

Master's degree thesis
MSc program in Architecture for
Sustainable Design
Academic year of 2019 - 2020

The living Ring



**A bring-back culture idea in architecture design in core of
high density Chinese city - Shenzhen.**

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Part 1
Abstract

Abstract

Hi,I am very glad to have a special opportunity here to share with you a project I have done recently about my hometown.

My hometown, named Shenzhen, a small town in the south of China. After *the Chinese economic reform*.at 1978, this small town developed from a fishing village with very low economic income to a very prosperous economic capital, a sleep-less city , and became one of very important economic hubs in China.

I left my hometown at the age of 18 and came to the Politecnico di Torino where I started my study in architecture. At my graduation period, I wonder which topic i should pick for my thesis :if I can do a project in my hometown, it will be a very meaningful master's graduation work for me.

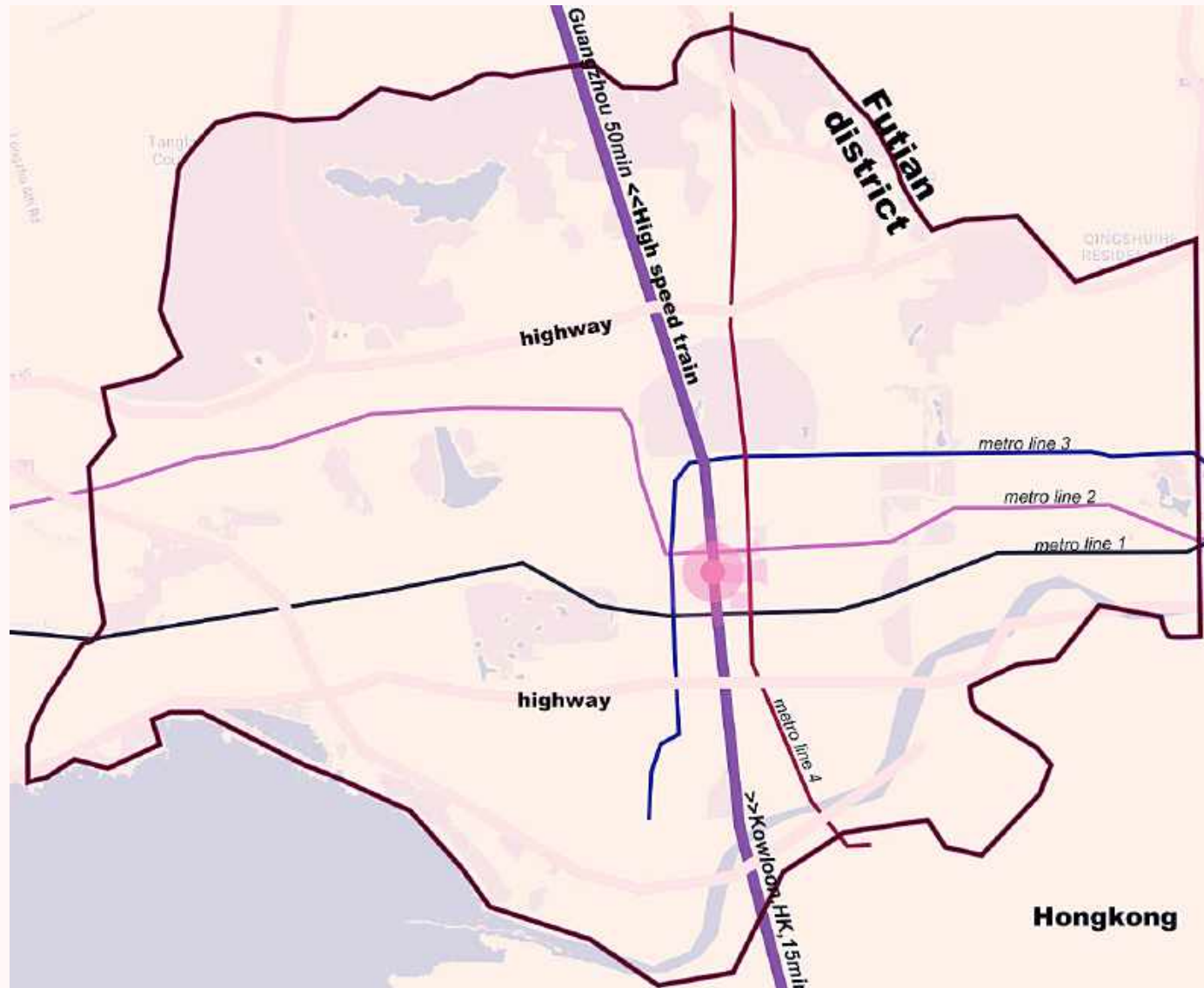
This project is the result of months of hard work between me, professor Michele Bonino and assistant professor Edoardo Bruno.

The project locates the Futian Railway Station, which is a very important transportation hub in Futian district. It connects Guangzhou and Hong Kong, two very important economic cities.Since Shenzhen is also occupied between these two cities,equally important political and cultural position. The purpose of my design this time is to allow the cultural center of Futian District to more reflect its charm as a cultural center, and to design a landmark and functional use for the city from an architectural perspective:group-friendly multifunctional urban bridge.



Zhang Xinyun





Shenzhen futian district

Economic center.

Futian District is China , Guangdong Province, Shenzhen City, a jurisdiction of municipal districts . Located in the middle of the Shenzhen Special Economic Zone, it is one of the four districts in the special economic zone . Futian District is the seat of the Shenzhen Municipal Party Committee and Municipal Government . It is the central city area of Shenzhen's key development and construction. It will be built into the administrative , cultural , information , international exhibition and business center of Shenzhen .

Culture attention.

Futian District from the east and Hongling Road , Luohu District, connected to the western OCT and Nanshan District phase, north to Jigongshan and Longhua area connected to the south of the Shenzhen River , Shenzhen Bay and Hong Kong's New Territories, the Mai Po , Yuen Long sea. It has an area of 78.04 square kilometers and has 10 sub- district offices under its jurisdiction . As of 2002, the total population of the whole district reached 885,800, including 356,000 registered population and 529,800 temporary residents.

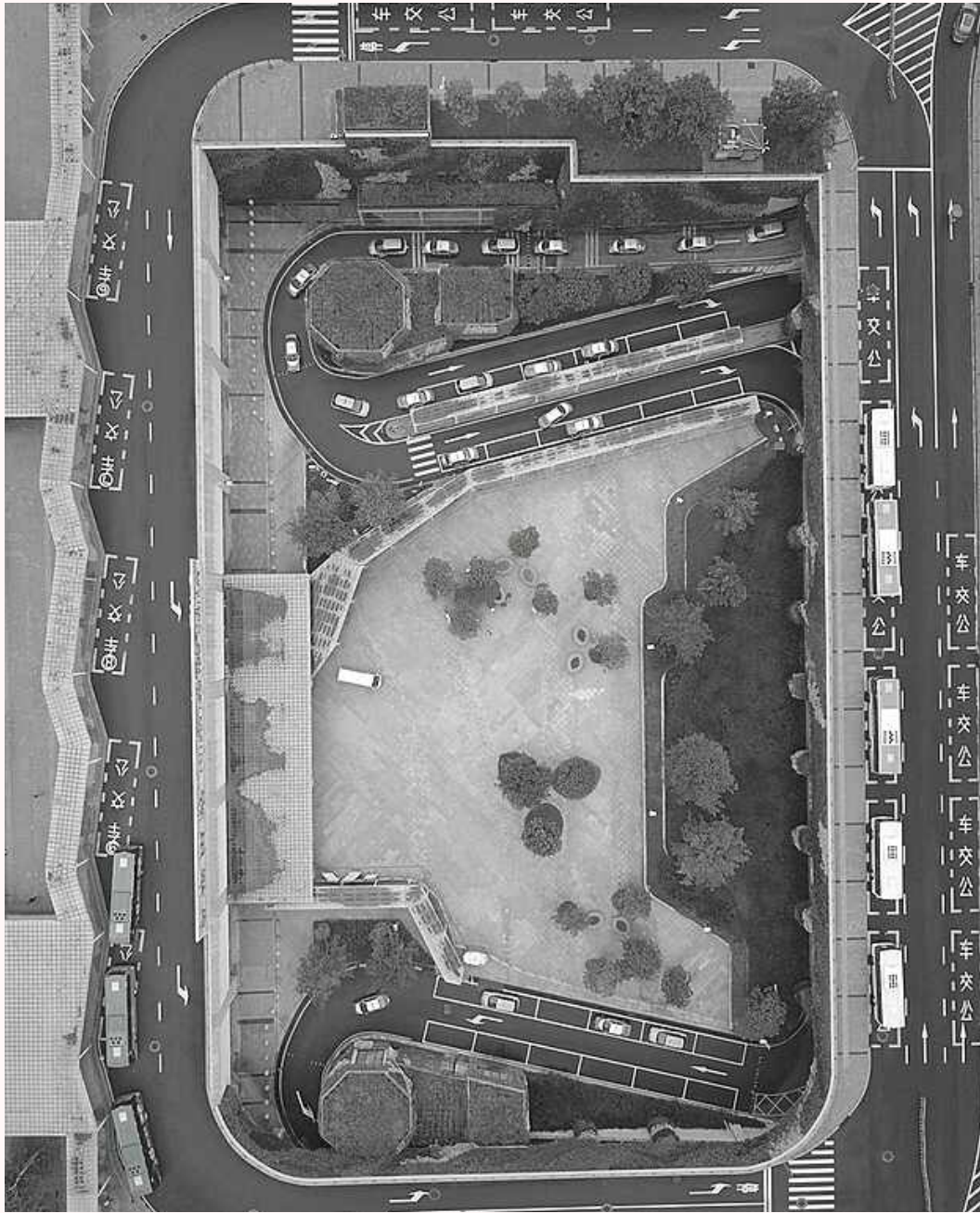




Shenzhen futian railway station 2015

Super location.

In December 2005, the leadership of the Ministry of Railways of China proposed to the Shenzhen Municipal Government that the Guangzhou-Shenzhen-Hong Kong High-speed Railway should add a train station underneath the central area of Shenzhen. At the same time, it also provided several location options for the Central Park , Xiangmihu , and Yitian Road . On August 22, 2006, Xu Zongheng , the mayor of Shenzhen at the time, and Lu Chunfang, deputy minister of the Ministry of Railways, signed the "Memorandum on the Establishment of Stations in Shenzhen on the Guangzhou-Shenzhen-Hong Kong Passenger Dedicated Line" in Beijing , which confirmed the establishment of an underground train under the ground in Futian , Shenzhen Station: Futian Station, choose Yitian Road as the station site, and reach a consensus on the functional positioning and layout of Futian Station . On August 20, 2008, the Guangzhou-Shenzhen-Hong Kong high-speed railway (then known as the "Guangzhou-Shenzhen-Hong Kong Railway Passenger Dedicated Line") Futian Station and Futian Integrated Transportation Hub project officially started .



Parking of shenzhen futian railway station 2015

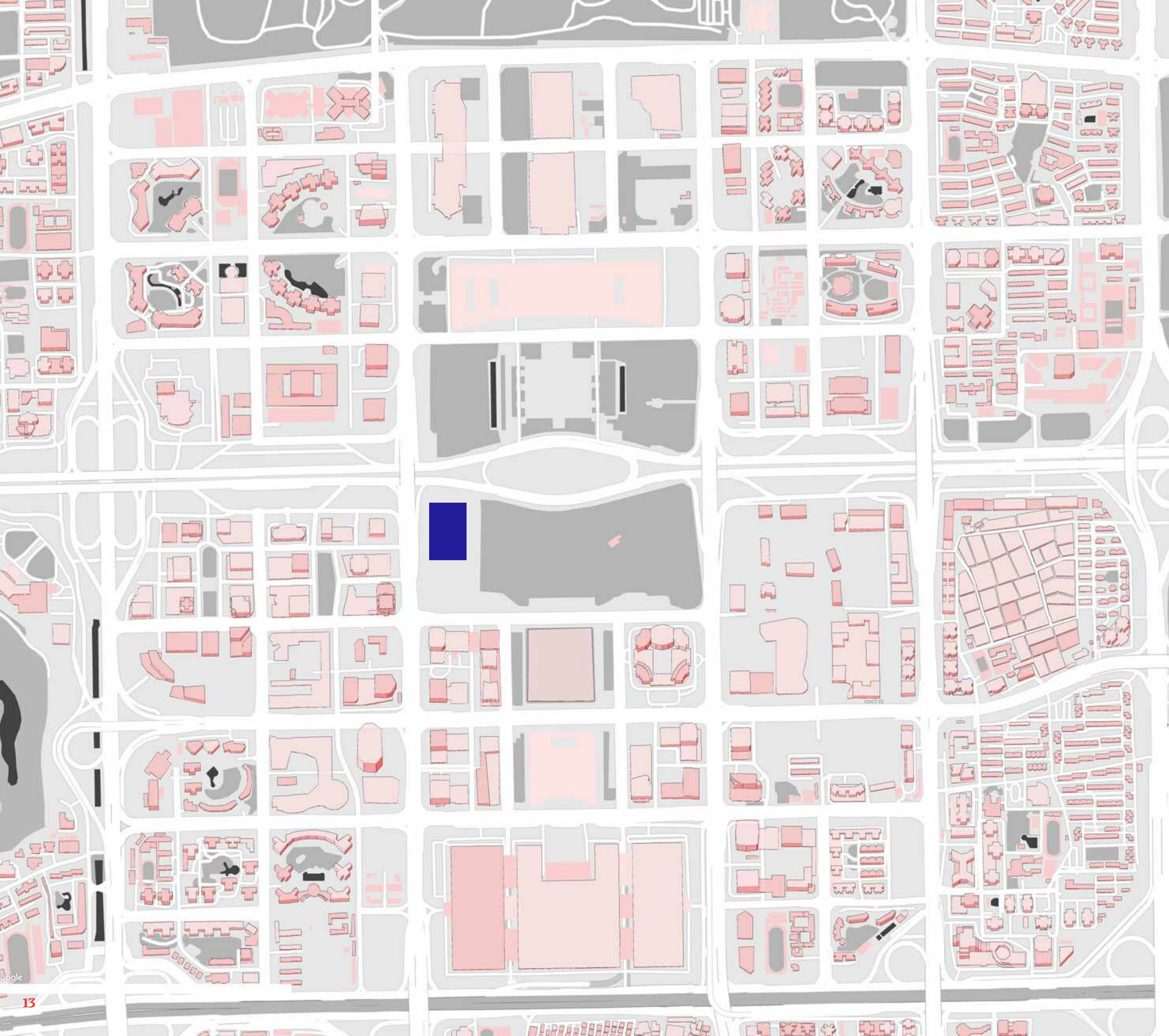
Underlayer structure.

Futian Station is a three-story building located underground at the intersection of Shennan Avenue and Yitian Overpass. There are three underground floors. It is currently the deepest underground building in Shenzhen. Dong Zhi, deputy chief engineer of the China Railway 15th Bureau Group, said that although Futian Station is currently the largest underground railway station in China, it is not large compared to ground stations, and only moving trains. Underground layer traffic conversion layer herein can transfer Metro Line 2 , Line 3 , line 11 , and this layer is also a ticket vending machine. The second underground floor is the station hall floor, where passengers can check in. The third underground floor is the platform layer of the Guangzhou-Shenzhen-Hong Kong special line .



Part 2
Urban analysis

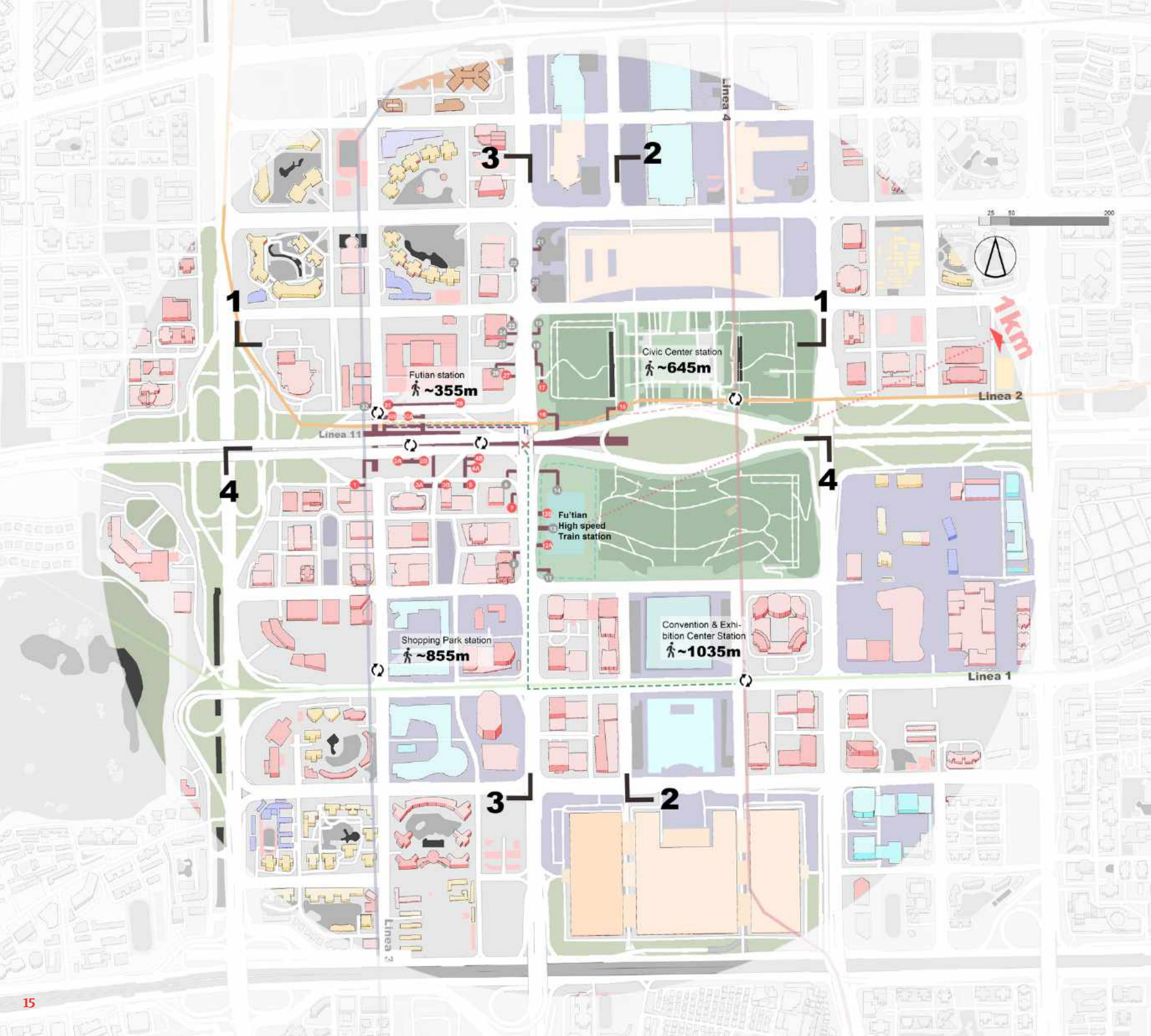




urban analysis / Vertical direction

■ Shenzhen railway station is located in the core of shenzhen city:futian district.

urban analysis / Vertical direction



Analysis by drawing the urban map, i can figure out that the underground structure is very different by the on ground view of the railway station.

- Multipul use commercial building
- Residential buidling
- Public building ,cultural space
- Shopping mall
- School
- Hospital

- Green decorated space(no enter)
- Public open green space
- Public open projected space
- Privated open space
- Privated green space

- Water
- Main road
- Metro staion

- Fu'tian train staion F0
- Fu'tian train staion F-1
- Exits

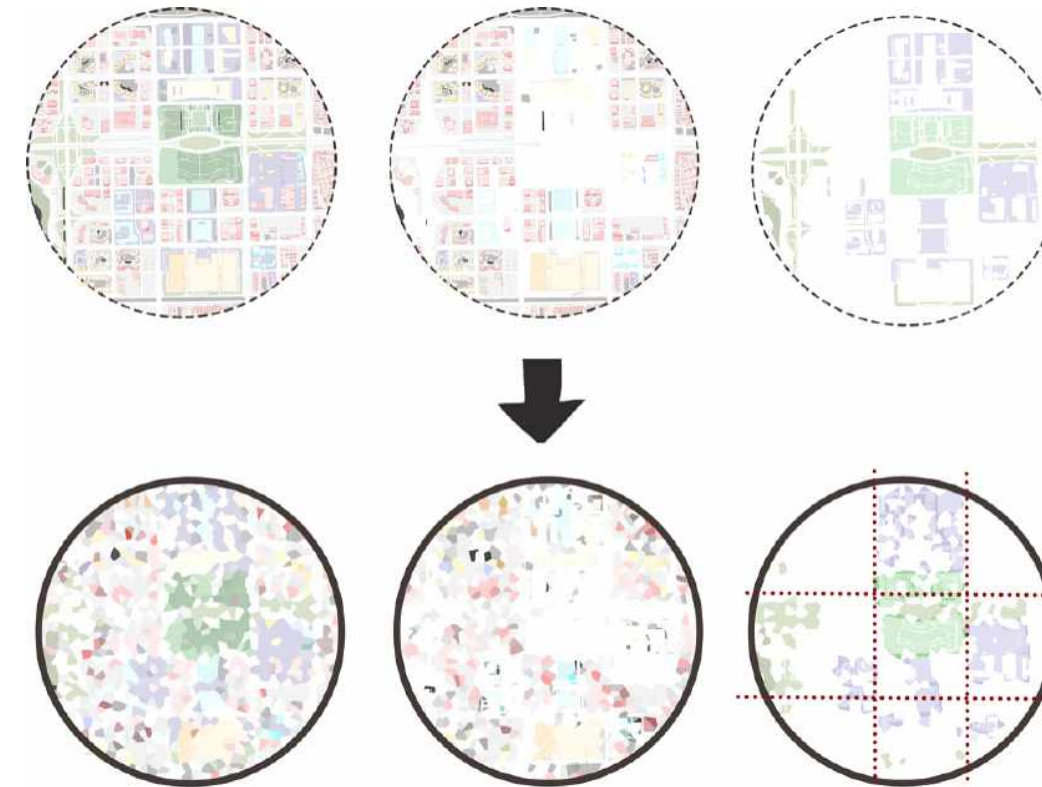
Urban map

From the results of the city survey, we can see the situation near the Futian High-speed Railway Station. I made a radius of 1000 meters and measured a research circle range that starts from Futian High-Speed Railway Station.

From the figure, the survey area can be roughly divided into private buildings and public spaces, traffic arteries, Futian high-speed rail entrances and exits, Futian high-speed rail railway paths, and four subway lines connected to other parts of the city as well as subway and high-speed rail stations. Underground connection. The total length of the underground structures of Futian High-speed Railway Station exceeds 1024 meters x 700 meters. During the investigation, we can see that its structure is intersecting, and there is a relationship of different heights in the horizontal and vertical directions, it creates a spatial structure with the city.

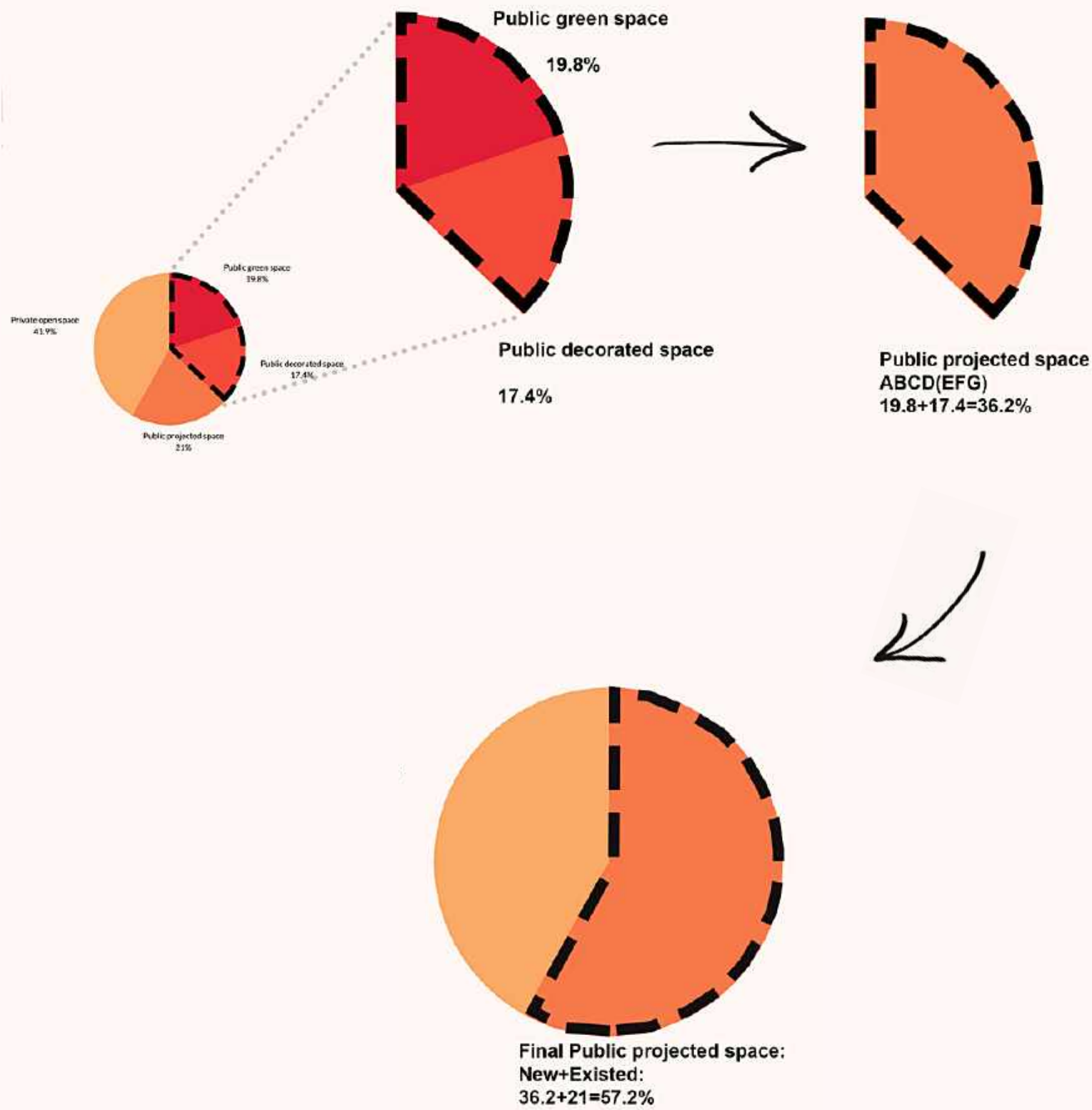
Blur patch

According to the picture above: the results of the analysis in the city plan. I used the map to blur the map to study which area function its large-scale color



According to the picture above: the results of the analysis in the city plan. I used the map to blur the map to study which area function its large-scale color blocks are distributed in to obtain a more intuitive result. After blurring the floor plan, I can see the general light pink areas: private and residential areas are distributed around the periphery of the circle, and the rest of the other multi-functional areas and public areas are mainly distributed in the middle of the large intersecting blocks. However, the main reason for the difference between these two large blocks is the arrangement of the two main roads, Shennan Avenue and Yitian Road, because these two main roads are very wide, about 150 meters to 200 meters in width.





Open space distribution

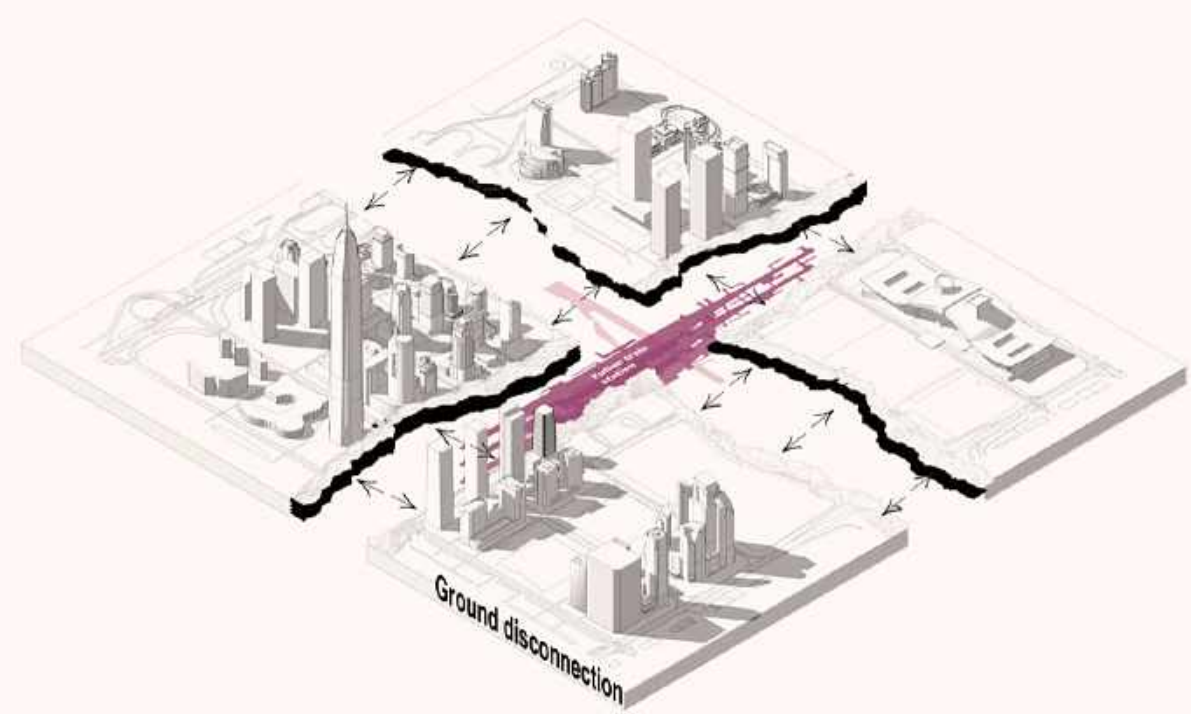
From the last blur urban plan, we have been able to roughly figure out the location of the open area, so now we will discuss the distribution ratio of the open space. I divided them into public green space, , decorated space, public projected space, and private open space.

Private open space is generally not considered in my research, because I think if there is such a large area of public open space that can be shaped, I will focus my attention on only the public in the open space from the entire open space.

Public open space includes a decorated space. Public decorated space means an open space not allowed to enter by users but for decorating the city on the urban level. From that, I can imagine it could be a very advantageous opportunity as a solution policy.

For example, we can combine these two types of public open spaces. Change to the space of the project design that we can choose this time. In this way, a large-scale direction of mine has been set. As can be seen from the diagram on the left, if I convert the proportions of these two spaces into a project public space, it will account for 36.2%, that is, about 40% of the open space is available for me. Design and use of this project.





It can be clearly seen in the diagram that the intersection structure of the Futian High-speed Railway Station roughly matches the shape of the ground disconnection.

These four major districts are mainly open spaces and cultural public spaces in the office buildings in residential areas.

Due to the existence of these two large arterial roads, I think the lack of the use of the side on ground level is caused by this disconnection. So how to solve this problem of ground disconnection? We should start in the direction of the problem, perhaps we can get the answer.

The separation from cross mega roads

From the axonometric view of the city block, we can clearly see that the two mega roads divide the surrounding area of the Futian high-speed railway station into four areas.



view on shennan road next to futian railway station 2015





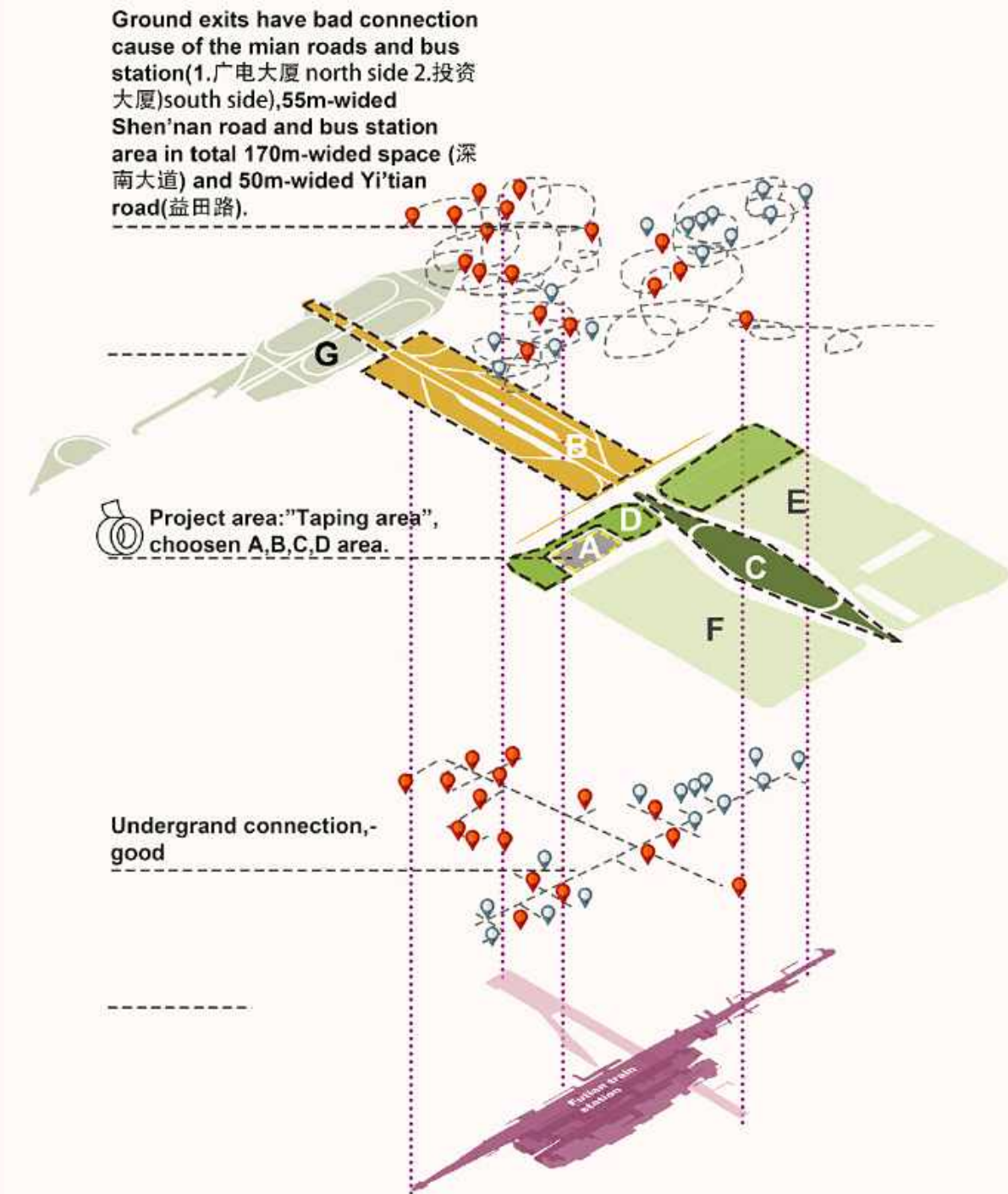
32 exits connect between city and station

In the case of ground disconnections. We also found an interesting breakthrough that there are 32 exits in total connecting the underground Futian railway station with the four blocks on both sides of the mega roads on the ground. It can be seen from the figure that the red ones are the open entrances and exits that have been used and the gray ones are the ones that have not been used and will be used in the future. It can also be proved that the current situation is dis-

connected, then a future direction, of course, is to strengthen this connection. So this trend is very consistent with the development trend of my project.



exits of futian railway station

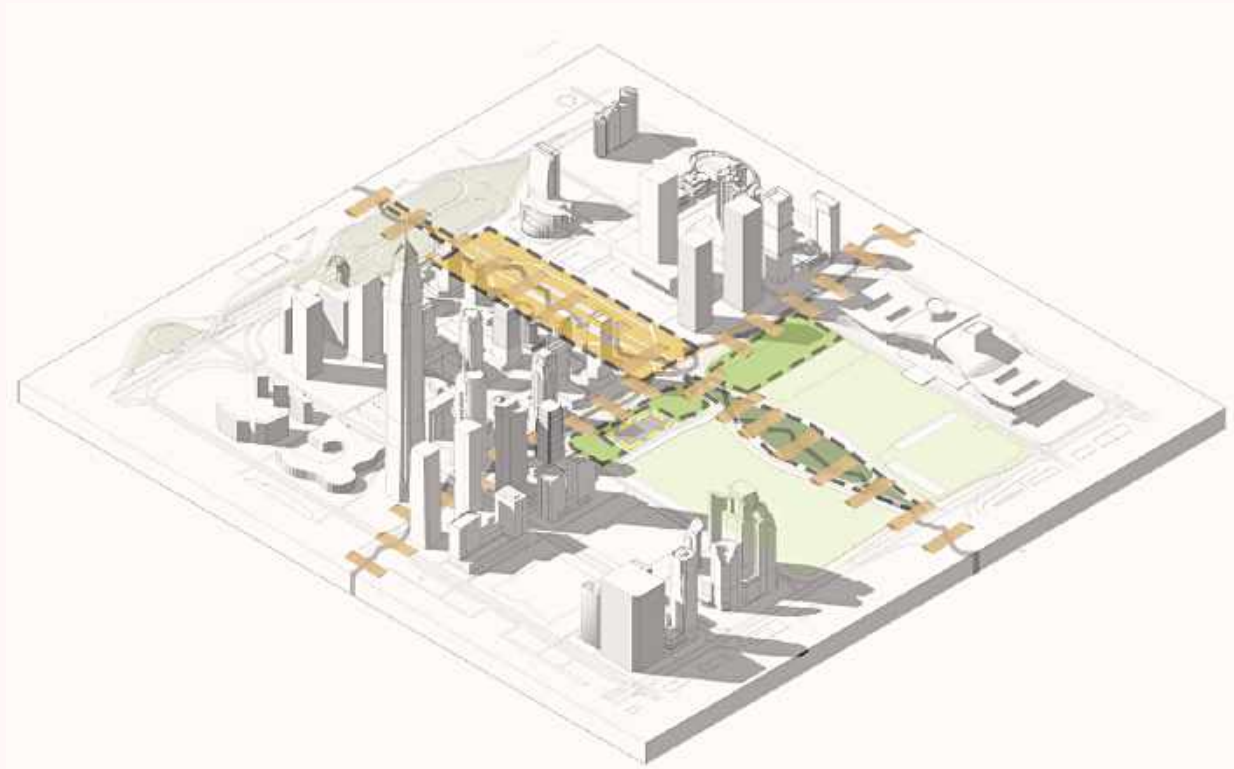


Difficulty for passengers on ground level

Comparing with the weak relationship on the ground, the relationship in the underground Futian high-speed railway station is much more in ordered.

The underground passenger circulation is more linear, better in connecting various entrances and exits, so that users can quickly reach their destinations in the Futian high-speed railway station. The up-and-down relationship of the entrance and exit connection is actually very obvious: It runs through some of the public open spaces that I studied earlier.

I marked them as A, B, C, D, E, F, G, six open space study blocks, then I picked A, B, C, and D blocks which are separately proposed in this cross direction. These blocks contain 32 exits, which also coincides with my design idea of incorporating the area into the design space.



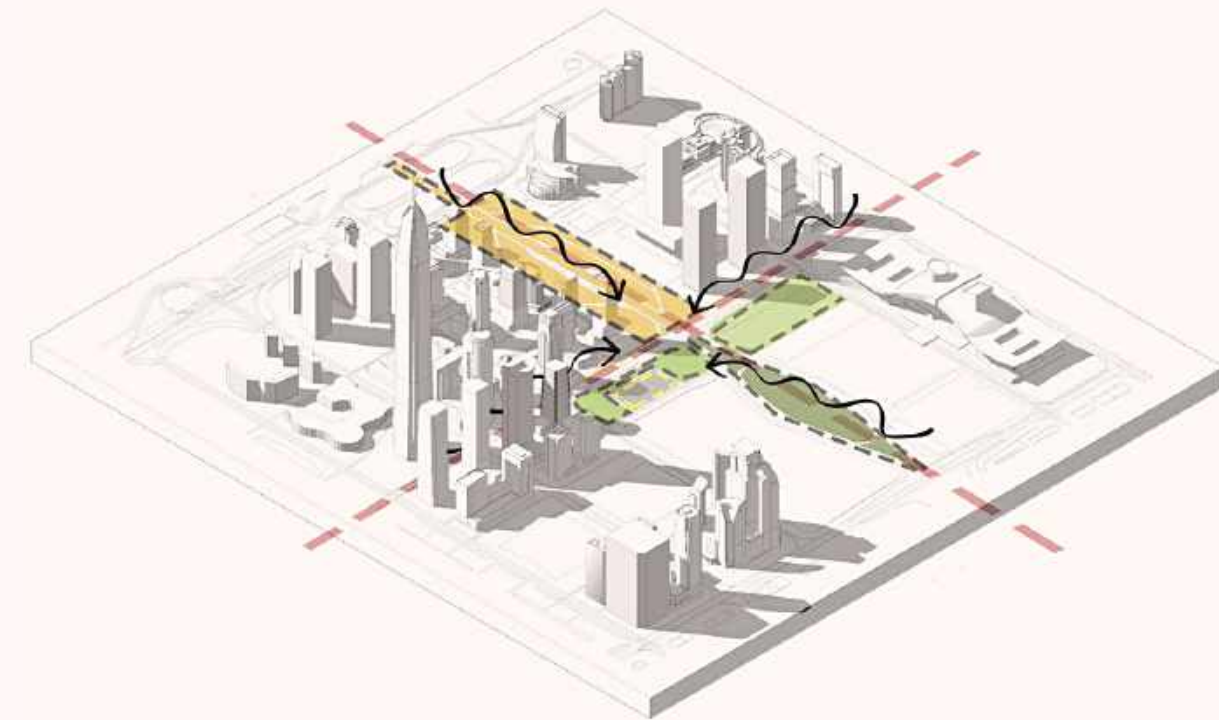
I hope that my design will have the effect of an adhesive, which can repair some of the existing urban connection problems. The users on the ground are actually unable to use the area with high utilization. The usage of Futian high-speed railway station is only for most of the passengers who go to take the train. My design will be more comprehensive to face a wider crowd.

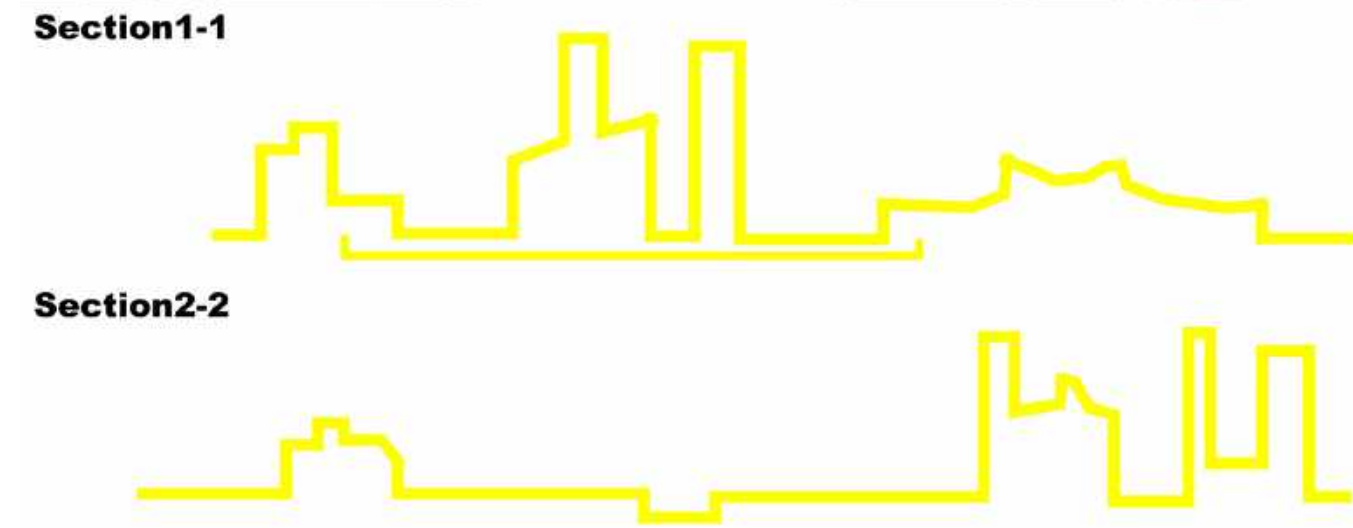
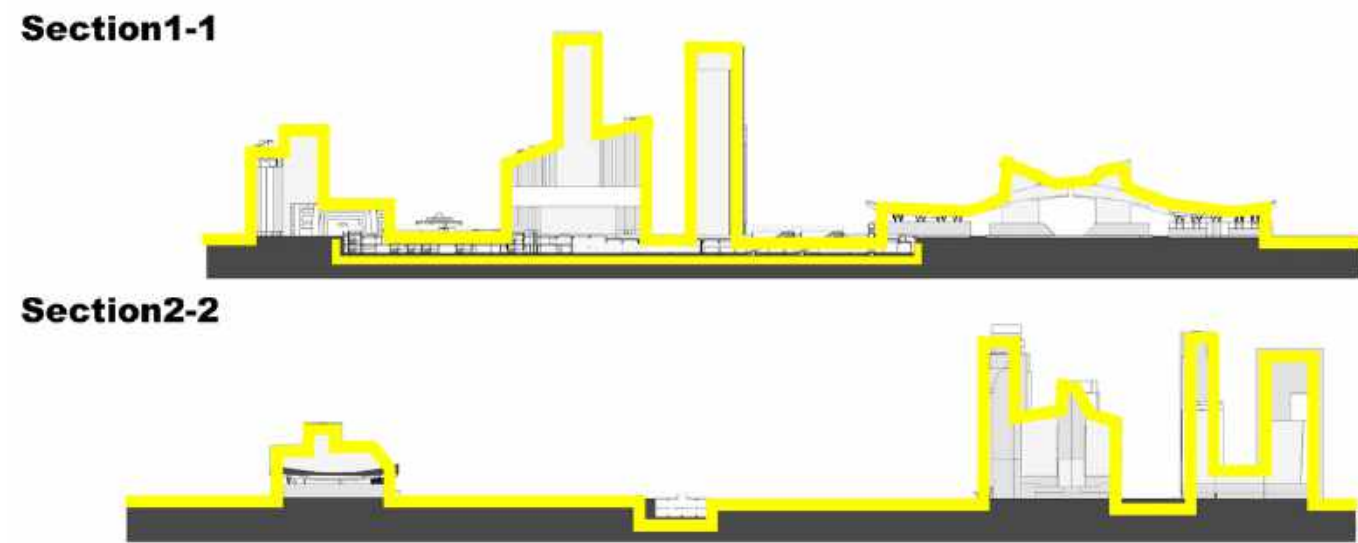
Including nearby residents, office workers, non-local population who come here to participate in activities, or transit here, some tourists who will go to Hong Kong or Guangzhou, young people, and old people are suitable. I hope this design can let all anyone can like and use it.

a new chance to reconnect on ground level

Judging from the areas A, B, C, and D that I have selected, although these four areas are where the problem occurs, I think they can also be solutions.

I can mark in the picture that this connection is like four blockchains to be connected and glued together with tape.

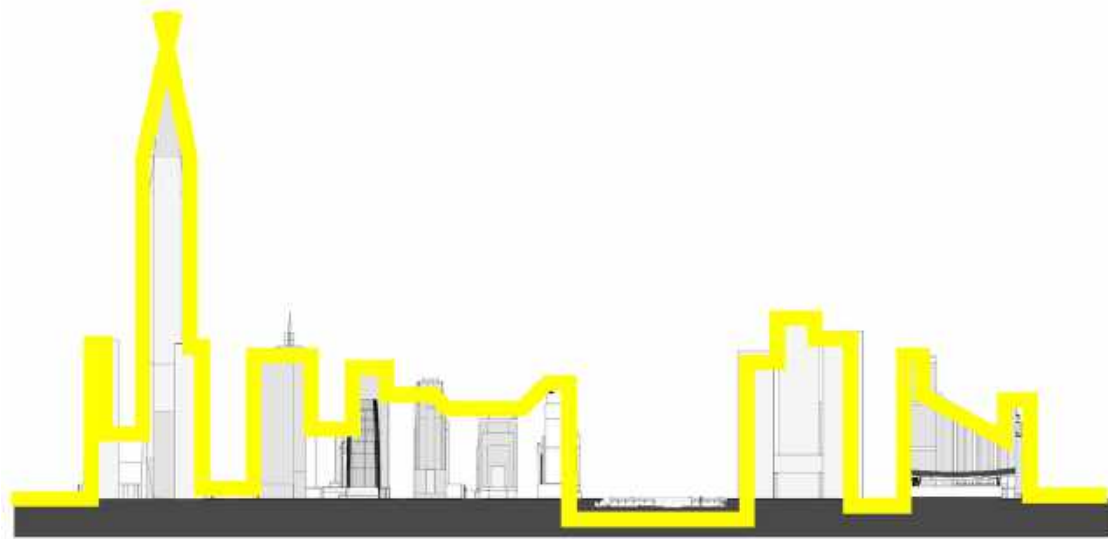




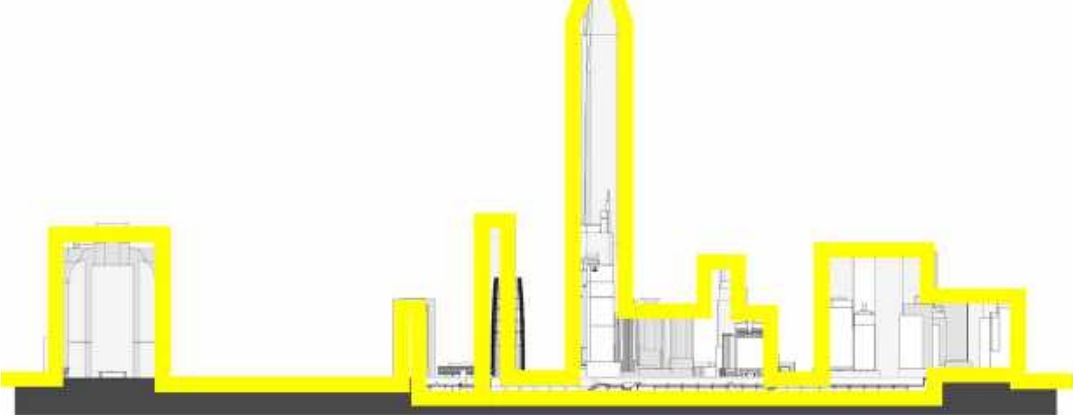
study on skylines in Futian Railway station

From the survey of the city plan to the city profile. I want to figure out some relationships between the height change of the city from the study of landscape. I took a section of the city. From the city profile, by drawing simple geometric straight lines to trace the shape of the building.

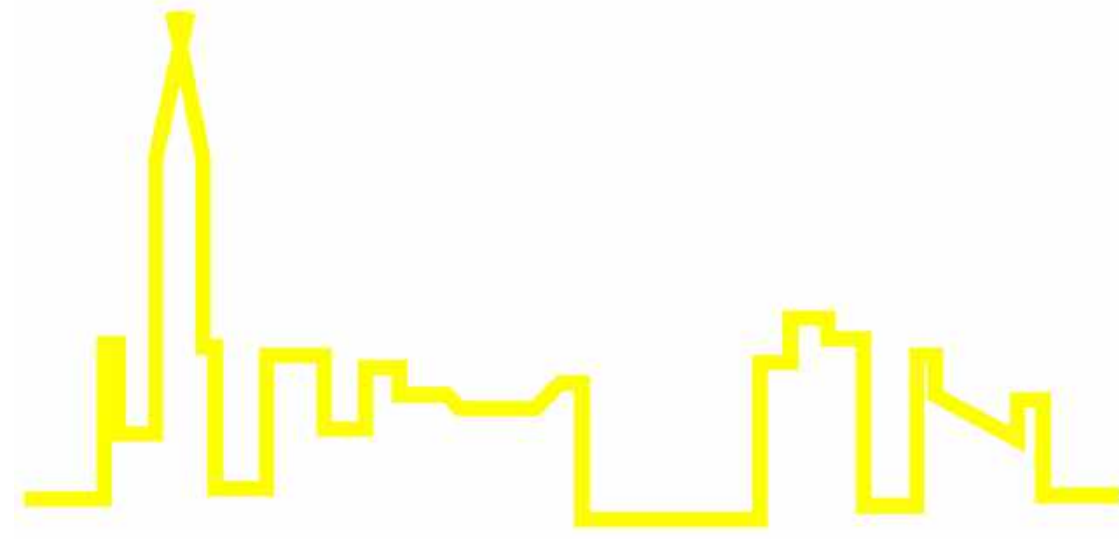
Section3-3



Section4-4



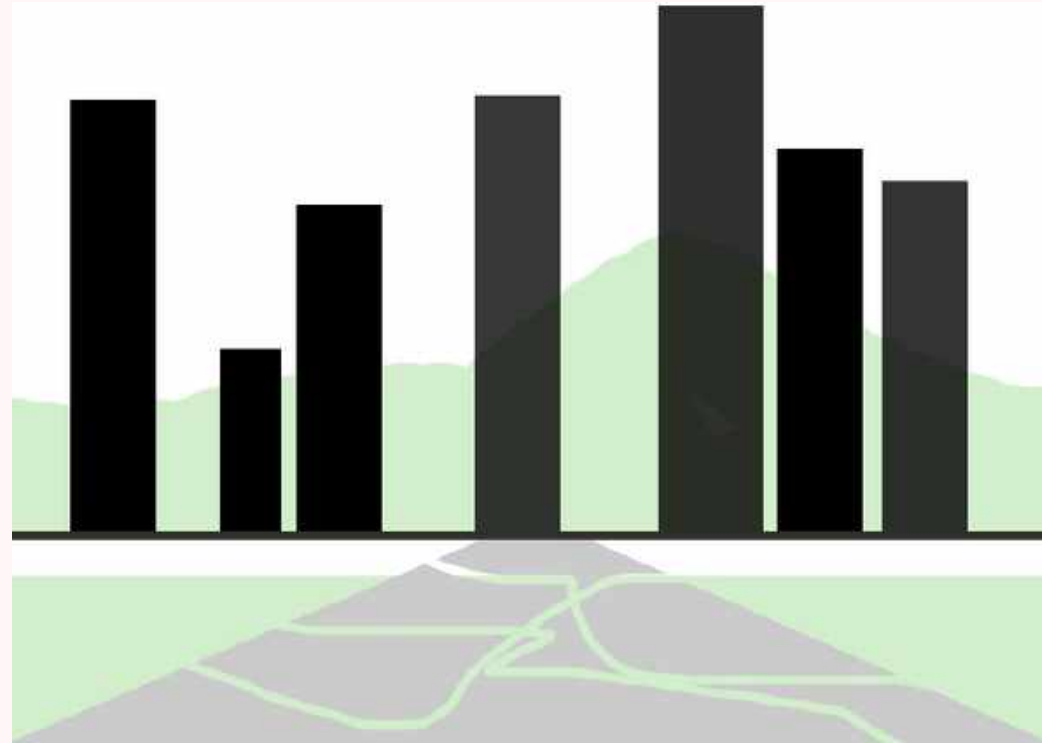
Section3-3



Section4-4



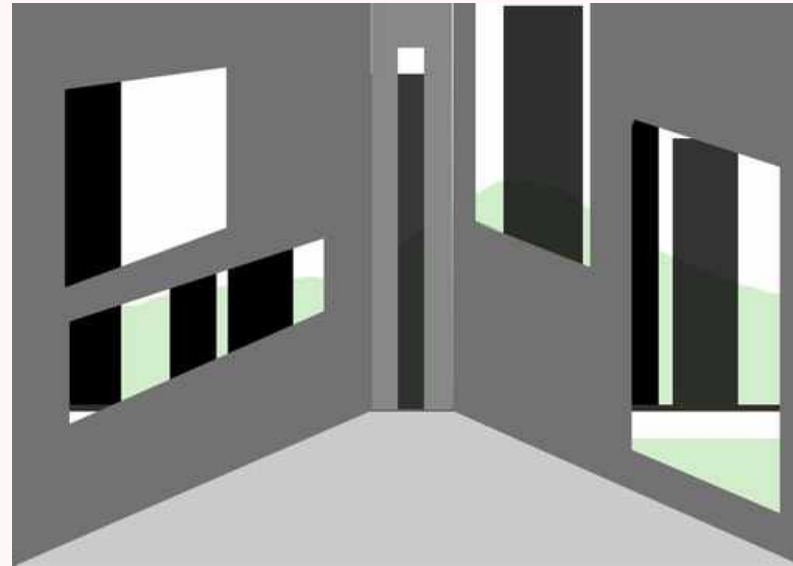
From the figure, you can intuitively see the height change of the city, especially the relationship between the Futian High-speed Railway Station and the buildings in Futian District.



What do we need in such a public space?

From the first part of the survey, what can we know? What kind of public building do we need? Can we meet our design requirements? I have analyzed some different possibilities here in order to provide the sporadic thinking in my future design.





Closed door space

Confined spaces can be constructed. Very strong architectural impression. But at the same time, it may lose some direct contact with the surrounding buildings.



Open covered

If it is open, with a roof design, it may give a sense of space, but it is open, which can give users more flexibility.

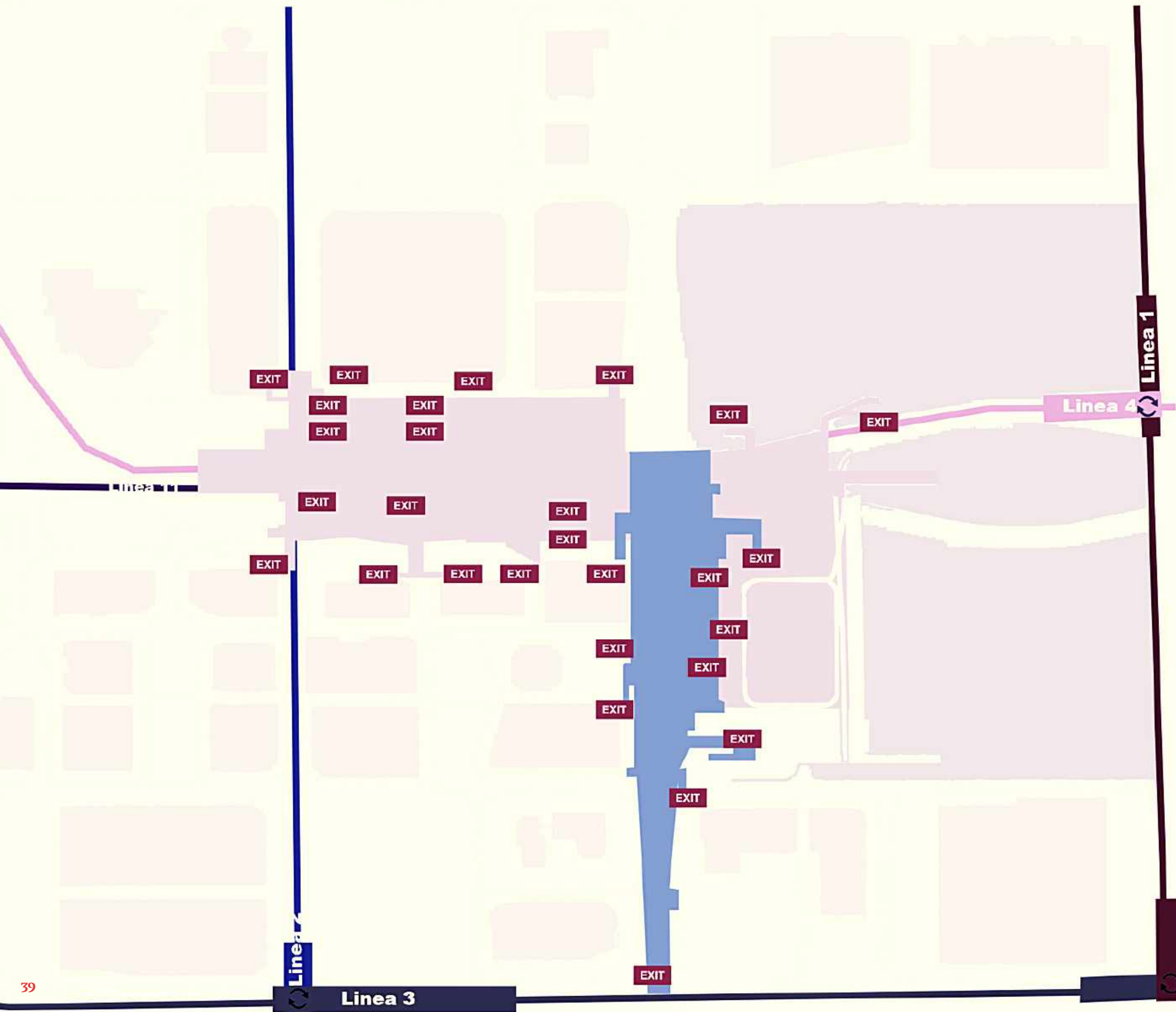
Design mix use space

In the final design part, there will be some shapes, colors, and materials that will give a different and better design look.



Part 3
Station analysis





In this chapter, I will conduct a more detailed investigation of some situations in Futian High-speed Railway Station.

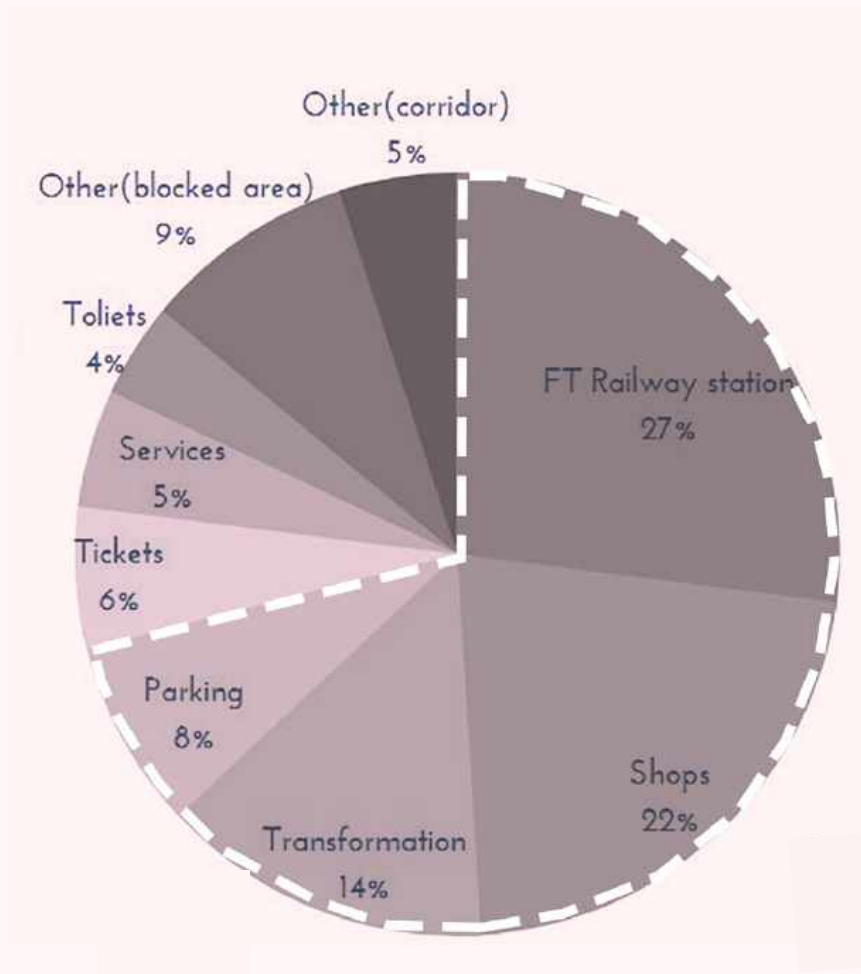
Underground layer traffic conversion layer herein can transfer Metro Line 2 , Line 3 , line 11 , and this layer is also a ticket vending machine. The second underground floor is the station hall floor, where passengers can check in. The third underground floor is the platform layer of the Guangzhou-Shenzhen-Hong Kong special line .

Futian Station is equipped with a transfer channel, which realizes long-distance channel transfer with subway Futian Station , Civic Center Station , Convention and Exhibition Center Station , and Shopping Park Station , diverts the passenger flow of some subway Futian Station , and reduces the passenger flow pressure on the transportation hub of Futian Station. The transfer passages in the central area and the southern area of the subway Futian Station and the high-speed rail Futian Station are equipped with automatic walkways to facilitate passenger transfers. The underground mall Liancheng Xintiandi, which connects the Convention and Exhibition Center Station and the Shopping Park Station , has reserved a channel to connect to the station, and will be opened with the opening of the high-speed rail station. A closed screen door was installed when the station was constructed .The northern part of the station and the eastern passage (connecting the Civic Square and the Civic Center Station) were not opened during the initial period of operation. The eastern passage was opened in 2017.

From my analysis chart, it can be seen that most of the function distribution inside Futian High-Speed Railway Station is based on the needs of passengers who are taking the train, and most of them are shops. It can be clearly seen that its functionality is incomplete.



station analysis/horizontal direction

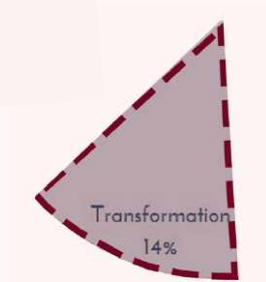


Function area analysis

The image information is transformed into a digital form, we can see that it is roughly divided into shops. High-Speed Rail Station. Conversion channel and parking lot. It can also be seen from the conclusion that there are service areas, ticketing areas and so on that need to be strengthened.

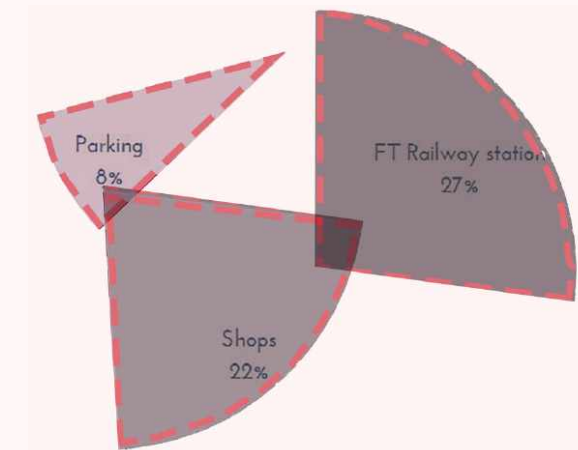
Judging from the analysis diagram of the functional division, I divide it into two more important parts. The mayor part of the function use from layout are: Parking 8%,Shops 22%,Transformation area14% and Futian railway station 27%.

The station also includes 32 exits, 6% tickets area,5% services,4% toliets and 14% others.The two most important perspectives support my design idea.



Part I :Primary

Transformation area takes place 14% .Should be selected as project area which also has the biggest lack of connection and the highest attention for user.



Part II:Secondary

Parking 8%,Shops 22%,Futian railway station 27%.

By considering part of them has already been projected,we can choose them as 2rd design level.





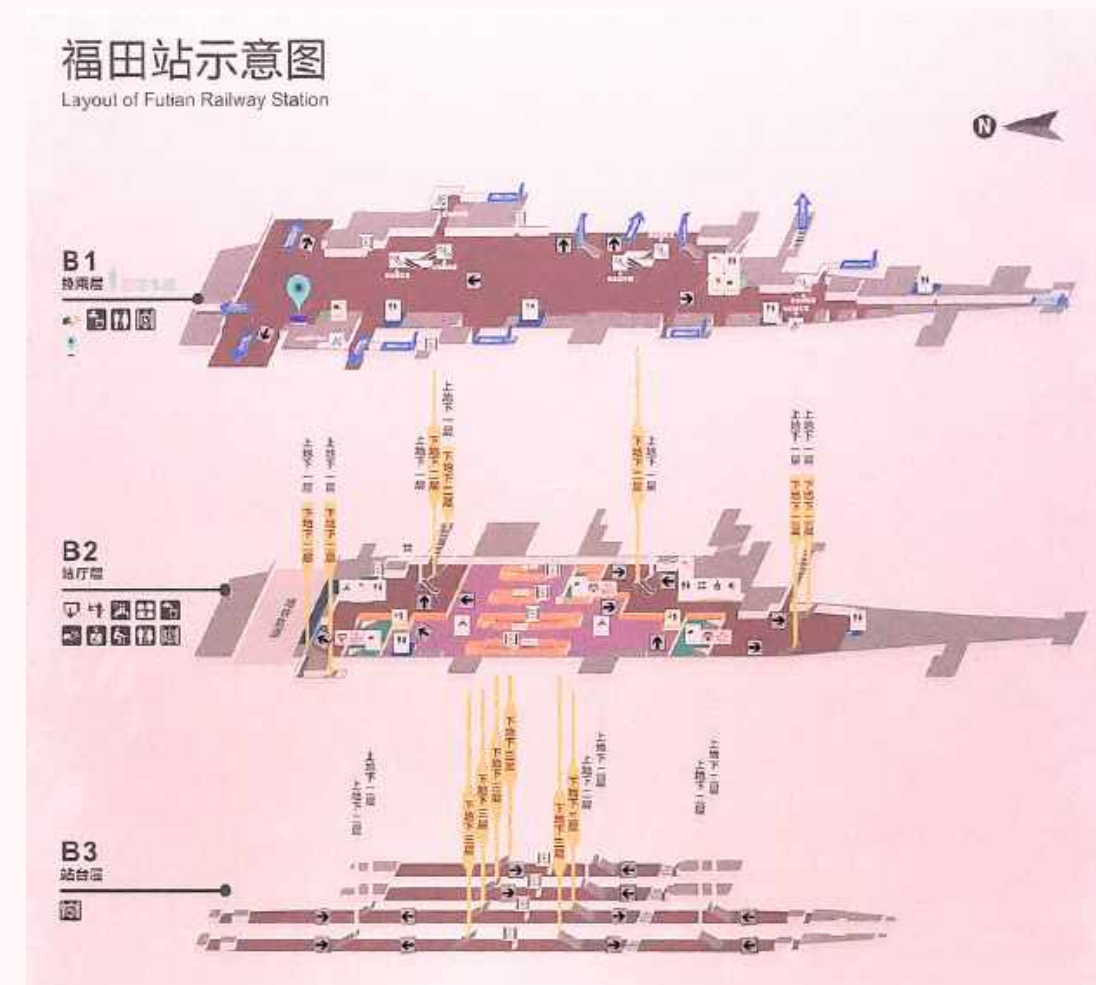
Layout

The entire station has a three-story structure, and the basement floor is the transfer hall, with a total of 16 passenger entrances and exits;

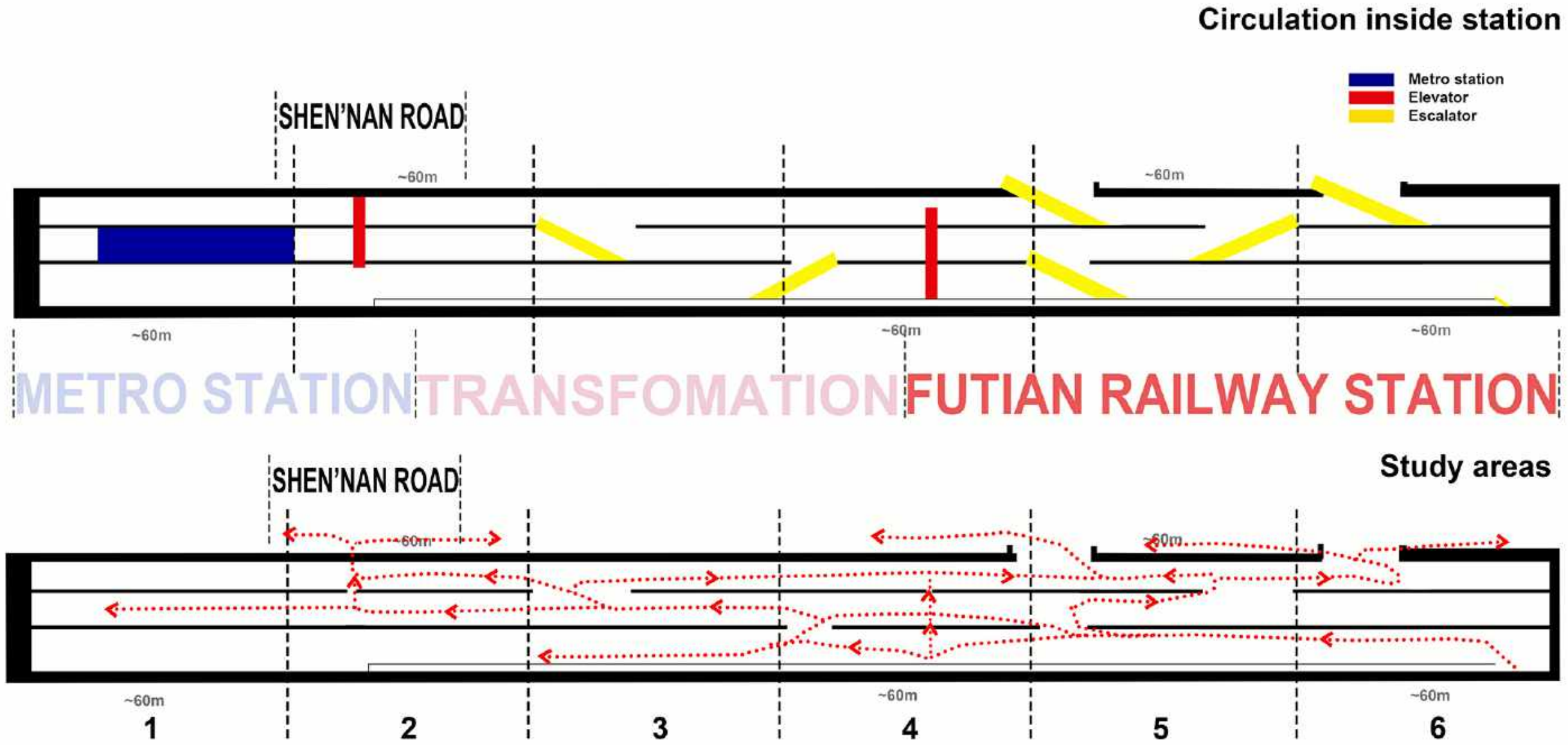
The second basement floor is the station hall floor and the waiting hall. There are 4 entry gates and more than 1,200 waiting seats, which can take 3000 passengers at the same time;

The third underground floor is the platform layer, with a total of 8 strands and 4 platforms.

There are 3 convenient entrances and exits that directly lead to the second underground floor (without passing through the negative first floor) on the ground. They are the north side of Fuhua 1st Road, the east side entrance of Yitian Road, the downstairs entrance of Jiangsu Bank, the south side of Shennan Avenue, Yitian Entrance on the east side of the road.



Section AA'



station analysis/horizontal direction



AREA	METRO STATION	TRSFOR-MATION	FU'TIAN STATION	ESCALATOR /ELEVATORS	
1	✓			0	☹️
2	✓	✓		1 elevator	😐
3		✓		2 escalators	😊
4		✓	✓	1 elevator + 1 escalator	😄
5			✓	3 escalators	😊
6			✓	1 escalator	☹️

Circulation analysis

From checking out the section of Futian High-speed Railway Station, I investigated the difference of the passenger flow, the passenger flow of different areas are distinguished. The blue ones represent subway railways. The red ones represent elevators, and the yellow ones represent escalators. I divided them into six areas.

By analysing circulation of the station we can understand that in each 60 meters-distance,there is at least 1 up to 3 escalators(elevators) ,which in area 3,4,5are better than area 1,2,3 and 6.

Inside the transfomation range,there are area 2 and 3 to be improved.Which can increase the connection speed between metro and railway for passengers. Choose mainly transformation to be improved by project.



walking inside of futian railway station



Part 4
weakness/opportunities



Urban level

In this chapter, we will summarize some of the urban planning or architectural design weaknesses and the possibility of future development that can be derived from the two-month survey.

At the urban level, Futian District is a political and cultural center, and it also plays a role as an economic hub. Its opportunities for development are very considerable, and the target audience is also very wide. One of its weaknesses is that citizens cannot walk anywhere due to the very wide road design. Almost all the ways to connect to Futian High-Speed train Station are by bus or private vehicle, taxi, subway, etc., and The connection between the subway station and the high-speed rail station is not very direct. It takes ten minutes or even 20 minutes to reach the Futian High-Speed train Station by going underground. In fact, it is very inconvenient for passengers.

I read some user comments on the Internet, and many citizens complained about the use of high-speed rail stations.

For example, people in Futian High-Speed train Station are easily get lost because the design of the station is very confusing. The only interior guides are signs and some posters of the station map so I think there are many problems in the station that can be improved. From the perspective of entrances and exits, the only way for citizens to connect to the city on foot is only 32 entrances and exits.

However, the signs of the entrances and exits are not very clear. It takes a long time while walking thought the road to find the entrance and exit. When I take the high-speed rail in my city, I actually need to use the map frequently to find the destination. So based on the existence of a building, It cannot be found clearly even it is in the city.

Futian High-Speed train Station also connects a very large open space between the Civic Center and the shopping mall. It does not make good use of this location advantage. It covers a very large area, but there are not too many civic activities happening in this space.



At this point, I can create a public facility building to achieve a connection, a design that attracts people and provides more functional services.

Station level

Analysis from inner space of the Futian High-speed Railway Station. The design of the station is confusing for users, and also the connection between the three floors' internal structures is not very clear.

There are a lot of aisles and chairs for rest use in the station, but there is no actual infrastructure that can provide passengers waiting for the train.

There are some scattered shops, but these shops are not very comprehensive neither, for example, there are a lot of passengers complaining on the blog that there are not enough restaurants while they are waiting for the next train, even there are not enough

public toilets, etc.

In the entire Futian High-speed Railway Station is actually very crowded, it is such a large area, but they cannot keep well-balanced and make good use of the large space.

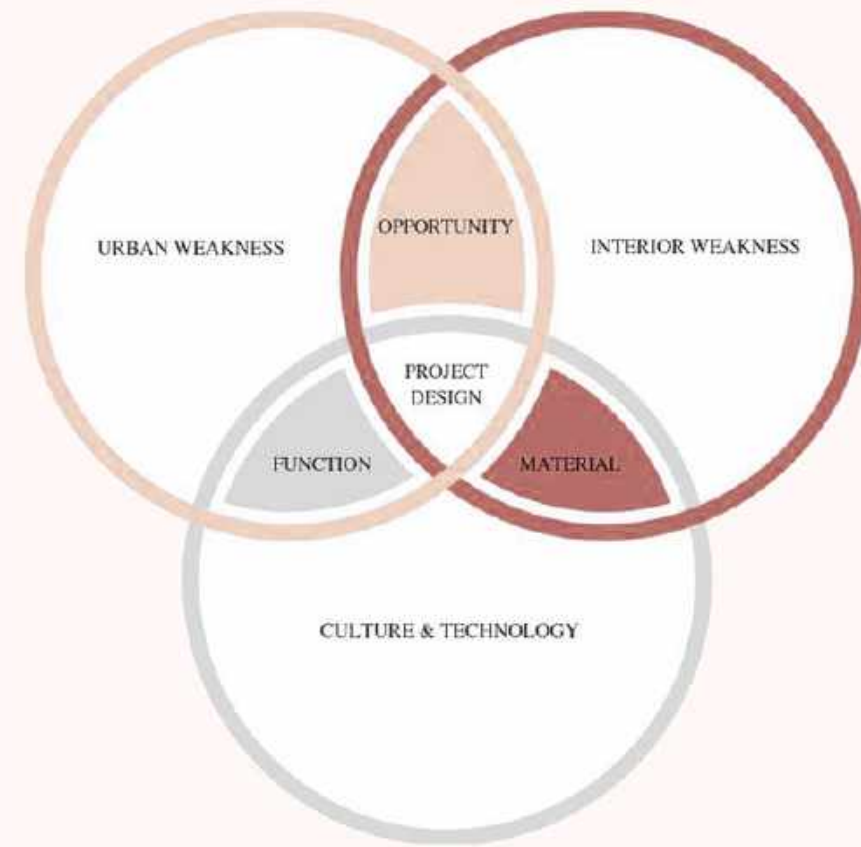
People did not enjoy the usage in this space. It is also easy to get lost. What's more, its design is not aimed at Shenzhen residents except travelers, and the surrounding office workers have no way to use this environment. I think it has lost its usage as a cultural center, transportation center, and economic center, the location advantage should be considered better.

From this, I began to think about how my design would allow everyone to use the area I designed. Since the underground structure of the high-speed rail subway station has already been built, It is very difficult to change its structure, so I will consider it as the secondary importance for strengthening the service function of Futian High-speed Railway Station.



Part 5
Design rules





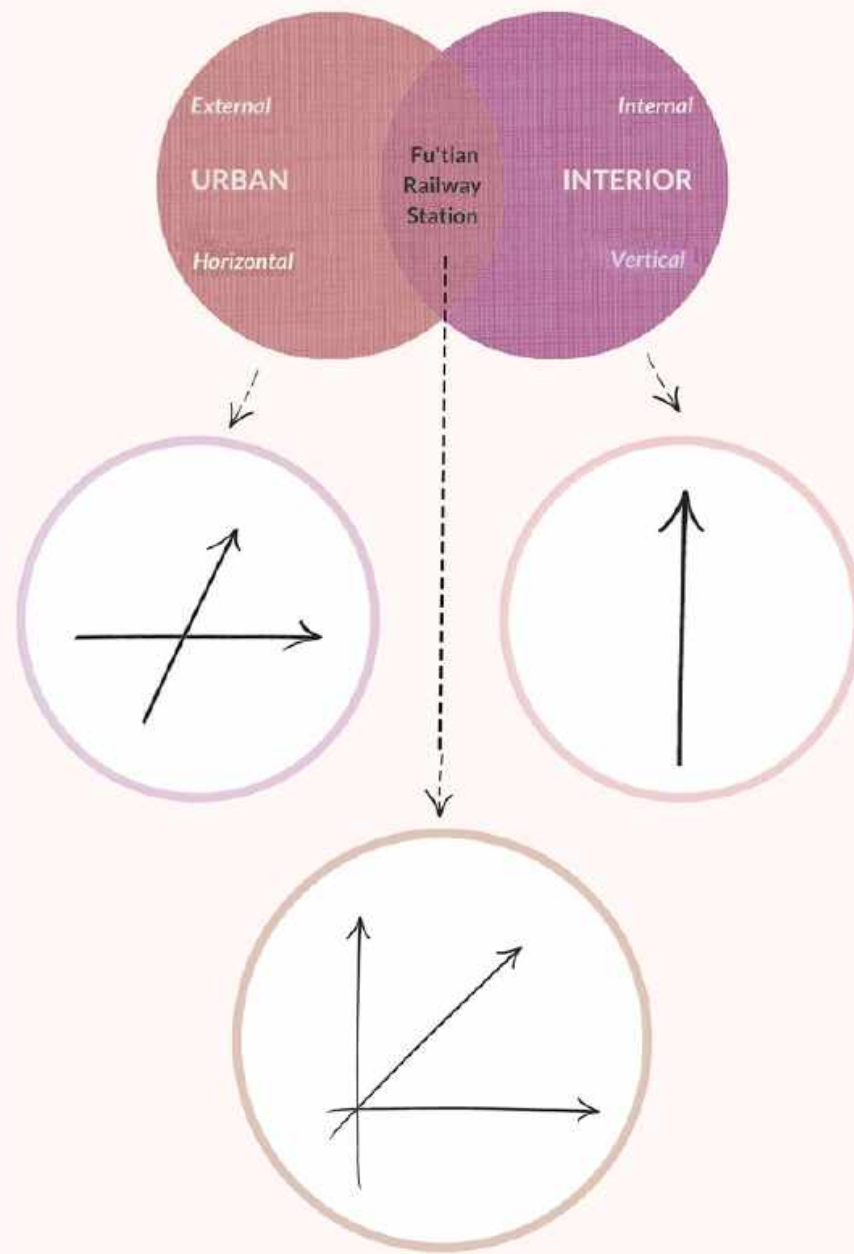
Urban/Interior weakness/culture/technology

1st design rule

In the first design rule, I concluded the three most important points are urban weaknesses, interior weaknesses, culture and technology. Between urban weaknesses and Interior weaknesses, opportunities and design possibilities can be decided. Urban weaknesses and cultural technology can decide functionality. Interior weaknesses and cultural techniques can decide materials.

Finally, from the design opportunities, design functions and design materials, we can finally determine the design of the project. This is the most fundamental first step of my design.





2nd design rule

The second design principle is a design rule based on the first principle.

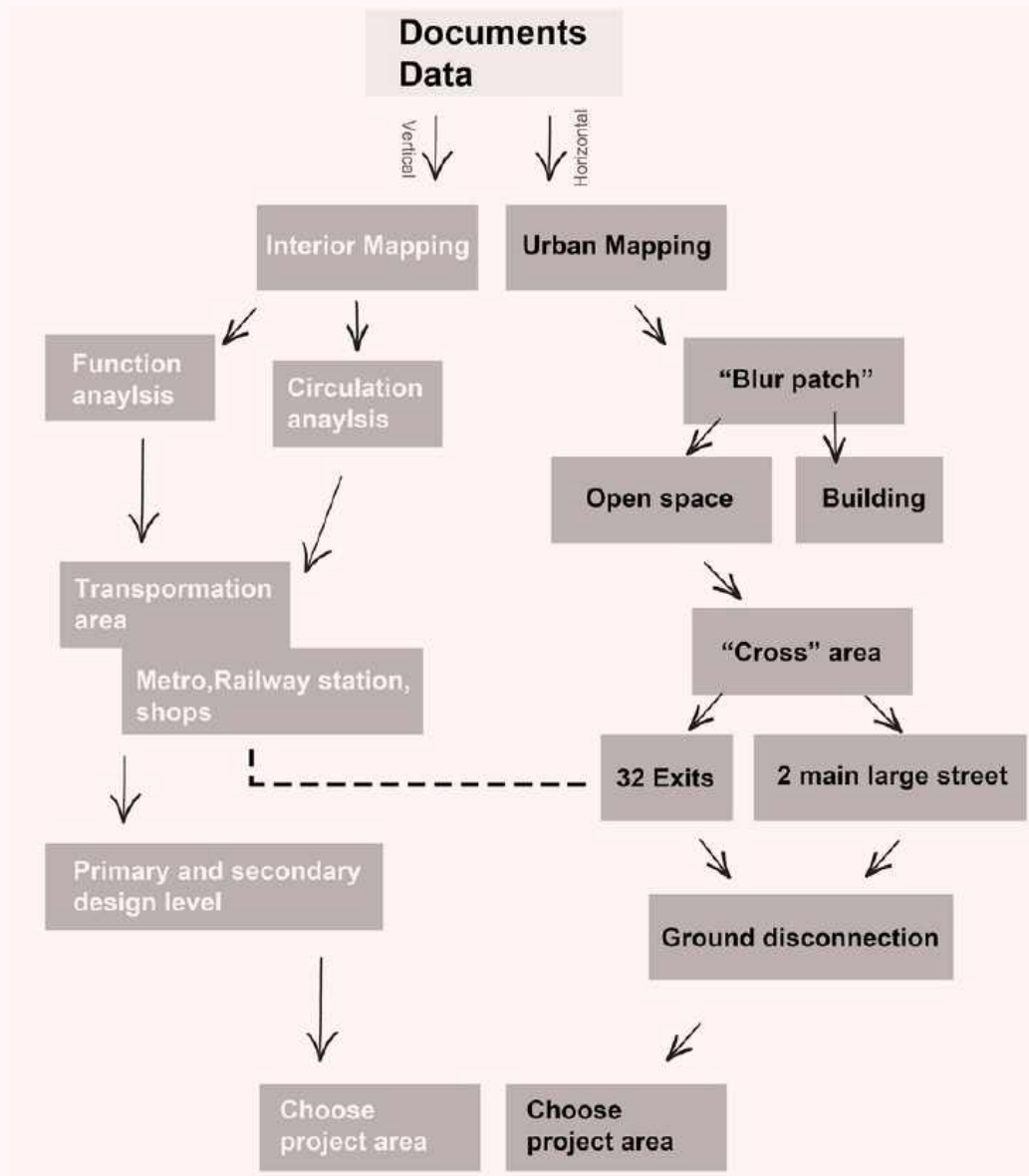
It is mainly divided into two parts, the first part is the city level, and the second part is the interior level.

The level of the urban means the external conditions, the change considered in the horizontal direction. The indoor horizontal means the internal conditions, the change considered in the vertical direction. Their interweaving can produce a design scheme in three-dimensional space. This is the design scheme of Futian High-Speed Railway Station.

The logic of my entire design process is based on problems, which are both opportunities and design solutions. I think this way I can have a consistent and smooth design process.

The problem will be the solution





Turn analysis data into design objects

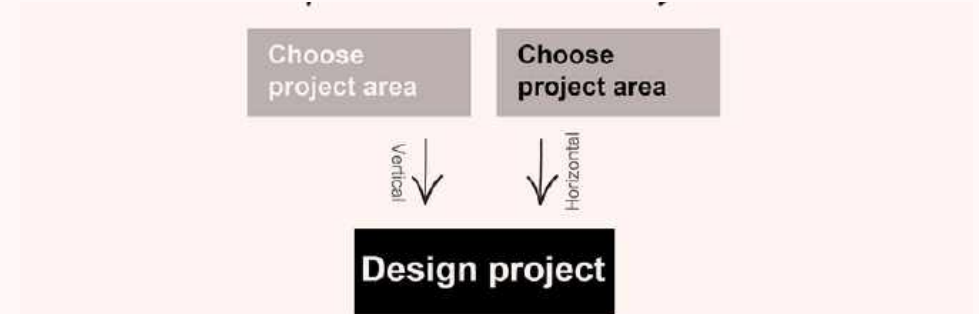
Design process

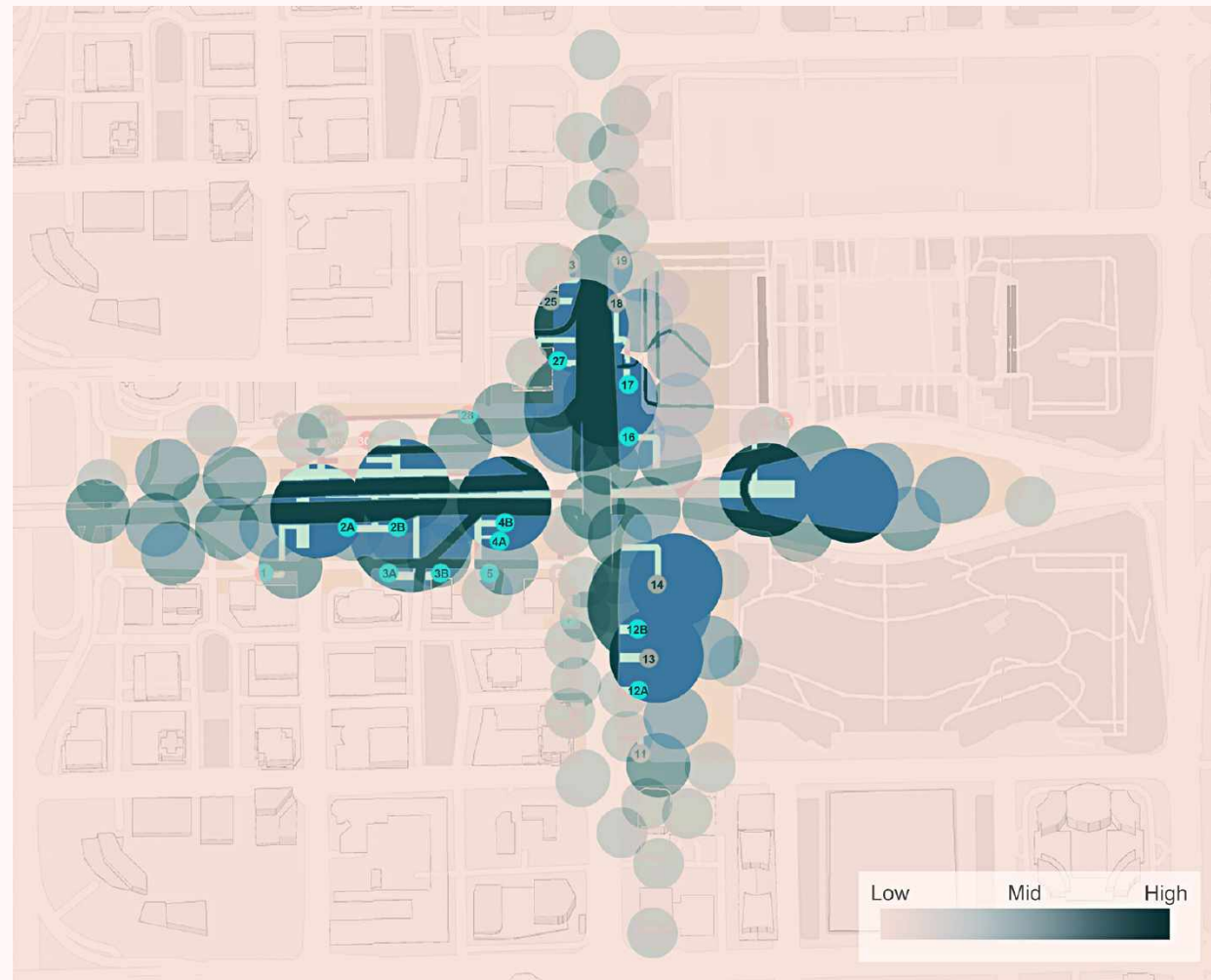
The design process is a process based on my first and second design rules.

It is divided into several steps, the first step: collecting information. the second step: Summarize the information and put the information on the map.

The map is divided into interior maps and urban maps, and following the information from the map, I continue to refine the analysis from these two major branches into the first and second design rules, ground disconnection in the urban direction.

As a result, the area of the design site is obtained to provide the project design.





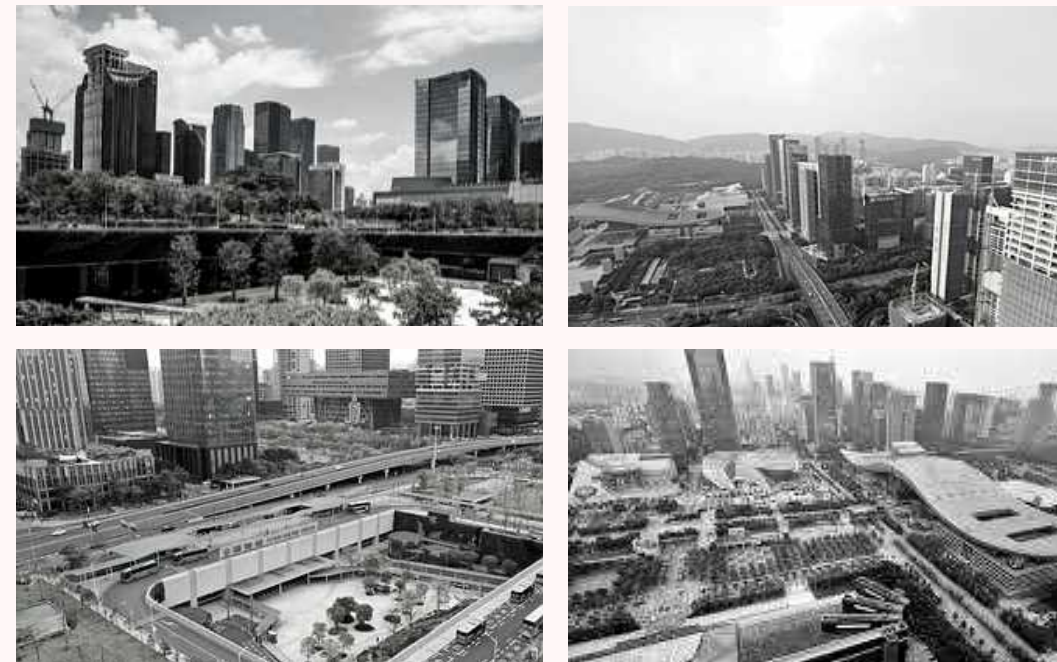
Density map for users

User density

User Density map is a plan view of user density that I summarized from the flow of people around Futian high-speed train station.

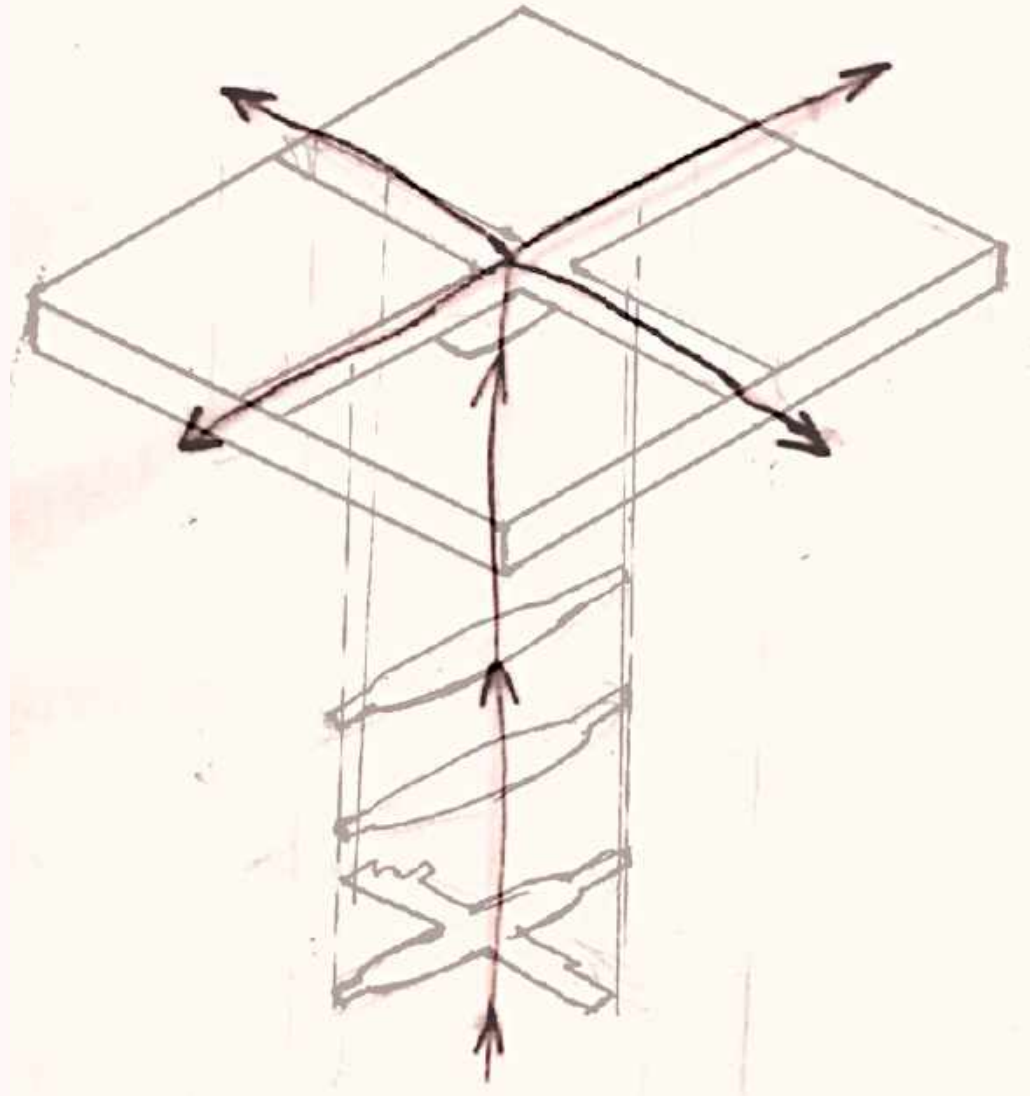
The lightest color represents less density to the darkest color to represent his highest density of people.

According to this density map, I can analyze the strong and weak relationship in the design scheme for users in my design. From the center to the outside, the user density gets weaker.



bird view around futian railway station





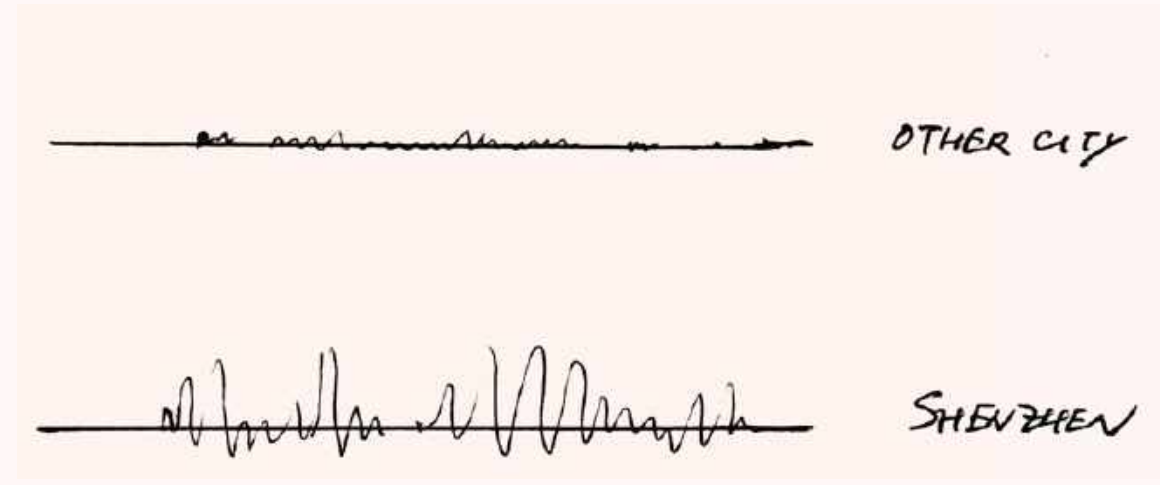
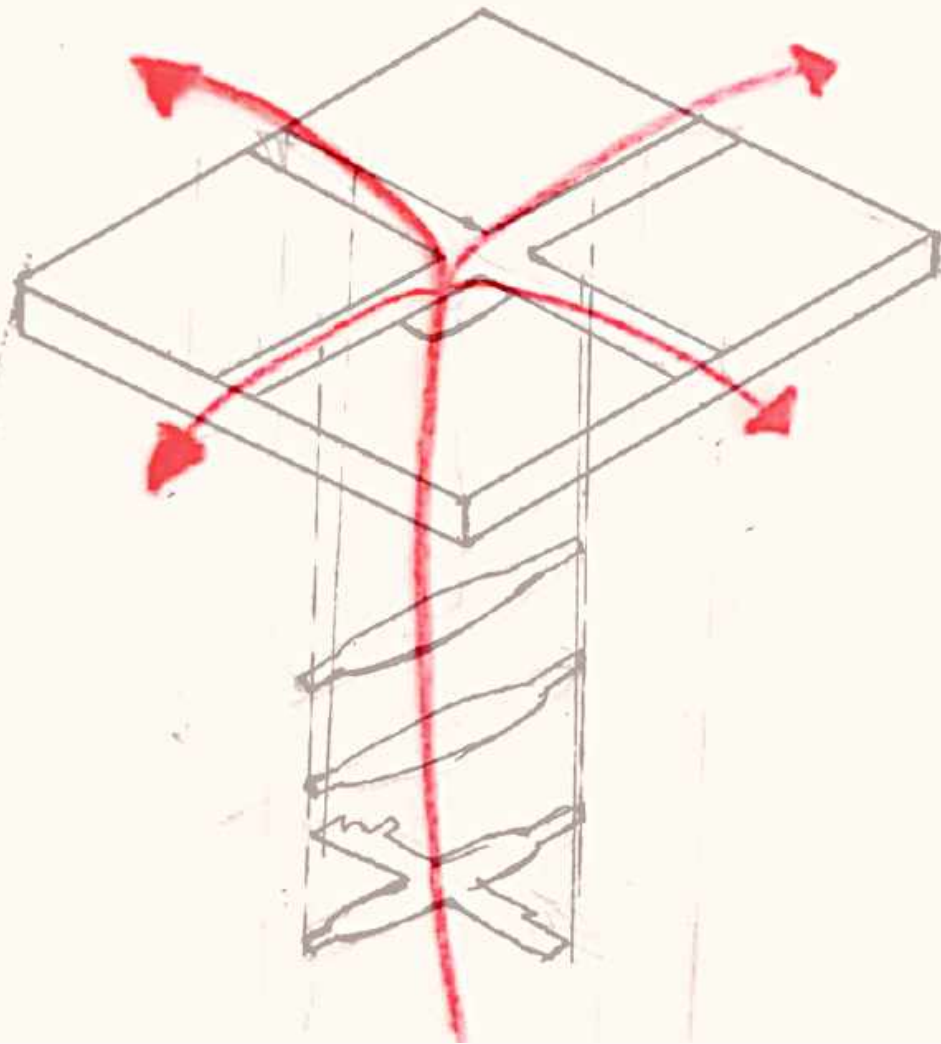
Urban/Interior
weakness/culture/technology

What can be a solution?

In summary, what kind of conclusion is a perfect design solution? I think that from the underground to the surface, from the vertical to the horizontal direction, an overall architectural design connected by the design plan will be a good solution. Not only from the design concept to the materials, I think it is feasible. The area near Futian High-speed Railway Station includes the station itself. This particular location would be a good answer.

Futian District is actually a very dense area. Shenzhen is also a very densely populated city. Compared to other Chinese cities, its density is five or six times higher. This has a direct relationship with the previous population density. I hope that the changes in the density of the data can be directly converted into changes in the height of the intuitive building level to change the current situation. From that, I think my architectural design will have a very important role as a landmark too.

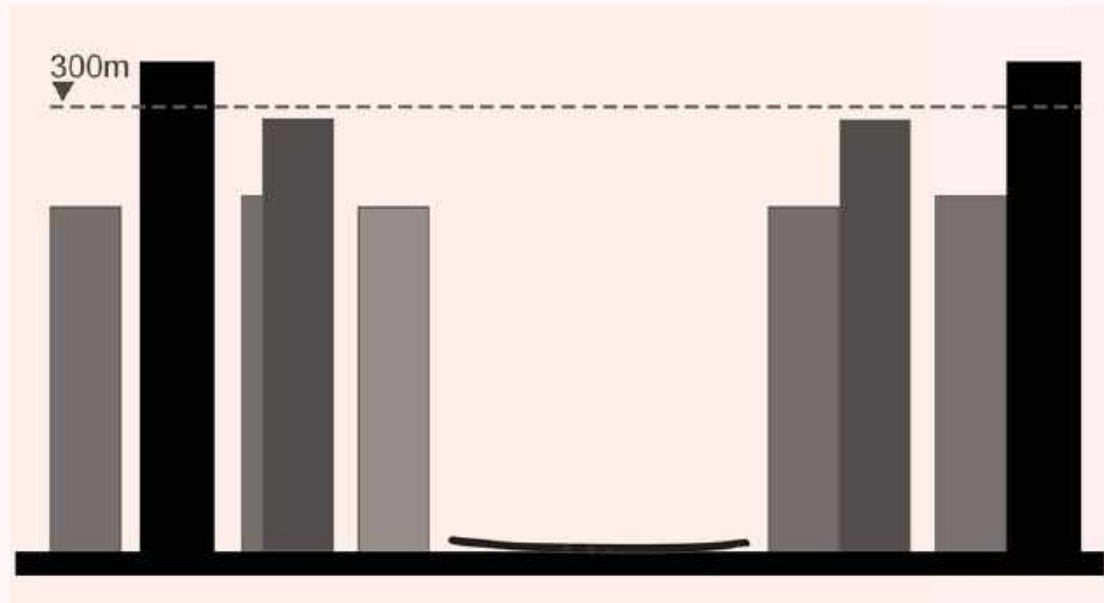
Not only does it have a function of connecting cultural economy and transportation, but the function of the landmark will also be one of the most important parts of my design, because it needs to be visible to the public, just like the existence of Futian District. The same is very conspicuous, such a very centralized existence.



Different density from different cities

There 4 photos of different cities street views blow:
Shenzhen, Hangzhou, Zhengzhou, Hefei





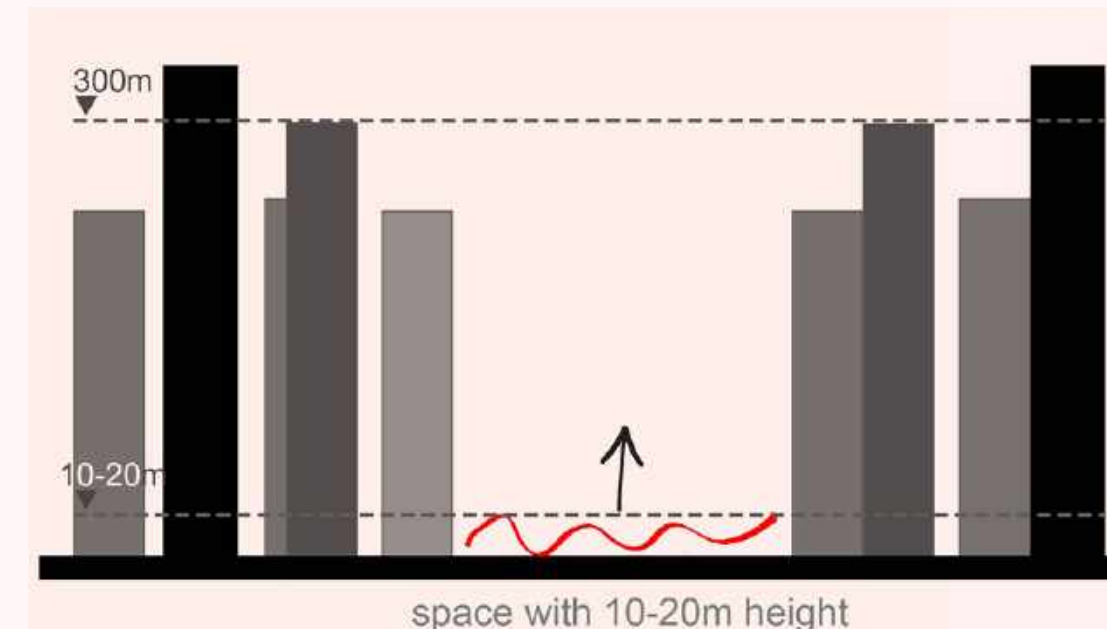
From this image, we can understand that around Futian high-speed railway station, the average height of the buildings is around 200 meters, the maximum height even achieves around 600 meters, to be sure my design will be seen as a landmark too, I will give around 10-15 meters on the ground for my public design.

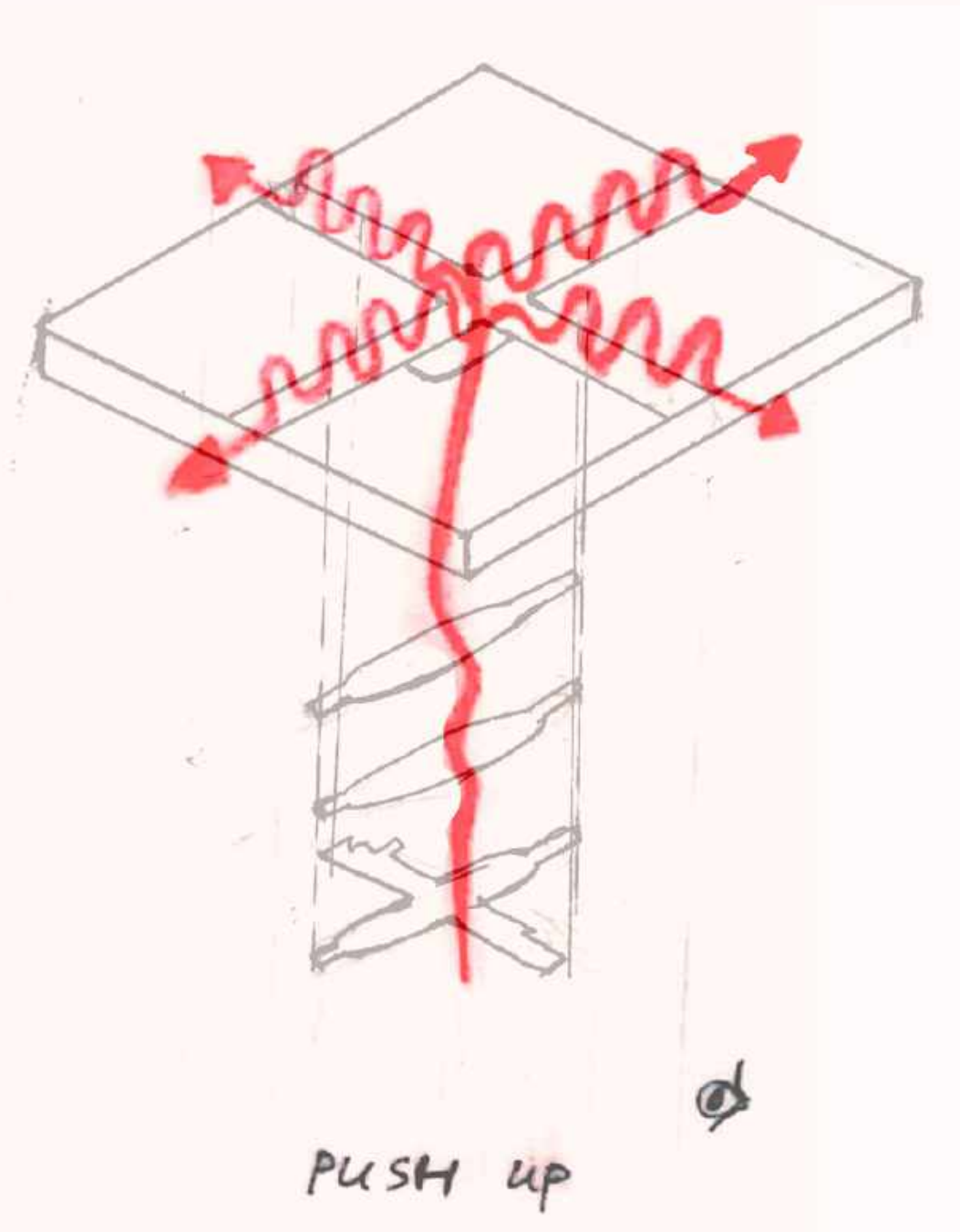
Push up for the visual interest

Push up

By doing the movement "Push up", i can not see the curving line very clearly in the middle of all the tall buildings around the Futian district.

It gives a very good visual language at the urban level, also a direct welcoming message to the Shenzhen citizens and visitors.





Push up idea back in concept

Combine the prototype of the first concept drawing.

If I compare my concept map with the landmark can be raised around 10 to 20 meters high. Then the result is that in this conceptual map, the design outlines above the ground will change from a straight line with one latitude in the plane to a curvy with a three-dimensional line or other interesting design shapes.

It can be seen from this that the concept can not only connect the relationship between underground and above ground but also use the landmark design above ground to attract different citizens and people to this area. Therefore, the relationship is two-way, attracting newly arrived passengers underground. The city attracts citizens in the city to the Futian high-speed railway station zone.

Part 6
Concept



My brush



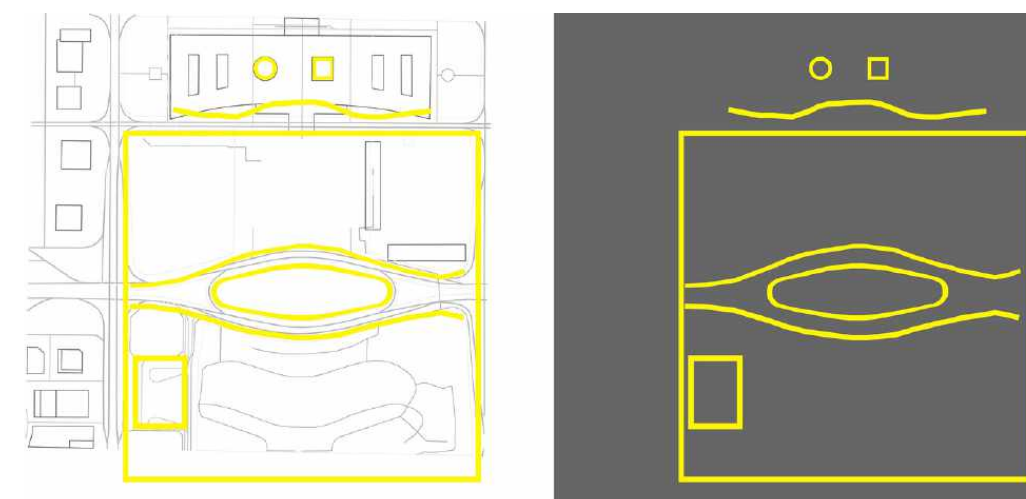
From this chapter, I will start the design of a specific building. I will introduce you to the first step of my design.

I think if designing a building is like drawing, after having the first idea, the second important thing I would think of is which brush I would use. This is a metaphor of what should be the brush stroke I will use for design? That is, what kind of geometric figures I will choose from the geometric figures to support my design. So in the area near the Futian High-speed Railway Station, I intercepted some existing curves or straight lines or geometric figures from the plan view and the elevation view. By drawing them, I figured out some geometric figures: the yellow line indicates round, square, oval, and curve. I will use these existing geometric figures in my next design because I think the surrounding geometric figures will be very closely related to my own design.

The Convention and Exhibition Center is an important landmark in the center of Futian District. This building has a very special shape, a curved roof, and a very

large green open space in front of it has a relatively flat ellipse, which is actually a diversion of Shennan Avenue A shape used in the car, so these shapes actually echo each other, and the shape I will design will also have a certain echo relationship with these.

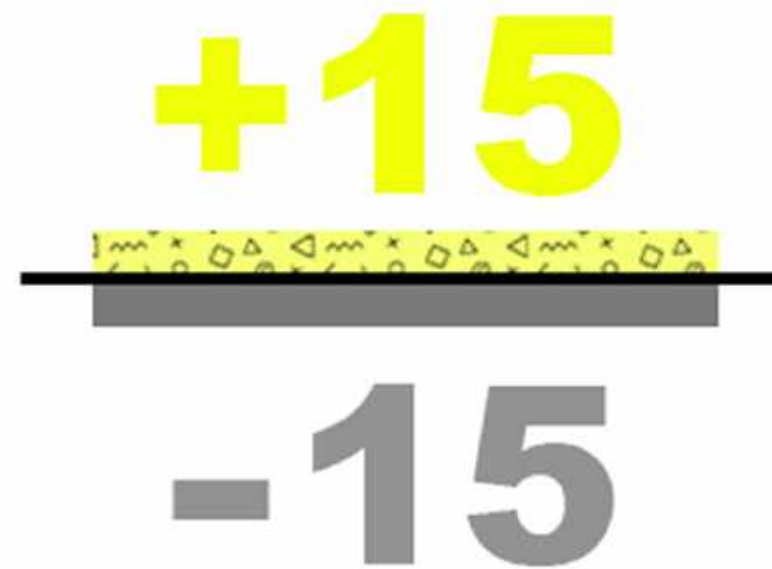
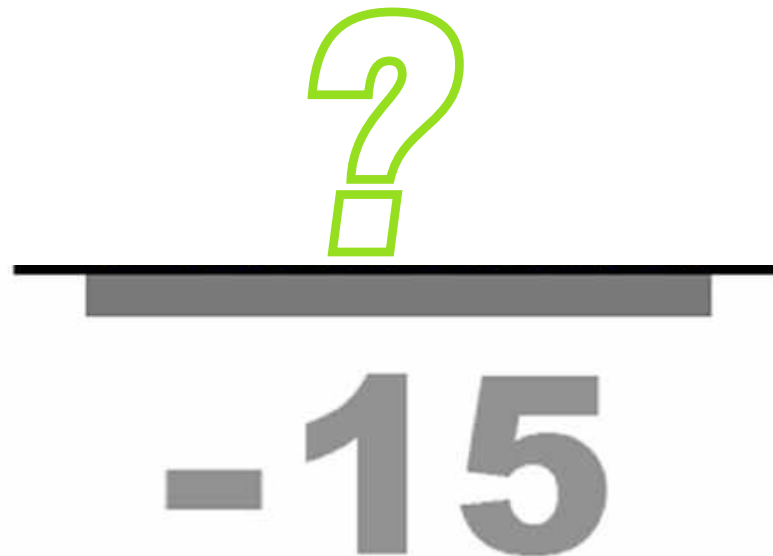
Circle and square are two very important concepts in Chinese culture. The concept of the circle represents family reunion, the concept of happiness and consummation, and the concept of the square represents law and stability. They are both very good signs, so from this aspect, it will also be an important focus of my design.



My Ruler



After introducing “the brush” concept on the previous page, I think there is another very important element is its design scale. How about its height and width? One thing I can learn from my previous research is that the depth of the underground space of the Futian High-speed Railway Station is about 15 meters, and the total depth of the entire structure of the building is about 30 meters. My design is to make a public building on the ground, so I feel that if I double the height of the underground to the height of the ground, it will be a vertical height space extending the high-speed rail subway station to the ground.



For such a concept, I need to extend this space from underground to above ground, and according to my previous design concept, if the height above the ground is about 15 meters, it is very consistent with my previous conjecture between 10 meters and 20 meters. So my ruler will copy 15 meters below ground to 15 meters above ground.

This ruler has made a very well-defined movement, giving me a good dimension for architectural design. because of that, the scale of the building has been standardized inward, and it has also met the height of a trial as a landmark building on the outside.

The circle

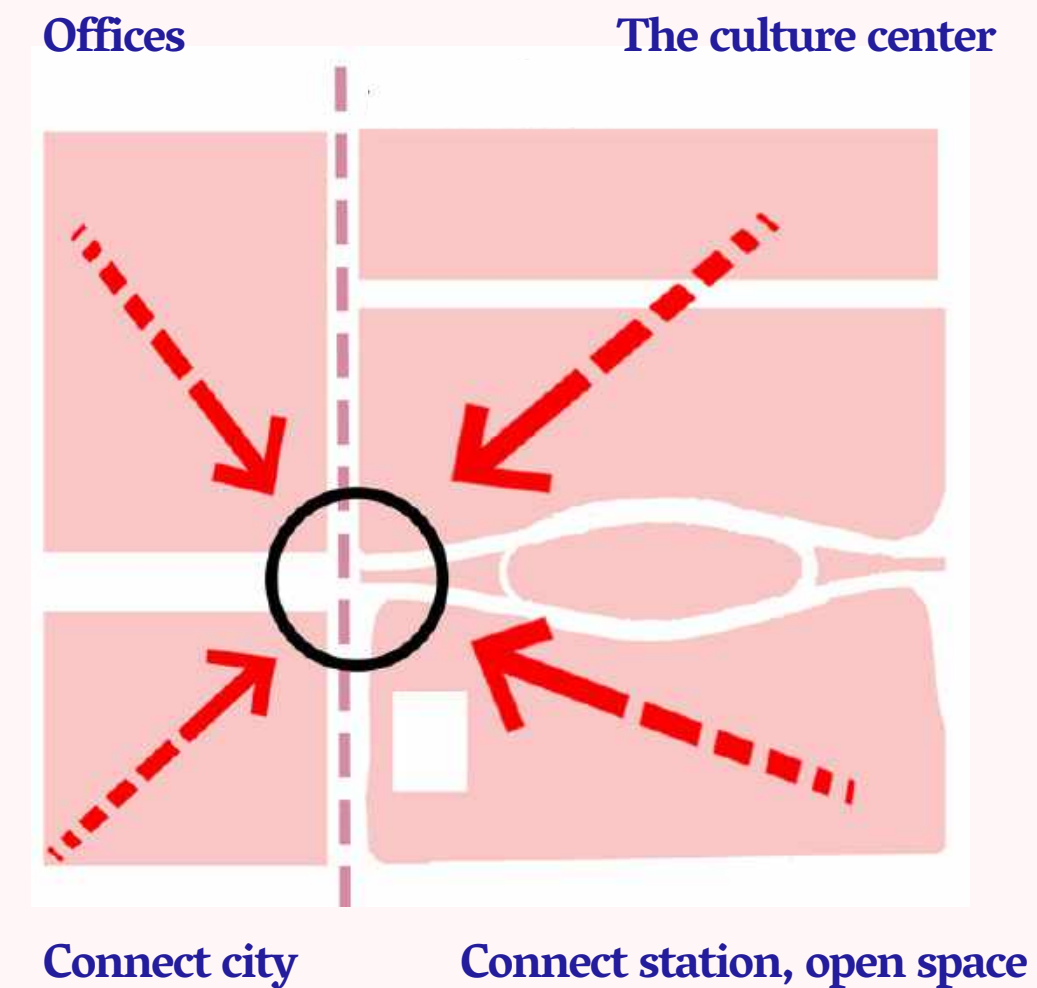
After we have the design brush and design dimension. In the various geometric shapes, I choose an iconic shape, a circle, an absolutely perfect circle. I set it in the middle of the four disconnected blocks. It is also located directly above the center of Futian High-speed Railway Station. This circle can effectively integrate all my previous concepts. The dotted line in the middle of the figure represents the disconnection by Yitian Road.

There is a cultural center on the west and high-density office buildings and residential areas on the east, so this circle can strongly reconnect the city and all users. Not only does it meet my requirements in shape, but it can also be very flexible.

Since it is a circle, at the vertical direction, it can be easily changed to meet my needs for the scale of this building. My first idea appeared after choosing the circle, that is, it will be a public facility in the form of a bridge.

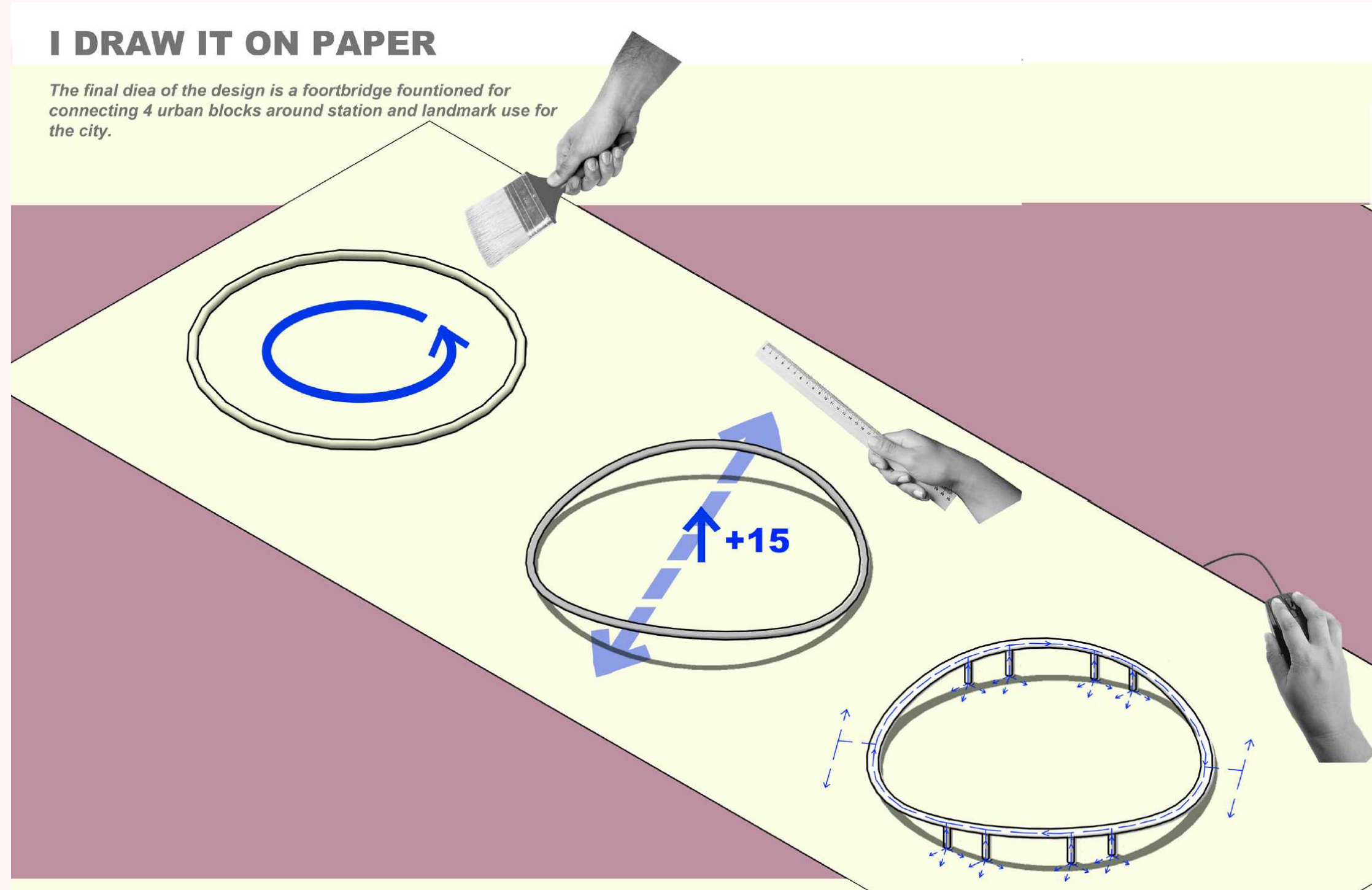
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this circle can strongly reconnect the city and all users. Not only does it meet my requirements in shape, but it can also be very flexible. Since it is a circle, at the vertical direction, it can be easily changed to meet my needs for the scale of this building. My first idea appeared after choosing the circle, that is, it will be a public facility in the form of a bridge.



I DRAW IT ON PAPER

The final idea of the design is a footbridge fountioned for connecting 4 urban blocks around station and landmark use for the city.



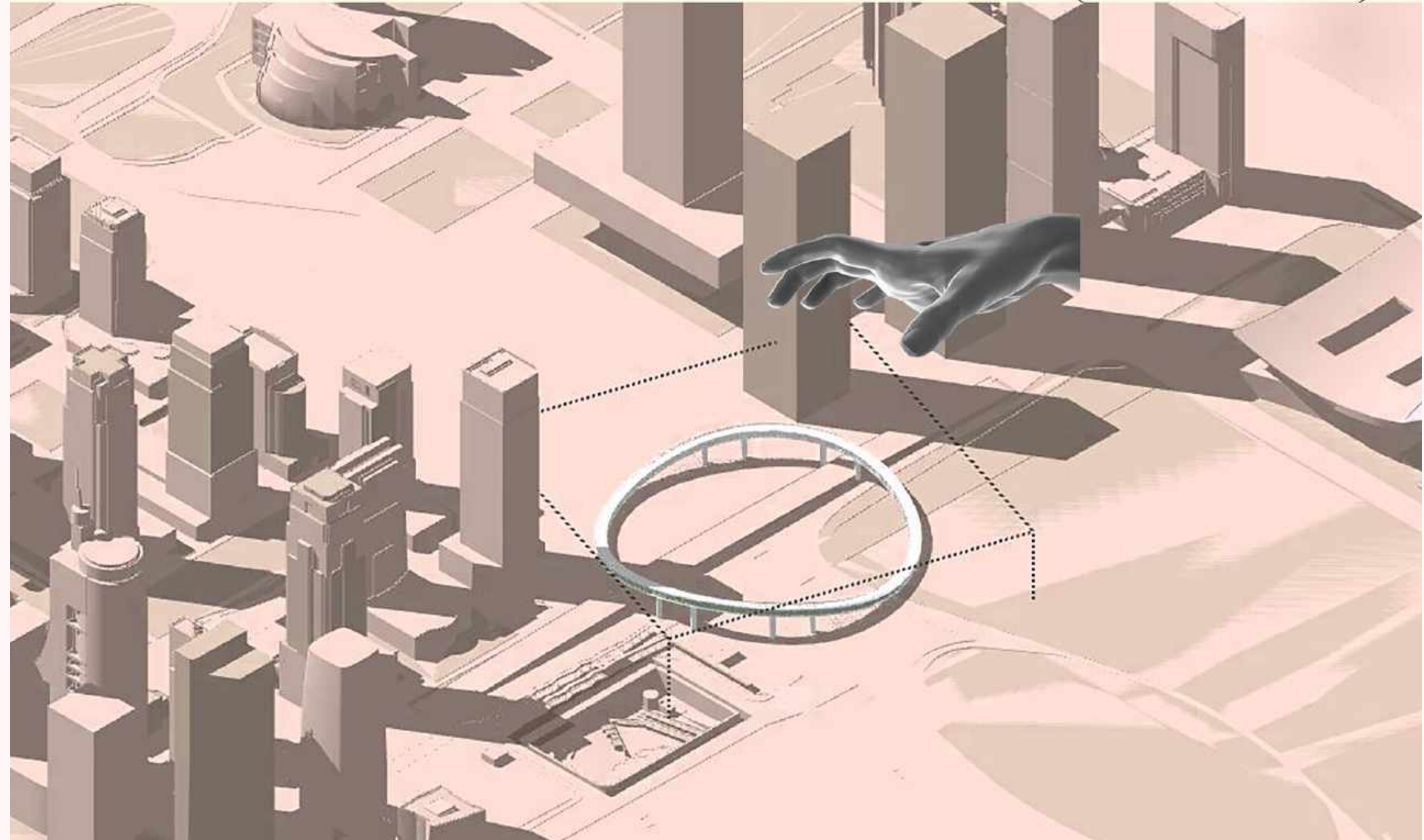
In the description on the previous page, I have mentioned that the key point of the design is that I need this building to be able to flexibly raise the height of about 15 meters from the circular shape. So in this design, it will be a circular closed loop, and then twist the loop to raise it by 15 meters.

It is a streamlined design, which is also very suitable for Shenzhen's windy and rainy climate, and from the city. From the elevation, this will be a highly recognizable architecture.

I put the initial model of the ring in the three-dimensional model.

As the height is 15 meters, a load-bearing column structure will be created, and then when this structure is connected to the ground, an entrance and exit will be created, also public open spaces.

So how does this new landmark relate to Futian High-Speed Rail Station? We will be in the next chapter for further discussion.

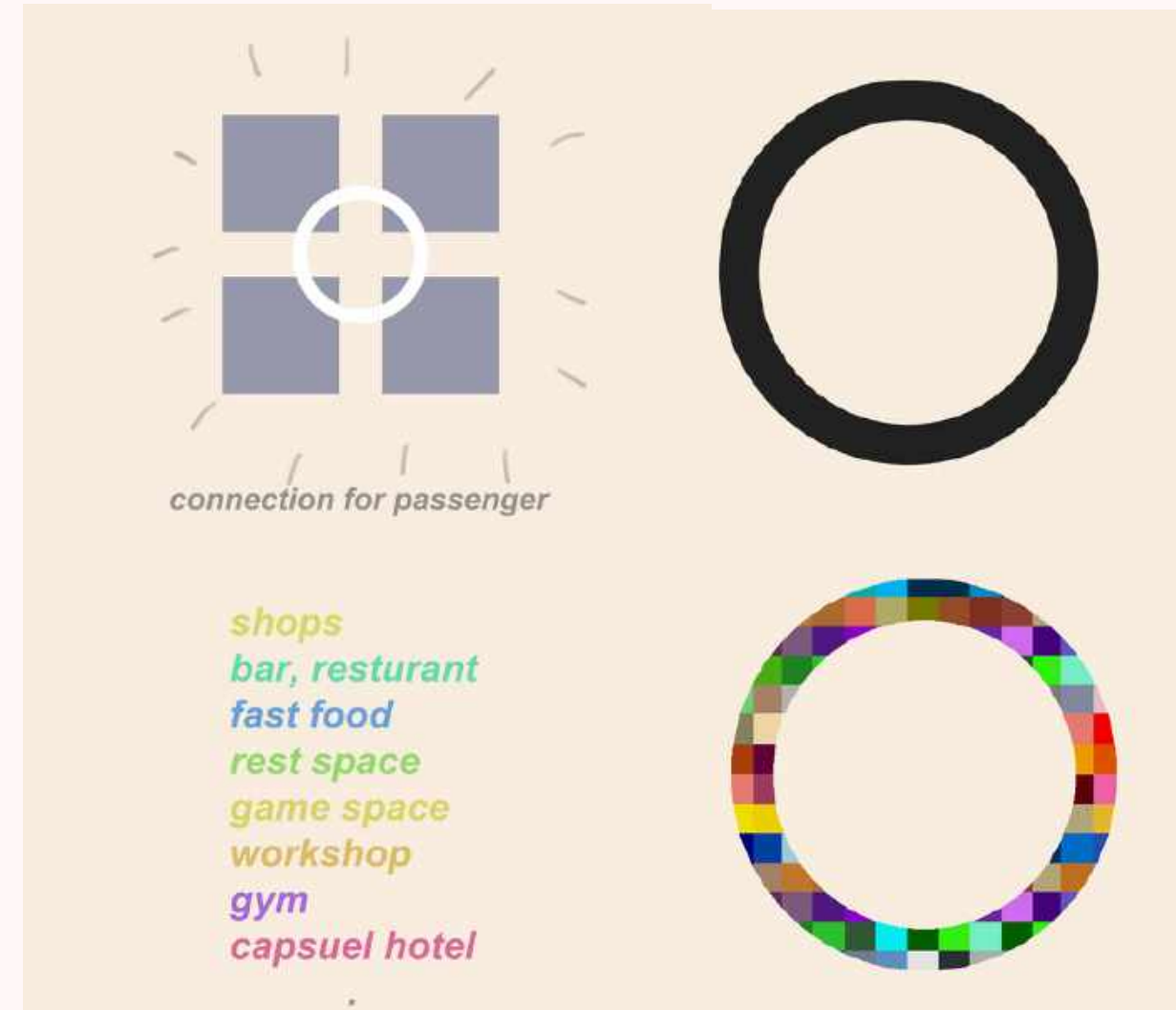
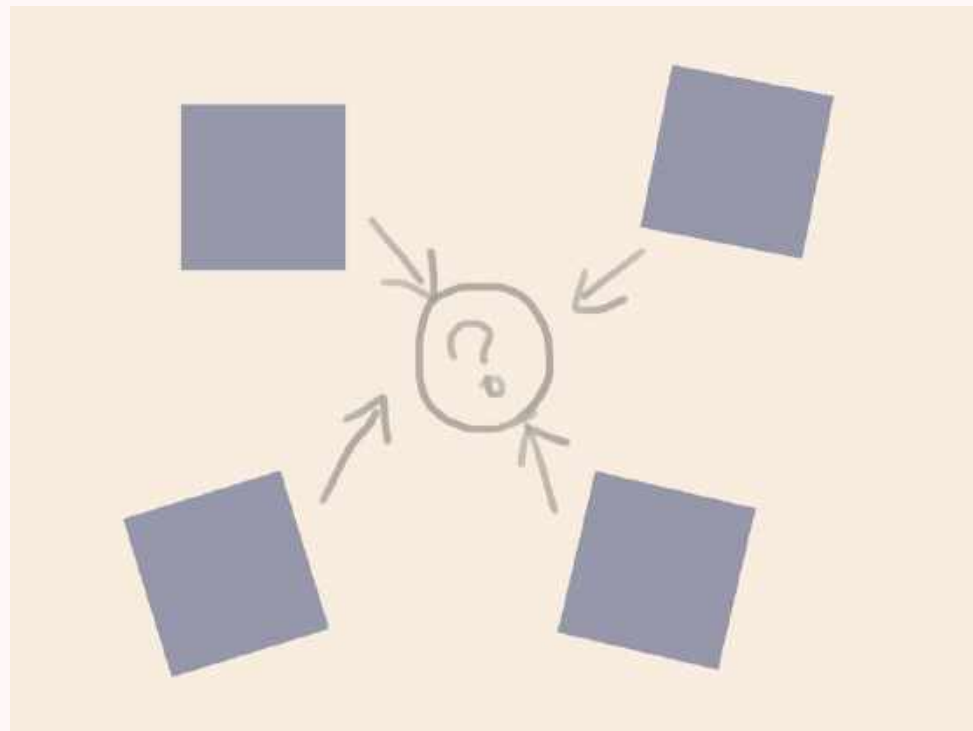


Part 7
Project/Proposal:
The Living Ring



A ring

Evolve from a circle to a ring that can hold four disconnected blocks together. This is the main content of our chapter. The shape of this ring can directly determine one of the most important functions: flyover. My initial idea of this bridge is for pedestrians and bicycles because my service targets are other than cars. Crowd, this bridge can also become a multifunctional and viable bridge, so I will make it a dynamic bridge.



From all the previous surveys, I concluded that some of the functions that need to be met are shops, catering, resting spaces, exhibition halls, capsule hotels, etc. Most of these functions are used to make up for all the lack of Futian High-Speed Rail Station Or projects that need to be optimized.

Zone division

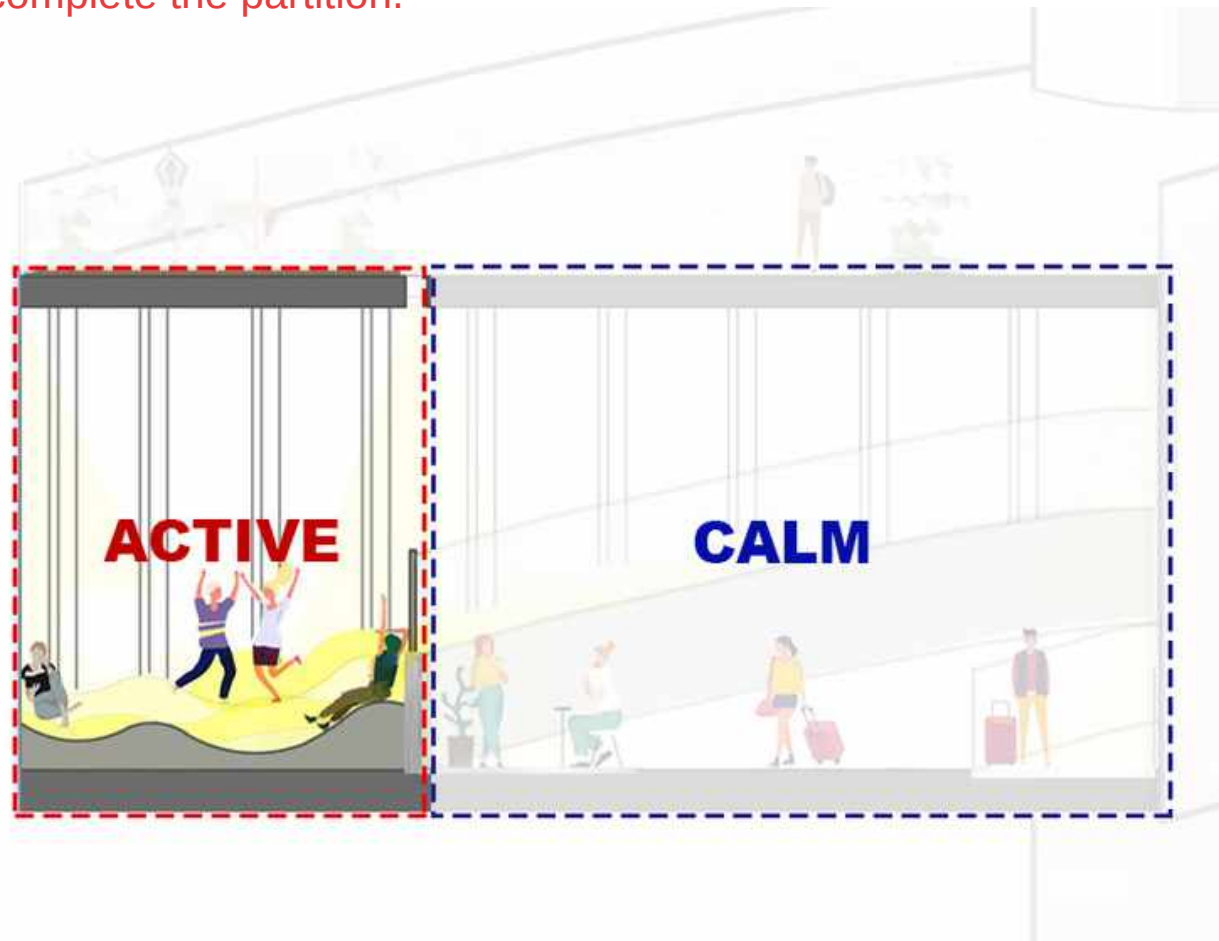
From the inside of the living skywalk, I mainly divide it into two partitions. The gray part can be seen in the right picture. I will set it as a calm fast area. The object of this setting is to take a train, subway, or who is in a rush. This setting allows users to have a fast passage. The calm and fast zone is set inside the circle and the distance is shorter. The fast lane is also equipped with part of the accelerating conveyor belt so that passengers with luggage can reach their destination more quickly.

The other part of the outer ring is the slow, active area. This is for other citizens or ordinary travelers so that they can use different space in this area. According to the functional zoning discussed earlier, this area will be provided in different activities, so that users can participate in it, enjoy the fun brought by the living bridge and enjoy the broader city lanscape.

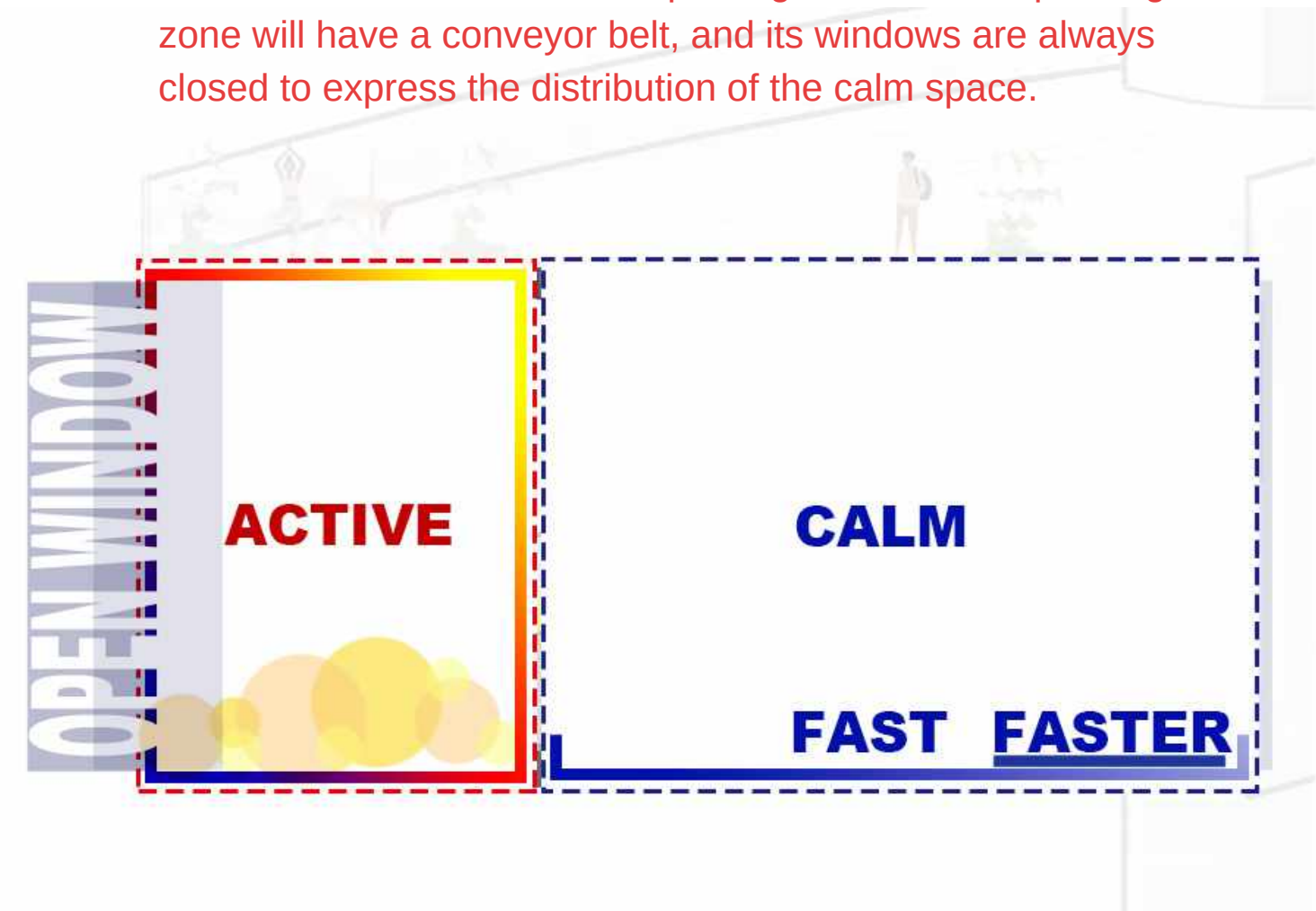


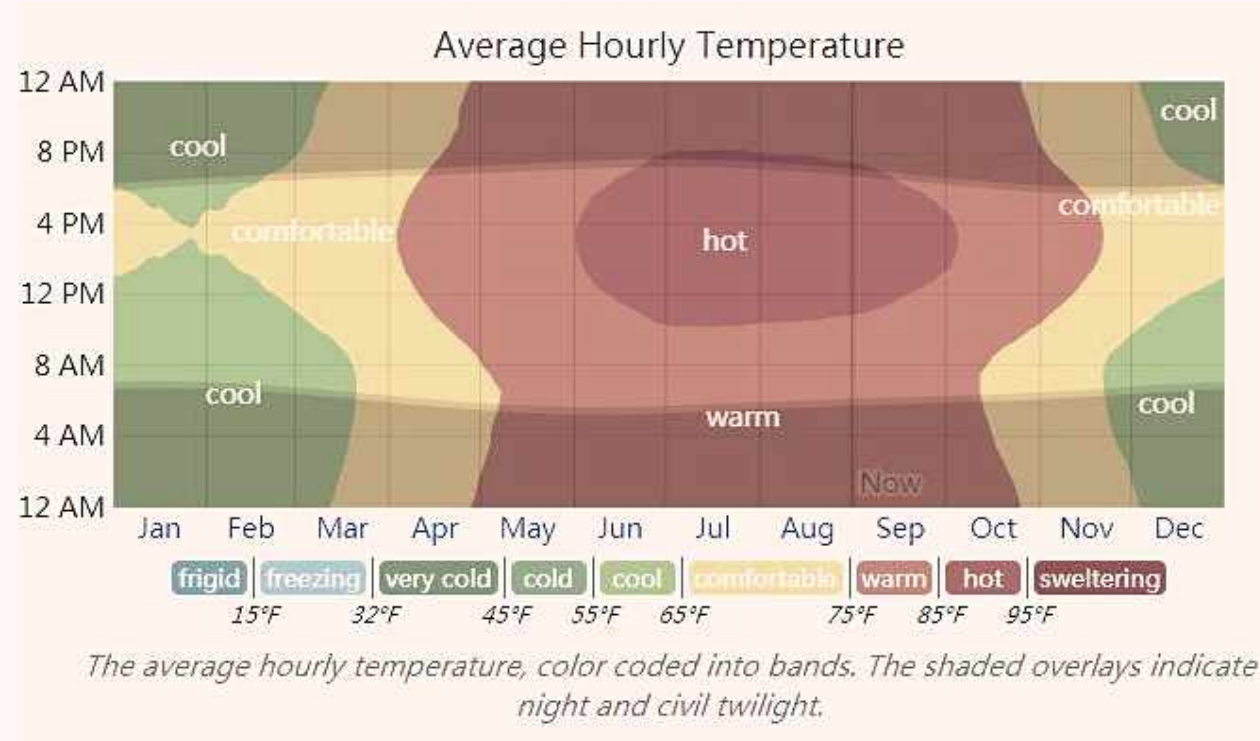
Elements for divisions

Separating the quiet area from the active area, I will use several different architectural elements to complete the partition.



The calm zone is noted as a very clean-entire design, and it also has the function of a fast passage. The fastest passing zone will have a conveyor belt, and its windows are always closed to express the distribution of the calm space.





Shenzhen climate

In Shenzhen, the wet season is hot, oppressive, and overcast and the dry season is comfortable, windy, and mostly clear. Over the course of the year, the temperature typically varies from 55°F to 89°F and is rarely below 46°F or above 93°F. Based on the tourism score, the best time of year to visit Shenzhen for warm-weather activities is from mid October to mid December.

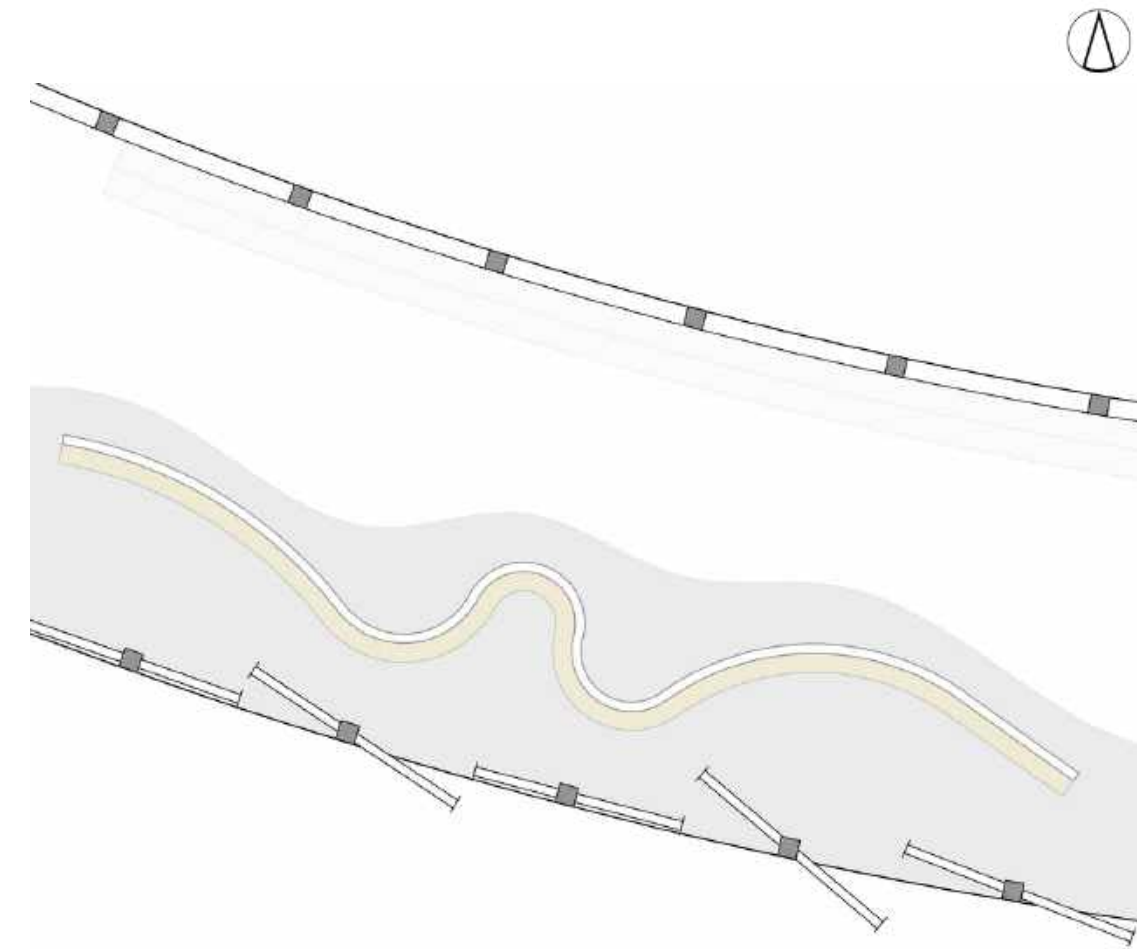
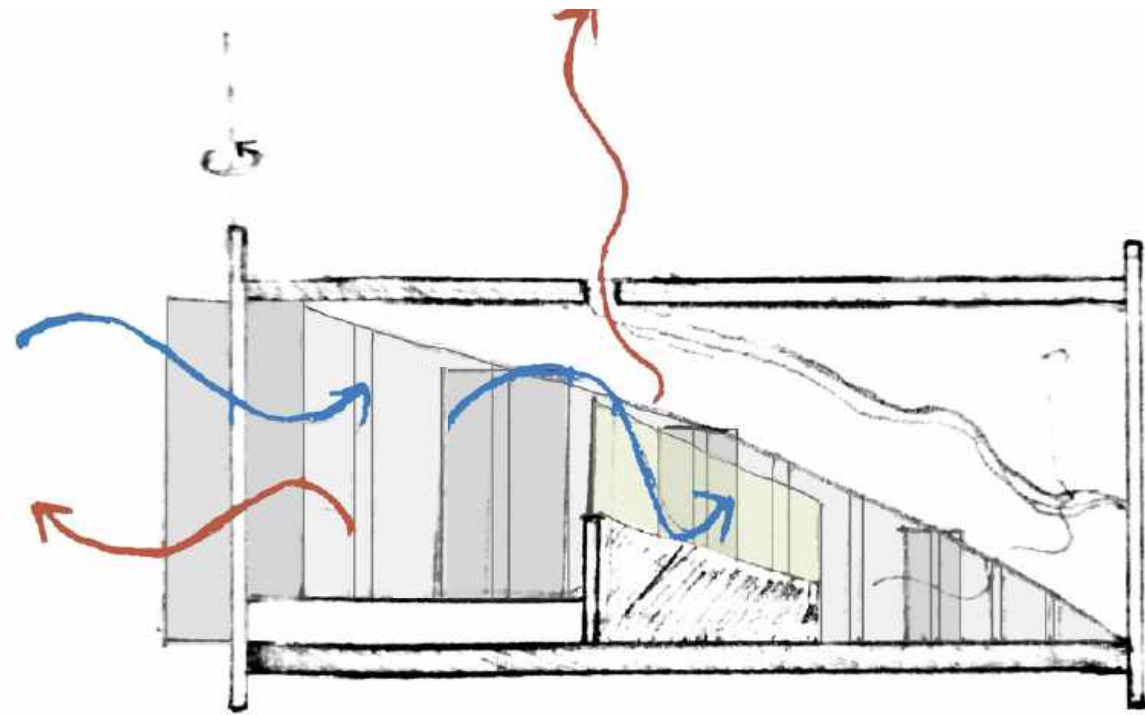
The hot season lasts for 4.8 months, from May 18 to October 11, with an average daily high temperature above 85°F. The hottest day of the year is July 24, with an average high of 89°F and low of 81°F. The cool season lasts for 2.9 months, from December 11 to March 7, with an average daily high temperature below 70°F. The coldest day of the year is January 20, with an average low of 55°F and high of 66°F.

I am considering maybe making a dynamic movement at the active zone, to make a difference between calm and active zone by activating the out quarters airflow, from the figure, when the temperature is

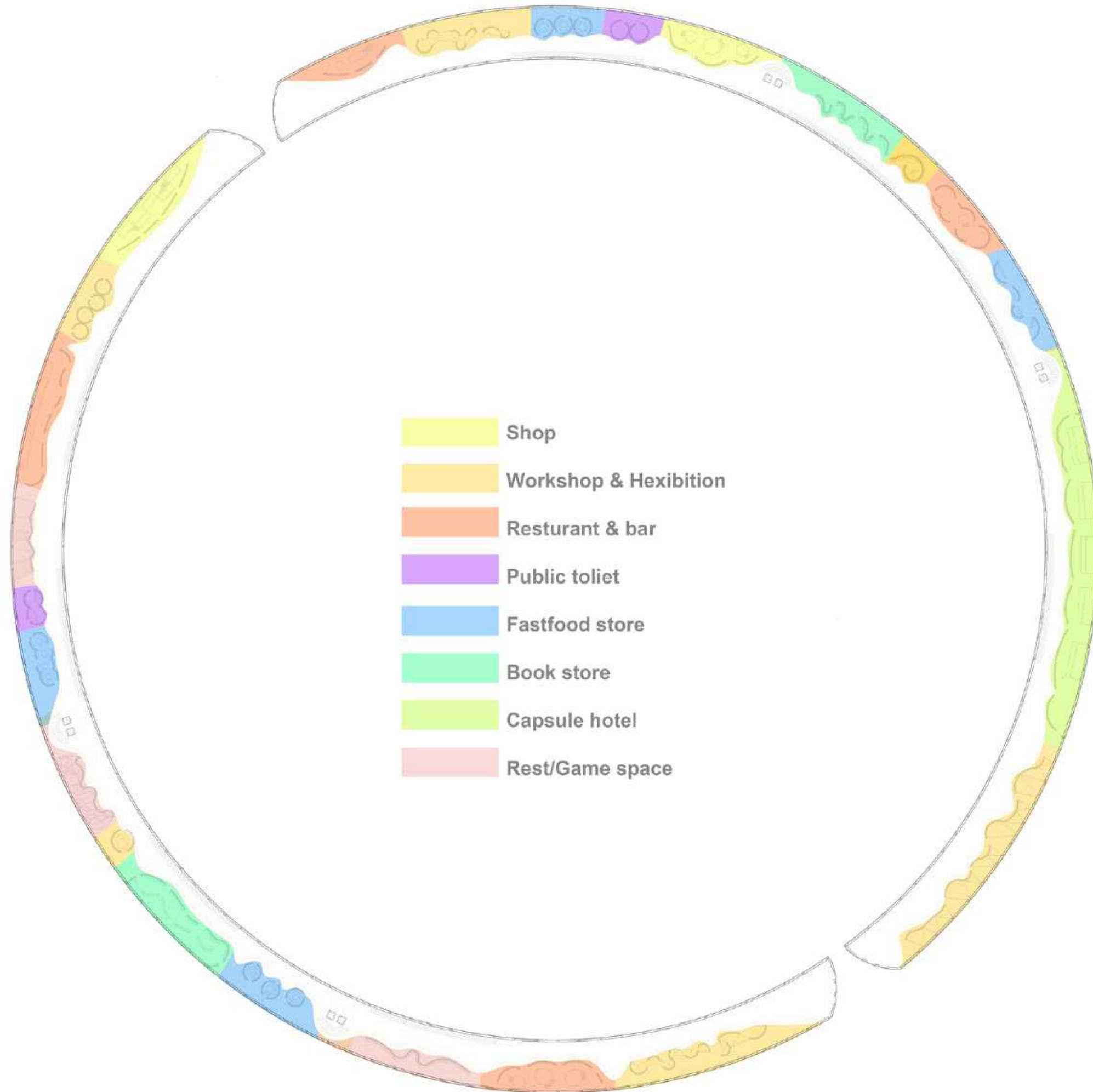
at  zone we can leave the window open.

Optional open window on the active side

In the activity area, there are optional open window to provide users with different scenery and different airflow changes, and wider landscapes.



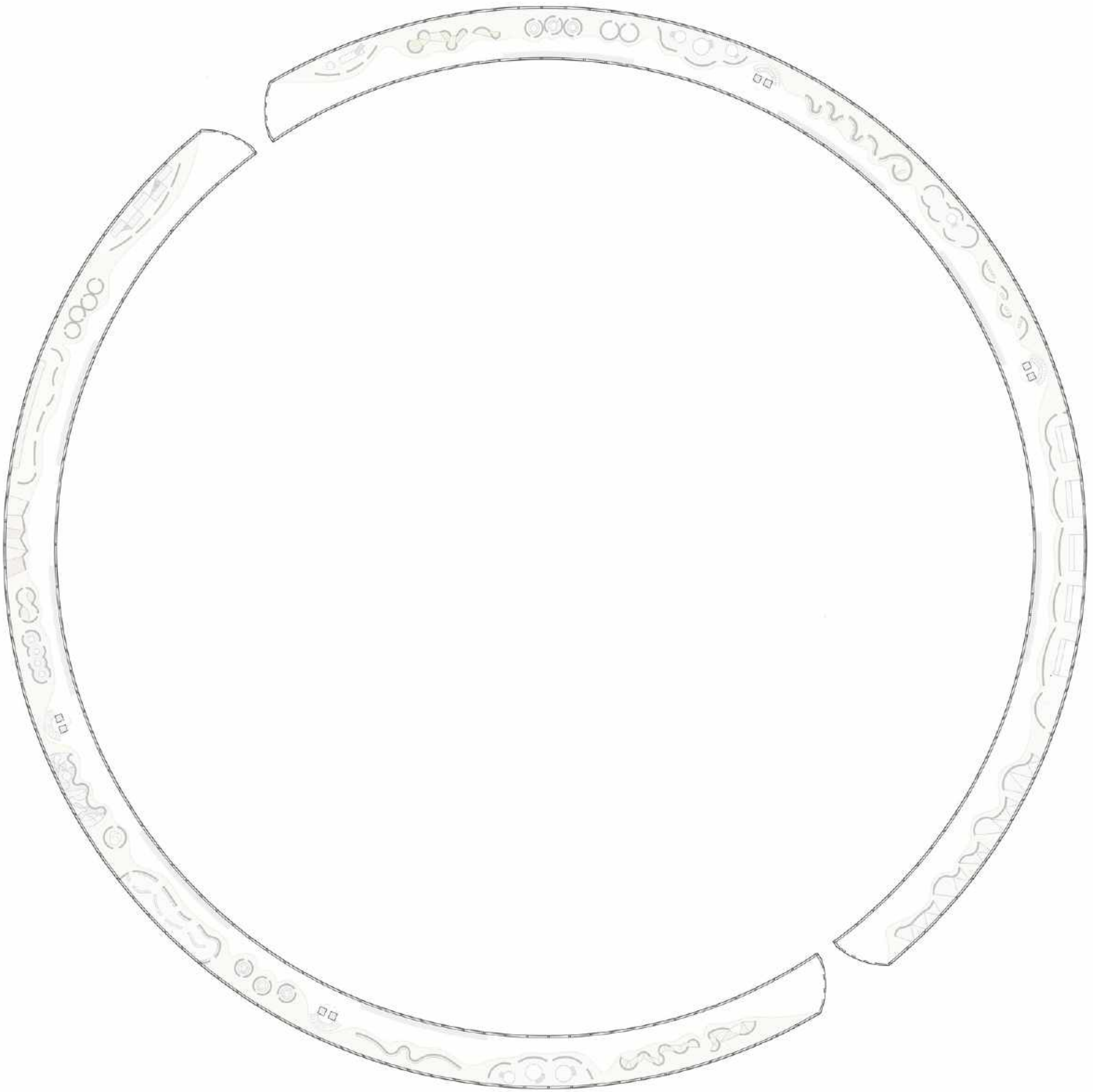
As it shows the plan, each window can be opened by rotating, there is a maximum angle of 15 degree to make sure the airflow is gentle and safe for the users.



function distribution



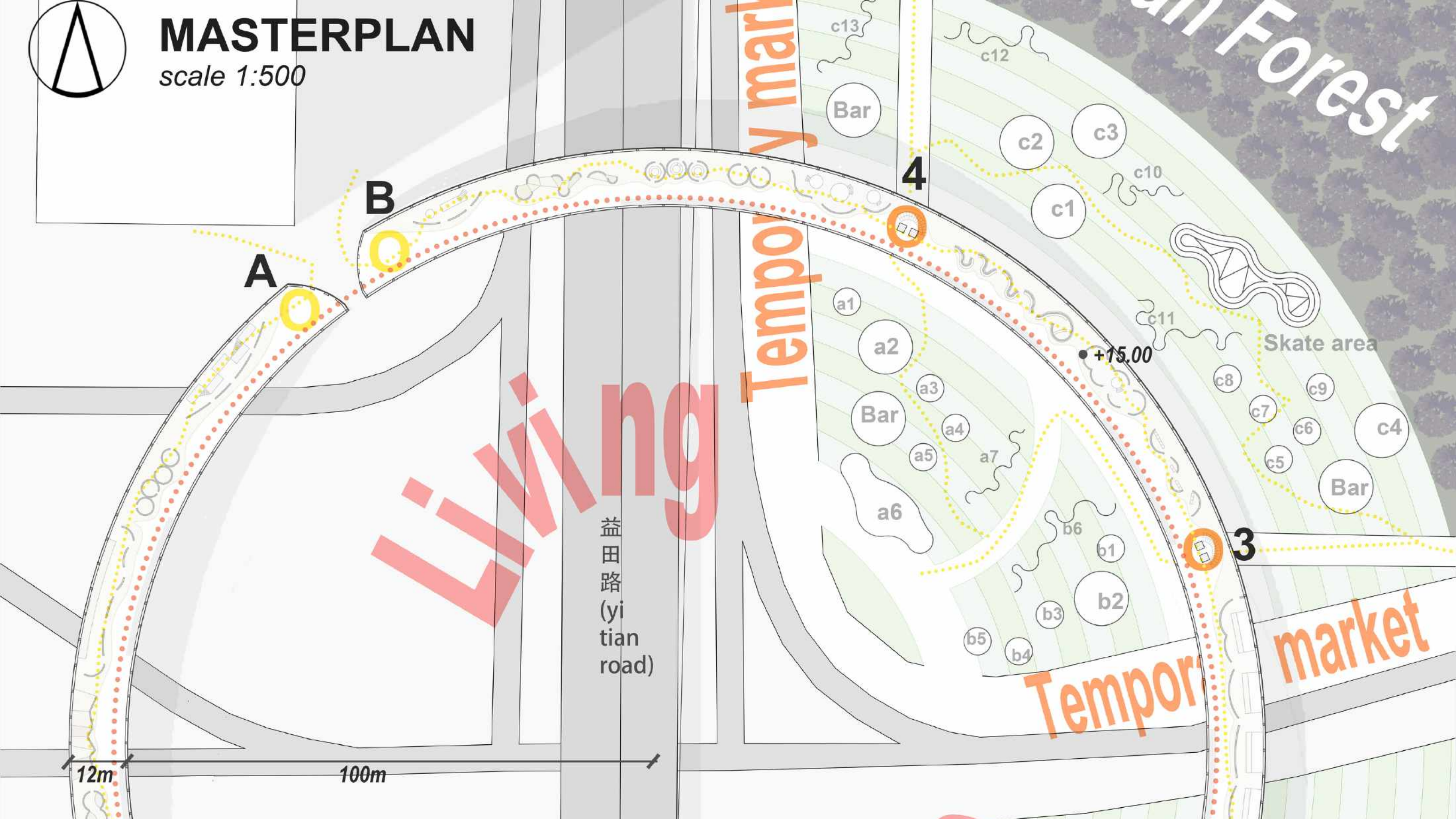
○ Entrance **1,2,3,4**
○ Elevator **A,B,C,D**
- - - slow walking circulation
- - - express circulation
(with auto-walk)





MASTERPLAN

scale 1:500



深南大道(shen nan road)

1

+15.00

2

open store

Skate area

sunbath

C

cloth shop

Super market

fastfood

ticket

ticket

tourist center

0.00

Spa house

D

bar

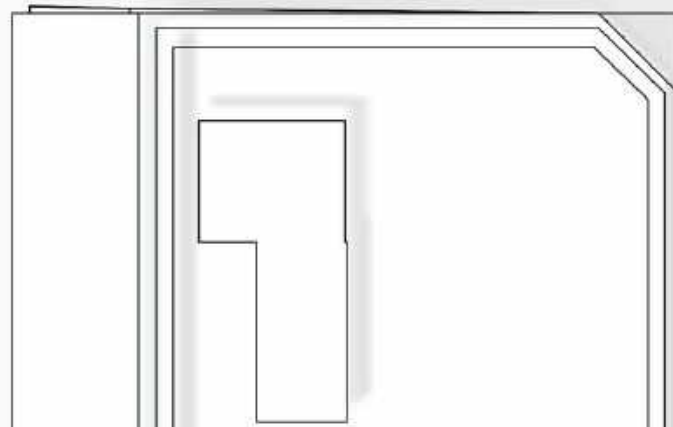
resturant

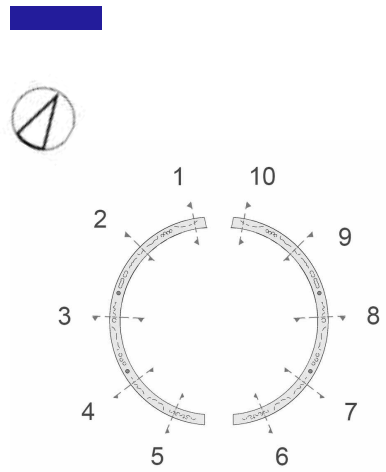
Tourist service

Fu tian staion

E

-15.00





1.Shop



2.Restaurant



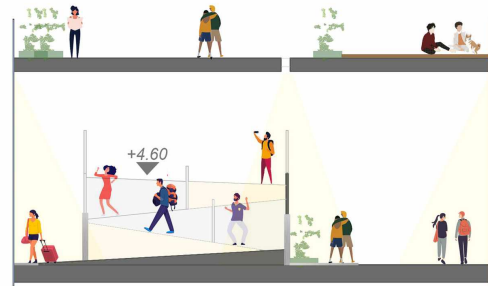
3.Meeting room



4.Game space



5.Exhibition



6.Reading space



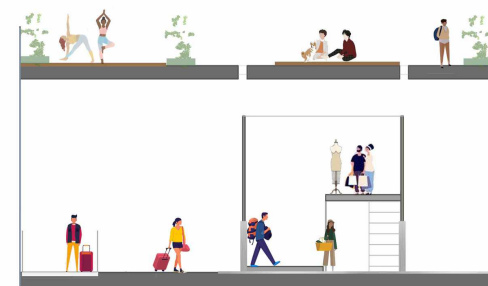
7.Capsule hotel



8.Bar



9.Store

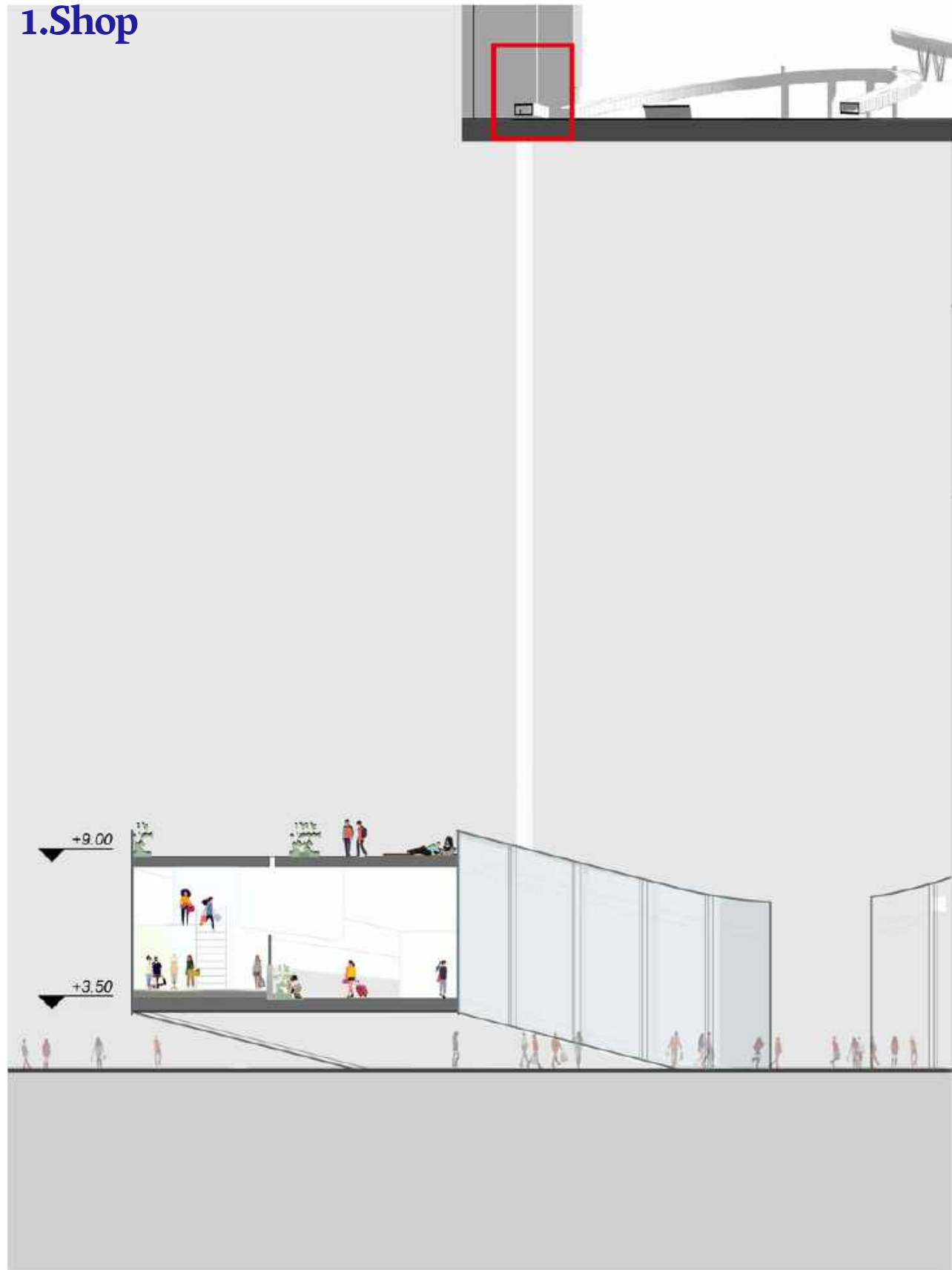


10.Dance workshop

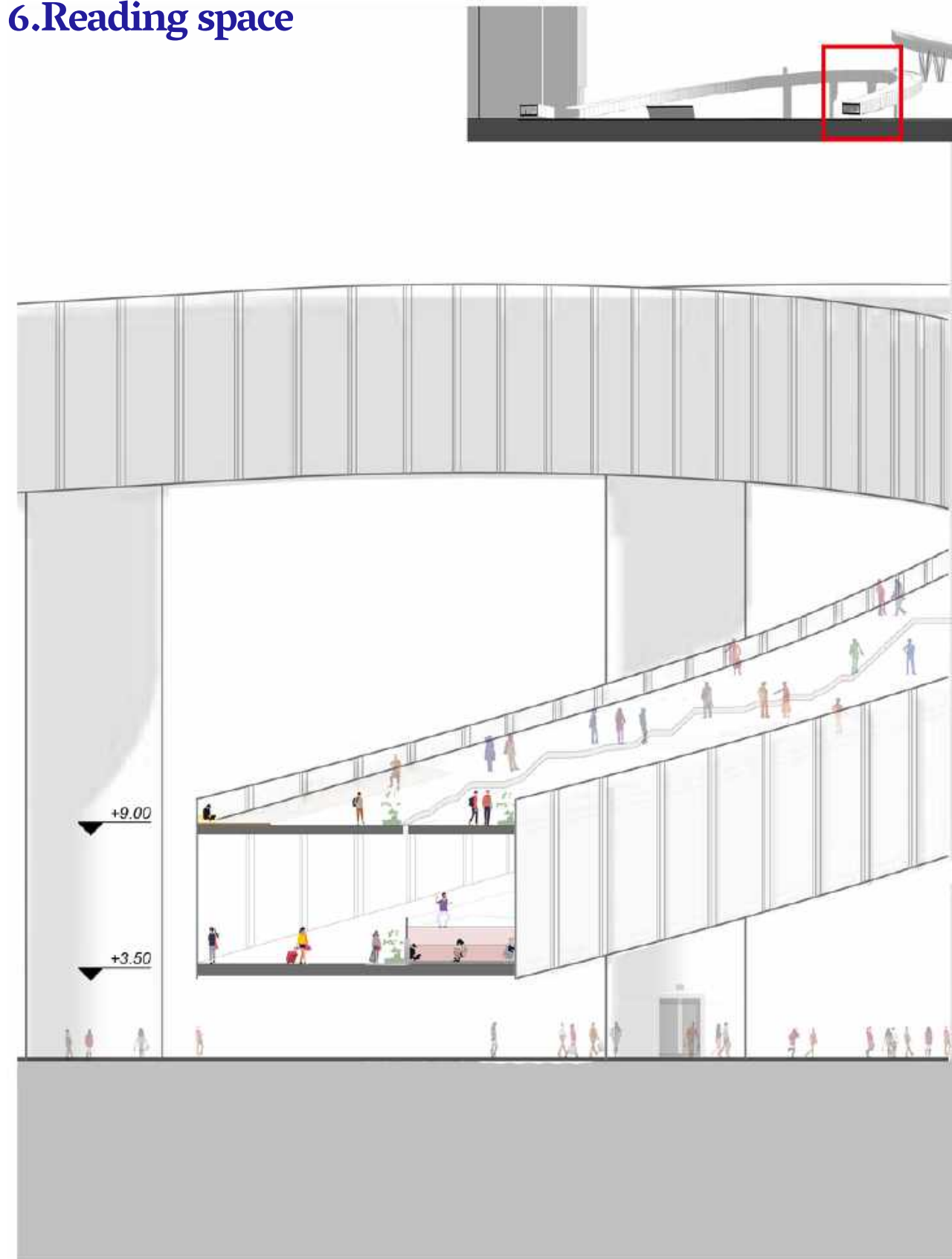


Inner space

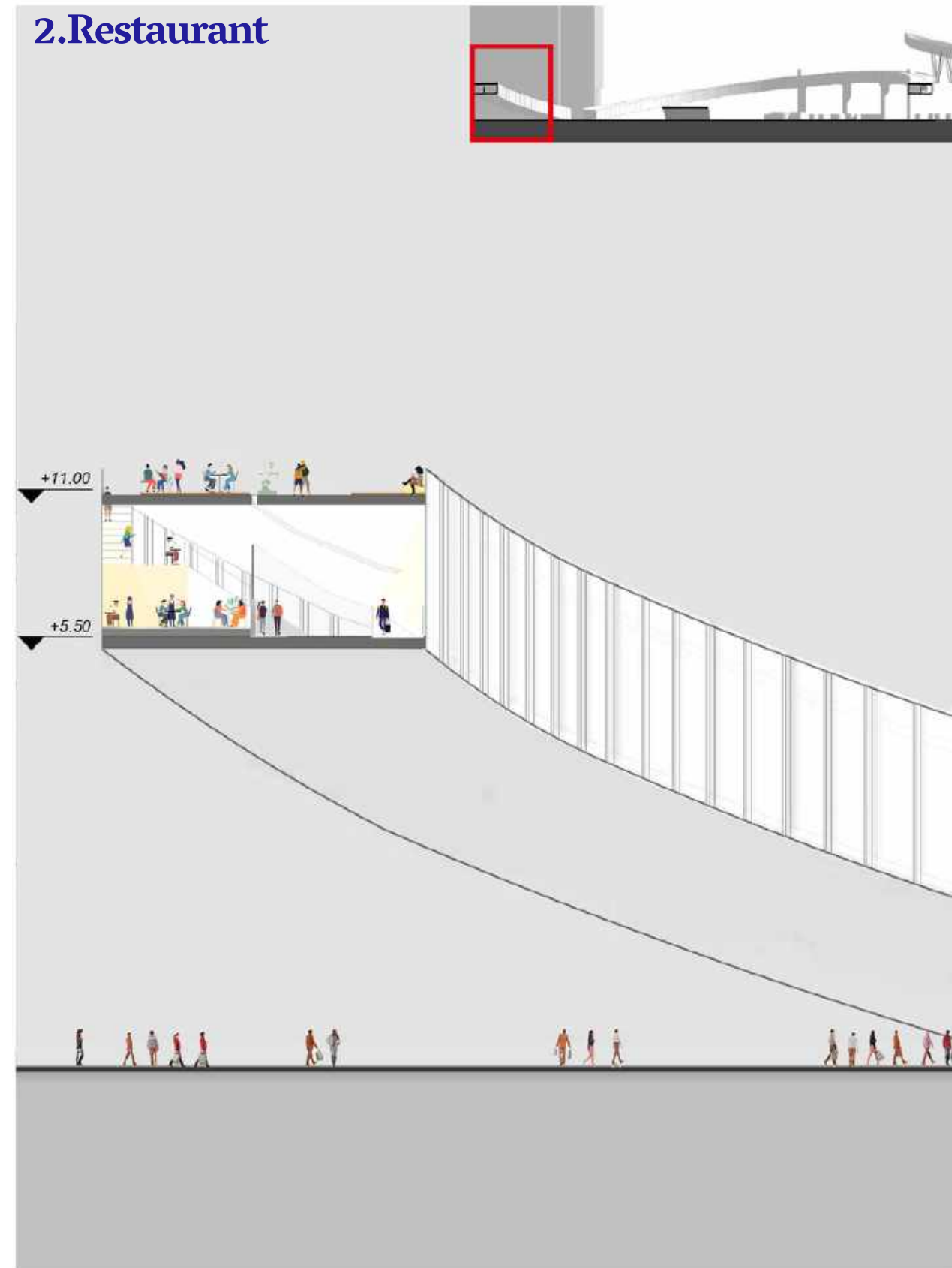
1.Shop



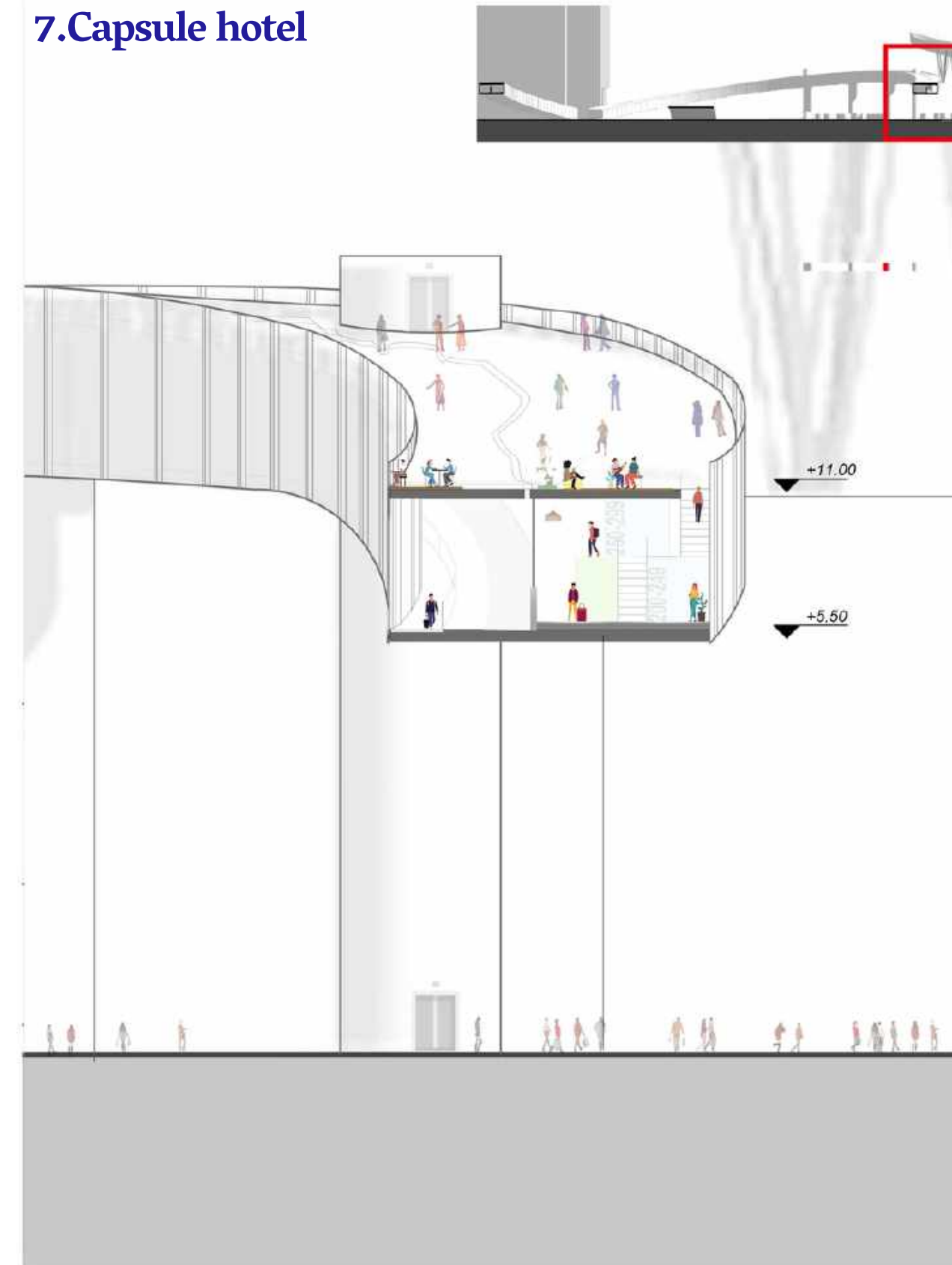
6.Reading space



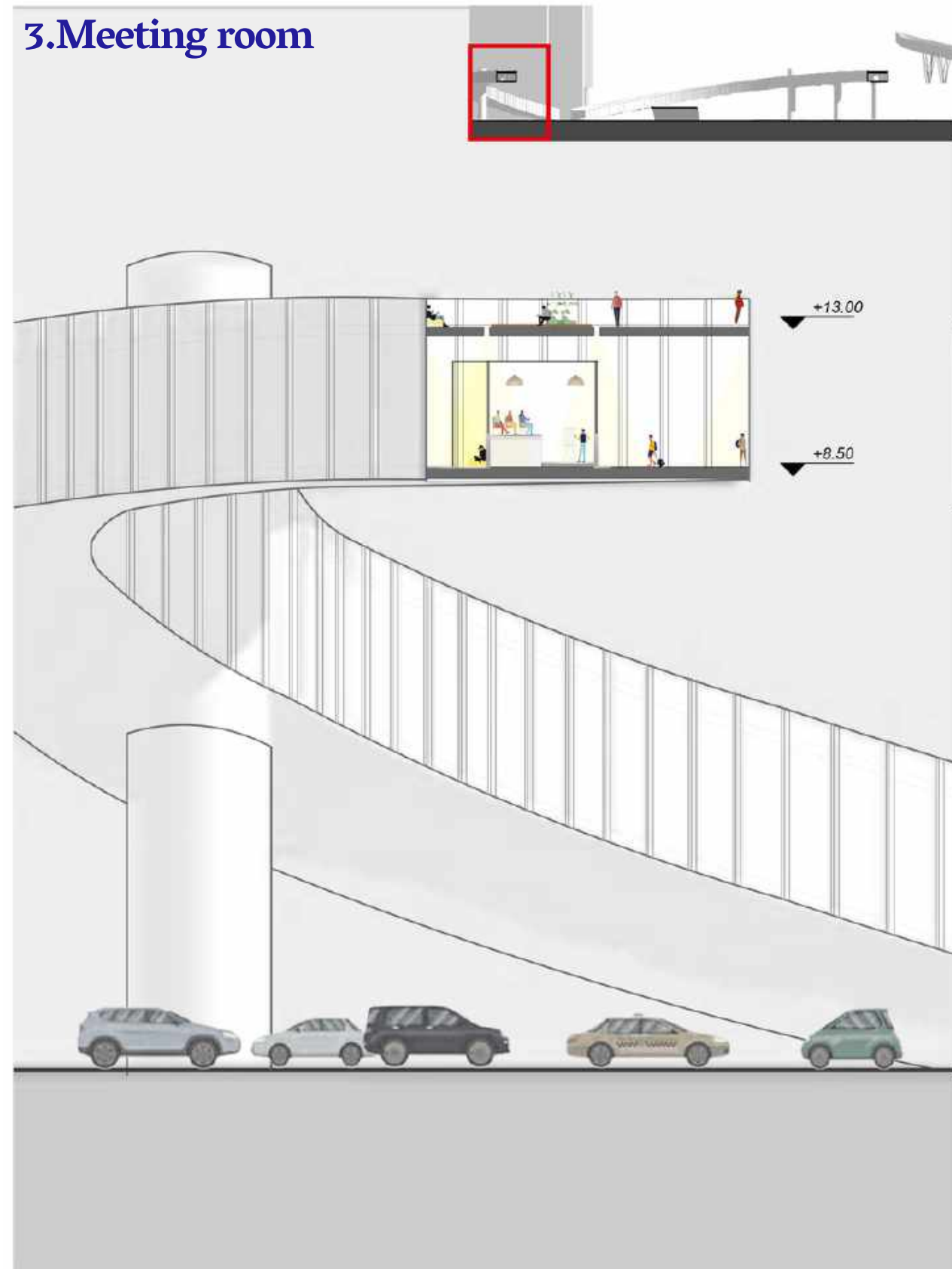
2. Restaurant



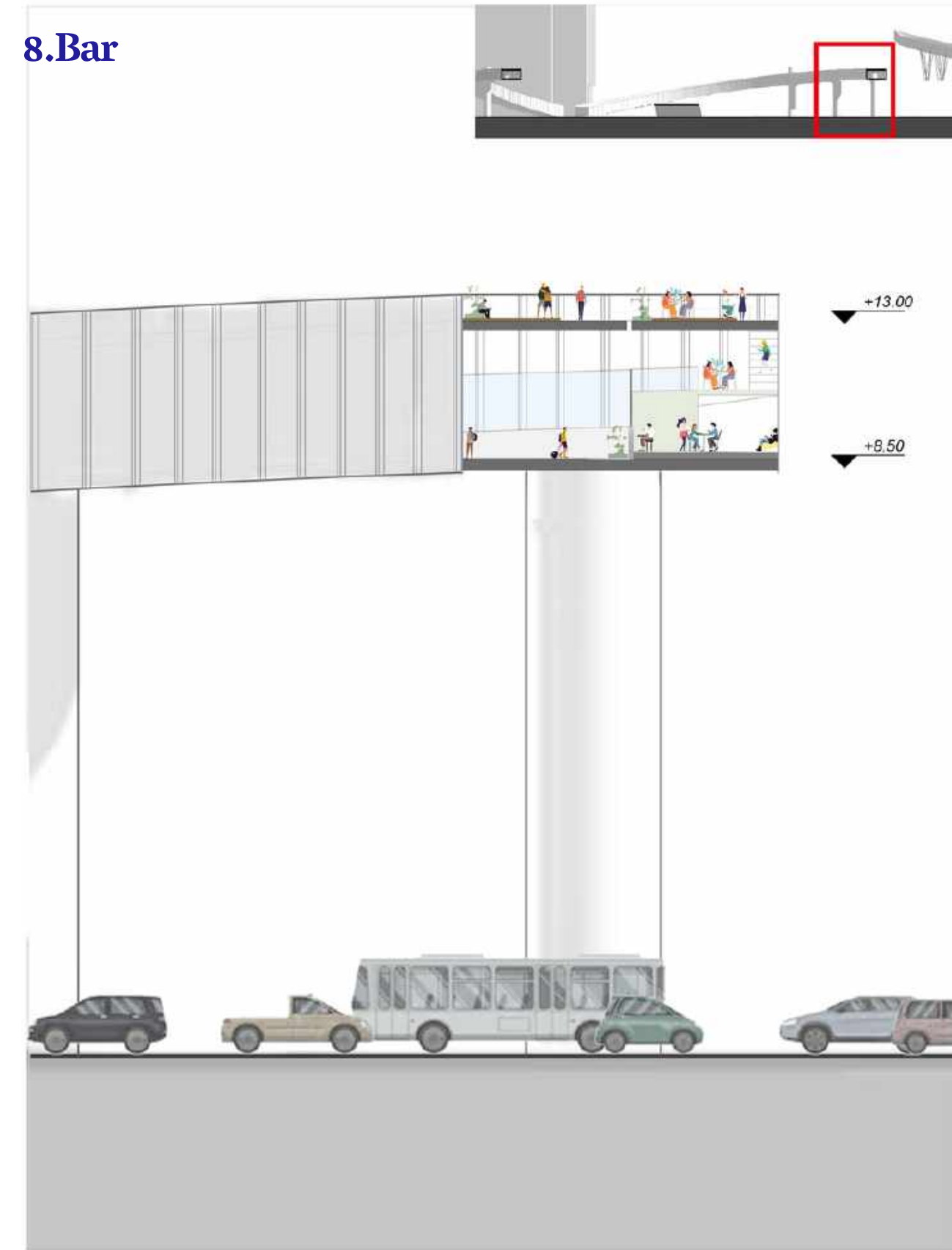
7. Capsule hotel



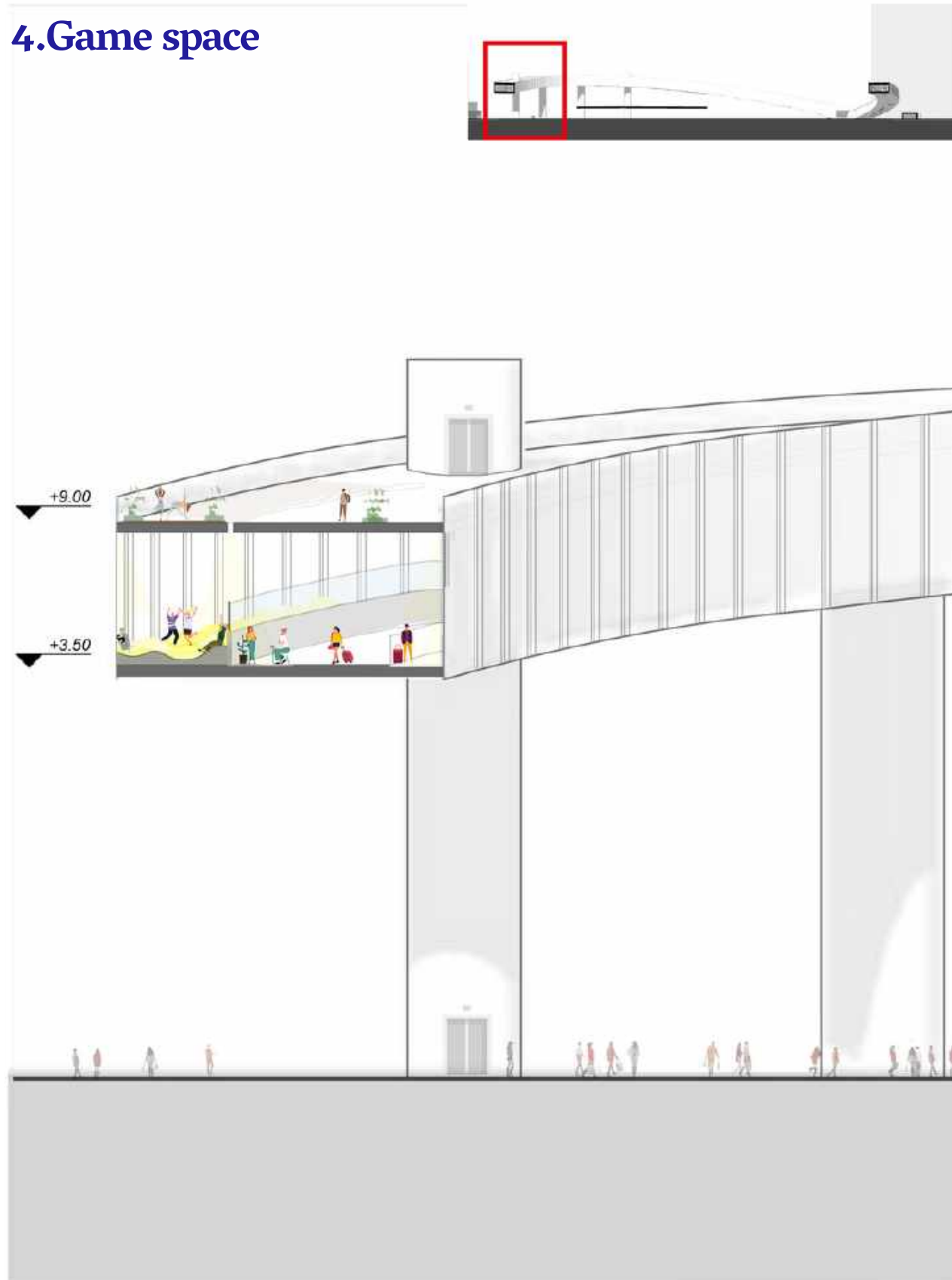
3.Meeting room



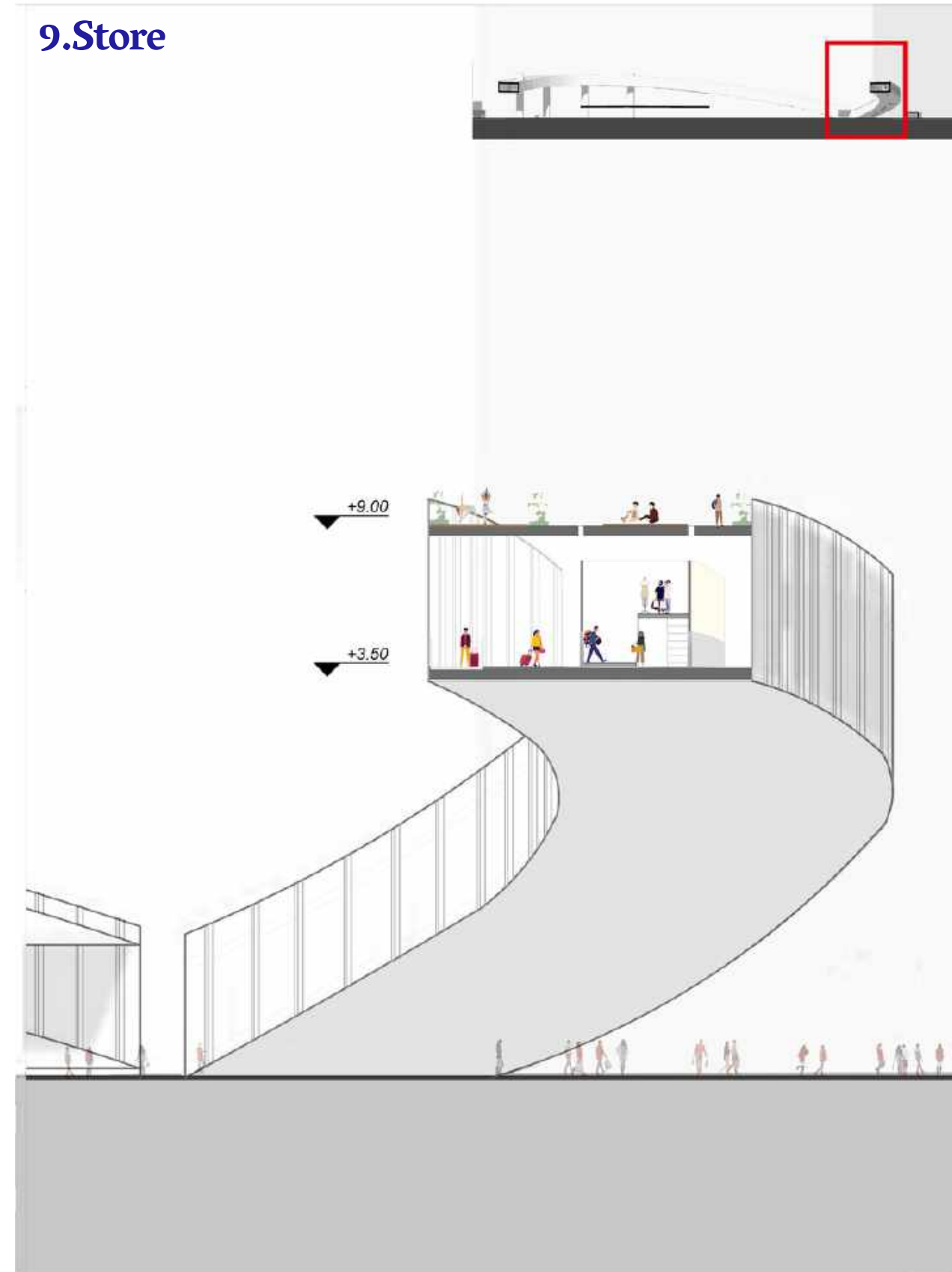
8.Bar



4. Game space



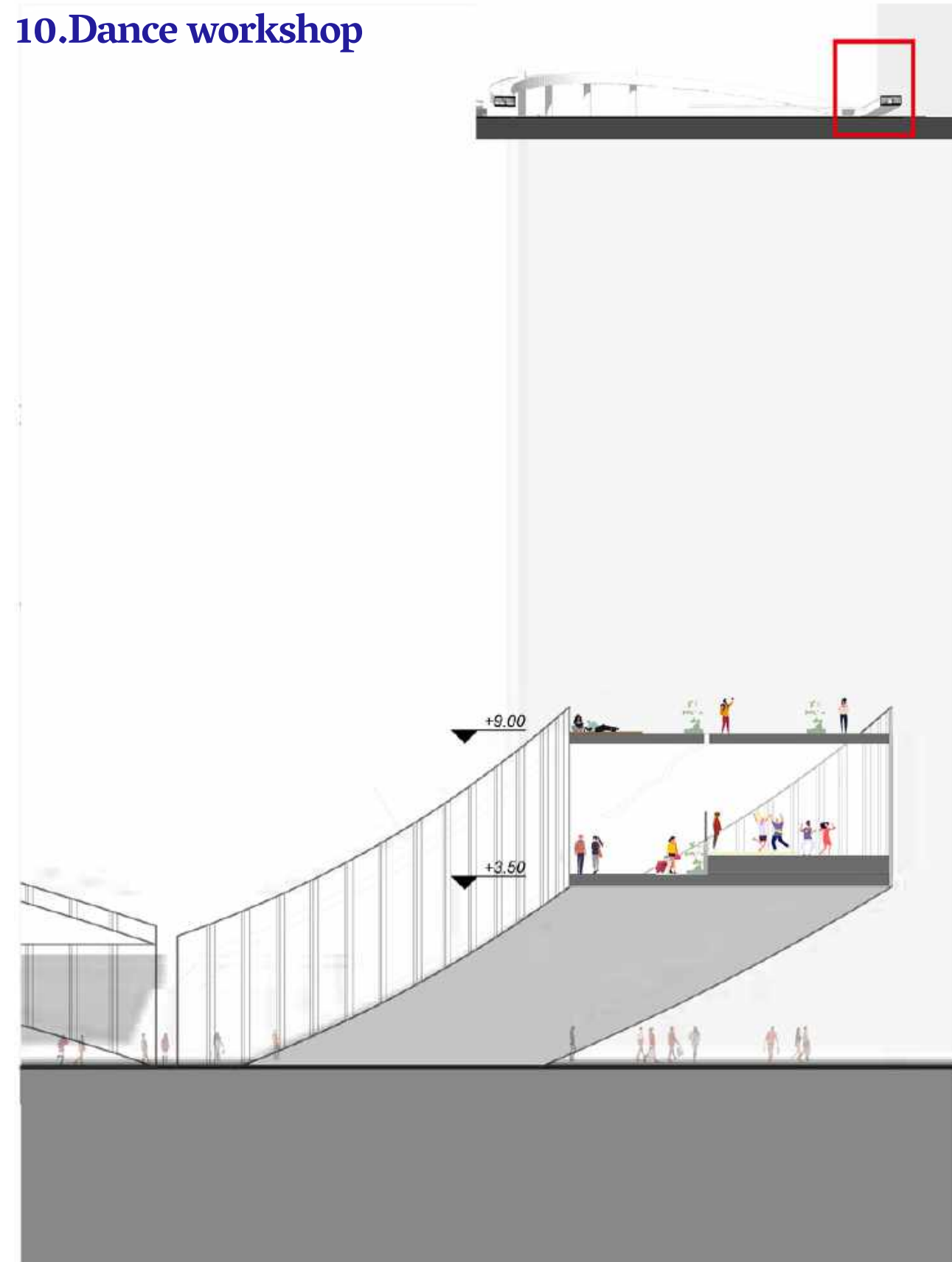
9. Store

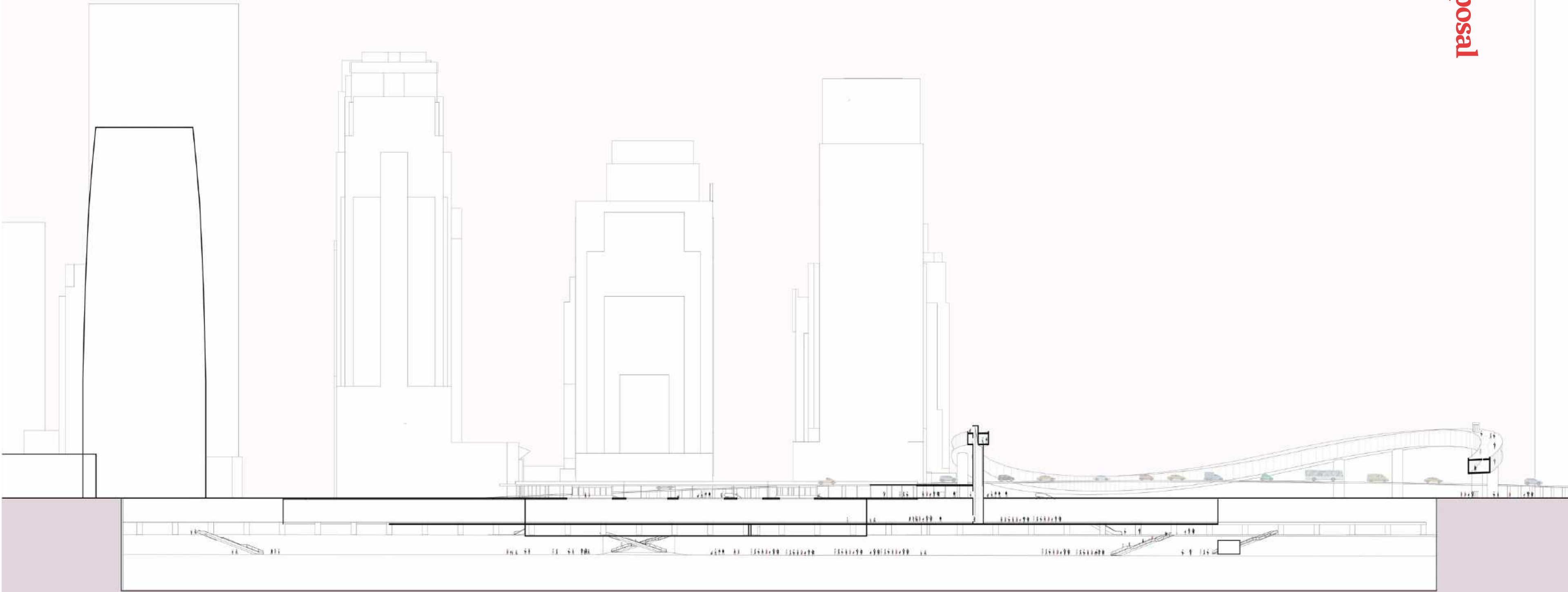


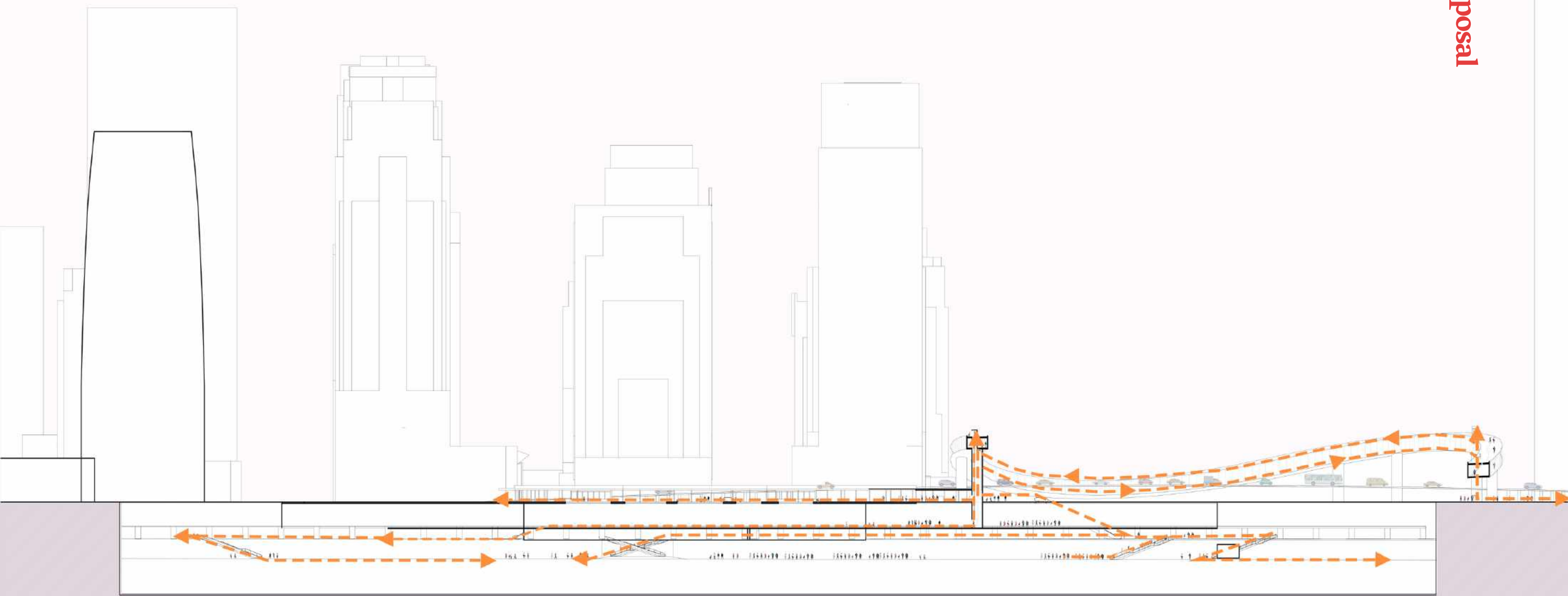
5.Exhibition



10.Dance workshop



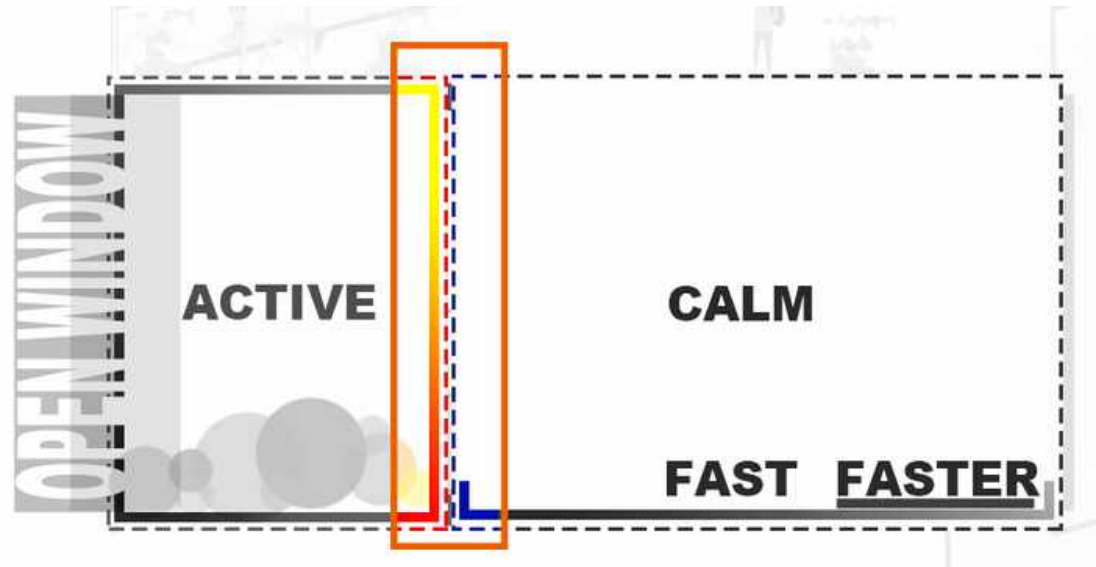






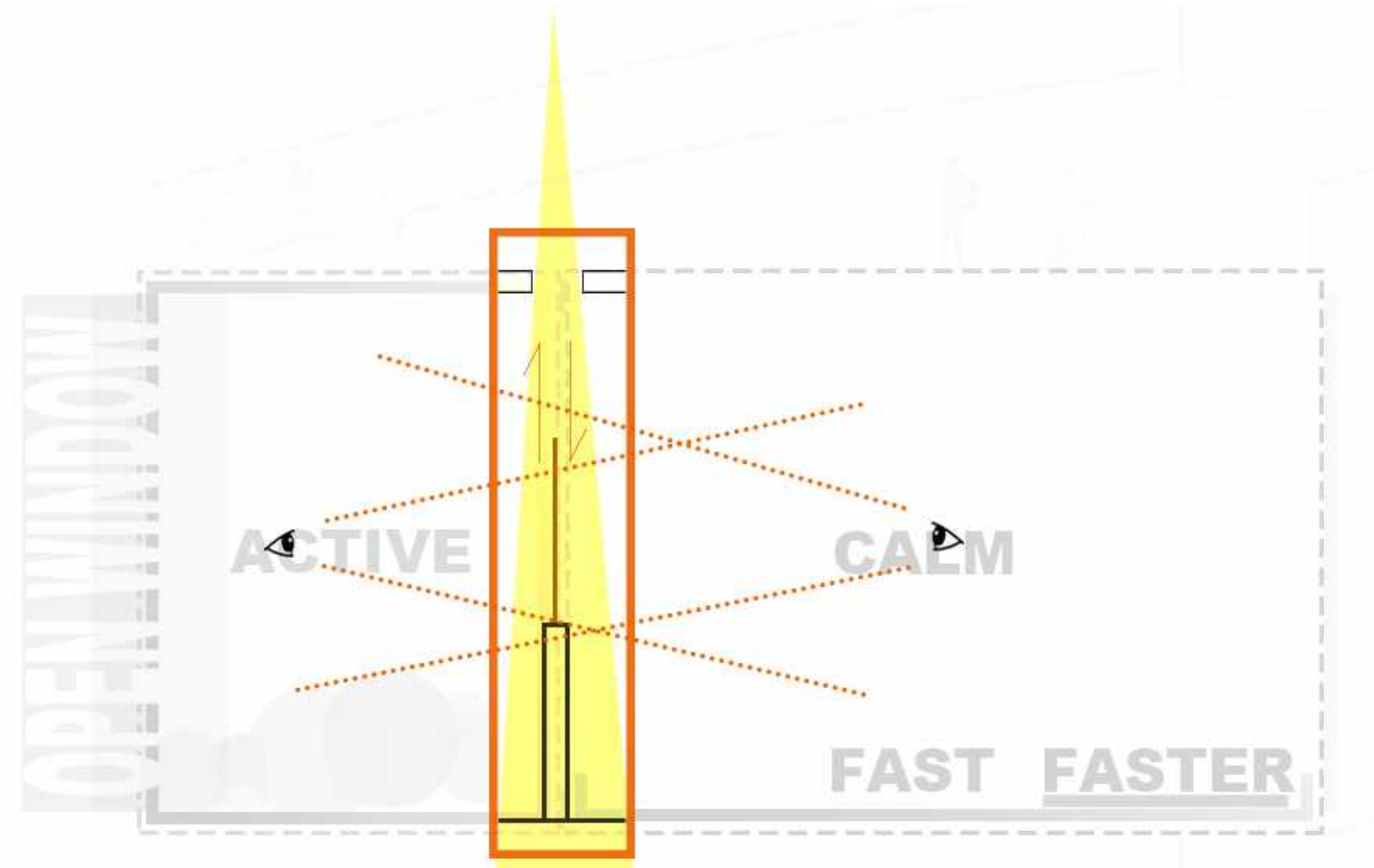
Part 8

Interior space



Inner walls

What is the relationship between active zone and calm zone? This chapter i am going to detail the idea of the visual connection between two zones. As it shows on the right picture,the inner wall will be a dynamic wall also using transparent material to satisfy the needs of connecting two areas.



Transparent material

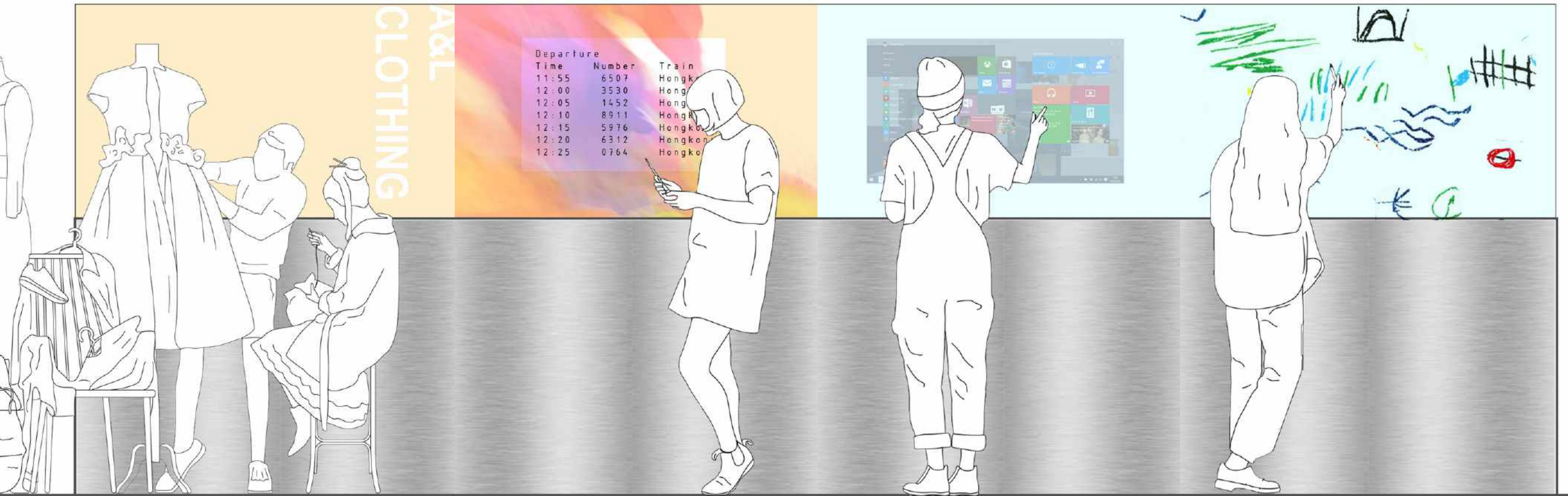
Inner walls

decorated/colored glass/plastic

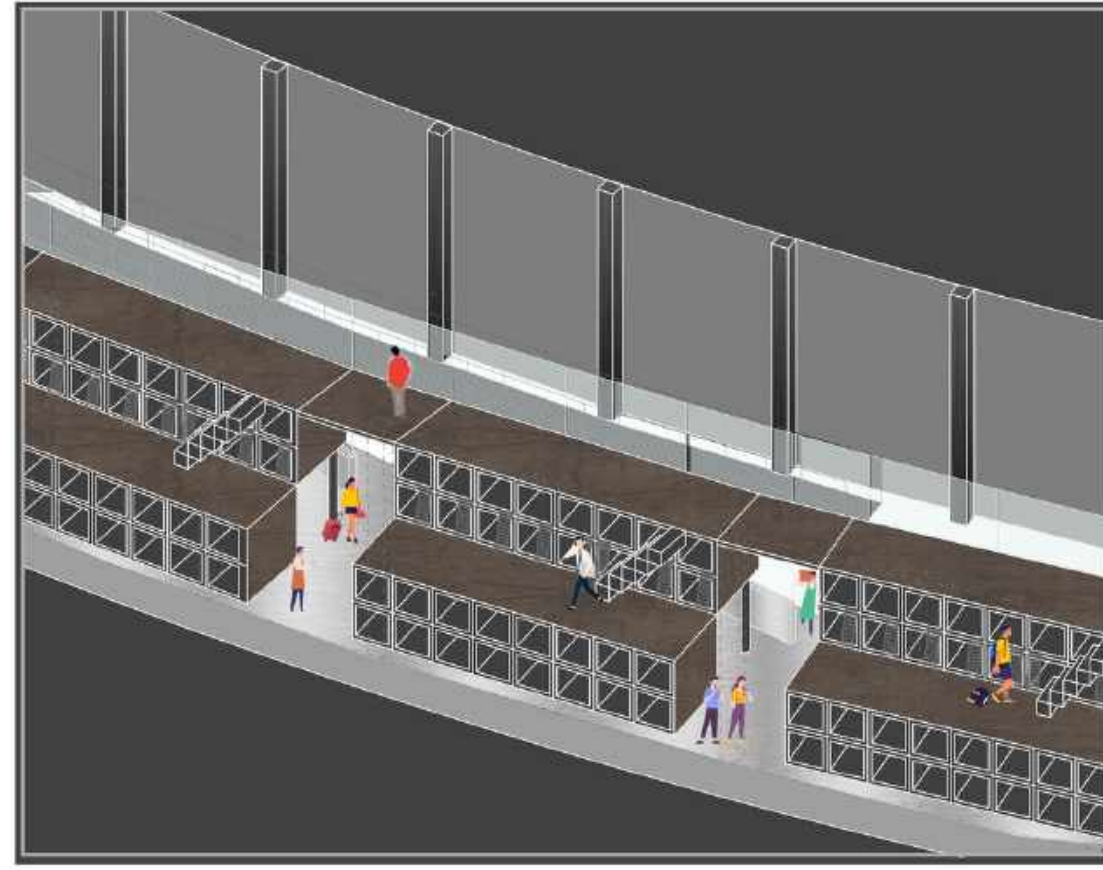
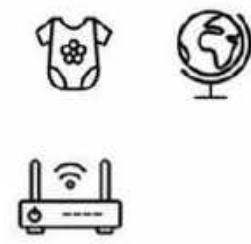
led advertise/station departure information

touch screen

drawable glass/plastic

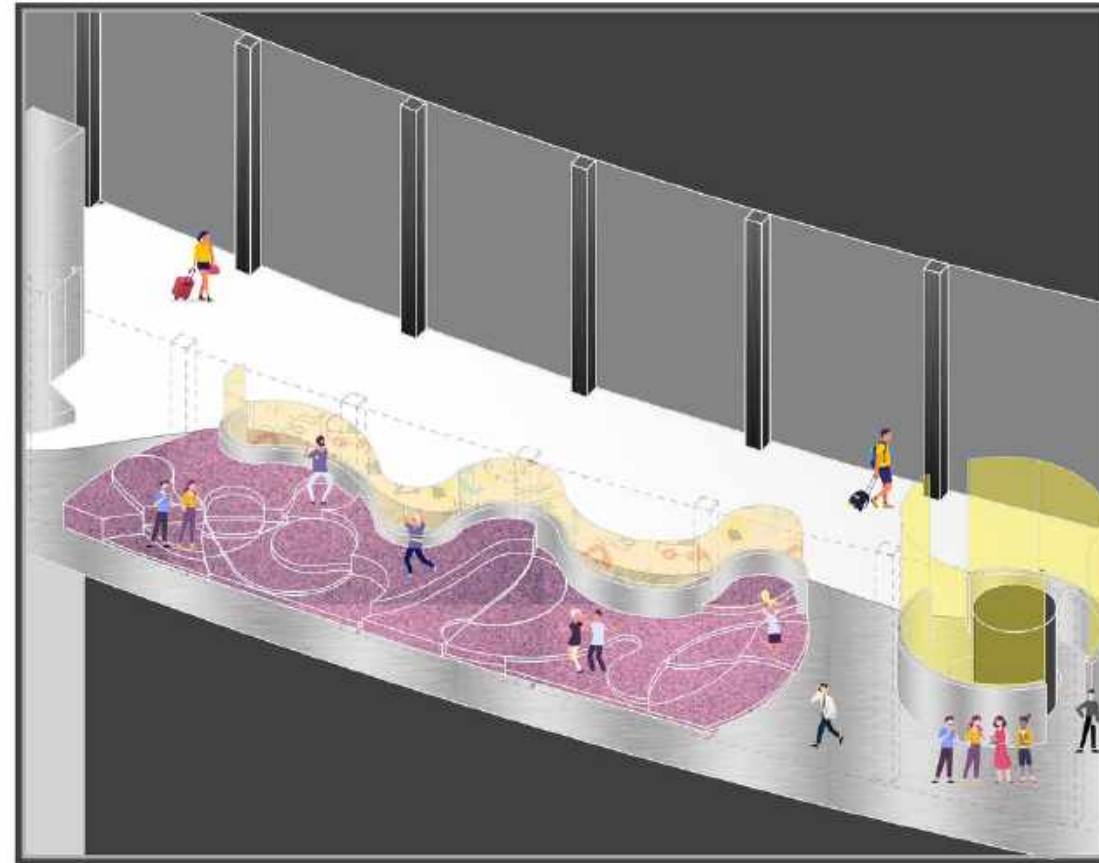
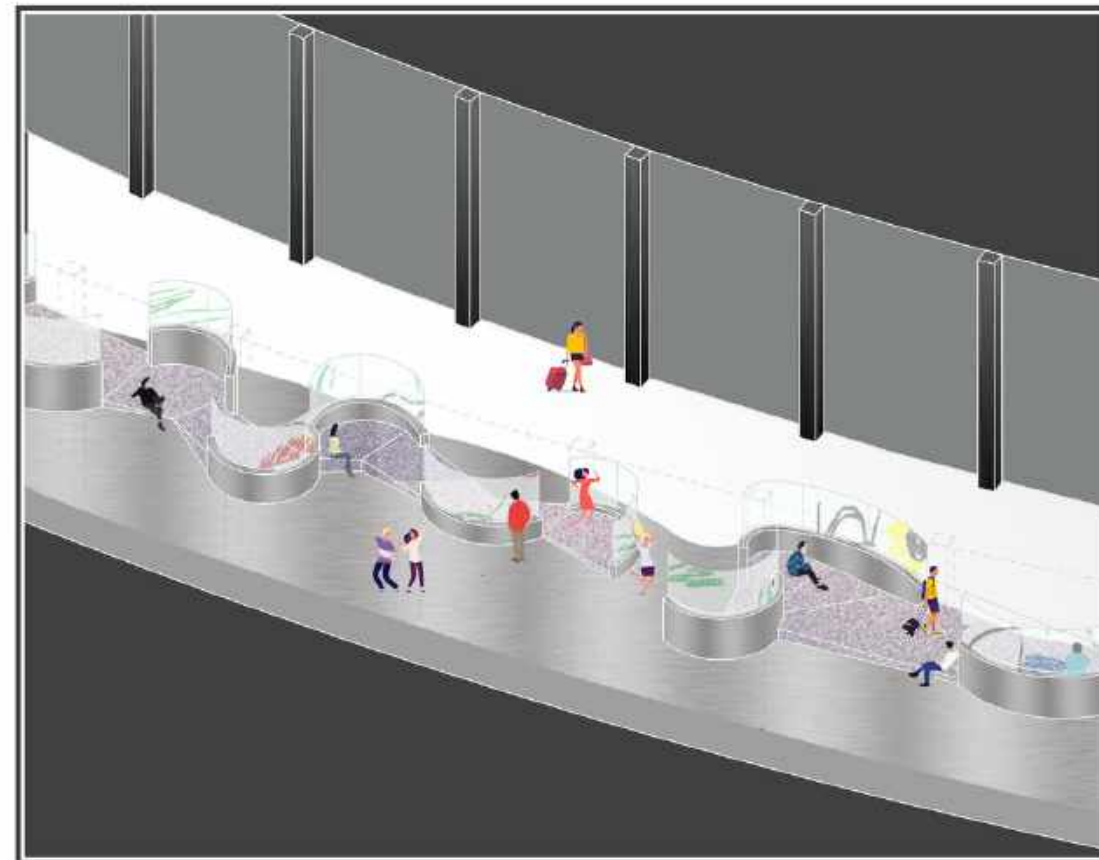
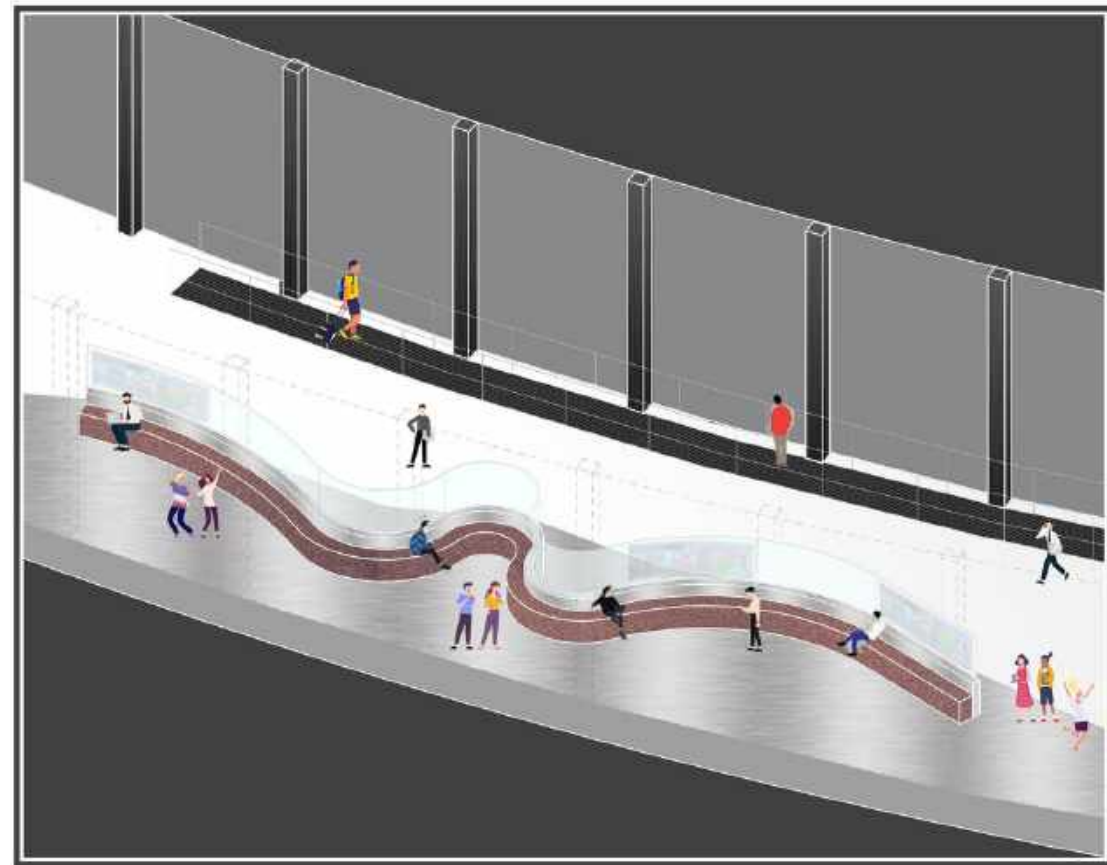


Co - X functions



Inner space

Game - X functions



Inner space

Thank you

I am so glad i could have shared my first work with you, I would like to thank all my friends and professors who had helped me while all those thesis period.

This thesis work means a lot to me, that is, the first project I did in my own hometown. The area around Futian High-speed Railway Station actually played a very important role in my life. I often went to the library near this area with my good friends in Shenzhen to buy books or go to exhibitions in the culture center. If one day my bridge design can come true, It will definitely bring me and my friends so much more fun in our daily life.

During the survey, my mother also helped me to take some photos of the station, I guess this project is also done by my family too.

I also learned a lot about my city, although I grew up in this city ,it was truly my first time reading so many materials to understand better historical backgrounds of my own city.

This August was Shenzhen's 40th birthday. This work is not only a little gift for my study career but also a birthday gift for my city.

At the end, thank you all for your attention to my work. If you have any ideas, you are very welcome to leave information to my homepage mailbox.

References

Futian High-speed Railway Station is scheduled to open to traffic at the end of the month. There will be direct access to Guangzhou High-speed Railway. [High-speed rail network.](#)

Shenzhen North Station Spring Festival Transport is expected to send 4.37 million passengers. [Jinyang.com.](#)

It takes only 27 minutes from Futian to Kowloon, Shenzhen opens the Guangzhou-Shenzhen-Hong Kong special line station ["Ming Pao"](#)

The national railways will adjust the train operation diagram from May 15th, and the first long-distance train at Futian Station. Archived by the Internet Archive, archived on 2016-05-13. ["Shenzhen Transportation Commission"](#)

Guangzhou-Shenzhen-Hong Kong Passenger Dedicated Line will build an underground station [downtown Shenzhen](#)

The Guangzhou-Shenzhen-Hong Kong High-speed Rail Futian Underground Station is under construction. It takes 24 minutes to reach Hong Kong West Kowloon Station. [China News.](#)

Train timetable at the station. From the 10th, Futian High-speed Railway Station will open 23 pairs of trains daily. [Shenzhen Special Zone News.](#)

Futian Station opened its first long-distance high-speed train to Changsha South in May. [Shenzhen Commercial Daily](#)

Next year, 135 pairs of passenger trains will be added nationwide. [Beijing Times.](#)

After the train operation diagram was adjusted, Futian Station added 12.5 pairs of long-distance high-speed rails. [Shenzhen Evening News.](#)

The MRT train from Huizhou South to Shenzhen North really comes 14 times a day. [Shenzhen Special Zone News.](#)

It takes less than 45 minutes from Pingshan to Futian. [Shenzhen News Net.](#)

Foshan West Railway Station will open tomorrow. The fastest way to Guangzhou South Railway Station is 18 minutes. [New Express.](#)

