorial structure. For better visualization the Russian doll principle is used to illustrate the importance of a step-like territorial structure. Once pieces of the Russian doll are missing the smaller dolls inside are not embedded anymore and may loosely roll about.

2. **Spatial rights** is a parameter that examines what rights the residents own in each of the territories, using the system of Kevin Lynch as described in chapter 2.3.4. Users can hold three different rights, from the basic right of presence to the right of action and the right of appropriation. The grading of this parameter is [-] if the residents own only very limited rights in their territories, it is graded [+] if they have several places for action and it is graded [++] if the territories offer an abundance of spatial rights including appropriation. In the Russian doll diagram the spatial rights are marked with blue dots in every territorial layer.

There are five cases offering an excellently unambiguous territorial structure. Four of them are in Shanghai, which might be explained with the traditional high level of territoriality in Chinese dwellings (see chapter 2.2.1) Especially the older types in Shanghai offer much greater possibilities of private appropriation of the collective space, especially *03 Yunguang*

Xiaoqu, 04 Puxi Apartment and *05 Qing Yuan Xiao Qu*. At *01 KIC* the reason for the good score is the well-defined step-like structure, offering nested spaces of different sizes to enable social interaction on many different levels. The only case in Shanghai without excellent territorial structure is *02 Pujiang Mingdi* even though the community is very large, there are few steps to the private unit. Especially on the building level there are few chances to establish social relations to the building neighbors. A shared rooftop could establish stronger relations. As common for newer projects, where all the space usages are legally defined, private appropriation is seldomly happening unless officially planned. *07 Wohnregal* is such a case where private front porches give onto the circulation balconies offering a space for private appropriation in direct relation to the circulation space, which has a high potential of establishing social encounters and a healthier community among neighbors. Other cases like *06 Living Room Sonnwendviertel* have failed to provide such a space. There and in *08 Wohnpark Alterlaa* a closed off landing corridor is creating a semi-private territory around the private unit, but there is no agreement among neighbors how to use this space and it remains untouched. *10 Bassenahaus* offers appropriately dimensioned steps in the territorial hierarchy, but it lacks territorial depth and useable exterior spaces that should be part of any urban home. *09 Rabenhof* and *06 Wohnzimmer Sonnwendviertel* offer a sufficient territorial structure with several possibilities for action in the collective space, but there is no space for private appropriation.

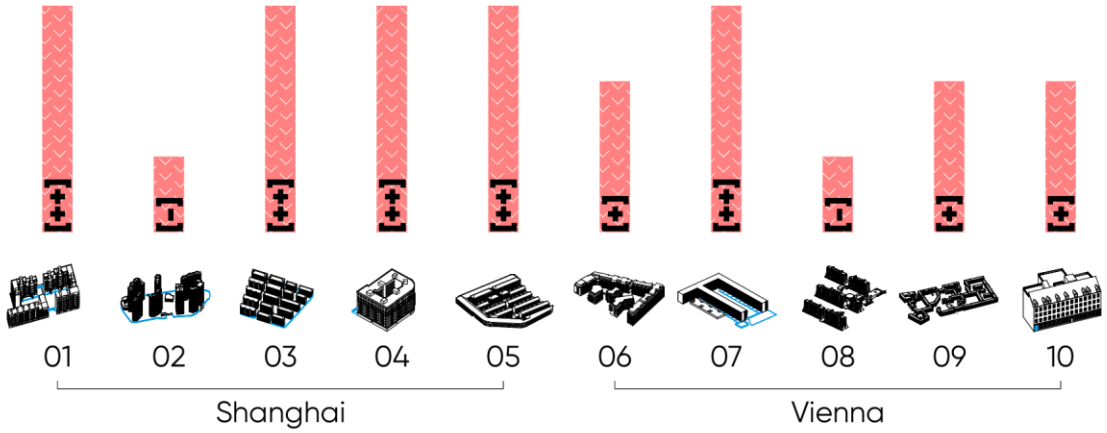


Fig. 6.4.1 Results Unambiguous territorial structure

Fig. 6.4.2 Comparison Unambiguous territorial structure (1)

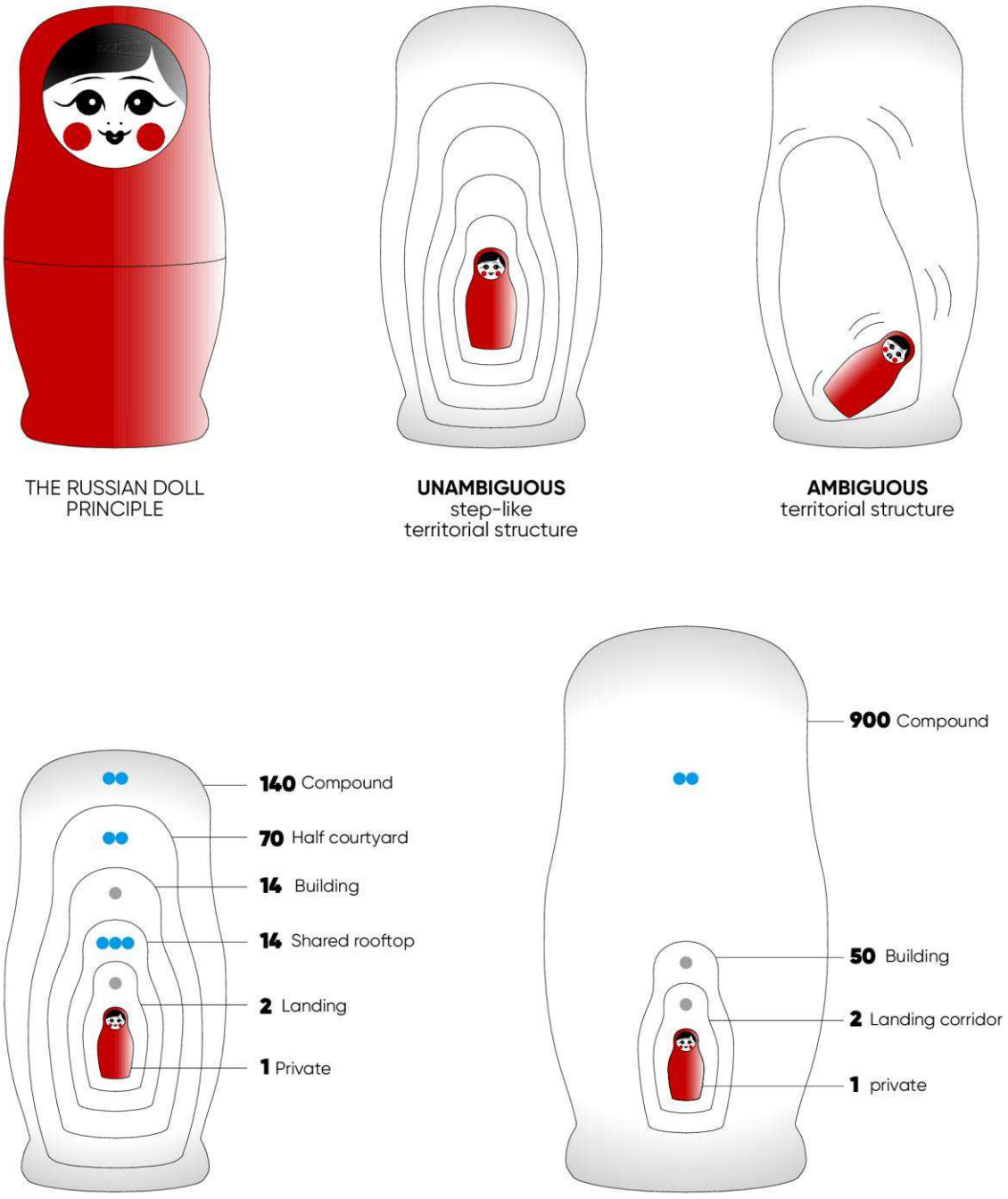
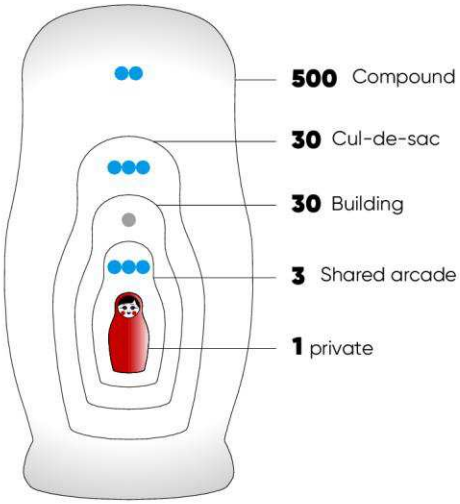


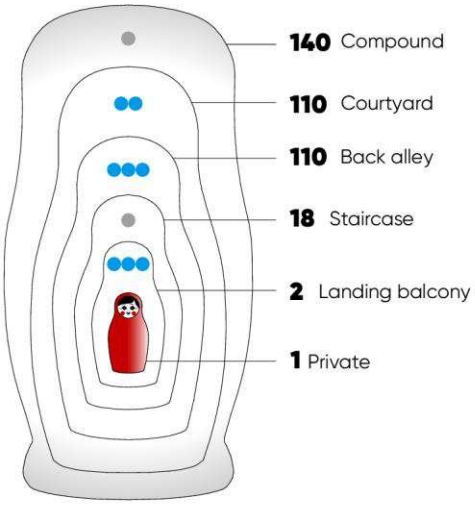
Fig. 6.4.3 Comparison Unambiguous territorial structure (2)



03 Yunguang Xiaoqu

Step-like territories: [+]
Spatial rights: [++]

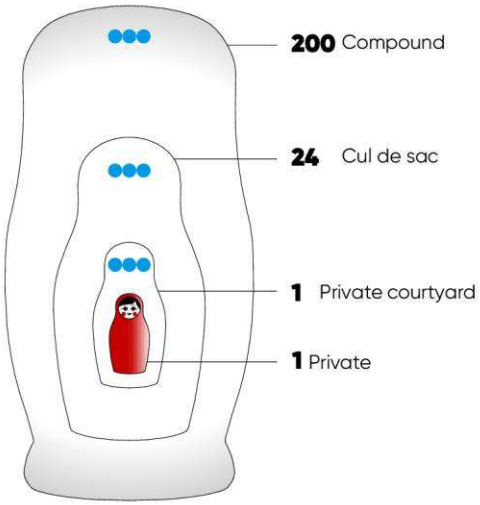
Unambiguous: **[++]**



04 Puxi Apartment

Step-like territories: [++]
Spatial rights: [++]

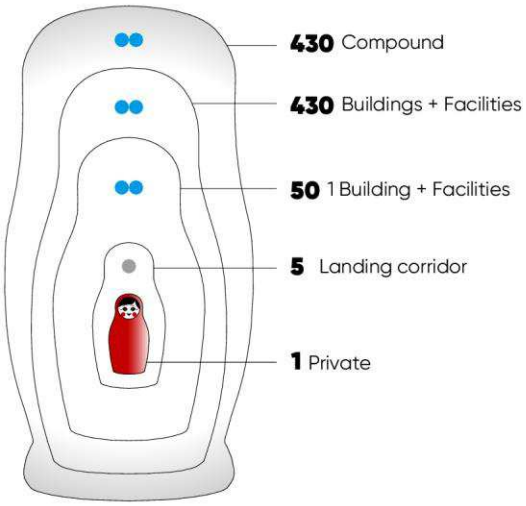
Unambiguous: **[++]**



05 Qing Yuan Xiaoqu

Step-like territories: [+]
Spatial rights: [++]

Unambiguous: **[++]**



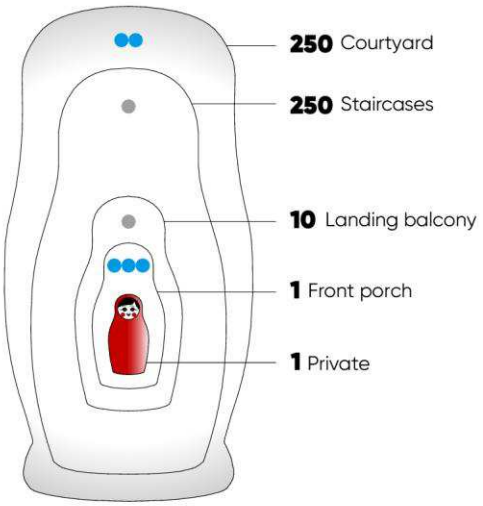
06 Living Room SWV

Step-like territories: [+]
Spatial rights: [+]

Unambiguous: **[+]**

Spatial rights: presence ● action ●● appropriation ●●●

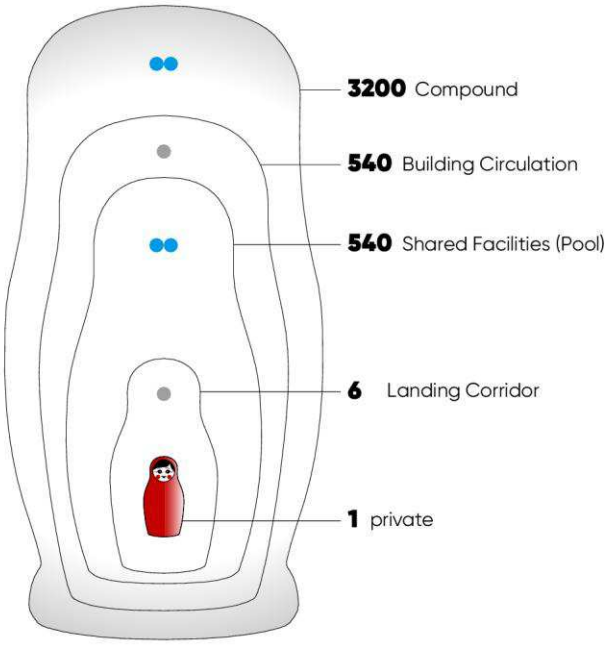
Fig. 6.4.4 Comparison Unambiguous territorial structure (3)



07 Wohnregal

Step-like territories: [+]
Spatial rights: [++]

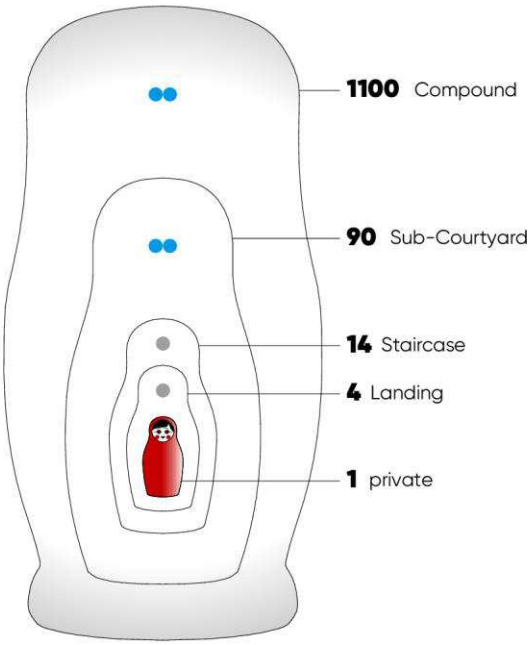
Unambiguous: **[++]**



08 Wohnpark ALT

Step-like territories: [–]
Spatial rights: [–]

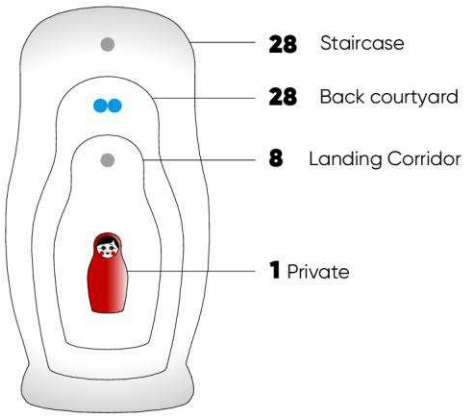
Unambiguous: **[–]**



09 Rabenhof

Step-like territories: [+]
Spatial rights: [–]

Unambiguous: **[+]**



10 Bassenahaus

Step-like territories: [+]
Spatial rights: [–]

Unambiguous: **[+]**

Spatial rights: presence ● action ●● appropriation ●●●

6.5 Threshold zones

The quality of the threshold zones as described in chapter 2.3.5 is evaluated on three different transitions. Firstly, the transition from the street to the compound, secondly the entrance from the compound into the building and thirdly at the entrance of the private dwelling unit. All three areas will be added together to form the overall quality of the threshold zones. Thresholds are areas at transitions between two different territories that create the potential for social encounters between different user groups and should invite people to pause and stay rather than just pass through.

1. **Thresholds at the compound entrance** are in direct relation to the street and can be created by a small place with public benches or shared facilities or by small stores or cafés that appeal to the residents of the compound.

2. **Thresholds at building entrance** can be created by ground floor residents through appropriation of the adjacent spaces, installed seating or by architectural articulation that defines the space as an in-between space.

3. **Thresholds at the dwelling unit entrance** are spaces that encourage the extension of the private unit to the collective space. They can be designed spaces that create another territorial level for private appropriation, or they are created by the residents themselves through appropriation.

A high level of bottom up thresholds occurs in *05 Qing Yuan Xiaoqu*. Little alleys are appropriated by the residents who have installed some sinks outside and put furniture in the alley. In *03 Yunguang Xiaoqu, 04 Puxi Apartment* it is a convenience store right next to the compound entrance that serves as an active meeting point. *06 Living Room Sonnwendviertel* has a large passage with an adjacent café as a threshold zone. Standing tables are installed in this zone and create a very good threshold zone. In a similar way *08 Wohnpark Alterlaa* has a shopping center with street food stands right at the entrance of the compound, coming from the subway station. *09 Rabenhof* has a large built threshold zone in the shape of a courtyard set back from the street. *10 Bassenahaus, 07 Wohnregal* and *02 Pujiang Mingdi* have no threshold zones at the entrance of the compound.

At the building entrance level, *06 Living Room Sonnwendviertel* has an outstanding threshold zone. A small community market on a plaza is placed right in front of the entrance door under a roof. *08 Wohnpark Alterlaa* has a small round square with benches for seating in front of every building entrance, making a good place for encounters with building neighbors. *01 KIC, 03 Yunguang Xiaoqu, 04 Puxi Apartment* and *09 Rabenhof* all have architecturally articulated transition zones that have limited possibilities for community encounters. *02 Pujiang Mingdi* has a similar articulation of few steps leading up to the entrance, but for its building size, housing 50 units it is not a sufficient threshold zone.

At the level of the dwelling unit entrance the old cases from Shanghai have very good threshold zones that are mainly based on the extension of the dwelling to the outside. While in *04 Puxi Apartment* and *05 Qing Yuan Xiaoqu* this is a sole bottom up process that is not suggested by the architectural composition, in *03 Yunguang Xiaoqu* this is created by a shared landing balcony that is closed off from the staircase by a door. It is shared by only 3 units and invites residents to extend to the outside. In Vienna *07 Wohnregal* also has planned spaces that make a perfect threshold zone. Small semi-private front porches give onto the landing balconies. Giving each resident the possibility to sit in their own space but being able to communicate with passersby and even have a view connection to the street. *06 Living Room Sonnwendviertel* and *08 Wohnpark Alterlaa* have landing corridors that are only shared by 4 units and closed off from the main building circulation.

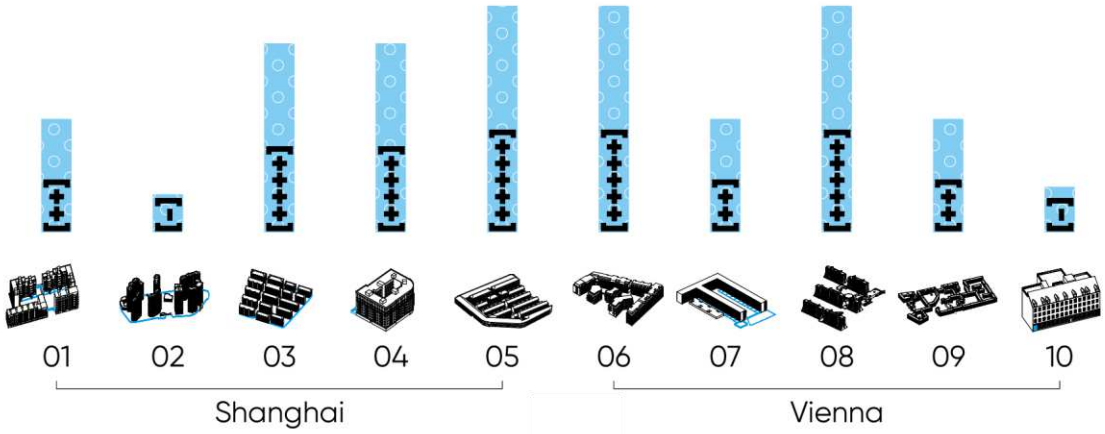


Fig. 6.5.1 Results *Threshold zones*

Thresholds at the **Compound Entrance**, a) Shanghai

01 KIC

Arrival Space exists but is not used as a threshold

---

threshold **[+]**

02 Pujiang Mingdi

no useable threshold space exists

---

threshold **[-]**

03 Yunguang Xiaoqu

convenience store has threshold character

---

threshold **[+]**

04 Puxi Apartment

convenience store has threshold character

---

threshold **[+]**

05 Qing Yuan Xiaoqu

public sink is installed at the entrance

---

threshold **[+]**

Fig. 6.5.2 Shanghai Compound Entrance

Thresholds at the **Compound Entrance,** b) Vienna

06 Living Room SWV

passage with café and

space to sit outside

---

threshold **[++]**

07 Wohnregal

no useable threshold

space exists

---

threshold **[-]**

08 Wohnpark Alterlaa

shopping center with

streetfood as threshold

---

threshold **[++]**

09 Rabenhof

setback courtyard with

small businesses

---

threshold **[+]**

10 Bassenahaus

no useable threshold

space exists

---

threshold **[-]**

Fig. 6.5.3 Vienna Compound Entrance

Thresholds at the **Building Entrance**, a) Shanghai

01 KIC

entrance setback between the gardens

---

threshold **[+]**

02 Pujiang Mingdi

threshold not appropriate for building size

---

threshold **[-]**

03 Yunguang Xiaoqu

threshold through steps appropriation visible

---

threshold **[+]**

04 Puxi Apartment

threshold through steps, no appropriation

---

threshold **[+]**

05 Qing Yuan Xiaoqu

no built threshold, but highly appropriated by people

---

hreshold **[++]**

Fig. 6.5.4 Shanghai Building Entrance

Thresholds at the **Building Entrance**, b) Vienna

06 Living Room SWV

market square at the entrance

---

threshold **[++]**

07 Wohnregal

no useable threshold space exists

---

threshold **[-]**

08 Wohnpark Alterlaa

benches on a small squa-re make usable threshold

---

threshold **[++]**

09 Rabenhof

recessed entrance makes threshold

---

threshold **[+]**

10 Bassenahaus

no useable threshold space exists

---

threshold **[-]**

Fig. 6.5.5 Vienna Building Entrance

Thresholds at the **Dwelling Unit Entrance**, a) Shanghai

01 KIC

no useable threshold space exists

---

threshold **[-]**

02 Pujiang Mingdi

no useable threshold space exists

---

threshold **[-]**

03 Yunguang Xiaoqu

shared landing balcony, shared by 3 units

---

threshold **[++]**

04 Puxi Apartment

shared landing balcony, private appropriation

---

threshold **[++]**

05 Qing Yuan Xiaoqu

no built threshold, but highly appropriated by people

---

hreshold **[++]**

Fig. 6.5.6 Shanghai dwelling unit entrance

Thresholds at the **Dwelling Unit Entrance**, b) Vienna

06 Living Room SWV

closed off landing corridor for 4 units, no appropriation

threshold **[-]**

07 Wohnregal

private front porch with full customizability

threshold **[++]**

08 Wohnpark Alterlaa

closed off landing corridor for 5 units, no appropriation

threshold **[++]**

09 Rabenhof

small landing, no threshold

threshold **[-]**

10 Bassenahaus

long corridor, no useable threshold exists

threshold **[-]**

Fig. 6.5.7 Vienna dwelling unit entrance

6.6 Result of the Comparison

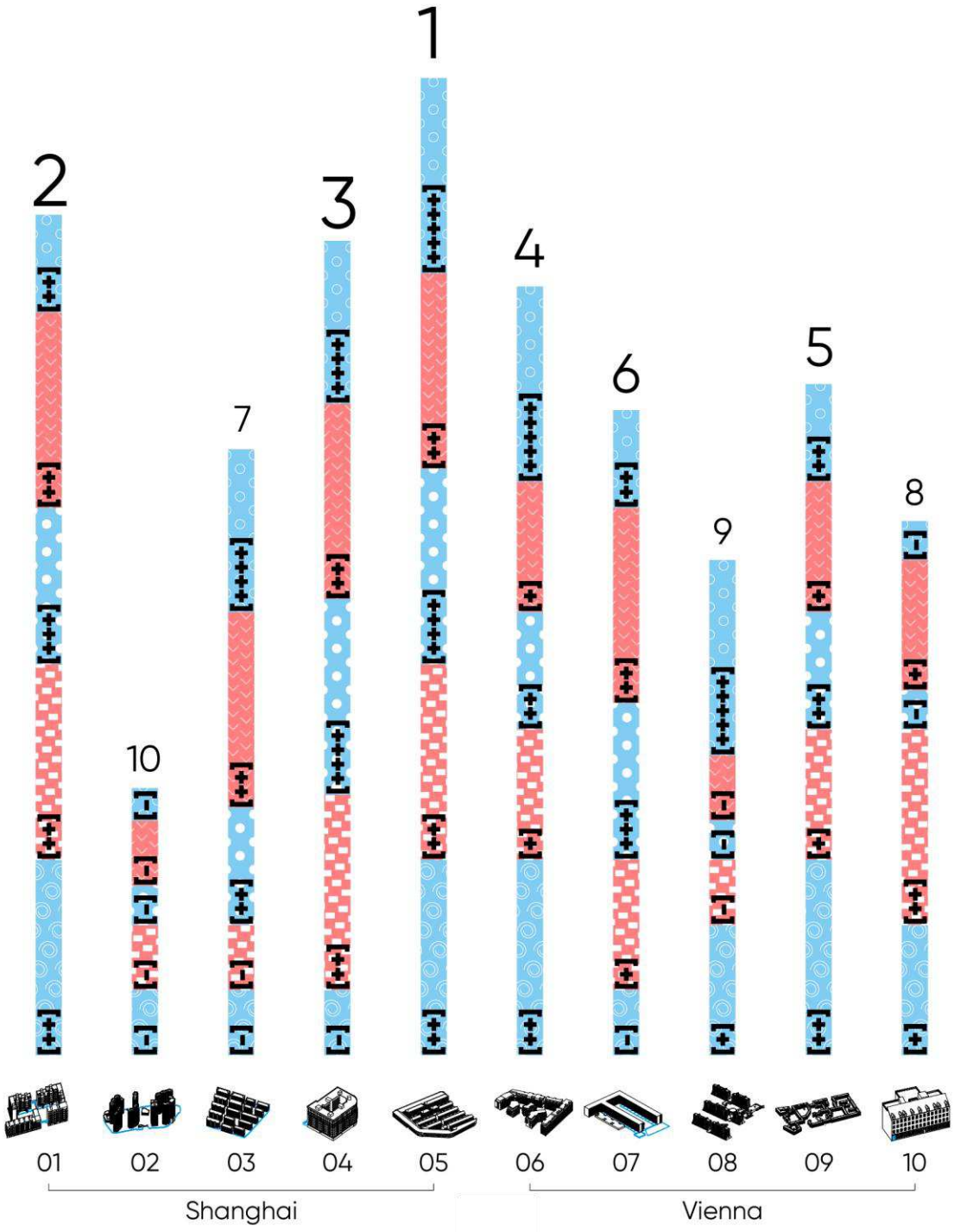


Fig. 6.6 Overall Comparision Results (by the author)

Having tested ten case studies from Shanghai and Vienna on these five qualities of urbanity the result clearly ranks *05 Qing Yuan Xiaoqu* first, followed by *01 KIC* and *04 Puxi apartment*. The range of variation in urban quality among the blocks in Shanghai is much higher than in Vienna which speaks for a rather continuous evolution of housing in Vienna contrasted by a development of drastic changes in Shanghai. The reason why Vienna is so far behind the top scorers of Shanghai is the lack of private appropriation of collective spaces which does not exist in Vienna, a city which might be overregulated in that sense, not allowing bottom up extensions. Taking into account that *01 KIC* is a very urban, but a rather unique project in Shanghai and the standard of housing production today leans towards tower blocks like *02 Pujiang Mingdi*, one can see a continuous decrease of urbanity in Shanghai since the Lilong type.

Significant is the low score of *02 Pujiang Mingdi*, which was insufficient in every tested category. This does not mean this project is inferior to the others. In fact, if the tested qualities were about good living conditions of the private dwelling unit, then Pujiang Mingdi would have ranked among the best, since it has the best lookout, large units, good sun exposure and ventilation, modern amenities, highest security and it is placed in a large park, offering nature in close proximity. It has reached perfection in achieving the values of the modern movement and it has perfected privacy. Residents on the level of the compound get total privacy from the city and on the level of the building they get total privacy from each other. This may be appealing to people, but eventually supports the disintegration of society as described by Tocqueville:

"Each person, withdrawn into himself, behaves as though he is a stranger to the destiny of all the others. His children and his good friends constitute for him the whole of the human species. As for his transactions with his fellow citizens, he may mix among them, but he sees them not; he touches them, but does not feel them; he exists only in himself and for himself alone. And if on these terms there remains in his mind a sense of family, there no longer remains a sense of society" (Tocqueville, cited in Sennett, 1977 p. vii)

As a countermovement of this disintegration, urbanity is a suggested solution. Inherent in the idea of urbanity is a glorification of the past as the urban role models are rooted in the 19th century city. This is expressed by the good grade of the Lilong *05 Qing Yuan Xiaoqu*. Which is in terms of its crampedness and lack of space inferior to modern tower blocks.

But it is the high level of semi-private appropriation of public spaces, the coming out of the private unit that creates a situation of dwelling together rather than dwelling side by side. For its low density and several other reasons, the Lilong is not a suitable way of constructing housing for this century anymore, but its positive sides may be reproduced and worked into contemporary projects. One example of a successful architectural reproduction of these qualities is the *07 Wohnregal* in Vienna. The lanes of the Lilong are vertically stacked and become open landing balconies. Unlike in the Lilong that has a bottom up appropriation of the street, the appropriation of the balcony streets in the Wohnregal is already intended by the architect, giving each unit a semiprivate front porch. Though organized very differently from the Lilong it conveys the same principle of dwelling together.

7 CONCLUSION

This final chapter goes back to reconsider the problems of contemporary cities and suggests solutions by summarizing the five problem-related qualities for urban blocks that were worked out in this research. The third part of the conclusion gives a future perspective by looking at the bigger picture of the social urban problems and related further research that could be valuable for this topic.

Reconsidering the urban problems

Alongside the constant improvement of individual homes in Shanghai and Vienna throughout the twentieth century there has been an ongoing decrease of urbanity, due to urban sprawl, short-sighted functionalism and social changes that encouraged a more private than public lifestyle. It is the qualities that were inherent to the old towns and cities all around the world that have been lost in the last century. Housing, which has always been the main component of cities has become disintegrated from the urban fabric. Thus, the relationship between the buildings and the city has been lost. Among others these are five problems responsible for the decrease of urbanity in our cities:

1. Walking distances have become too large and the monotony of the pedestrian routes make them unattractive and empty.
2. Many contemporary developments turn their backs on the streets or are placed further away from the street edge to create a buffer zone between car traffic and living environments. Commercial uses and the street life that comes with them have been taken away from the ground floors at the street edge and moved to shopping centers that become introverted monopoly spaces for commercial activity in the city.

3. The morphological arrangement of the buildings makes it harder for the residents to directly control the collective interior spaces nor the adjacent street space, leading to less collective responsibility for the immediate living environment. Especially in high-rises the residents of the higher levels lose their relationship to the collective grounds.
4. The group of people dedicated to sharing one collective space can reach numbers that are too high for any meaningful shared usage. Instead of making use of these spaces they are degraded to pure circulation spaces due to their ambiguous territorial features.
5. Entrances to the compound, building entrances and entrances to apartments are serving the sole purpose of transition but have lost their ability for slowing down movements and creating threshold zones that create opportunities of human interaction in these areas.

Establishing five qualities for urban blocks

To counteract these five problems five qualities for more urban blocks have been extracted from literature. Every one of the qualities is in itself constituted by several parameters that define it. The five qualities are:

1. Permeability is the main precondition for a walkable city. The more walking connections there are around or through the city block the more it will be appreciated by the pedestrian. At the scale of the urban block, permeability is constituted by the parameter of block size and the openness of the block. Block size, which can be measured by the perimeter of the block and where 600 m (150 x 150 m) or smaller is considered a preferable length. The parameter of block openness tests if the block allows passersby to cross through the block.
2. The structural openness of the ground floor is about the flexibility of the building to accommodate different uses as time changes. It is a further development of the idea of planned mixed-use. While planned mixed-use sometimes creates highly specialized buildings that become unusable once their original function moves out, structurally open buildings are ready to accommodate whatever new function is required. Precondition and the first parameter for the structural openness is that the buildings are situated at the block perimeter, which is the most suitable for any

possible function. The second parameter is the structural openness of the building construction which is about the ceiling height and the choice of construction material. High ceilings of 4 m and more are capable of accommodating public functions that promote a vibrant public street and with the choice of construction material has to be ensured that walls can be easily removed, so the layout can be changed.

3. Social control is about ensuring that residents are able to exert a certain level of control on their surroundings. Apart from more security, giving them the ability to take responsibility in the collective space and the public street, is promoting a higher intensity of collective and public space usage. Private balconies in close proximity to the collective space and dwelling units giving directly onto the collective space promote higher levels of social control in the compounds and can be used as parameters for the evaluation of social control. On the exterior between compound and street, an increased number of active commercial units are creating a secure and walk-friendly environment.
4. An unambiguous territorial structure means that the private home is nested in a variety of usable public spaces, that are shared by different groups of increasing size and where residents have certainty about who is allowed to use these spaces and to which extent. The first parameter is concerning the proportions of the territorial hierarchy in the housing compound. Ideally the territories follow a step-like organization of steadily increasing group sizes from the private to the public. The second parameter evaluates the spatial rights of each territory, which can vary from the sole right of presence, to the right of action, appropriation or even modification.
5. Proper threshold zones are transition spaces that allow encounters between neighbors. Instead of a clear separation of two territories a threshold zone between them can create opportunities for interaction. They should act as a zone for slowing down, for pausing for a moment. In the urban block there are three transition spaces for possible threshold zones. They all serve different user groups and thus are articulated differently. The compound entrance which can be turned into a threshold space by creating a small plaza with seating or with placing a small store or café adjacent to it, that can be a meeting point for residents. The building entrance can become a threshold zone by clear architectural articulation, by installed seating or architectural articulation that defines the space as an in-between space.

At the dwelling unit entrance thresholds are to create a zone that can be used for private appropriation that encourages the extension of the private unit out to the collective space.

Future perspective

The collection of socio-spatial qualities for urban blocks can be viewed as a valuable starting point for a deeper analysis. A clear set of morphological implications of urban housing blocks on the social spaces within and around them has yet to be established. The formulation of qualities needs further expanding and more cases should be studied to achieve a holistic picture of the most important morphological effects on social space. Also, the parameters can be further refined, and new parameters are to be added. In this work, field research has been limited to one-time site visits and photographic documentation, thus needs to be conducted in greater detail and expanded to residents' opinions. Research that had been carried out by Oscar Newman in the second half of the 20th century is highly influential up until today, because he has collected quantifiable data about socio-spatial issues. Yet his research mainly targeted the issues of crime prevention and security that were important in the USA at that time. Clear morphological guidelines based on public space survey and collection of large amounts of quantifiable data, as Jan Gehl has collected them to create good public spaces for people, should be developed for urban housing in the same way. It is the simple numbers that had helped him convince city governments of the good cause of his planning. Simple numbers are needed to convince decision makers of the good effects of more urbanity on our housing developments.

REFERENCES

Arkaraprasertkul, N. (2009) 'Towards modern urban housing: redefining Shanghai's lilong', *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*. Routledge, 2(1), pp. 11–29.

Bahrdt, H. P. (1998) *Die moderne Großstadt*. Edited by U. Herlyn. Wiesbaden: VS Verlag für Sozialwissenschaften.

Bahrdt, H. P. (1956) 'No Title', *Baukunst und Werkform*, 12, pp. 653–657.

Beevers, R. (1988) *The Garden City Utopia*. London: Palgrave Macmillan UK.

Bhatia, N. (2008) 'The Rise of the Private: Shanghai's Transforming Housing Typologies', *Footprint*, pp. 67–76.

Boettger, T. (2014) *Threshold Spaces - Transitions in Architecture*. Basel: Birkhäuser.

Corbusier, L. (1987) *The City of To-morrow and Its Planning*. EPUB Ver. New York: Dover Publications, Inc.

Curdes, G. (1997) *Stadtstruktur und Stadtgestaltung*.

Damyanovic, D. (2013) *Handbuch Gender Mainstreaming in der Stadtplanung und Stadtentwicklung*. Vienna: MA 18 - Stadtentwicklung Stadtplanung.

Duany, A., Sorlien, S. and Wright, W. (2003) *The SmartCode*. The Town Paper Publisher.

Förster, W. (2016) *The Vienna Model - Housing for the Twenty-First-Century City*. Edited by W. Menking. Jovis.

Gehl, J. (2010) *Cities for people*. Washington: Island Press.Guan, Q. (1996) *Lilong Housing, A Traditional Settlement Form*. McGill.

Habraken, N. J. and Teicher, J. (1998) *The structure of the ordinary : form and control in the built environment*. MIT Press.

Hannappel, L. (2018) *Masterplan Gründerzeit - Handlungsempfehlungen zur qualitätsorientierten Weiterentwicklung der gründerzeitlichen Bestandsstadt*. Vienna: Magistrat der Stadt Wien, MA 21 - Stadtteilplanung und Flächennutzung.

Hassenpflug, D. (2010) *The urban code of China*. Basel: Birkhäuser.

Häußermann, H. and Siebel, W. (1992) 'Urbanität', *Stadtentwicklungsplan*, 37.

Hertzberger, H. (2005) *Lessons for students in architecture*. 010 Publishers.

Hertzberger, H. (2010) *Space and the architect: lessons in architecture 2*. 010 Publishers.

Jacobs Jane (1958) *Downtown is for People*, *Fortune Classic*. Available at: https://fortune.com/2011/09/18/downtown-is-for-people-fortune-classic-1958/ (Accessed: 3 August 2019).

Jacobs, J. (1992) *The death and life of great American cities*. Vintage Books/Knopf Doubleday Publishing Group.

Jäger-Klein, C. (2010) *Österreichische Architektur des 19. und 20. Jahrhunderts*. Vienna: NWV Neuer Wissenschaftlicher Verlag.

Kleihues, J. P. (1985) 'Der städtische Baublock', in Peichl, G. and Hoeppner, D. M. (eds) *Wiener Wohnbau Beispiele*. Architektur- und Baufachverlag Wien, pp. 89–105.

Krämer, S. (2013) 'Entartung und Urbanität', *Schriftenreihe der Winckelmann Akademie für Kunstgeschichte München*. Available at: www.winckelmann-akademie.de (Accessed: 28 July 2019).

Kreid, J. (2017) 'Rennbahnweg: Ein Problemkind wurde erwachsen', *Kurier*, 11 June.

Lampugnani, V. (2013) 'Zwischen Programm und Offenheit', *Neue Zürcher Zeitung*.

Löw, M. and Goodwin, D. (2016) *The sociology of space : materiality, social structures, and action*. Palgrave Macmillan.

Lu, D. (2006) *Remaking Chinese urban form : modernity, scarcity and space, 1949-2005*. Routledge.

Lucan, J. (2012) *Où va la ville aujourd'hui? Formes urbaines et mixités*. Paris: Editions de la Villette.

Lynch, K. (1981) *A theory of good city form*. Massachusetts Institute of Technology.

Newman, O. (1996) *Creating Defensible Space*. U.S. Department of Housing and Urban Development.

Oberzaucher, E. (2017) *Homo urbanus Ein evolutionsbiologischer Blick in die Zukunft der Städte*. Berlin, Heidelberg: Springer.

Panerai, P. *et al.* (2003) *Urban forms : the death and life of the urban block*. Architectural.

Philipp, N. (2013) 'Wie man Urbanität generiert', *Architekturjournal Wettbewerbe*, 309, pp. 11–12.

Pröfener, F. (2017) 'Urbanität', *Historisches Wörterbuch der Philosophie online*. Basel: Schwabe Verlag. doi: 10.24894/HWPh.4480.

Raith, E. (2011) 'Bebauungsplanung', in *Die Instrumente des Städtebaus - Vision + Wirklichkeit*. 2nd edn. Vienna: Magistratsabteilung 18 - Stadtentwicklung und Stadtplanung.

Rowe, P. G. (2005) *East Asia modern : shaping the contemporary city*. London: Reaktion Books.

Rowe, P. G., Forsyth, A. and Kan, H. Y. (2016) *China's Urban Communities : Concepts, Contexts, and Well-Being*. Basel: Birkhäuser.

Sennett, R. (1977) *The fall of public man*. German Ver. Cambridge University Press.

Sennett, R. (2018) *Building and dwelling : ethics for the city*. Penguin Books.

Sonne, W. (2009) 'Dwelling in the metropolis: Reformed urban blocks 1890–1940 as a model for the sustainable compact city', *Progress in Planning*. Pergamon, 72(2), pp. 53–149.

Sonne, W. and Steinherz, G. (2017) *Urbanity and density in 20th-century urban design*. German Edi. Berlin: DOM publishers.

Tabor, J. (1988) 'Schöner Wohnen mit Schönheitsfehlern', in *Wohnen in der Stadt. Ideen für Wien*. Vienna: Stadt Wien. Geschäftsgruppe Wohnbau und Stadterneuerung (MA24).

Veil, K. (2001) *Raumkontrolle - Videokontrolle und Planung für den öffentlichen Raum*. TU Berlin.

Venturi, R. (1977) *Complexity and contradiction in architecture*. 2nd edn. The Museum of Modern Art, New York.

Weihsmann, H. (1985) *Das rote Wien : sozialdemokratische Architektur und Kommunalpolitik, 1919-1934*. Vienna: Promedia.

Wimmer, H. (no date) *Wohnbau Koppstraße*. Available at: http://www.wimmerundpartner.com/index.php?seite=konzepte&konzept=wohnregal&id=1&lang=de.

LIST OF FIGURES

Fig. 2.1.3.10 Bottom image: Hedderheim, Frankfurt (Google maps) https://www.google.at/maps/place/Hedderheim+Frankfurt (accessed 2019/08/26)

Fig. 2.2 Territorial depth redrawn by the author, from Habraken, N. J. and Teicher, J. (1998) *The structure of the ordinary : form and control in the built environment*. MIT Press. p. 139

Fig. 2.2.1.1 Beijing 1750 – Detail of the Complete Map of the Capital City during the Qianlong Era, showing deep territoriality with main streets and gated side streets and sequences of several courtyards redrawn from Habraken, N. J. and Teicher, J. (1998) *The structure of the ordinary : form and control in the built environment*. MIT Press. p. 151

Fig. 2.2.1.2 Tunis: Example of deep territorial structure redrawn from Habraken, N. J. and Teicher, J. (1998) *The structure of the ordinary : form and control in the built environment*. MIT Press. p. 147

Fig. 2.2.2 Territorial variations on the urban block from Habraken, N. J. and Teicher, J. (1998) *The structure of the ordinary : form and control in the built environment*. MIT Press. p. 173

Fig. 2.3.1 Openness and Enclosure in terms of permeability. By the author

Fig. 2.3.1.1 Block size comparison at the same scale, Songjiang New City and Seestadt Aspern. By the author

Fig. 2.3.1.2 The three ages of city and the open block by Christian de Portzamparc from Lucan, J. (2012) *Où va la ville aujourd'hui*. Paris: Editions de la Villette.

Fig. 2.3.2 Openness and Enclosure in terms of structural openness. By the author

Fig. 2.3.2 The New Town House by Erich Raith and nonconform Architektur from Philipp, N. (2013) 'Wie man Urbanität generiert', *Architekturjournal Wettbewerbe*, 309, p. 11.

Fig. 2.3.3 Openness and Enclosure in terms of social control. By the author

Fig. 2.3.3.1 Defensible Space. Left: spaces are private and defensible; Right: all of ground floor is public from Newman, O. (1996) *Creating Defensible Space*. U.S. Department of Housing and Urban Development. p. 19-20

Fig. 2.3.4 Openness and Enclosure in terms of territorial structure. By the author

Fig. 2.3.4.1 Photos: Left, Pujiang Mingdi, Right, Cul-de-sac in Anshan Xincun taken by the

author 2018

Fig. 2.3.4.2 Diagrams:
Left: Tower block (Pujiang Mindi), ambiguous block morpholgy
Right; Parallel block (Yunguang Xiaoqu), less ambiguous morphology (by the author)

Fig. 2.3.5 Openness and Enclosure in terms of thresholds. By the author

Fig. 2.3.5.1 Top: Three different transition zones: Block entrance, Building entrance, Unit entrance, taken at KIC in Shanghai by the author 2018

Fig. 2.3.5.2 Bottom: Threshold spaces in an elderly home (Hertzberger 2010), taken by the author 2018

Fig. 3.1.1.1 Lilong main inside thoroughfare, Qing Yuan Xiaoqu 2018, photograph taken by the author at Qing Yuang Xiaoqu in 2018

Fig. 3.1.1.2 Figure ground and axonometric of Qing Yuan Xiaoqu (see chapter 5.5) (by the author)

Fig. 3.1.2.1 Anshan Xincun parallel block, photograph taken by the author 2018

Fig. 3.1.2.2 Figure ground plan and axonometric of Yunguang Xiaoqu (see chapter 5.3) (by the author)

Fig. 3.1.3.1 Figure ground plan and axonometric of Pujiang Mingdi (see chapter 5.2) (by the author)

Fig. 3.1.3.2 Tower block Zhongyuan Liangwancheng, photograph taken by the author in 2018

Fig. 3.1.3.3 Plaza inside the tower block Pujiang Mingdi 2018, photograph taken by the author in 2018

https://www.google.at/maps/place/Seestadt+Aspern (accessed 2019/08/09)

Fig. 4.3.1 Example of an axonometric diagram: Rabenhof (by the author)

Fig. 4.3.2.1 Example of a legend: Rabenhof (by the author)

Fig. 4.3.2 Examples for barriers, 8 photographs taken by the author:
In order of their appearance: Yunguang Xiaoqu Building Entrance, example for a locked gate; Wohnzimmer Sonnwendviertel, example for a locked door; KIC compound entrance, example for a guarded and locked gate; Yunguang Xiaoqu compound entrance, example for a guarded gate; Puxi apartment building entrance, example for an unlocked or open door; Rabenhof compound entrance, example for a passageway; In der Wiesen Süd, example for a morphological opening; Wohnpark Alterlaa compound entrance, example for a topographical opening

Fig. 4.3.3 Example of a map: Rabenhof (by the author)

Fig.4.3.4 Example of a Spatial sequence diagram: Qing Yuan microdistrict (by the author)

Fig. 4.3.6 Example of an enclosure map: Gründerzeit block (by the author)

Fig. 4.3.7.1 Example of a street interface map: Gründerzeit block (by the author)

Fig. 4.3.7.2 four photographs taken by the author: active – Daxue Road, Shanghai 2018; mixture – Baumgasse, Vienna 2019; inactive – Paltaufgasse, Vienna 2019; no building interface – Tongzhou Road, Shanghai 2018

Fig. 5 Timeline: Left Vienna, right Shanghai (by the author)

Figures in chapter 5.1 all by the author:
Fig. 5.1.1 Axonometric diagram, Fig. 5.1.2 Map, Fig. 5.1.3 map of enclosure, Fig 5.1.4 Map of street interface, Fig. 5.1.5 Compound Entrance diagram, Fig. 5.1.6 Compound Interior Diagram, Fig. 5.1-7 Building Diagram

Figures in chapter 5.2 all by the author:
Fig. 5.2.1 Axonometric diagram, Fig. 5.2.2 Map, Fig. 5.2.3 map of enclosure, Fig 5.2.4 Map

of street interface, Fig. 5.2.5 Compound Entrance diagram, Fig. 5.2.6 Compound Interior Diagram, Fig. 5.2.7 Building Diagram

Figures in chapter 5.3 all by the author:
Fig. 5.3.1 Axonometric diagram, Fig. 5.3.2 Map, Fig. 5.3.3 map of enclosure, Fig 5.3.4 Map of street interface, Fig. 5.3.5 Compound Entrance diagram, Fig. 5.3.6 Compound Interior Diagram, Fig. 5.3.7 Building Diagram

Figures in chapter 5.4 all by the author:
Fig. 5.4.1 Axonometric diagram, Fig. 5.4.2 Map, Fig. 5.4.3 map of enclosure, Fig 5.4.4 Map of street interface, Fig. 5.4.5 Compound Entrance diagram, Fig. 5.4.6 Compound Interior Diagram, Fig. 5.4.7 Building Diagram

Figures in chapter 5.5 all by the author:
Fig. 5.5.1 Axonometric diagram, Fig. 5.5.2 Map, Fig. 5.5.3 map of enclosure, Fig 5.5.4 Map of street interface, Fig. 5.5.5 Compound Entrance diagram, Fig. 5.5.6 Compound Interior Diagram, Fig. 5.5.7 Building Diagram

Figures in chapter 5.6 all by the author:
Fig. 5.6.1 Axonometric diagram, Fig. 5.6.2 Map, Fig. 5.6.3 map of enclosure, Fig 5.6.4 Map of street interface, Fig. 5.6.5 Compound Entrance diagram, Fig. 5.6.6 Compound Interior Diagram, Fig. 5.6.7 Building Diagram

Figures in chapter 5.7 all by the author:
Fig. 5.7.1 Axonometric diagram, Fig. 5.7.2 Map, Fig. 5.7.3 map of enclosure, Fig 5.7.4 Map of street interface, Fig. 5.7.5 Compound Entrance diagram, Fig. 5.7.6 Compound Interior Diagram, Fig. 5.7.7 Building Diagram

Figures in chapter 5.8 all by the author:
Fig. 5.8.1 Axonometric diagram, Fig. 5.8.2 Map, Fig. 5.8.3 map of enclosure, Fig 5.8.4 Map of street interface, Fig. 5.8.5 Compound Entrance diagram, Fig. 5.8.6 Compound Interior Diagram, Fig. 5.8.7 Building Diagram

Figures in chapter 5.9 all by the author:

Fig. 5.9.1 Axonometric diagram, Fig. 5.9.2 Map, Fig. 5.9.3 map of enclosure, Fig 5.9.4 Map of street interface, Fig. 5.9.5 Compound Entrance diagram, Fig. 5.9.6 Compound Interior Diagram, Fig. 5.9.7 Building Diagram

Figures in chapter 5.10 all by the author:

Fig. 5.10.1 Axonometric diagram, Fig. 5.10.2 Map, Fig. 5.10.3 map of enclosure, Fig 5.10.4 Map of street interface, Fig. 5.10.5 Compound Entrance diagram, Fig. 5.10.6 Compound Interior Diagram, Fig. 5.10.7 Building Diagram

Fig. 6.1.1 Results Permeability (by the author)

Fig. 6.1.2 Graphic Comparison Permeability (by the author)

Fig. 6.2.1 Results Structural Openness (by the author)

Fig. 6.2.2 Graphic Comparison *Structural Openness* (by the author)

Fig. 6.3.1 Results Social Control (by the author)

Fig. 6.3.2 Shanghai, inside the Compounds, photographs by the author

Fig. 6.3.3 Vienna, inside the Compounds, photographs by the author

Fig. 6.3.4 Shanghai, outside the Compounds, photographs by the author

Fig. 6.3.5 Vienna, outside the Compounds, photographs by the author

Fig. 6.4.1 Results Unambiguous territorial structure (by the author)

Fig. 6.4.2 Comparison Unambiguous territorial structure (1) (by the author)

Fig. 6.4.3 Comparison Unambiguous territorial structure (2) (by the author)

Fig. 6.4.4 Comparison Unambiguous territorial structure (3) (by the author)

Fig. 6.5.1 Results Threshold zones (by the author)

Fig. 6.5.2 Shanghai Compound Entrance, photographs by the author

Fig. 6.5.3 Vienna Compound Entrance, photographs by the author

Fig. 6.5.4 Shanghai Building Entrance, photographs by the author

Fig. 6.5.5 Vienna Building Entrance, photographs by the author

Fig. 6.5.6 Shanghai dwelling unit entrance, photographs by the author

Fig. 6.5.7 Vienna dwelling unit entrance, photographs by the author

Fig. 6.6 Overall Comparision Results (by the author)