[1]Wang Huan

[1]Fan Tao

[1]Wang Jian

The Design of the External Space of a Neigh Bour Hood Commercial Complex Based on Urban Sharing

Abstract: - As urbanization accelerates and the scale and density of urban population grows rapidly, there is a contradiction between the increasing shortage of urban land resources and the significant reduction in the area of public space per capita in cities, and the increasing demand for a high quality of life and public interaction. Therefore, in an increasingly crowded urban environment, the creation of a commercial external space that is shared with the city and has the attributes of an urban public space becomes the key to this study. Through a comprehensive survey of the current situation of commercial complexes in Shenzhen, four different typical cases of spatial organization, namely Shenzhen Wan Xiang tian di, Shenzhen One Square City, Shenzhen COCO park and Shenzhen Happy Coast (East), are selected as the main objects of this study, and three major design principles (the principle of integration, the principle of compounding and the principle of sharing) are summarized for the external space of a neighborhood-based commercial complex based on urban sharing, and four (interaction and continuity of urban space, integration and optimization of urban texture, three-dimensional connection to urban traffic, and continuity and echo of urban culture) and three design strategies for the use of external space (openness to the city at all times, enhancement of spatial accessibility, and accommodation of various urban activities). The study concludes that the external space of a neighborhood commercial complex should become part of the public space of the city and take on the two-way function of urban and architectural space to achieve the integration and interpenetration of urban and architectural space in order to realize the maximum value of the external space.

Keywords: neighborhood commercial complex; external space; urban public space; urban sharing

I.INTRODUCTION

With the rapid development of the Internet, people's consumption methods are shifting from traditional physical consumption to online consumption, and convenient and efficient online shopping is becoming more and more popular [1]. With the improvement of economic level and quality of life, people's leisure time is gradually increasing. Daily pastimes have also become more diverse, no longer only satisfying material needs, but focusing more on the spiritual dimension of the consumer experience [2]. This open and flexible spatial model can meet the needs of consumers, attract a large amount of consumer traffic and increase commercial value [3]. As a result, neighborhood-style commercial complexes are highly sought after by the real estate industry to promote their development.

Shenzhen has developed rapidly over the past 40 years of reform and opening up and has become a mega-city housing tens of millions of people. By the end of 2018, Shenzhen's resident population had reached 13,026,600, with a population density of 6,484 people per square kilometre, ranking first in the country (Figure 1) [4]. Shenzhen's topography is mountainous and by the sea, which leads to a certain statistical equalization of population density, which is actually much higher than what the statistics show [5]. At the same time, Shenzhen is also a city of polycentric development, with the development intensity of each central district increasing. According to the land

[1]College of Architectural and Civil Engineering，Xinjiang University，Urumqi 830047，China

density zoning guidelines map in the Shenzhen Urban Planning Standards and Guidelines issued by the Shenzhen Planning and Land Resources Committee (Figure 2), it can be seen that the land development density in Shenzhen is very high, with most areas in high and medium density development [6].

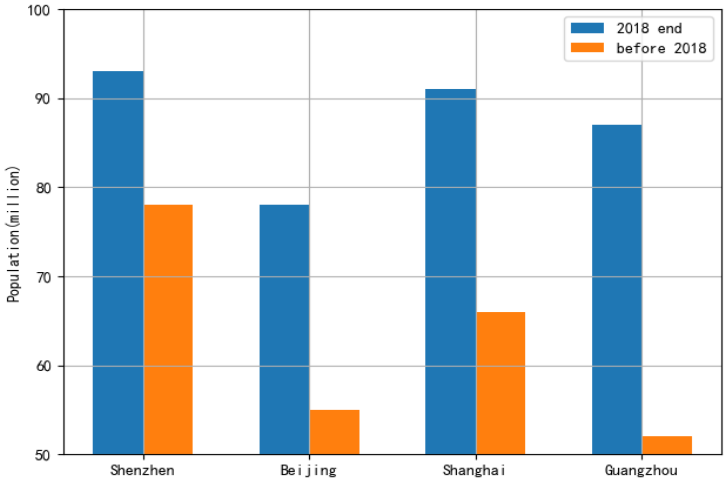


Figure 1 Population density and number of permanent residents in North, Guangzhou and Shenzhen in 2018

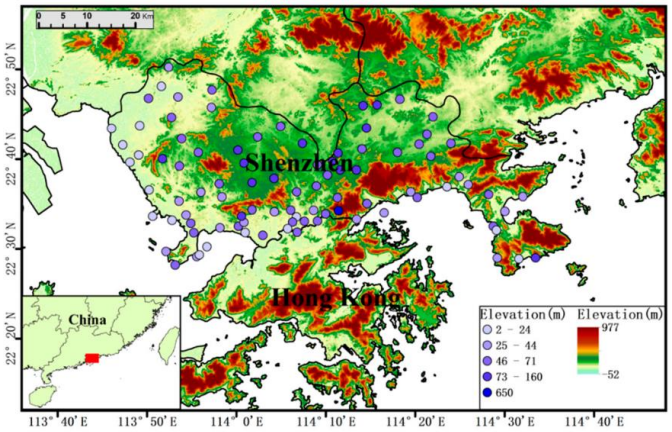


Figure 2 Shenzhen Construction Land Density Zoning Guidelines Map

With the massive growth of urban population and the high intensity of development, the problems of uneven distribution of urban resources and the decline of urban public space per capita have become increasingly prominent [7]. In addition, many planned and constructed public open spaces lack effective management mechanisms and reasonable design, resulting in poor accessibility of public spaces, which do not actually meet the attributes of "public" and cannot meet the public activities of residents. These problems are common in the urbanization process, and the root cause is that the traditional spatial model of urban architecture has failed to address the challenges of real life [8]. Therefore, the design of the external space of neighborhood commercial complexes needs to break away from the traditional design model from the perspective of urban sharing.

The neighborhood-style commercial complex has many advantages over the traditional centralized commercial complex. It breaks away from the original single closed commercial form and evolves into a multi-faceted dynamic

open form that incorporates more urban functions. Its physical characteristics are reflected in the open neighborhood space [9]. The neighborhood commercial complex has greater advantages in many respects: in terms of function, the external space is interconnected and integrated with the surrounding buildings [10]. In terms of transport, the external spaces are connected to urban transport in three dimensions, with a high degree of connectivity to the metro and bus system, creating traversable neighborhood spaces and continuing the urban pedestrian system. In terms of space, the external spaces orderly link and permeate the urban space, avoiding large buildings from fragmenting the urban fabric. In terms of regional culture, the external space becomes an important place to showcase the city's culture, continuing and responding to the city's distinctive culture. In terms of landscape, the external space creates a comfortable and harmonious psychological feeling for the consumer and the surrounding environment [11].

However, the development of neighborhood commercial complexes is still in its early stages in China, and although there are some excellent examples of both reputation and effectiveness, such as Wan Xiang tian di in Shenzhen, Taikoo Li San li tun in Beijing and Tai Yang Taikoo Li in Chengdu, theoretical research is still relatively scarce and incomplete, especially from the perspective of the external space of neighborhood commercial complexes as part of the urban public space [12]. At the same time, neighborhood commercial complexes often occupy privileged locations in the city and are "private property" within the building red line, so there are problems with management and operation, which limit the extent to which they can be shared with urban space and affect the value of the space [13]. (see Figure 3, Figure 4, Figure 5)

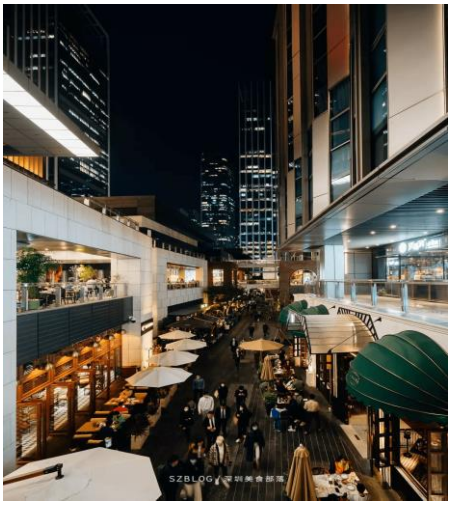


Figure 3 Wan Xiang tian di, Shenzhen（http://uee.me/cQk5S）

Figure 4 Taikoo Li, San li tun, Beijing（http://uee.me/cQkyw）

Figure 5 Tai yang Taikoo Li, Chengdu

The city should be constructed as an open system in which space is permeable, without pre-determined narratives or complete architectural forms. Such a city would become a highly shared space at all levels of space [14]. Therefore, from the perspective of urban sharing, the external space of the commercial district is integrated into the category of urban public space and assumes the two-way function of urban space and architectural space. This will greatly alleviate the problem of insufficient urban public space per capita, improve the quality of urban public space, and ma xi mise the value of space. Such an approach will achieve mutual benefits for the city, citizens and developers [15]. Research on the design of external spaces for neighborhood-based commercial complexes based on urban sharing is imperative.

II.2 RELATED WORK

Many scholars have been working on 'exterior space' for a long time and have accumulated considerable experience in architectural practice and theory. External space" has been an important object of study in the disciplines of urban planning, architecture and social humanities. The emergence of [16] drew attention to the study of external space and provided a theoretical basis for future research. Since then, research on external space has flourished, and is collated and summarized in Table 1.

Table 1 A review of foreign theories of 'external space'

Time	Author	Representative works	Main content and viewpoints
1889 year	Camillo Sitte	The Art of Urban Construction	Advocate designers to shift from indulging in large-scale construction with a large composition to emphasizing the meso and micro scale of human life in the urban environment, and propose to pay attention to the study of external space
1960 year	Kevin Lynch	Urban Imagery	Proposed the five elements of

			urban space: path, interface, site, node, landmark, and elaborated on the relationship between them, providing a solid theoretical basis for the design of urban space. It has reference significance for thinking about the design of commercial external spaces from the perspective of users.
1961 year	Jane Jacobs	Death and Life in Major American Cities	Conduct research on urban streets from the perspective of human behavior and psychology. Pay attention to the social relationships between people and propose that the vitality of cities comes from the intertwining process of human activities and their venues.
1971 year	Jan Gehl	Communication and Space	By studying outdoor spaces and activities, analyzing people's behaviors such as walking, resting, stopping, and playing in public spaces, the method of generating social interaction behavior has a significant impact on studying the vitality of urban public spaces.
1980 year	Christian Norberg Schulz	Place Spirit Moving towards Architectural Phenomenology	The theory of place discussed incorporates the exploration of space and incorporates cultural and other factors. Proposing that space is abstract, place is created by combining cognition, memory, and space.
1990 year	Barry Maitland	New buildings in retail shopping centers	Explored the relationship and development status between large retail stores and cities, starting from the perspective of

			integrating space and environment, and explored the relationship between various functional spaces and surrounding environments of large commercial buildings.
2005 year	Dieter Hassenp	Towards an Open Urban Space in China	This book explores and analyzes urban public spaces in rapidly developing China from multiple perspectives, revealing the connection and direction between space and social development, and pointing out the localization power of open urban spaces with Chinese characteristics.

Many scholars have also made notable achievements in research in areas related to commercial districts. These include studies on the convenience and safety of pedestrian areas, studies on humanized commercial districts with regional cultural attributes, studies on the form and function of external environments such as streets and squares, and studies on the penetration of consumption into urban life [17]. These relevant studies are collated and summarized through Table 2.

Table 2 Theoretical Sorting of "Commercial Block"

Time	Author	Representative works	Main content and viewpoints
1971 year	John J. Fruin	Pedestrian Planning and Design	By studying the walking patterns of pedestrians, introducing the concept of "service hierarchy", and evaluating the convenience and safety of pedestrian areas, it is helpful for future research on commercial blocks and provides a preliminary theoretical basis.
1972 year	Robert Venturi	Learning from Las Vegas	Taking the Las Vegas commercial district in the United States as an example, it is proposed that commercial

			building design should consider consumer use as a prerequisite, and deeply explore regional culture and identity, in order to create a humanized commercial district with regional cultural attributes
1979 year	Yoshinobu AShihara	The Aesthetics of Streets	By applying the theories of "graphics" and "background" in Gestalt psychology, and conducting in-depth analysis and comparison of the architectural environment, streets, squares, and other external spaces of countries such as Japan and Italy, this paper discusses the formation of order laws in design starting from the plane layout of buildings
1995 year	Al1an B Jacobs	The Great Street	By conducting research on hundreds of great streets in the world, the standards for great streets have been summarized, including openness and accessibility, no hierarchical differences, diverse applicability, comfort and safety, and profound emotional memory. This has great theoretical guidance and evaluation standards for the study of commercial street space.
2002 year	Rem Koolhaas	Harvard Design School Shopping Guide	Systematically summarizing the history, characteristics, and development process of commercial shopping behavior in urban spaces, it is proposed

			that shopping activities gradually infiltrate and occupy public spaces, and the sales industry permeates the urban concept, making it difficult to separate cities from shopping behavior
2003 year	J. C. Moug htin	Street and Square	Research on streets, squares, buildings, design details, and their role in urban planning and design, with a focus on discussing the form and function of streets and squares

III.RESEARCH CASE

Based on the guidance of urban sharing, the design strategy of the external space of the neighborhood-style commercial complex is explored. Starting from the macro perspective of the city and the micro perspective of the building, the spatial characteristics are analyzed, and the behavioral patterns of statistical space users and the flow of people are observed [18]. The study aims to explore the design principles of external spaces according to the productive life characteristics of urban residents. Therefore, when selecting the research cases, mainly neighborhood commercial complexes with rich spatial elements, good operation and high pedestrian flow were considered in order to obtain more reliable research data and reduce research observation errors.

Based on the above selection principles, this study investigated neighborhood commercial complexes in seven first-tier cities and new first-tier cities, including Shenzhen, Guangzhou, Hong Kong, Beijing, Shanghai, Chengdu and Chongqing [19]. According to the Global Shopping Centre Development Report released by the US in 2017, Shenzhen ranked first in the world with 4.58 million square metres of shopping centres under construction. At the same time, Shenzhen's neighborhood commercial complexes are developing rapidly in terms of number and scale, and there are many cases of complexes with representative reputation and operation, which have high research value and reference significance [20]. Therefore, four typical neighborhood commercial complexes in Shenzhen were selected as the focus of this study. These complexes include Shenzhen Wan Xiang tian di, Shenzhen Happy Coast, Shenzhen One Square City and Shenzhen COCO park (Figure 6).

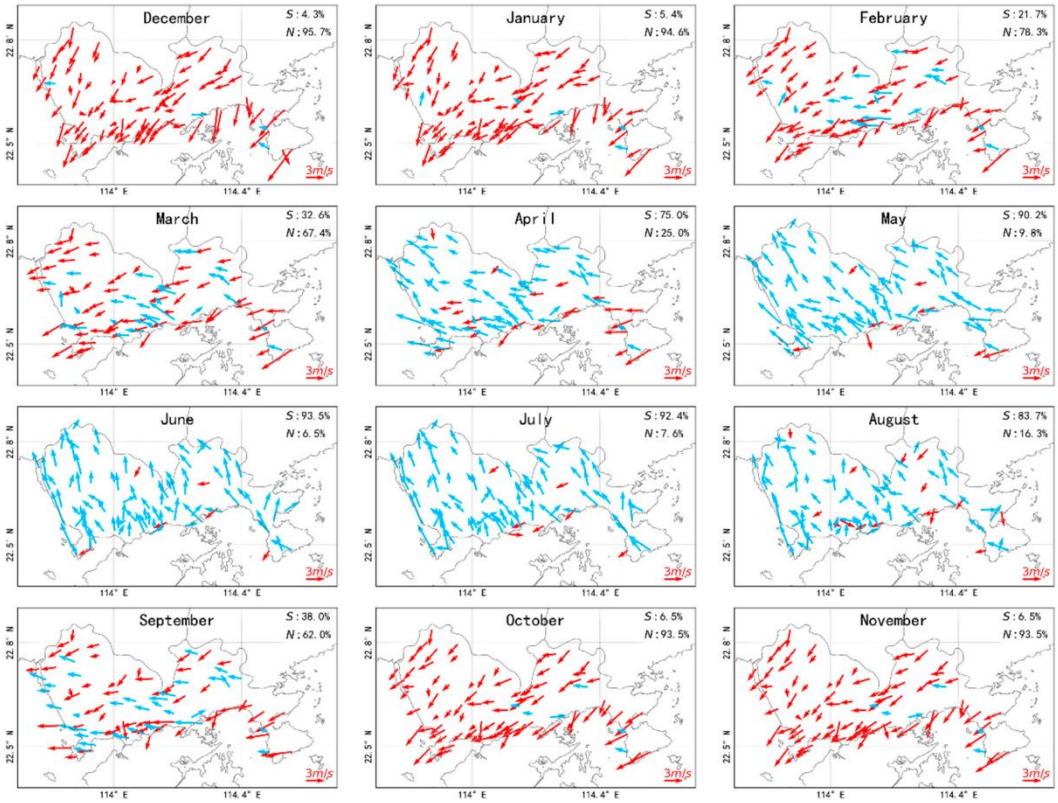


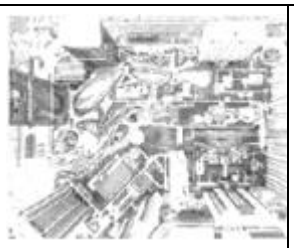
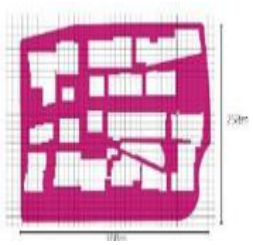
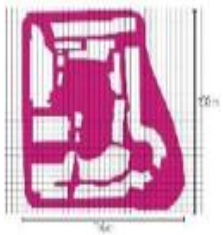
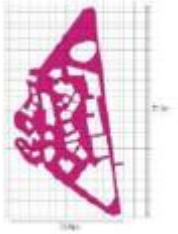
Figure 6 Distribution of Research Cases on Block Style Commercial Complex in Shenzhen Area

The four key projects selected for study are representative and of high research value, as they have performed well in terms of industry reputation and operation since their completion, and include many exemplary models in the industry that have a strong appeal to users. The four cases represent four types of spatial organization, namely: grid type - Shenzhen Wan Xiang Tian di, series type - Shenzhen One Square City, enclosed type - Shenzhen COCO park, and free dispersed type - Shenzhen Happy Coast East [21], The four cases have both similarities and differences in terms of location, spatial composition, volume and business format, and are suitable for comparative analysis and research (Table 3).

Table 3 Comparison Table of Four Key Research Case Data Projects

Project Content	Shenzhen Wan Xiang Tian di	Shenzhen Yi fang Cheng	Shenzhen Coco Park	Shenzhen OCT Har bour (East District)
Location	Yue hai Street, Nanshan District 9668 Shennan Avenue	No. 99 Xin hu Road, Bao an District	268 Fuhua 3rd Road, Futian District	208 Binhai Avenue, Nanshan District
Located in the business district	Gao xin yuan Business District	Bao an Central Business District	Futian CBD Business District	Overseas Chinese Town Business District

Developer	China Resources Land	Hong Rong Yuan	Xing he Group	Overseas Chinese Town Enterprises
Designer	Foster+ Partners	Kerrison and LLA in the United States	URBAN, Melbourne, USA	USA LLA+ Shenzhen Institute
Opening time	2017	2017	2006	2013
Building area (10000 square meters)	280	88	8.5	30
Commercial area (10000 square meters)	23	36	8.5	14.3
Floor area (10000 square meters)	63	11.5	3.1	125
Number of layers	-3rd to 7th floors	-2nd to 5th floors	-1st to 4th floors	1st to 2nd floor
Functional groups	Commercial, office, residential, apartment, hotel	Commercial, office, residential	Leisure, Culture, Entertainment, Catering	Business, entertainment, office, apartment, hotel, culture, tourism
Rail transit	Adjacent to Hi-Tech Park station of Line 1	1. 5Seamless connection of Bao an Center station of Line	Seamless connection of shopping parks on Line 1	Adjacent to Line 9 Shenzhen Bay Park station
Current photos				

Satellite view				
Planar texture				

IV. DESIGN OF THE EXTERIOR SPACE OF THE COMPLEX

4.1 Shenzhen Wan Xiang tian di Entrance Space

According to Figure 7 Table 4, the Wan Xiang tian di neighborhood commercial complex in Shenzhen has 10 street entrances that are connected to the outside. The largest of these openings is 50m and the smallest is 10m. The number of street shape variations is three and the number of unchanged ones is seven. The design of the complex focuses on the connection and openness to the city, integrated with the square through several entrances. The main entrances include the Banyan Tree Plaza (①) on the west side and the Water Plaza (⑦⑧) on the east side. The southern side has four openings near Shennan Avenue and Exit A of the Gao Xin Park metro station, the largest number, and is therefore more connected to the city and more open. Due to the large number of people entering the commercial area from the exit of the metro station, entrance ③ is guided by an arc to attract a large number of consumers and is 25 metres wide in size, second only to the main entrance. The main entrance ① is the largest in size at 50m wide and has a good display and is clearly iconic when combined with the ancient tree square. The secondary entrances, including ③ ⑦ ⑧, are the next largest in size, especially ⑦ ⑧, which is combined with the water plaza arrangement to form an environmentally pleasing viewing space, as well as an important transition space between the High Street and the alleyway. The opening number ⑩ on the north side faces the south entrance of the high-end residences of Run Fu, attracting consumers from the area into the commercial complex. Overall, the design approach to the entrance space is similar, forming a trapezoidal contraction through the entrance area, eliminating sharp corners and presenting an open and welcoming gesture through the setback of the building to welcome the arriving footfall.

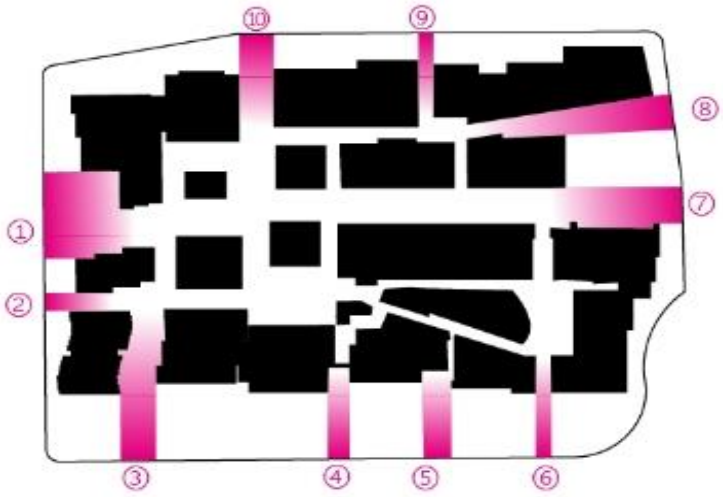
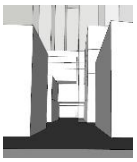
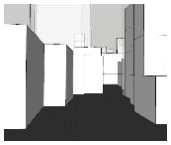
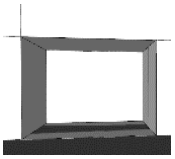
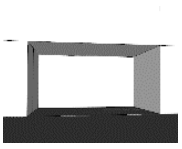
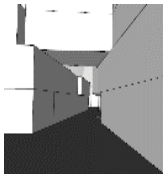
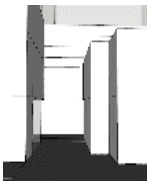


Figure7 Sampling location of the entrance space of Vientiane Shenzhen

Table 4 Entrance Space and Scale Statistics of Wan Xiang tian di, Shenzhen

Number	Entrance Space Plan Form	Width (m)	Adjacent to the road	Function	Traffic	Entrance Space Form	Site photos
①		50	Tong Gu Road	Main entrance of the main line (High Street)	At most		
②		11	Tong Gu Road	Pedestrian crossing	Many		
③		25	Shennan Road	Secondary entrance	Many		
④		15	Da Chong Road	Entrance and exit of underground garage	Few		
⑤		20	Da Chong Road	Entrance and exit of underground garage	Few		

⑥		10	Da Chong Road	Comprehensive MAL secondary entrance	Same as		
⑦		20	Da Chong Third Road	Main Line (High Street) Secondary Entrance	Many		
⑧		10	Da Chong Third Road	Lane entrance	Many		
⑨		10	Kefa Road	Pedestrian crossing	Same as		
⑩		20	Kefa Road	Pedestrian crossing	Same as		

4.2 One City Shenzhen entrance space

According to Figure 8 Table 5, the One Square City neighborhood commercial complex has a total of six street entrances that are connected to the outside. The largest of these openings measures 57m, the smallest measures 9m and there are four variations in shape. Entrance ① has a spatial width of 57m, the largest of all entrances, and incorporates a sunken plaza and a large dragon sculpture to bring the pedestrian flow from the metro entrance and Xin hu Road into the commercial interior. The entrance has a flared plan layout, making the space well oriented and attractive. ②④ connects directly to the open block with dense pedestrian flow. No. ② entrance is close to the waterfront municipal square, so the scale is larger and the shape of the entrance is gradually reduced and attractive, while the open entrance space can also better showcase the view of the commercial block and attract consumers to gradually enter and explore. No. ③ (6) is a secondary entrance with smaller dimensions and a simpler design of the entrance space, hence less pedestrian flow. No. ⑤ is the secondary entrance to the integrated shopping centre, and the varied spatial form attracts a large number of consumers from the luxury residential area to the east.

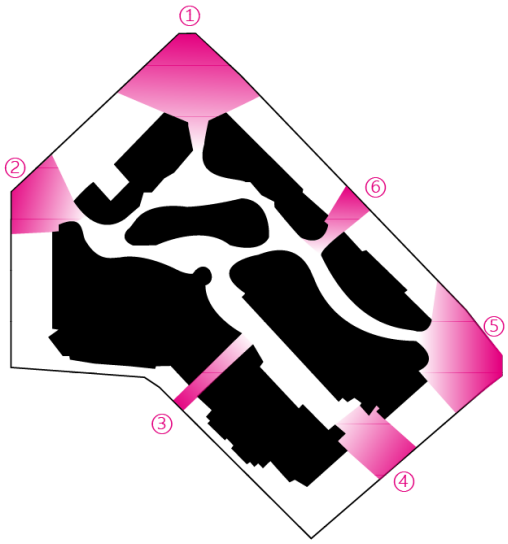
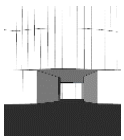
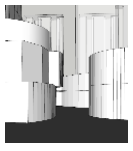
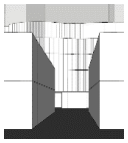
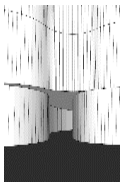
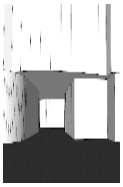


Figure 8 Sampling and Survey Location of Shenzhen One Square City Entrance Space

Table 5 Statistics on the spatial form and scale of the entrance of Shenzhen Yifang Cheng

Number	Entrance Space Plan Form	Width (m)	Adjacent to the road	Function	Traffic volume	Entrance Space Form	Site photos
①		57	Xin hu Road	Integrated MAL main entrance	Most		
②		25	Entrepreneurship Road	Open block main entrance	Many		
③		13	Planning Road	Pedestrian crossing	Few		
④		45	Xinghua 1st Road	Open block main entrance	Many		
⑤		9	Xin hu Road	Comprehensive MALL secondary entrance	More		

⑥		13	Xin hu Road	Comprehensive MALL secondary entrance	Commonly		

4.3 COCO park

According to Figure 9, Table 6, there are six street-level entrances to the COCO park neighborhood-style commercial complex that are connected to the outside. Of these, the largest opening measures 37m and the smallest 7m, with four variations in shape, ①②④⑤. Entrance ① is the main entrance to the building and is fan-shaped to guide and attract people to the interior of the street. This entrance directly faces the Shenzhen Convention and Exhibition Centre and has a high pedestrian flow. No. ②④ is the secondary entrance of the building, mainly for the convenience of pedestrians, with relatively low pedestrian flow. Entrance ③ has a larger spatial dimension and offers a direct view of the commercial interior of the square, attracting consumers from the luxury residential area to the west. Entrance No. ⑤ is an open space for Starbucks commercial outfits, with a strong external commercial atmosphere. Entrance No. 6 has a smaller buffer zone, a weak sense of place and a more monotonous spatial design that lacks character, making it relatively less popular.

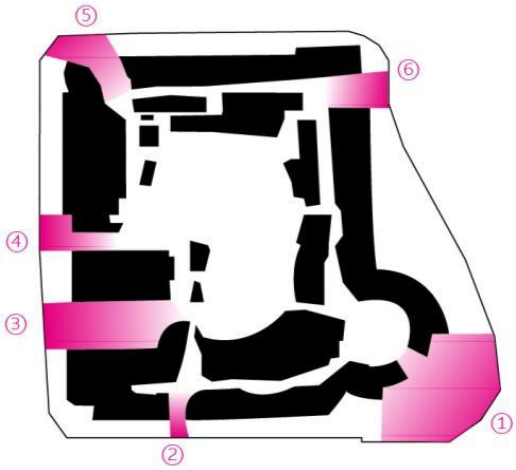
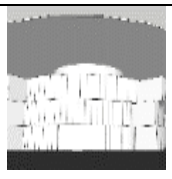
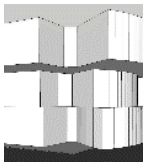


Figure 9 Location of COCO park entrance space sampling research in Shenzhen

Table 6 Statistics on the spatial form and scale of the entrance of COCO park in Shenzhen

Number	Entrance Space Plan Form	Width (m)	Adjacent to the road	Function	Traffic volume	Entrance Space Form	Site photos
①		37	Intersection of Fuhua Third Road and Futian	Main entrance of the main line (High Street)	Most		

			Center Second Road				
②		7	Fuhua Third Road	Pedestrian crossing	Same as		
③		25	Min tian Road	Secondary entrance	Many		
④		9	Min tian Road	Entrance and exit of underground garage	Few		
⑤		18	Fuhua Road	Entrance and exit of underground garage	Many		
⑥		15	Futian Center Second Road	Comprehensive MAL secondary entrance	Many		

Street space

According to Figure 10 Table 7, the street space of Vientiane is the core part of the commercial complex, connecting the various commercial spaces and landscape nodes, and is necessary to create a strolling experience space. The scale of the street space can be adjusted to suit different needs. Central High Street and North City Lane are the two key street spaces, with High Street being approximately 19-23m wide and 370m long, and Lane being approximately 9-14m wide and 240m long. The secondary streets in the north-south direction are approximately 10-12m in width and 60-100m in length. The profile H:D analysis of the street space of Vientiane Shenzhen is shown in Figure 11. With the exception of the single flagship shop on the south-west side, the second and upper floors are partially connected to the different commercial units by sky corridors, creating a 'double first floor' commercial platform that is freely connected by air. Figure 12 illustrates the grid-like layout of Vientiane, with a multi-street layout of five verticals and three horizontals, with street intersections at approximately 50m intervals. Strolling through this environment allows for a rich, varied and anticipatory walking experience without fatigue. A number of amplified nodal spaces have also been introduced in the movement lines to make the consumer's walking experience full of surprises. The different spatial themes will stimulate and accommodate different consumer behaviors, thus providing a rich variety of commercial experience activities. The multi-street, dense grid layout of Vientiane maintains maximum spatial openness and a close connection with the urban space, while maintaining a strong commercial vibrancy.

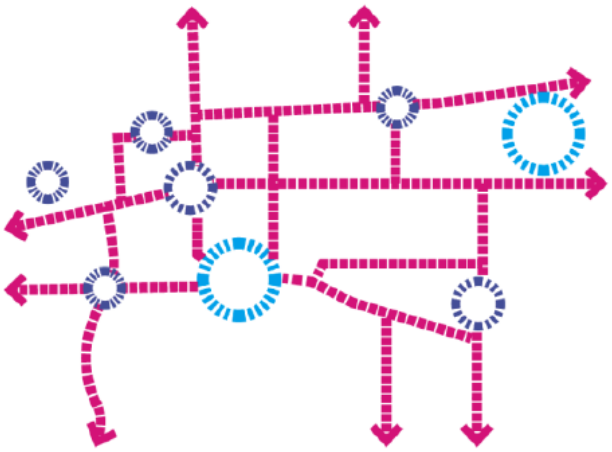


Figure 10 Spatial Organization of Shenzhen Vientiane Tian di Street

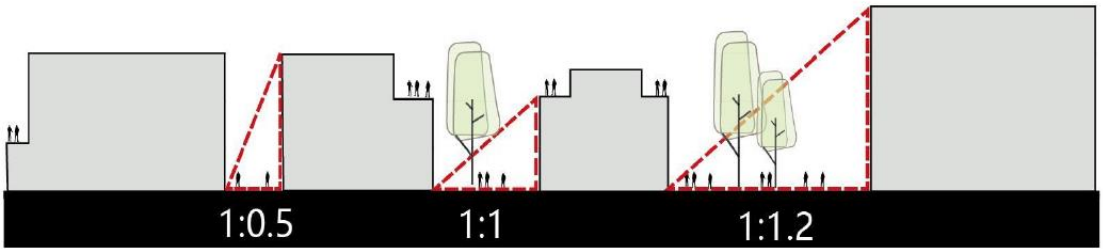


Figure 11 H:D analysis of the street space profile of Wan Xiang tian di, Shenzhen

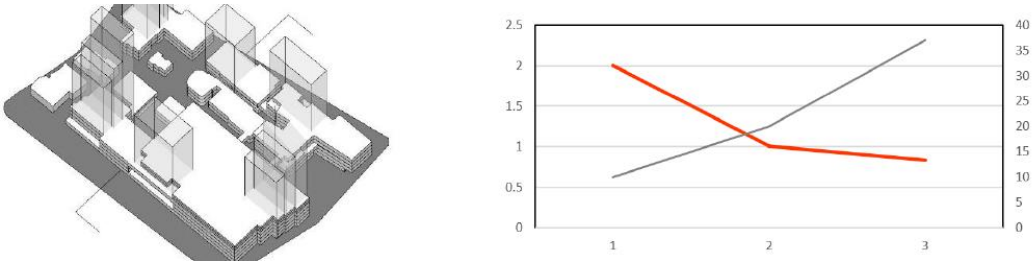


Figure 12 Rhythm analysis of the street sequence scale at Vientiane Shenzhen

(2) Street space in One Square City, Shenzhen

According to the information shown in Figure 13 and Figure 14, the street space organization of One Square City includes internal commercial streets and external commercial streets of open blocks, and this paper focuses on the external space streets, i.e. external commercial streets of open blocks. Due to the single-line organization, the street space scale of One Square City is relatively monotonous, but through the integration of multiple nodal spaces and the step-like treatment of the street interface, the street space becomes intimate and comfortable, greatly reducing the feeling of monotony and tedium. The plan of the pedestrian street is curved, allowing pedestrians to maintain a sense of anticipation and surprise as they move along, avoiding the fatigue associated with linear spaces. The width of the street varies between 11 and 26 metres, and the plan texture shows that the width of the street space varies from narrow to wide and then narrow again, providing a diverse spatial experience for the pedestrian. Every 50 metres the street space has a plaza or transition space, which can be used both as a space for vertical traffic and

as an activity space to extend the length of stay. In terms of vertical height, by sampling two different street profiles for observation, Street 1 is the core plaza space with a street height to width ratio of approximately 1:3. The space has good sight lines and is suitable for displaying commercial activities and small performance stages, and is also enclosed by curved walls with a strong sense of spatial flow. Street 2 is located at the southern end of the street, its street height to width ratio is about 1:1, the space is relatively uniform and the street interface treatment is more monotonous. The actual survey shows that the space is mainly dominated by fast traversing pedestrian flows, with poor habitability.

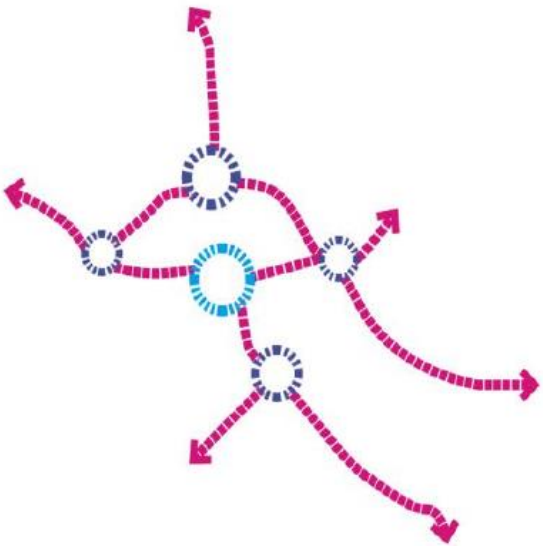


Figure 13 One Square City street space organisation

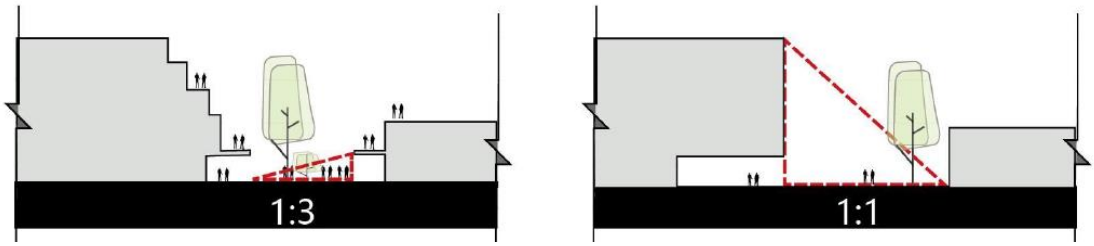


Figure 14 H:D analysis of the street space profile of One Square City Shenzhen

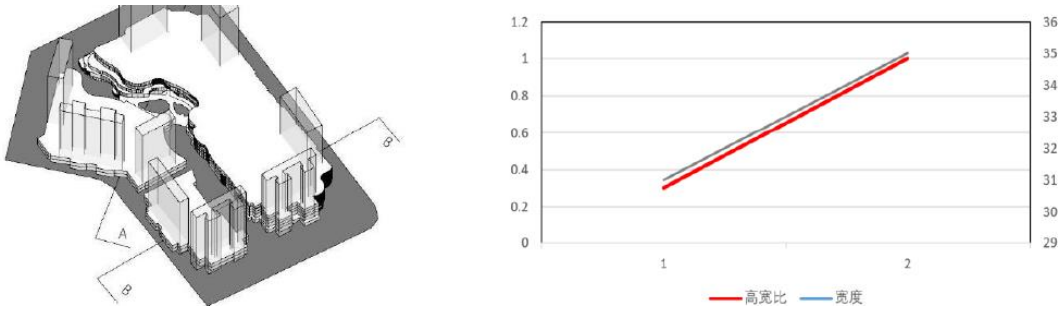


Figure 15 One Square City Shenzhen street sequence scale rhythm analysis

According to the illustration in Figure 15, the form of the neighborhood commercial space can increase the length of the external business surface by 2-3 times compared to the traditional commercial space. Through the

organization of sky-linked corridors and podiums, the space above the first floor of commercial shops also further increases the external business area. At the same time, in combination with an efficient vertical transport system, the accessibility of the shops above the first floor is increased and the business atmosphere is enhanced. The neighborhood style allows for a more diverse and dynamic commercial interface, with each shop having its own strengths and stage to showcase, and to communicate to consumers through a variety of commercial messages, architectural language and high-tech displays. Shops can design their façade according to their product positioning and enhance their brand identity through materials, colors and symbols to further attract a targeted potential customer base. For example, Huawei's global flagship shop features a fully transparent, frameless floor-to-ceiling glass curtain wall, making it easy for consumers to find what they need quickly. The streamlined exterior design combined with the sophisticated lighting ceiling always conveys a high-tech and futuristic design concept.

According to Table 7, the commercial interface of Wan Xiang tian di in Shenzhen demonstrates the design characteristics of different shops. The entrance of Uniqlo's flagship shop has a jagged entrance space, which is divided into three sections on the façade, using vertical transparent glass as a window to showcase the internal shopping scene and products, with warm lighting design to attract consumers into the shopping area. The IT flagship shop next to it is designed with a façade of fully transparent glass and 'invisible' LED advertising panels, highlighting the brand's individuality while not obscuring the display of products inside. The façade design of the Sincere Bookstore combines vertical greenery, vertical glass and vertical louvers with a falling light effect at night to give consumers a dream-like experience.

Table 7 Wan Xiang tian di commercial interface in Shenzhen

Huawei's global flagship store next to the Vientiane World Time Square	Uniqlo Business Interface at the Main Entrance of the High Street of the Vientiane World
	
Wan Xiang Tian di High Street Commercial Interface	Commercial interface of Cheng pin Bookstore near Wan Xiang Tian di Water Plaza

Commercial interface at the entrance of Wan Xiang Tian di Lane

Commercial interface on the second and third floors of Wan Xiang Tian di Lane

2) Commercial Interface of One City Shenzhen

According to Figure 16, the commercial interface of the exterior space of One Square City uses curved design elements to guide consumers towards the interior of the commercial area and unifies the overall façade effect through the light yellow warm lighting. However, the linear block design allows each shop to have only one display interface, which leads to a confusing mix of advertising signs for each shop and leaves a poor first impression of the quality of the space to consumers. The developer can develop an overall unified design theme at the beginning of the design phase to balance the design of each shop's display interface and to enhance the aesthetic level of space quality while maintaining the individuality of the shops to the greatest extent possible. This will enhance the quality of the space in an orderly manner, while maintaining the recognizability of the commercial interface. The weightless restaurant at the main entrance features a fully transparent floor-to-ceiling glass structure, with an interior designed to incorporate the brand's character with a delivery rail that drops from the sky and light blue lighting, creating a strong sense of futuristic technology. It stands out among the many outlets, offering visitors and consumers a visual treat with clear appeal.

a Commercial Interface at the Entrance of One Square City Open Block

b Yifang cheng weightlessness restaurant business interface

Figure 16 Commercial Interface of Shenzhen Yifang Cheng Open Block

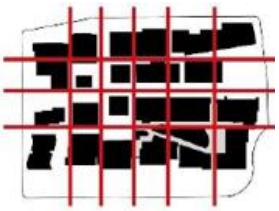
V. SPATIAL DIVERSITY

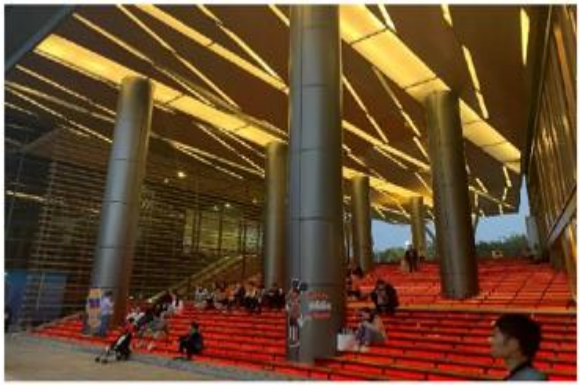
Spatial diversity here encompasses diversity of spatial forms and diversity of spatial activities.

5.1 Diversity of spatial forms

According to Table 8, the different spatial forms meet the behavioral needs of different groups, stimulate spatial vitality and possibilities, change the situation of monotonous commercial spaces in traditional commercial complexes, further enhance the diversity and democracy of the space in neighborhood commercial complexes, better reflect the characteristics of spatial design and realize the urban sharing of space. A variety of common spatial forms are used in Shenzhen Wan Xiang tian di, including open-air spaces for people to linger, guided overhead spaces and a fifth façade that offers a different view experience. COCO park adopts an enclosed spatial organization, with a relatively monotonous overall spatial form, dominated by sunken plazas and retreat spaces. The Joyful Coast (East) has relatively little variation in spatial form as the vertical development of the building is more restricted due to the restricted height of the floors, but some of the overhead node spaces are fully utilized and closely integrated with the surrounding environment, becoming an outdoor small theatre viewing space and secondary entrance crossing space.

Table 8 Comparison of the spatial forms of the four key research projects

Project	Spatial organization mode	Spatial form	
Shenzhen Wan Xiang Tian di	 Grid format	 grey space	 Overhead space

		 Fifth facade	
Shenzhen Yi fang Cheng	 TANDEM	 Sunken space  Exit space	 Fifth facade
Shenzhen COCO park	 Enclosed type	 Exit space	 Sunken space
Shenzhen OCT Har bour	 Freestyle	 Overhead space (outdoor small theater)	

5.2 Spatial activity diversity

According to Table 9 Table 10, the external space of One Square Shenzhen is mainly located in the location of

several plaza streets in the linear open block. This open space attracts a large number of people to gather in the external space on different floors, forming a mutual viewing relationship with the enclosed sunken plaza. As a result, the sunken plaza becomes an ideal location for a variety of events. However, the small size of the external space means that outdoor activities are more limited than in Vientiane.

There are three main types of events that are regularly held in the external space. Firstly, there are the regular festival-themed promotional events organized by the mall, such as the Hong Kong Disneyland's Superstar Wonder Day. Secondly, there are the outdoor experiences organized by merchants, such as Decathlon's outdoor paddling experience. Finally, there are self-organized creator events, such as commercial performances by bands. These events are very creative and diverse, aiming to create immersive commercial spaces and build an emotional connection between the space and the people.

Table 9 Diverse activities at One City Shenzhen

Shopkeeper Opening Awakening Teacher Performance	Outdoor Decay Product Experience
	

Table 10 Diverse activities at COCO park Shenzhen and Shenzhen Happy Coast

Shenzhen Coco Park QQ 20th Anniversary Event	The OCT Har bour Violin Players' Spontaneous Activities
	

VI. CONCLUSION

Through the study of theories on neighborhood commercial complexes, external space and urban sharing, as well as the research and analysis of excellent cases at home and abroad, the form and components of the external space

of neighborhood commercial complexes have been discussed in detail. On this basis, three major design principles, seven design strategies and corresponding design approaches for the external space of neighborhood commercial complexes based on urban sharing have been proposed. These principles and strategies provide useful guidance and references for the design and research of the increasingly popular external spaces of neighborhood commercial complexes in China, and have important practical implications.

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