



# URBAN PUBLIC SPACE DESIGN

--PUBLIC FURNITURE AND LANDSCAPE

PLANNING

IN FONTAÍNHAS



**esad**  
**arte+**  
**design**

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MASTER OF INTERIOR DESIGN

ORIENTATION\_ MARIA MILANO

CO-ORIENTATION\_ ANA SOFIA CARDOSO

YEAR\_ 2018



ESAD/Escola Superior de Artes e Design

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## **Statement**

I solemnly declare that the dissertation submitted is the result of the independent research conducted by the instructor under the guidance of the tutor. Except for the contents already quoted in the text, this paper does not contain any other individuals or groups that have published or written. Scientific research results. Individuals and groups that have made important contributions to the research of this paper have been clearly identified in the text. I fully understand that the legal liability of this statement is borne by me.



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# I. Abstract

A high-quality modern city should have a certain amount of public environment space, and its space should have comprehensive functions and diverse landscape expressions. At the same time, the spatial form should emphasize humanistic historical characteristics and environmental characteristics.

The soul of a city can better show the harmony between people and the city through the design and planning of urban furniture and public landscape. With the development of politics and economy in various countries, the application of urban public space function tends to be more and more diversified. People in cities with dense buildings are more eager to be closer to the natural environment. Therefore, returning to nature is a way for people who live in dense and fast-paced cities for a long time to get physical and mental comfort and relaxation.

The main idea of this project design is the concept of urban public landscape design with human needs as the core. Starting from the life experience of the main population and the feeling of the city, this paper studies the relationship between human behavior psychology, perceptual experience and the environment. While doing the humanistic urban planning design, it also proceeds from environmental psychology. With the continuous development of society, urban public landscape design is not only limited to functionality, but also gradually integrated into the connotation of design in terms of appearance, color and the relationship with the environment. The most important purpose of design is to satisfy the various needs of various groups of people and to give people a sense of comfort while meeting their needs. It also attaches importance to the importance of green for urban people. More natural landscape settings not only give people a sense of visual comfort, but also make urban residents feel more comfortable and relaxed psychologically. The use of natural timber and the preservation of original stone are also preserving the characteristics and historical memory of the original site, while combining new materials and more diversified functions and forms to make it more suitable for nature and more forms of aesthetic feeling. Let urban residents enjoy more diverse functions and have more comfortable feelings.

As an important part of urban construction, urban furniture is an object that is centralized and used in the city and an important element in the modern urban environment. It serves the city and affects the whole and image of the city. It serves the city people, and also affects the work and life of the city people. In the urban public environment system, this topic combs out the clear and clear understanding of the important role of urban furniture for urban environment and the design idea of optimizing urban furniture. Find a clear way to carry out site renovation design, so that the whole system of urban public space landscape can be perfected and unified, and enhance the functional and diversified experience of urban public space. The harmonious integration of city -people- city public space 'is achieved.

**Key Words:** Public Space; Landscape; Relaxation; Creativity; Urban



# I. Resumo

Uma cidade moderna de alta qualidade deve ter uma certa quantidade de espaço público no ambiente, e o seu espaço deve ter funções abrangentes e diversas expressões de paisagem. Ao mesmo tempo, a forma espacial deve enfatizar características históricas humanísticas e características ambientais.

A alma de uma cidade pode mostrar melhor a harmonia entre as pessoas e a cidade através do design e planejamento do mobiliário urbano e da paisagem pública. Com o desenvolvimento da política e da economia em vários países, a aplicação da função do espaço público urbano tende a ser cada vez mais diversificada. Pessoas em cidades com prédios densos estão mais ansiosas por estarem mais próximas do ambiente natural. Portanto, o retorno à natureza é uma maneira de as pessoas que vivem em cidades densas e aceleradas por um longo tempo obterem conforto físico e mental e relaxamento.

A idéia principal deste projeto é o conceito de desenho de paisagem pública urbana com as necessidades humanas como núcleo. Partindo da experiência de vida da população principal e do sentimento da cidade, este artigo estuda a relação entre a psicologia do comportamento humano, a experiência perceptual e o meio ambiente. Ao fazer o projeto de planejamento urbano humanista, ele também procede da psicologia ambiental. Com o desenvolvimento contínuo da sociedade, o desenho de paisagem pública urbana não se limita apenas à funcionalidade, mas também gradualmente integrado à conotação do design em termos de aparência, cor e relação com o meio ambiente. O propósito mais importante do design é satisfazer as várias necessidades de vários grupos de pessoas e dar às pessoas uma sensação de conforto enquanto satisfazem as necessidades. Também atribui importância à importância do verde para as pessoas urbanas. Cenários de paisagens mais naturais não apenas dão às pessoas uma sensação de conforto visual, mas também fazem os residentes urbanos se sentirem mais confortáveis e relaxados psicologicamente. O uso da madeira natural e a preservação da pedra original também preservam as características e a memória histórica do local original, combinando novos materiais e funções e formas mais diversificadas para torná-lo mais adequado à natureza e a mais formas de sentimento estético. Deixe que os residentes urbanos desfrutem de funções mais diversas e tenham sentimentos mais confortáveis.

Como parte importante da construção urbana, o mobiliário urbano é um objeto que é centralizado e usado na cidade e um elemento importante no ambiente urbano moderno. Serve a cidade e afeta o todo e a imagem da cidade. Serve para as pessoas da cidade e também afeta o trabalho e a vida das pessoas da cidade. No sistema de meio ambiente público urbano, este tópico põe em evidência a clara e clara compreensão do importante papel do mobiliário urbano para o meio urbano e a ideia do design de otimizar o mobiliário urbano. Encontrar uma maneira clara de realizar projeto de renovação do site, de modo que todo o sistema de paisagem do espaço público urbano pode ser aperfeiçoado e unificado, e melhorar a experiência funcional e diversificada do espaço público urbano. A integração harmoniosa do "espaço público da cidade-cidade-cidade" é alcançada.

**Palavras-Chave:** Espaço Público; Panorama; Relaxamento; Criatividade; Urbano



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**Second Volume of Drawing**



## II.

### Glossary:

**Tree bed:** Place for Tree



Fig. 1, Tree bed



Fig. 2, Tree bed

**Anti-Corrosion Paint:** Anti-corrosion coating refers to a kind of liquid or solid material applied to the surface of an object to form a film under certain conditions to protect, decorate or other special functions (insulation, rust prevention, mildew resistance, heat resistance, etc.). Because early paints mostly use vegetable oil as the main raw material, they are also called paints. Synthetic resins have replaced most or all of vegetable oils, so they are called coatings. There are three main functions: protection, decoration, and disguise of product defects to enhance the value of the product.

**Pine tree:** The wood of this tree is made of light-colored hardwood, which is suitable for the wood selection in the design of this project.

**Underground light:** The buried lamp is a kind of lamp. The lamp body is made of pressure or stainless steel. It is durable, anti-seepage and excellent in heat dissipation. It can be placed under the surface and is commonly used in squares, green belts and parking lots, etc.



Fig. 3, Ground Buried Lamp

# III.

## Introduction

Urban landscape furniture is an important part of the urban landscape. It plays a positive role in softening the environment, showing the personality characteristics of urban space and rendering the urban environment. It embodies the cultural connotation of the city and reflects the development of the city's politics, economy and culture. The streets are the most important venues in urban living space should take into account the melodies and rhythms of streetscapes and sketches in the design of street public spaces. As people walk on the road, the point of view continuously changes, and it will produce a dynamic effect landscape that resembles music. Must be based on walking rhythm and regularity, reasonable consideration of changes and continuity of street nodes, create a beautiful, rhythmic street walking experience. According to the rhythm of walking, using paving, street sketches (such as seats, trash cans, tree bed, public telephone booths, street lights, Sales kiosk, etc.), street greening, the use of street architecture, and modeling and colors, etc. create a street space with a sense of change and rhythm. Making the streets in an orderly manner relies on the time factor to form a deeper understanding and experience of people in relation to the street space environment. Give the people a greater sense of comfort and well-being.

Urban landscape furniture takes the opportunity of environmental integrity, functional integration and detailed refinement as its basic features. Urban landscape furniture highlights and urban space plays an irreplaceable media role and becomes a bond between man and the environment.

With regard to the design of street space, detailed investigations and analysis must first be conducted to make appropriate demand positioning. Consider the use of crowds and ways of use associated with street public spaces. For different users, fast or slow walking methods and leisure or rest stop purposes, the use of different purposes has a great influence on the design of street public spaces. . In the design, we must fully consider the scale and feelings of people, and apply the theoretical knowledge of environmental social psychology and ergonomics more closely. Advocating the principles of goodness and people-centeredness, embodying the principle of humanistic design, paying attention to the harmonious development of man and nature, focusing on the sustainable development of the environment, and achieving the harmony and unity and development of man and nature. In the design, the interaction with users is strengthened, and an active urban public space more in line with people's behavior is designed.

The design of urban public space should provide conditions for the overall improvement of outdoor environmental quality, and provide support and possibility for spontaneous and man-made activities to develop the diversity of public space. On the basis of considering certain continuity, the landscape design of street public space should also add variety and interestingness, combine urban culture and urban history, create diverse and cultural landscape, and try to retain the original place spirit and texture relationship of the site. Consider providing a diverse natural environment and open space for the public to experience and choose, but also for a variety of materials and technologies to express the diversity of space.

## 1. Street related background

Public street areas are created with the formation and development of commercial and residential areas. The initial street development began with the traffic demand of people walking and driving, and gradually incorporated political, economic, cultural, and artistic factors. As of today, the space in the streets has become a banded city living space for multi-functional activities. It is the place where people spend most of their time outdoors and becomes the main carrier of people's outdoor activities. At the same time, it is also a stage for the exhibition of urban landscapes and is a place where people appreciate and experience urban life.

In most cities, the street occupies a relatively large part of the land area, and the street is mainly the main viewing area of the city image. At the same time, the street is also a kind of spatial relationship. It is the visual link of various landscape elements in the city.

The original design of European city streets was used for transportation. The streets are often designed with simplicity and initiative, and open and closed spaces alternate.

## 2. Street application activities and street space design

The design should focus on functional development and the use of spatial functions, barrier-free design, and standardized design. Put more functions into the real space, so that people's needs and the natural environment can be mutually integrated. The integration of ergonomic principles and environmental psychology is better, allowing people to experience more comfort and perfection in the street space environment.

## 3. The relevance between urban furniture and public space

### 3.1 Urban, Public Spaces, Urban Furniture and People

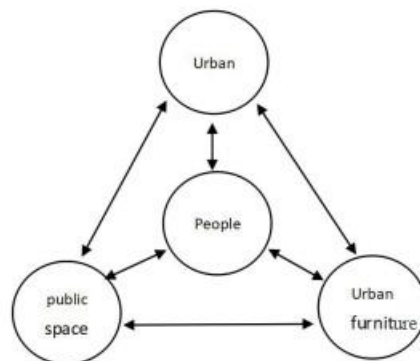


Fig. 4, Urban, Public Space, Urban Furniture and People correlation graph

The city is a huge material structure including public space, city furniture and people. As a container of human life, it provides people with abundant public space, including city squares, parks, streets and so on. Urban builders constantly consider the functions and spatial structure suitable for the city, trying to ensure the maximum of people's comfort and interests in life, and balanced operation in order to look forward to urban society and

economy. Healthy development. Public space is the main element of urban function and landscape, the product of interaction between human and environment, and a meaningful place of urban outdoor space, including human and urban furniture. It triggers human behavior and provides adequate and appropriate space for people's daily leisure and entertainment. Urban furniture is the link between human and city. Band. Urban public space design can not be without furniture. Like other environmental factors, urban furniture is also the bearer of urban characteristics, life value orientation and urban cultural connotation. Good city furniture can improve and improve the image, function and quality of the city. Make public space full of vitality and vitality, and provide convenience to people while making it dignified and happy. Man is the creator of city, public space and urban furniture, and also the center of their fundamental and interactive relationship. City, public space, city furniture and people interact with each other, interact with each other, and the relationship is inseparable.

### 3.2 The overall relationship between public space and urban furniture from the perspective of city level

The urban level mainly refers to the environmental level reflecting the characteristics of the city as a whole, including the public space system and its subsystem - urban furniture related to the environmental characteristics of the city as a whole.

Every city has its own characteristics since its birth, and through the accumulation of history, it gradually forms its own unique urban environment. From the perspective of urban environment, both public space and urban furniture should be connected with the factors related to the city as a whole, strengthen the environmental characteristics of the city, make it clearly integrated into the overall environment of the city, and have the same characteristics of the overall environment of the city. The holistic characteristic refers to the orderliness of the whole city gradually embodied in the urban environment after the accumulation of history. The characteristic of meaning refers to the strong identifiability, attribution and security of urban space. Growth characteristics refer to the nature of the city's environmental structure in the constant metabolism of the new city with the development of economy and society, as well as the change of people's life style and life structure. Diversity refers to the diversity of urban environment that social life requires.

Public space originated at the beginning of the development of cities and human communities, and changed with the continuous development of urban functions and human beings. Different functions, different cultures, different textures and different meanings of public space emerged in endlessly, creating a rich and colorful living environment for people. As a subsystem of public space, urban furniture inherits and develops the spiritual characteristics of public space, and forms an organic whole of various elements in the place, so as to make public space play its best efficiency. This is an obvious manifestation of the unity of urban furniture and public space in the city. It is a link formed in the process of mutual influence and mutual tolerance.

## **4. Analysis of public space elements affecting urban furniture design**

### 4.1 Functional element analysis

Public space, behavior and urban furniture constitute the shaping of behavioral public space. To study the adaptability design of urban furniture in public space, first of all, we should investigate and analyze the environment of public space and human behavior, because this is the primary place factor affecting the design of urban furniture-the overall determination of its function. The premise of position.

For urban open communication space - public space is usually understood as urban square, street, neighborhood park, small park, campus outer space, residential area outer space, large public building outer space. In these spaces, people's leisure, recreation, communication, shopping, catering, education, fitness, cultural activities and other functional elements are often concentrated. Of course, safety and decoration functions are also essential elements for every place. These spaces are not only the places people need for social communication activities, but also the material carriers of urban society, politics, economy, history and culture. In order to better meet the requirements of urban public space, highlight the humanized functional services of urban furniture, and optimize the allocation, it is necessary to analyze the functional elements of the place.

#### 4.1.1 The function of 'point' in public space



Fig. 5, Lujiazui Pocket Park



Fig. 6, Lujiazui Pocket Park

'Point' public space generally refers to small squares as traffic nodes, large and medium-sized department stores, warehousing malls, public libraries, art galleries and other places with independent external environment. This kind of place is characterized by relatively small area and strong functional pertinence, and it is a transitional accessory place for traffic or number of items. For example, the small traffic square is the intersection and turning point of the road, and its public space function mainly aims at pedestrian distribution, waiting, leisure, identification and other behaviors. The plaza outside the shopping mall is both traffic and leisure. Its functions are mainly for pedestrians or shoppers to stop, wait and rest for a short time. Public libraries, museums and other outer squares are relatively independent, with both cultural and leisure characteristics, and their users have strong purpose. The functions of the place mainly focus on the public's behavior of staying, waiting, leisure and communication.

#### 4.1.2 The function of 'line' in public space



Fig. 7, Chapultepec Cultural Corridor



Fig. 8, Atlanta City Loop Corridor

'Linear' public space generally refers to the whole form along the linear circulation space arrangement and other space, its main characteristics of public space is traffic. Such as commercial pedestrian street, public street. Functionally, it reflects people's changeable lifestyle and becomes the space for people to shop, socialize, relax and entertain. Mainly reflected in the road lighting, traffic guidance, information identification, waiting and environment cleaning, beautification, followed by information exchange, rest, sales and other functions. And places like waterfront scenic spots are to meet people's needs of sightseeing, leisure, entertainment, social intercourse and sports.

#### 4.1.3 The function of 'plane' in public space



Fig. 9, New York Central Park

'Plane' public space generally refers to open public space with wide vision and relatively large area, such as community squares, municipal squares, cultural squares and urban parks. In this kind of 'plane' public space, the main points affecting the function of urban furniture design can be summarized as follows, 1. Thematic and behavioral factors, 2. historical and human environment factors, 3. natural and artificial environment factors, 4. traffic factors between pedestrians and vehicles, 5. the overall wind of the place. Appearance, comprehensive characteristics and characteristic factors.

#### 4.2 Site factor analysis

Public space is a place where people and nature are interrelated. Site is the material basis for the formation of public space. Therefore, the existence of site as urban furniture fundamentally determines the regional characteristics of public space and its urban furniture. The site has obvious spatial dimension, but its scope is not fixed, but changes as the carrier of its corresponding site. The site bears the existence of urban furniture, and the form of urban furniture also shows the public space characteristics of the site. Therefore, site element analysis is a prerequisite for the adaptive design of public space in urban furniture.

In fact, in the urban furniture construction, the natural characteristics of the site are often neglected. Urban furniture needs to express the spirit of public space on the basis of venues. It must dialogue with venues and continue the occurrence and development of natural characteristics in venues to derive the characteristics of public space. It can be concluded from four conditions: climatic conditions, topography, water bodies and vegetation.

##### 4.2.1 Climate

Climate is the natural condition of passive acceptance of all public space materials, which mainly manifests in the differences of sunshine, temperature, air pressure, humidity and precipitation, which have a great impact on regional culture and people's lives. In fact, the impact of climate on the formation of public space has been formed since the time of the site existence, including the furniture of public space. The dialogue between the two lies in the combination of regional characteristics of climate change to influence the adaptive design of urban furniture. For example, climate conditions affect the growth of soil structure and vegetation, thus affecting the choice of materials and manufacturing processes for urban furniture. The number of foggy days, rainy days and the intensity of light directly affect the control of the brightness of urban furniture.

#### 4.2.2 Terrain



Fig. 10, European terrain



Fig. 11, Terrain profile

Various natural landforms are the basic elements to be considered in the design of urban furniture. It is necessary to investigate, understand and analyze the geographical location, area, shape, fluctuation and gradient of urban furniture. The irregular, advantageous and disadvantageous rules should be fully utilized. Planning and layout. Terrain is usually divided into three types: flat bottom, sloping land and mountain area. Open terrain and open field make the best place for people to gather, communicate and work. Sloping terrain has a certain slope and a strong sense of hierarchy. Mountain areas are often reconstructed on the basis of the original topography, so that the combination of artificial landscape and natural landscape is ingenious. It gives people a sense of natural simplicity and pleasant scenery. In the process of direct dialogue with the earth, urban furniture can be used as a transition between artificial and natural integration. To imitate, continue and adapt to the way of nature, to provide a dual function for the place to produce the basis.

#### 4.2.3 Water



Fig. 12, Avenida dos Aliados Water Mirror, Porto



Fig. 13, Douro River, Porto

In nature, rivers, lakes, seas, streams, springs and waterfalls all present rich and colorful forms, or smooth like mirrors, or billows, or waves, which make the public space environment full of infinite vitality. The dynamic nature of water and the meaning of life give the symbolic meaning of culture. The water body has the circulation of the main controller, and at the same time, it extends people's vision and extends the space depth on the senses. As an influential factor of urban household owner design, it is mainly manifested in the water-related shape, color and type, or in the water-related landscape belt. The most intuition comes from nature, and it is also easy to form its form according to public space.

#### 4.2.4 Vegetation



Fig. 14, Tree



Fig. 15, Shrub



Fig. 16, Liana



Fig. 17, Herbaceous plant

Vegetation is the best carrier in the process of dialogue between human and nature, and it is also an important part of the landscape system, including trees, shrubs, vines, herbs, aquatic species. As far as plants themselves are concerned, their natural nature, regional types and strong plasticity are the best choice for the memory of suitcase public space. Vegetation can create pleasant natural scenery as well as improve urban air quality. As one of the public space elements affecting urban furniture design, the types, size, area, quantity and color of vegetation are all adaptable elements that must be taken into account in urban furniture design. Besides color and style, vegetation also has the function of enclosure and bearing.

## 5. The role of urban landscape furniture in the urban public space environment



Fig. 18, The Humble Public Bench



Fig. 19, Tree IT



Fig. 20, Trash can



Fig. 21, Urban newsstand



Fig. 22, Tree bed



Fig. 23, Create & Barrel Signage

### 5.1 Performance urban character

Different cities have different urban cultures and history and have formed different urban character characteristics. Urban landscape furniture, as the carrier of urban character culture, embodies the humanity of the city and reflects the character of the city. On the contrary, the character of different cities has a very important and far-reaching influence on the design of urban landscape furniture. With local history and culture, urban character characteristics. Determined the value orientation of urban landscape furniture. There is a continuous causal relationship between urban character and urban landscape furniture. Therefore, in the design of urban landscape furniture, starting from the urban character, urban humanistic spirit and historical and cultural heritage, etc., to find the appropriate form of language to reflect the city's personality and charm. To arouse people's memory of urban cultural characteristics, inherit and develop the spirit and character of developing cities.

### 5.2 Enrich city life

The range of urban landscape furniture is very wide, ranging from parking lots to waiting rooms, to signboards, seats, tree bed, etc. It can express the smallest elemental personality or a collection of groups in a larger area.

Urban public space is the best material embodiment of social harmony. With the continuous improvement of people's social and material life, more and more people are increasing their demand for private space and public

space. For designers, people's different needs for the use of public space are important design orientations. The people-oriented design concept in this project proposal will be combined with the natural environment. The demand for aesthetic and functional public spaces is also growing. Therefore, we will carry out a piecewise transformation design of urban public space.

## 6. Timeliness of public space experience



Fig. 24, Spring



Fig. 25, Summer



Fig. 26, Autumn



Fig. 27, Winter

Spring, summer, autumn and winter in the streets of Hokkaido University

The spatial experience of human beings in public space is combined with the changes of time and space. Even in the same space, due to the change of time, visitors will experience different spatial experiences. Under different time segments, the shape and connotation of place space are different, and the feelings provided to people are also different.

Public space is influenced by other elements such as architecture, urban furniture, light and shadow, season, plant growth, etc. The poem is in a dynamic state of landscape, which provides the viewer with the performance effect in the instantaneous scene. Landscape elements of different states appear in the same scene, and the spatial effects of various combinations can be regarded as landscape fragments. The relative shape of landscape elements is different, grasping the combination effect of landscape elements in each period is the prerequisite for presenting excellent landscape effect. Through the shaping of landscape, the sense of public space can be expressed. Plant elements in public space are closely related to climate change and space-time change, and intuitively reflect the process and result of transformation. Fruit forms rich and variable spatial experience. Urban furniture is an important part of urban landscape. In its design stage, grasping the timeliness of public space elements and applying them to the similar forms of natural forms can reflect the long-term effectiveness of urban furniture in order to continue the spirit of place.

## 7. Human behavior needs

According to the research of Jan Gehl in Denmark, public behavior is divided into three kinds, namely, necessity activity, spontaneous activity and social activity. (Gehl, Jan. (2003). *Public Space Public Live*. China Building Industry Press, Denmark) Each activity has its own requirements for different space environment. In addition to the necessary activities of daily work and life such as going to school, going to and from work, shopping and traveling, there are also the following people's life behaviors.

### 7.1 Rest



Fig. 28, Rest in public space

Rest is one of the most common behaviors in outdoor activities. It is the main way to eliminate fatigue and relax mood, including sitting down and rest, meditation, sunshine, chatting, reading and drinking coffee.

### 7.2 Watch



Fig. 29, Watch the scenery

Watching natural scenery, people and their activities is one of the main purposes of people's outdoor activities. People get information, enjoy and relax their body and mind by watching. Watching behavior includes watching performances, watching flowers and trees, and viewing natural scenery.

### 7.3 Recreation



Fig. 30, Vibrant urban space

Play includes children's games, parent-child activities, fishing, playing cards, remote control and so on.

## Sports



Fig. 31, Manhattan "Summer Street" event

Sports has become a healthy lifestyle of modern urban citizens, including walking, running, dancing, cycling, badminton and so on.

## 7.4 Assembly



Fig.32, Poznan Wolności Square Rally play

Assembly refers to all kinds of group activities in public space, including festivals, music festivals, social group activities and so on.

## 7.5 Other

Due to the different interests, aims and pursuits of users, such as art exhibition, business consultation and craft publicity, more and more acts have appeared.

## 8. Input design direction

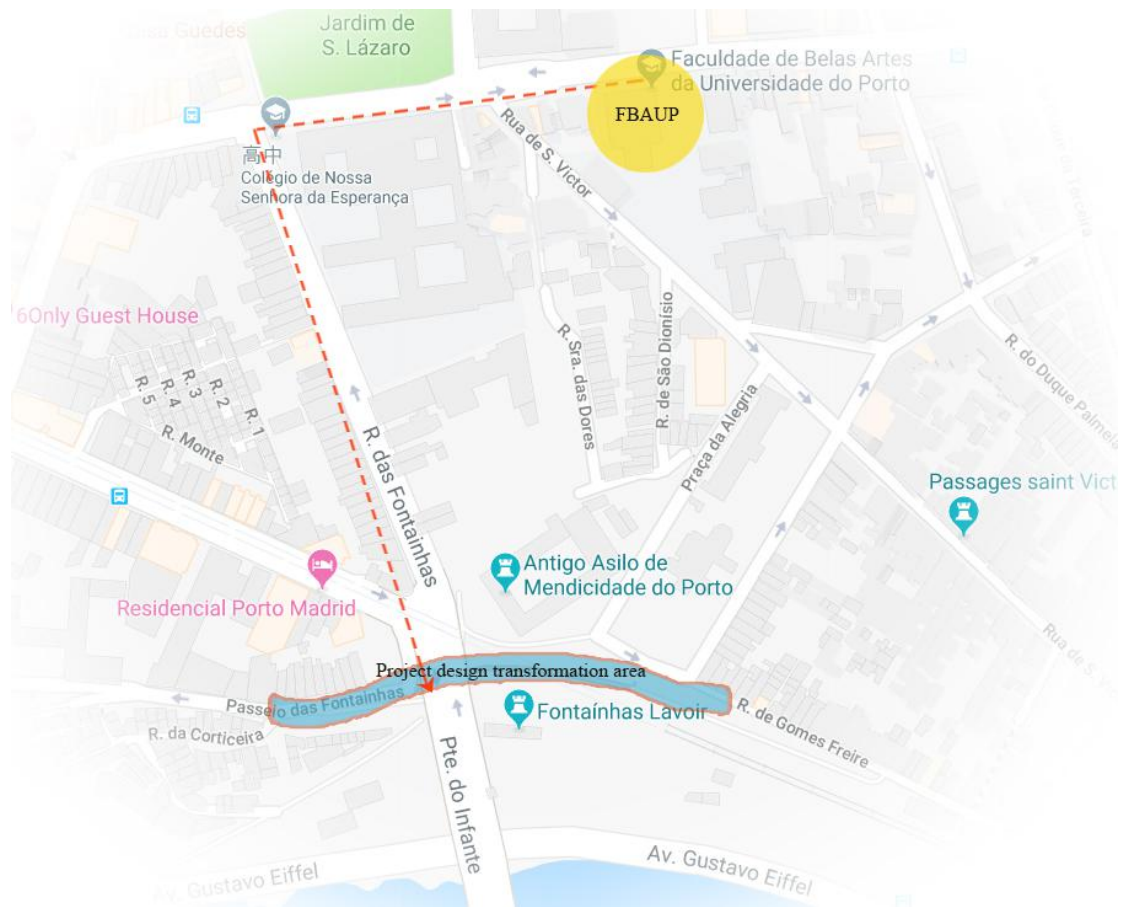


Fig.33, Interaction area map between FBAUP and project space

This project is specially chosen for approaching FBAUP students and nearby residents and tourists, because they will become an important ‘customer’ among them. These people will appreciate the scenery and interact with the space more. FBAUP students pay more attention to the aesthetic requirements of public space. Therefore, students and nearby residents are the main users of this public space, tourists and passing people as small groups of users. Through a clear understanding of the main user groups and the topography and current functional uses of the selected sites, the targeted transformation design is carried out. The design intent of this project is to reprogram and design the terrain of the selected location, and use the space combination to design the public space as a diversified function of leisure area. The street design and renovation near the river form an integration, combining with the surrounding urban environment style, into a vibrant and interesting public Space.

Inclusion of the role of the interior designer and its role on building the public space. As an interior designer to do urban public space design project, the design and planning of the family's meticulous role in the public family, bringing the family's comfort into the public space.

# IV.

## Project Research

### 1. Design research and concept section

Oporto is one of the ancient European cities. Oporto was inhabited as early as the fourth Century. In the 12th century, the city gradually formed its present pattern, which is divided into two parts: the cultural area above and the commercial area below. Built on hilly slopes, the old city has the famous 12th century Roman architectural style of Porto Cathedral. There are many bridges on the beautiful Douro river. Among them, the Louis I Bridge is one of the largest arch bridges in Europe. It is 560 feet long and has two levels of lanes. The shape of the arch bridge is similar to that of the bottom of the Paris Tower. It spans both sides of the Douro River and has a magnificent momentum. The iron and wood balconies with local characteristics, granite cliffs along the Douro River and lush Street Gardens constitute a gorgeous landscape of this ancient city.

The Old Town of Porto and the surrounding wine region are world cultural heritage sites. Therefore, Porto, as a city with unique wine culture and comfortable and pleasant environment, attracts tourists from all over the world to come here for vacation and leisure, to enjoy delicious wine and diet, to enjoy the beautiful scenery on both sides of the Douro River, to appreciate the magnificence of the Louis Bridge and to build unique style buildings on different levels of hilly slopes.

The spiritual and cultural connotation of a city is revealed in every corner of the city. Oporto is a city with a slow pace of relaxed life. People have a high demand for life. With the development of social economy, people's enjoyment and requirement of quality of life are getting higher and higher. Therefore, we should make reasonable and diversified design according to the local life style and the ideal needs of urban residents.



Fig. 34, Location analysis chart of project site

The land used for this project is a public street along the river in Fontainhas area of Porto City, which is close to the Douro River. The landscape along the river has a wide visual effect. The buildings on both sides of the river are built on hills to form a layer of buildings. The different levels of architectural landscape on the visual landscape form a unique regional landscape. . Along the other side of the river is Gaia City, which is also a different level of architectural landscape. The project area is located in a high area along the river, with a wide view. On the river viewing platform in this area, we can see the scenery of the Douro River and the scenery on the other side, and the visual effect is magnificent. Similarly, during some local festival celebrations, the venue will become a temporary place for catering, coffee bars and local specialty commodity sales, entertainment facilities and activities. Attract tourists, nearby schools, students, lovers and residents to stop, relax and entertain. So for the public environment to give comfort has become a crucial design research.

For a long time, how to deal with the relationship between human and environment is the central task of urban environmental designers and the direction of continuous exploration. Undoubtedly, in order to deal with the relationship between people and environment, whether indoor or outdoor environment, "furniture" is the key link between people and indoor and outdoor environment, because it is the link between people and the environment in harmony. As an indispensable and important element in the design of urban landscape and public space, urban furniture is an important embodiment of urban characteristics and historical and cultural connotations. At the same time, the taste of the city and the improvement of the quality of life of the citizens, including the strong sense of identity, belonging and happiness index of the city, are also inseparable from urban furniture.

In recent years, in the urbanization construction around us, the design and construction of urban planning and urban environmental landscape have changed from quantitative change to qualitative change, and the scale and level of construction are on the rise. However, the development of urban furniture matched with it is relatively backward and has not been enough for a long time. Enough attention is paid to its design and construction, which is still in extensive development. In most cases, after the completion of the environment, the furniture patchwork is selected from the ready-made products which have been put into mass production in the market, while neglecting the consideration of the adaptability design of furniture and places, resulting in the lack of features and outdated functional shortage of facilities. Resulting in poor affinity, serious loss and other problems, so the place "lost". Therefore, it is necessary to find the historical memory of the project site, clearly understand its problems, conduct in-depth research and exploration, find solutions, and make a design that integrates functionality and diversity of the site, giving people a sense of comfort.

Therefore, at the beginning of the project, the people who stayed on the road were investigated and sorted out according to the types and opinions of the people, following the principle of harmony and integration of city, human and natural environment. Starting from the local historical culture and respect for the original site, we should pay attention to and emphasize the memory of history from the design concept and details. On this basis, the public space landscape transformation design, focusing on increasing the site's functionality, diversity and interest of the

change of agility, so that people in this place feel comfortable in leisure and more functionality to bring people different experience.

Major changes to historic cities are a difficult task, but as interior designers, we will change the design and layout of urban public space in detail. Make the outdoor environment more comfortable. The main purpose of the project is to realize and rebuild Alameda Das Fontainhas Street, clearly plan parking areas, run urban furniture and facilities along the river, change the materials and forms of tree bed and adjacent platforms, so as to use stone tree bed and waterproof wood seats, and increase leisure work by connecting the central platforms. Yes, coffee, reading, barbecue, and landscaping along the street. Add more green to the public space of the city. Highlight the natural harmony in the city.

## 2. Research on Design Land



Fig. 35, Wall and tree bed area



Fig. 36, River viewing wall

Original appearance of project site

The garbage disposal system is not perfect (you can see litter thrown on the ground)

The order in which cars are parked is somewhat chaotic

There will be some raised hoop anchors on the road surface. I don't know what the effect is, but the pedestrians and joggers who will affect it may be at risk during the exercise.

There is a public sculptural wall structure resembling a fountain at this location, but it has been abandoned and blocked by a parked car. There is a wall painting around, but there is no point of obscuration.

There is a small business circle on the roadside, several small coffee bars, and open-air seating. This road is relatively narrow and there are also vehicles parked.

This road has a regularly spaced platform next to the tree bed near the observation deck. Some people sit on it, but the old stone surface is less comfortable and beautiful, and it does not play a very strong function.

The stone wall of the main road tree bed along the river observation deck is a little 90cm lower, the safety is not high, and the wall is very old and lacks aesthetics.

There is a lack of public facilities on the main road. For example, people staying at the edge of the river along the river are far away from the coffee shop. When you want to drink a cup of coffee or drinks, beer, you have to go. On the other side of the far side, this reduces the time people spend leisure time here, and it is lacking in convenience.

### 3. Research on Design Space and Nearby Populations



Fig.37, Couple



Fig. 38, Tourist



Fig.39, Residents



Fig.40, Passer

Diagram of the types of people at the project site

Tourist group: According to surveys conducted by tourists, it is common for couples, family members, friends, and colleagues to travel. The time period during which they will stay is relatively arbitrary. Many visitors' opinions are based on the improvement of the safety of land use and the improvement of functionality and appearance. For sloped roads, most tourists do not find it difficult to walk because of the reasons for the excursions. The sloped roads add fun, but the appearance is not enough.

Student groups: Students in nearby schools and students who are far away are often friends, classmates, and lovers. A leisurely afternoon will be a good time to talk and promote relationships. Most of their opinions are about the old facilities, the lack of features and the lack of aesthetics.

We hope to improve public facilities and increase functionality.

Residents: Most of the residents in the vicinity have the opinion that the surrounding facilities are relatively old. The chaotic parking of the vehicles has an impact on walking and visually, and it is believed that the transportation needs to be greatly improved. There is a lack of functional diversity in public facilities.

Passer group: For the investigation of such people's opinions, because of the short stop time, most people think that the traffic needs to be greatly improved, as well as the old pavement facilities, it is recommended to improve.

#### **4. Conclusion**

This project area is mainly in the form of linear moving lines. The field investigation and the targeted analysis are combined, the most important thing is to change the setting of traffic and urban furniture, as well as the use and combination of new materials, increase more landscape sketches and add natural flavor. Better use of space, so that the function of space and beautiful combination. Transform this space form an interrelated dynamic line, at the same time, each node changes differently, which makes the space more interesting and flexible in different levels and different node changes. Achieve the diversity of design concepts. Give people more comfortable and free sense of fun. It has also increased its more functionality. To achieve better integration and mutual promotion of human, public space and environment.



# V.

## Related case analysis

Urban public landscape design -- Taking the landscape corridor design of New York high speed Park as an example



Fig. 41, The High Line Park in New York

The High Line Park in New York, USA has been a huge success since its opening to the public and has become a successful example of the renovation of old towns in industrial areas. Designers use the “plant-and-build” design strategy to change the regular layout of walkways and vegetation. In this way, organic cultivation and building materials are combined in a changing proportion to create a diverse spatial experience.

### 1. Design structure analysis

#### 1.1 Node structure



Fig. 42, The High Line Park in New York Phase 2

Taking the first phase II project as an example, the linear characteristics of the high-line park are too obvious. The whole park is very long and narrow. This kind of repetitive feeling and monotony brought about by the narrowing of the trails is particularly important. The arrangement of the nodes with proportional and rhythm is particularly important. The more important landscape nodes in the high-line park can be seen that the south of the park is closer to the Hudson River, the buildings are less occluded, the landscape effect is excellent, and the traffic volume is so attractive that it is also the core area of the park, so the southern nodes More intensive and exciting, and sometimes connected to the two sides of the building, creating a rich form of landscape, very energetic, and in the northern part of the first phase of the project and the second phase of the project, the rhythm is obviously slower, there are leisurely walking areas and Comfortable rest area, but still maintain a certain node density to keep the whole line interesting. The high-line park has three nodes that are most popular with tourists and residents. One is a section facing the Hudson River near 14th Street, and the second is a wooden lounge chair on either side of the park in the middle of the park, providing visitors with an ideal place to sunbathe. The third is a section hanging near 17th Street. Stepped classroom-style viewing space in the mid-air of the 10th Avenue. The three nodes are separated by a distance, ensuring that each segment of the line is full of energy and does not appear crowded. Reasonable node arrangement makes the whole line just a road from the plane, but it is able to feel the rich landscape form when it is there, and a route is full of fun.

The transformation and design of the landscape has many points to be learned and learned in the design of my project. There are primary and secondary points on the landscape nodes to avoid crowding and enhance the layering and fun of landscape design.

## 1.2 Sight



Fig. 43, The High Line Park Wide area of sight

The High-line Parks pass through the buildings of the city and their sights are blocked by the buildings.

Throughout the park, the section with the most open scenery and no high-rise buildings is mainly the southern section of the first phase of the project and the entire section of the third phase of the project. In order not to affect the landscape, neither of them has planted large shrubs to block the line of sight and maintain the horizon. Open, but the designers in these two sections are treated differently. The large arc of the third phase of the project, from the station side to the river side, is

arranged: grass-rest chair-road, not making too many changes, so that visitors can immerse themselves in the scenery of the Hudson River. However, in the middle section of the first phase of the project, because the east and west sides of the east and west are bustling Brooklyn, one side is a magnificent river, and both sides have views worthy of viewing. The designer's design is more lively in this area. Compared with the third phase of the project, it is not just to set up one side of the seat, but to use a more varied design to guide people's attention not only in one place.

In the dense building and high building height, the park greenway is sandwiched between the two floors. For example, on the south side of the second phase of the project from the Chelsea pasture, the designer planted lush shrubs along the pedestrian road. Small trees, like a small forest, wrapped people's eyes in the green, full of natural feelings, while obscuring the old exterior walls of the building, but the designers did not completely obstruct the sights with plants, passing the road. When you open a viewing platform as a side stand, stick out to let people see the scenery below.

In the control of the line of sight, I have to learn how to adapt the designer to the local conditions. He uses the height of the plant to control the line of sight and create a variety of space experiences. I also need to adapt to the local conditions and use the difference method in the design of the tree bed seat. Make a sense of hierarchy, so that visitors can sit and rest without being obscured to enjoy the scenery of the Douro River. Friends, classmates, couples, and family members can make more intimate conversations during the rest of the sitting posture. It also allows people of different purposes to use it, enhancing its functionality. At the same time, I combined small plant landscapes and seats to add green to the city.

### 1.3 Traffic



Fig. 44, The High Line Park Flow of people

The linear park naturally meets the needs of commuting. The high-line park runs through the north and south, and there is no traffic light blocking. The speed of walking is much faster than the ground. However, due to the nature of the park hanging in the air, the vertical traffic connection with the ground is quite important. The designer has planned 13 entrances and exits throughout the park. There are more people with large traffic flow. When the sparsely populated areas in the north are far apart, an exit is set up to ensure that each section of the park is connected and communicated with the ground. Ensure that a park in a high place can maintain a close distance with the city at the foot of the foot.

The importance of transportation to a city is well known. The designer plans to enhance the continuity of traffic according to the traffic flow of people. I have to learn and pay attention to it in my design. My project land was originally parked by car. The road is narrow and it seems very crowded. I pay attention to this point to rationally plan the parking area, reduce the crowded streets, enhance the street penetration and open the urban public space.

#### 1.4 Function



Fig. 45, The High Line Park Function

The design of the high-line park in the process of transforming the railway into a park, the designer gave the park more functions. The main functions are still walking, meditation, and viewing, but in a few open areas, gatherings, children's play, exhibition venues, inject new vitality into the park, so that the high line is no longer just a beautiful landscape. The walkway is a new landmark that reflects the diverse spirit of the city.

This is also an important inspiration for us to learn in our design. The functionality of the diversified urban landscape is very important. It directly reflects the integration of the city and the user population. The more diversified functions are given to the city. Better use of landscape resources, a better experience for urban residents and visitors.

## 2. Aesthetic analysis

As a post-industrial landscape, the High Line Park has a unique aesthetic that is different from the ordinary landscape.

Formally, the high-line park is centered on an elevated iron pipe, and the linear form of the railroad track highlights the characteristics of this industrial relic. The landscape design uses a linear language to reinforce the intention of the rails. The paving design of the strips of concrete slabs further enhances the depth of the space and reinforces the extension of this exclusive track,

every few blocks. Setting up a staircase is like a platform, which strengthens the connection with the city's ground. It also means re-integrating the railway into a new form.



Fig. 46, The High Line Park Space aesthetics

From the relationship between nature and manpower, the post-industrial landscape shows us a harmonious and unified order of industrial relics and natural environment. The combination of plants and hard landscapes, the high-line park landscape design appropriately retains the abandoned rails and sleepers, and retains the wildflowers that grow freely in the abandoned age. The designer chose the rusted steel plate that echoes the rails as the planting pond. The newly planted plants are in sharp contrast with the original grass. The gravel between the sleepers is used as the filling material for the partial paving and planting ponds. Responding to the core concept of railroad landscape renovation. These landscape detailing techniques combine the artificial environment with the natural environment to show the aesthetic qualities of the combination of artificial and natural features unique to the post-industrial landscape.

### 3. Detail analysis

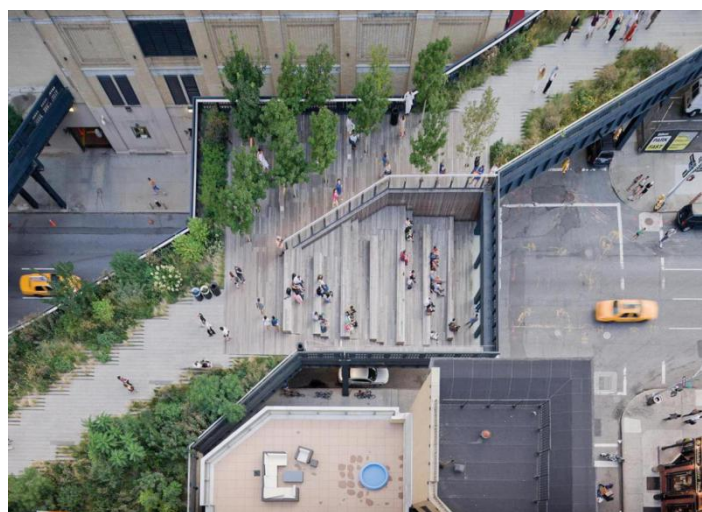


Fig. 47, The High Line Park  
node plant pavement

The relationship between the plants and the pavements in each section of the park section has changed. Looking at the seemingly inadvertent practice, in fact, all follow a certain logic. The

designer adopts the concept of “plant-building”, using different plant and paving configuration ratios in different forms of the area, so that the whole design maintains its integrity while adding interesting changes, even if the line is too long. Don't feel a single bored.

#### **4. Summary**

We can say that, the design of the high-line park in Manhattan, New York, USA, attracted us to respect the original venue. Whether it is from concept to detail, it emphasizes the historical memory of the venue, such as the preserved rails and native plants, but not only that, the design of the high-line park not only can humble the site characteristics, but also rejuvenate it. A new vitality, adapting to local conditions, effective, and practical solutions to problems, to meet the functionality and publicity that a public park should have. And the design uses more green to fill the color of the city, bringing more green and more natural feelings to the urban residents. In the true sense, the design is used to realize the harmony and unity between man and nature and the city.

# VI.

## Project Design

### 1. About the design concept and elements of this project transformation

#### 1.1 Design concept

The specific site of this project is the public space of the riverside landscape linear street in the urban area of Porto. Through investigation and research, the problem of this project space is found out.

Firstly, the concept of harmony and unity between city and human and natural environment is adopted in the project design. The most central point in this space is the landscape platform along the river and the adjacent linear continuous tree bed. The landscape along the river is wide, but the stone wall material of the landscape platform is worn out and the height is not high enough. The tree pond seat platform is monotonous without fluctuation, single function, outdated material and lack of aesthetics. The landscape along the viaducts lacks coherence and coherence.

Secondly, the disorderly parked vehicles in the streets are renovated. This space area is the public street area in residential areas, public leisure and Local Festival gathering areas, and is an important public space use area. Vehicle parking has an impact on the area's traffic, people's convenience and space aesthetics. It is forbidden to park vehicles in this project space. First, create a clean and spacious street public space environment. And then carry out the design of functional diversification.

Then the increase of green landscape in this space can be more in line with the concept of urban and natural environment harmony and unity of the project design. The material used in this project is also similar to this concept.

#### 1.2 Design elements

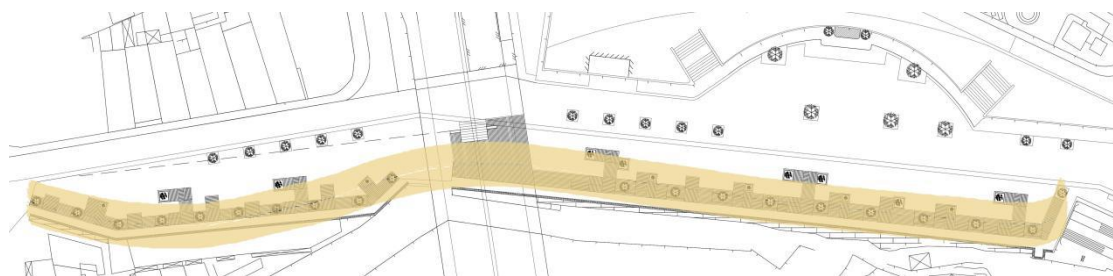


Fig. 48, Schematic diagram of linear element design

The design elements use the 'line' design elements to connect the riverside landscape platform and

tree bed on both sides. At the same time, different horizontal heights are used to form the height difference, which not only increases the functionality, but also makes the landscape reflect the hierarchical sense in the visual effect. In the coherent linear design, different nodes make different seat distribution forms and different horizontal heights, which adds agility to the space and does not appear to be single and rigid. The cultivation of the books on both sides has been symmetrical, enhancing the interactivity of the space and bringing more green to the city. The diversification of the real integration into the design.

## 2. Materials for retrofit design

Log timber is mainly used. According to the local material conditions, wood with specifications of 10 cm x 18 cm and length of 700 cm is selected. And the stainless steel plate structure and the plant planting soil used in the landscape sketch connecting the tree bed seat, the upper layer of the landscape with small stones.



Fig. 49, Hard wood- Pine Tree



Fig. 50, Stainless steel plate



Fig. 51, Cultivated soil

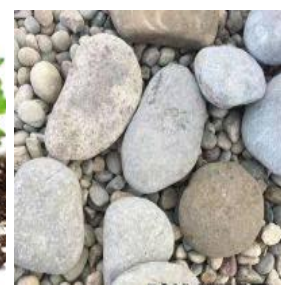


Fig. 52, Landscape stone

The selection of materials basically conforms to the design concept of closing to the natural environment and providing comfort to users. Wood comes from trees. Choosing raw wood materials not only gives people comfortable feeling close to nature in texture, but also gives people comfortable visual enjoyment in color matching with green vegetation and gray stone.

According to the local climatic conditions, because the local rainy season is longer, and the direct sunshine is stronger, it is easy to cause wood corrosion and sunburn cracking. The application of anticorrosive coatings on wood can better maintain the wood's sun resistance and corrosion resistance.

### 3. Regional Design of Under bridge Hub

This area acts as a link in the whole space. In this space, we use the space between two pillars to set up a small convenient coffee bar. The coffee bar and tree pool are laid at the right edge of the Viaduct with the same hardwood wood wood, 10 cm away from the ground, and 2 cm apart for walking safety. The coffee bar and tree pool are connected with the platform of the tree pool to form spatial interconnection.

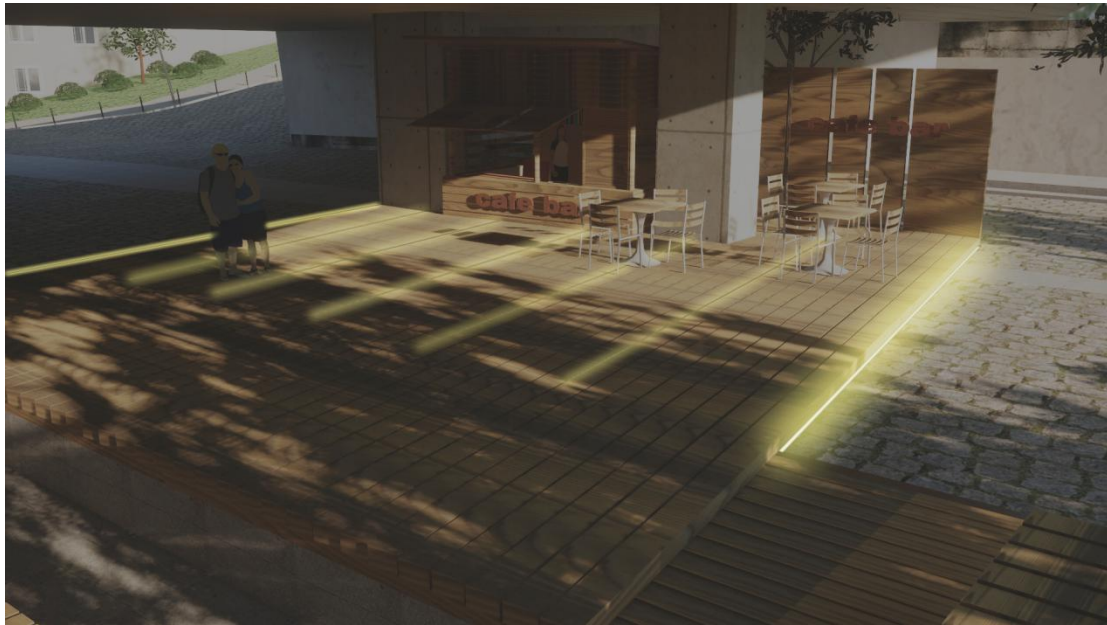


Fig. 54, Project Design Part Lighting Renderings

Install buried lamp in the gap 10 cm from the ground in the paving area. The light transmits upward through the interval between the wooden strips. The light is not good and the light is dim in the area under the viaduct. This design form and the setting of floor lamp make the brightness and visual effect of this space better. Not only is it convenient for people to come to this space to rest and play, but also it is richer in aesthetics.

#### 4. Design part of the technical drawings showing

4.1 Before and after the transformation design shows the comparison map.

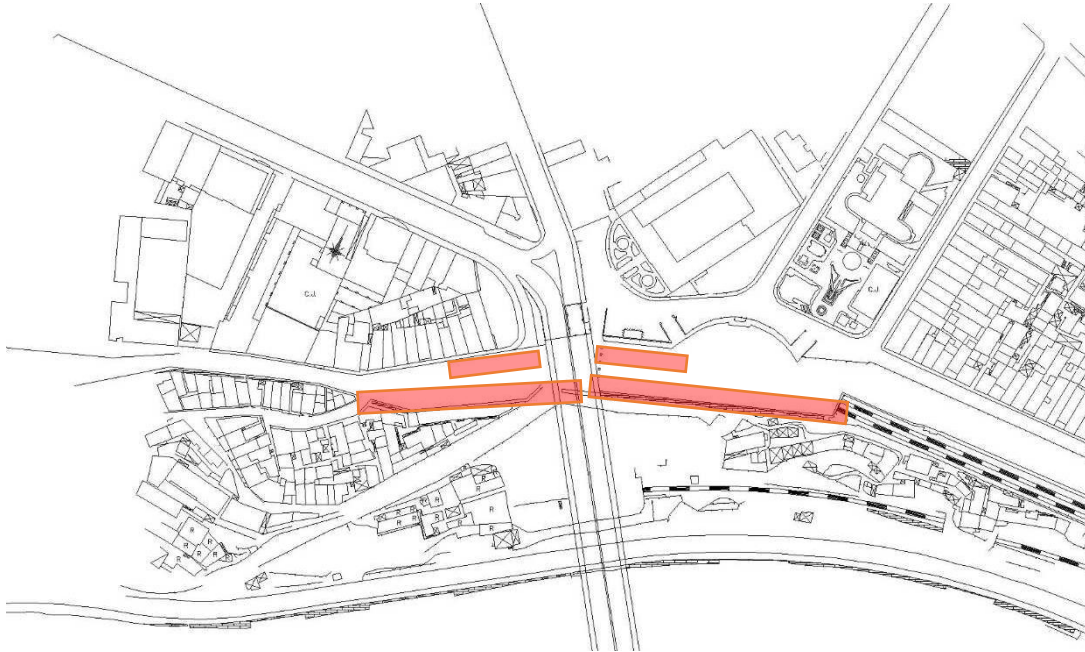


Fig. 53, Original design before the renovation

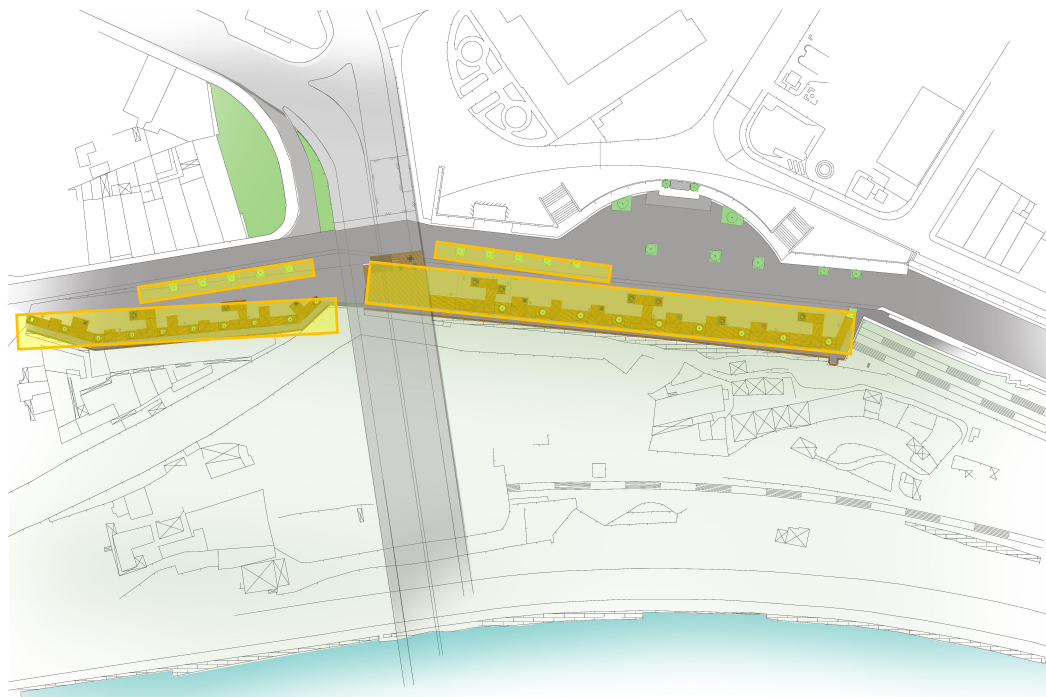


Fig. 55, Design completed area

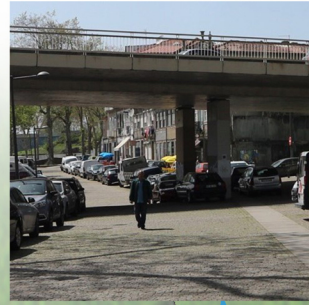


## **4.2 Original and completed comparison**

### **chart of each node of the project**

|                         |    |
|-------------------------|----|
| Original Scene Nodes    | 30 |
| Post-Design Scene Nodes | 31 |





Applicant:

Project Proposal - 2nd Year Master - Interiore Design

Title:  
URBAN PUBLIC SPACE DESIGN -PUBLIC FURNITURE AND LANDSCAPE  
PLANNING IN FONTAINHAS

Run by:

Yanan Liu

Supervisor:

Maria Milano

Co-Supervisor:

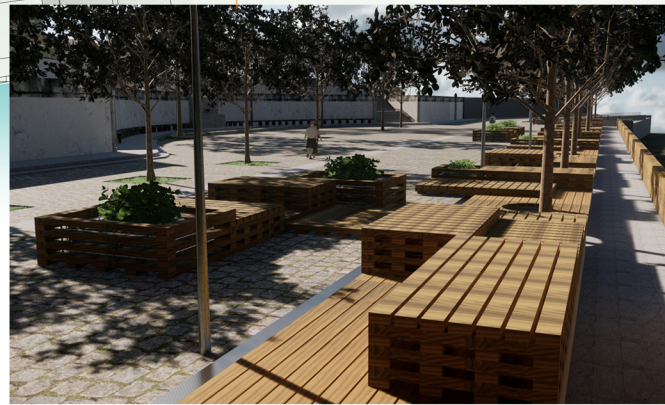
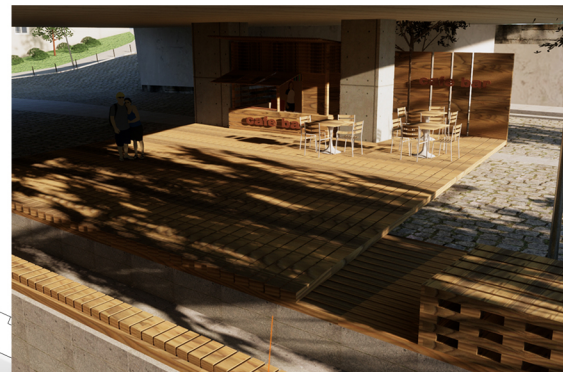
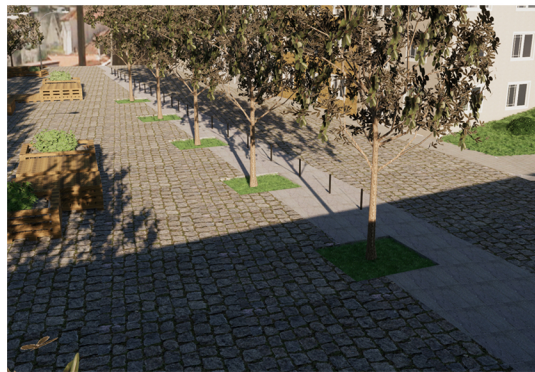
Ana Sofia Cardoso







Drawing:

Original node drawing

Year:

2018



-  Plot: Aisle
-  Plot: Public street
-  Plot: Viaduct
-  Plot: River-Douro
-  Plot: Pine wood-Tree bed and public seat
-  Plot: Underground slope area for the project

N




Applicant:  
Project Proposal - 2nd Year Master - Interiore Design

Title:  
URBAN PUBLIC SPACE DESIGN --PUBLIC FURNITURE AND LANDSCAPE PLANNING IN FONTAÍNHAS

Run by:  
Yanan Liu

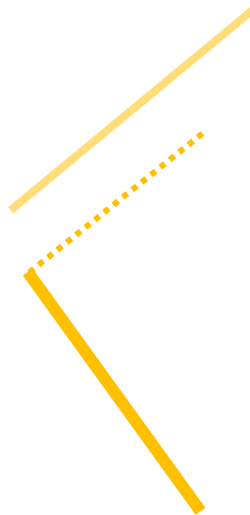
Supervisor:  
Maria Milano

Co-Supervisor:  
Ana Sofia Cardoso

Drawing:  
PLAN DRAWING-DETAIL

Scale:  
1/1000

Year:  
2018



## **5. Schematic plan view**

- 32. Plan Drawing-Detail
- 33. Plan Drawing-Implantation Plants
- 34. Plan Drawing-Light
- 35. Elevation Drawing

Scale: 1/1000





- Plot: Aisle
- Plot: Public street
- Plot: Viaduct
- Plot: River-Douro
- Plot: Pine wood-Tree bed and public seat
- Plot: Underground slope area for the project



**Applicant:**  
Project Proposal - 2nd Year Master - Interiore Design

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URBAN PUBLIC SPACE DESIGN --PUBLIC FURNITURE AND LANDSCAPE PLANNING IN FONTAÍNHAS

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**Run by:**  
Yanan Liu

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**Supervisor:**  
Maria Milano

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**Co-Supervisor:**  
Ana Sofia Cardoso

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**Drawing:**  
PLAN DRAWING-DETAIL





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**Scale:**  
1/1000

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**Year:**  
2018



-  Plot: Grass
-  Plot: Tree- Arbor
-  Plot: Plant- Evergreen shrub
-  Plot: Plant- Herbage



**Applicant:**  
Project Proposal - 2nd Year Master - Interiore Design

**Title:**  
URBAN PUBLIC SPACE DESIGN --PUBLIC FURNITURE AND LANDSCAPE PLANNING IN FONTAÍNHAS

**Run by:**  
Yanan Liu

**Supervisor:**  
Maria Milano

**Co-Supervisor:**  
Ana Sofia Cardoso

**Drawing:**  
PLAN DRAWING-IMPLANTATION OF PLANTS

**Scale:**  
1/1000

**Year:**  
2018



 Plot: Underground light

 Plot: Street light



**Applicant:**  
Project Proposal - 2nd Year Master - Interiore Design

**Title:**  
URBAN PUBLIC SPACE DESIGN --PUBLIC FURNITURE AND LANDSCAPE  
PLANNING IN FONTAINHAS

**Run by:**  
Yanan Liu

**Supervisor:**  
Maria Milano

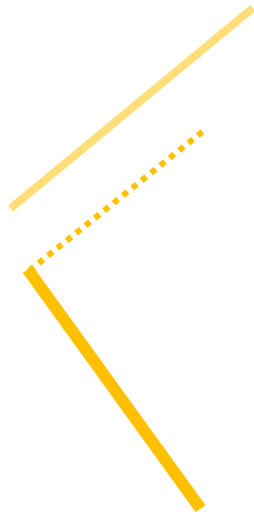
**Co-Supervisor:**  
Ana Sofia Cardoso

**Drawing:**  
PLAN DRAWING- LIGHT

**Scale:**  
1/1000

**Year:**  
2018





## **6. Section Drawing**

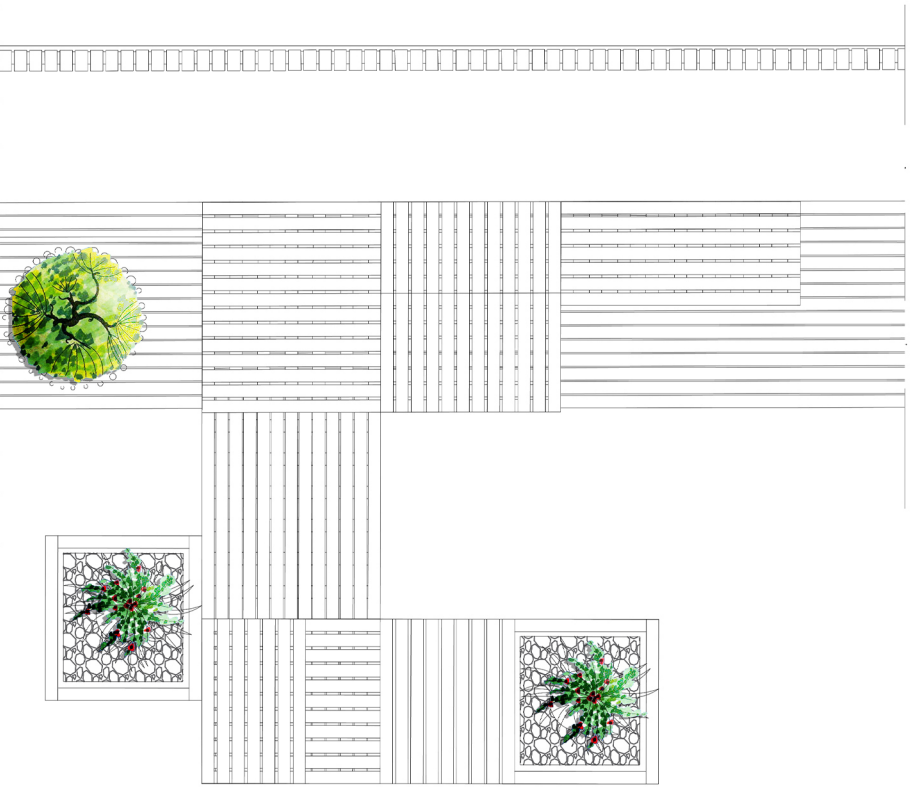
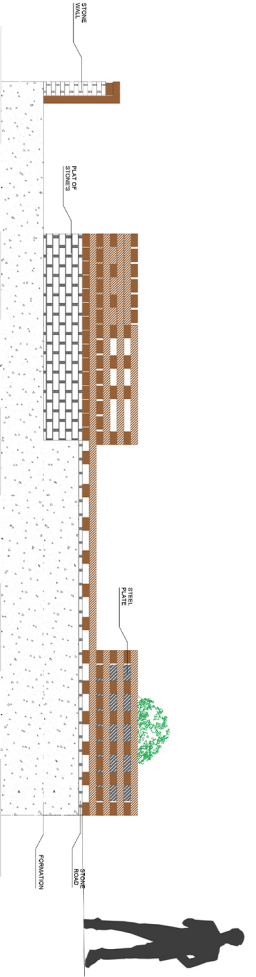
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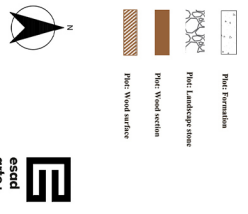
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5



**Applicant:**  
**esdd**  
**arte+**  
**design**

**Project Proposal:** 2nd Year Master - Interior Design  
**Title:** URBAN PUBLIC SPACE DESIGN - PUBLIC FURNITURE AND LANDSCAPE PLANNING IN FONTAINHS

**Run by:** Yessir Liu

**Supervisor:** Maria Miliute

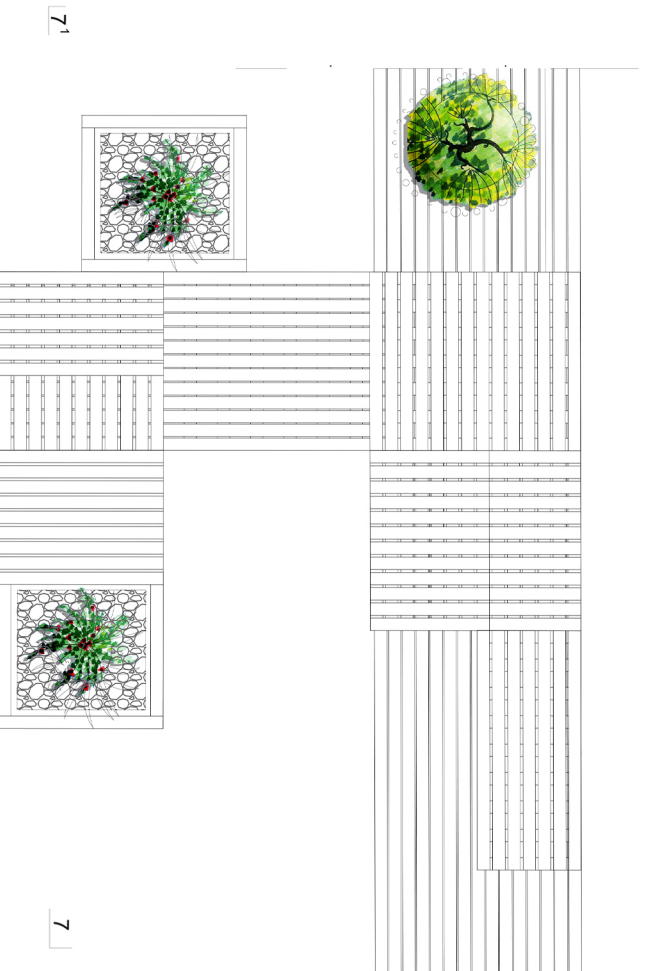
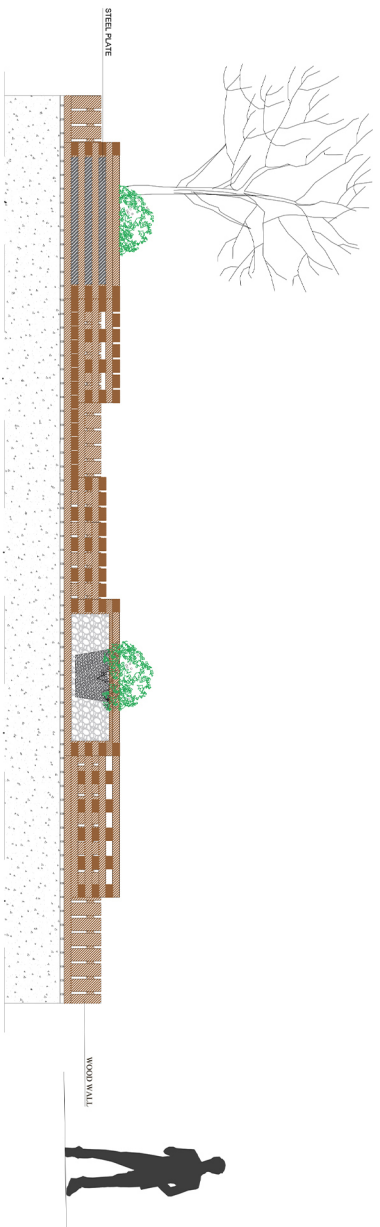
**Co-Supervisor:** Ana Sofia Cardoso

**Drawing:** ACTIVO BARRANCO

**Scale:** 1/100

**Year:** 2016/2018





- Brick formation
- Brick Landscape stone
- Brick Wood section
- Brick Wood surface



**Applicant:**  
Project Proposal - 2nd Year Master + Honors Thesis

**Title:**  
URBAN PUBLIC SPACE DESIGN - PUBLIC FURNITURE AND LANDSCAPE PLANNING IN FONTAINAS

**Run by:**  
Yvesur Liu

**Supervisor:**  
Sandra Hübner

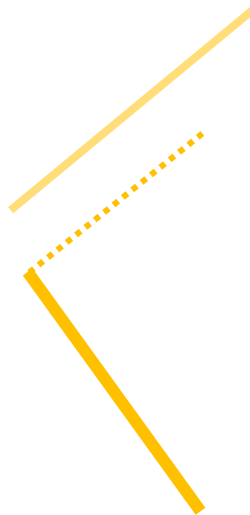
**Co-Supervisor:**  
Amit Datta Chakrabarti

**Drawing:**

**Scale:**

**Year:**  
2016/2018





## **7. Design Detail Display**

Perspective

Fixed

39

40



The Form and Fixing Way of Tree Bed and Public Seats

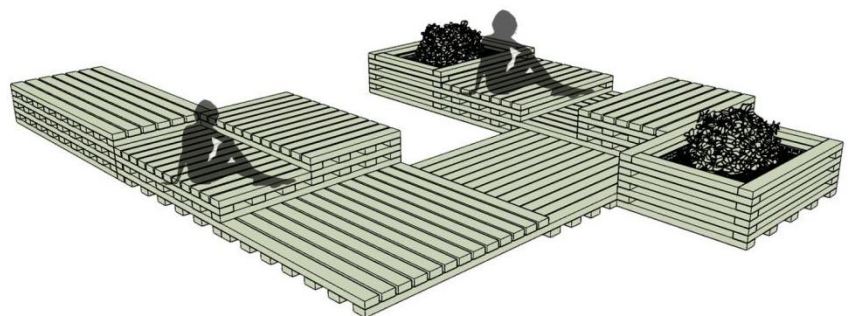
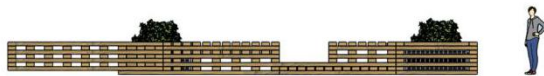


Fig. 56, Single node schematic 1

The Form and Fixing Way of Tree Bed and Public Seats

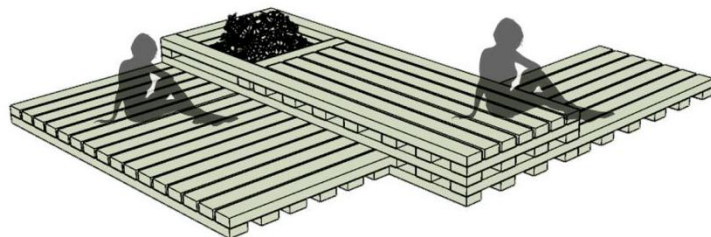
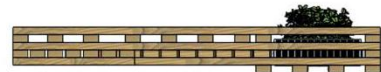
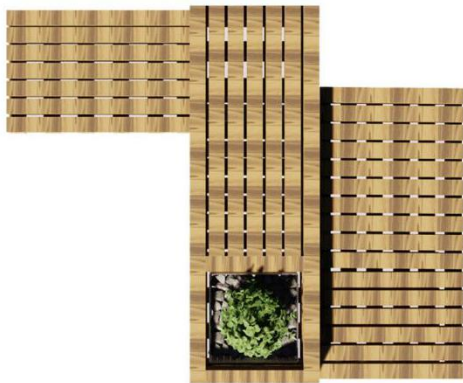
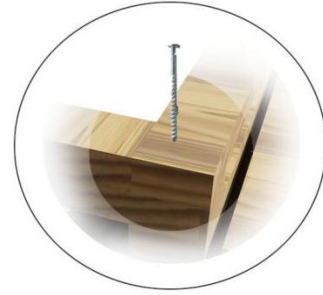
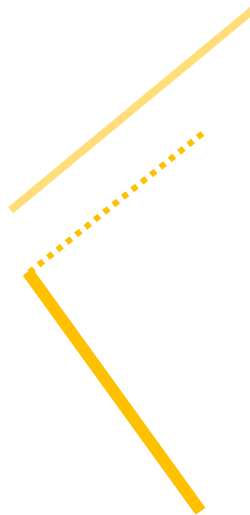


Fig. 57, Single node schematic 2



## **8. Design Spatial Rendering**

Rendering 01

Rendering 02

Rendering 03

Rendering 04

Rendering 05

Rendering 06



## Project Design Node Rendering 01

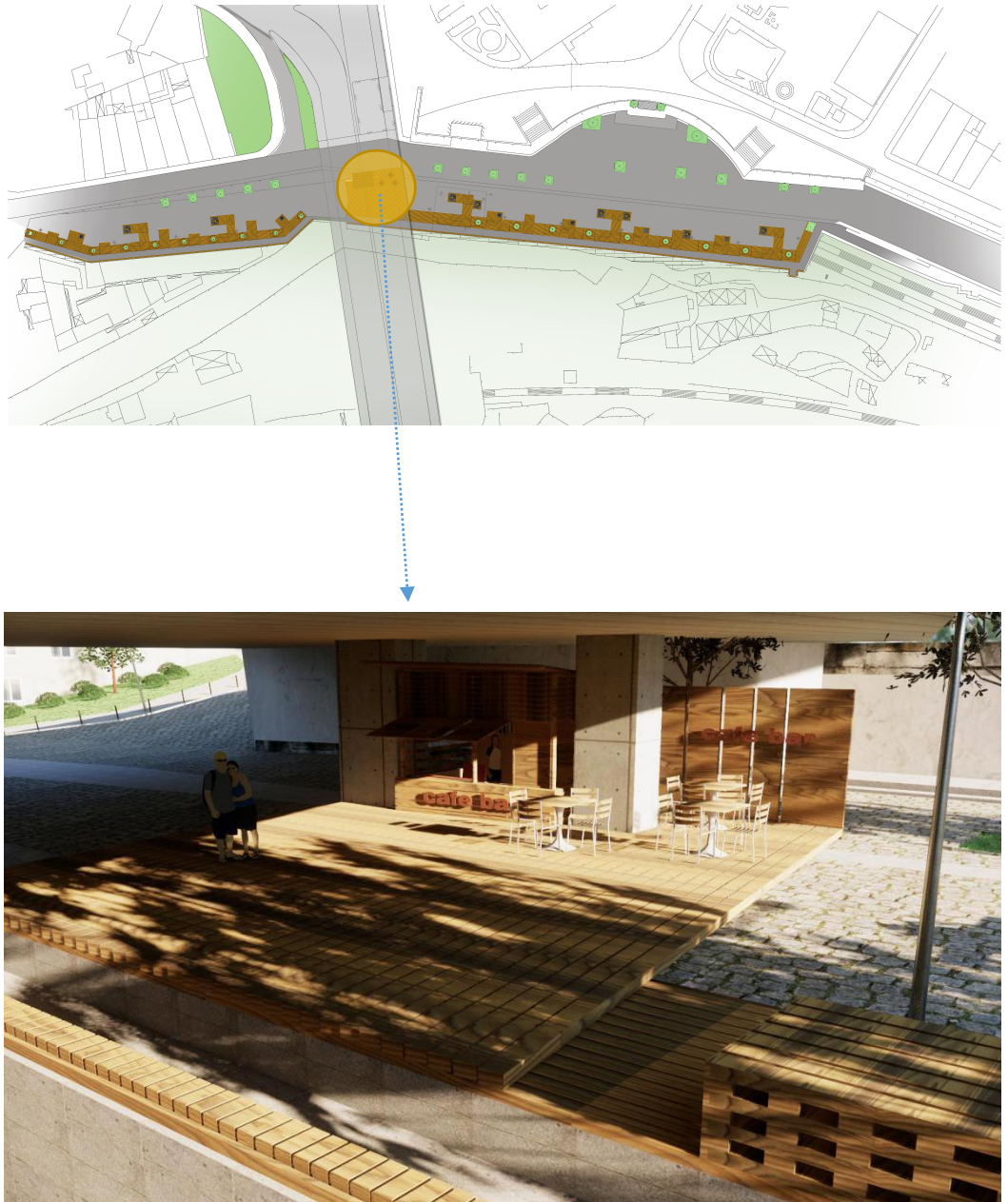


Fig. 58, Project design node renderings

## Project Design Node Rendering 02



Fig. 59, Project design node renderings

## Project Design Node Rendering 03

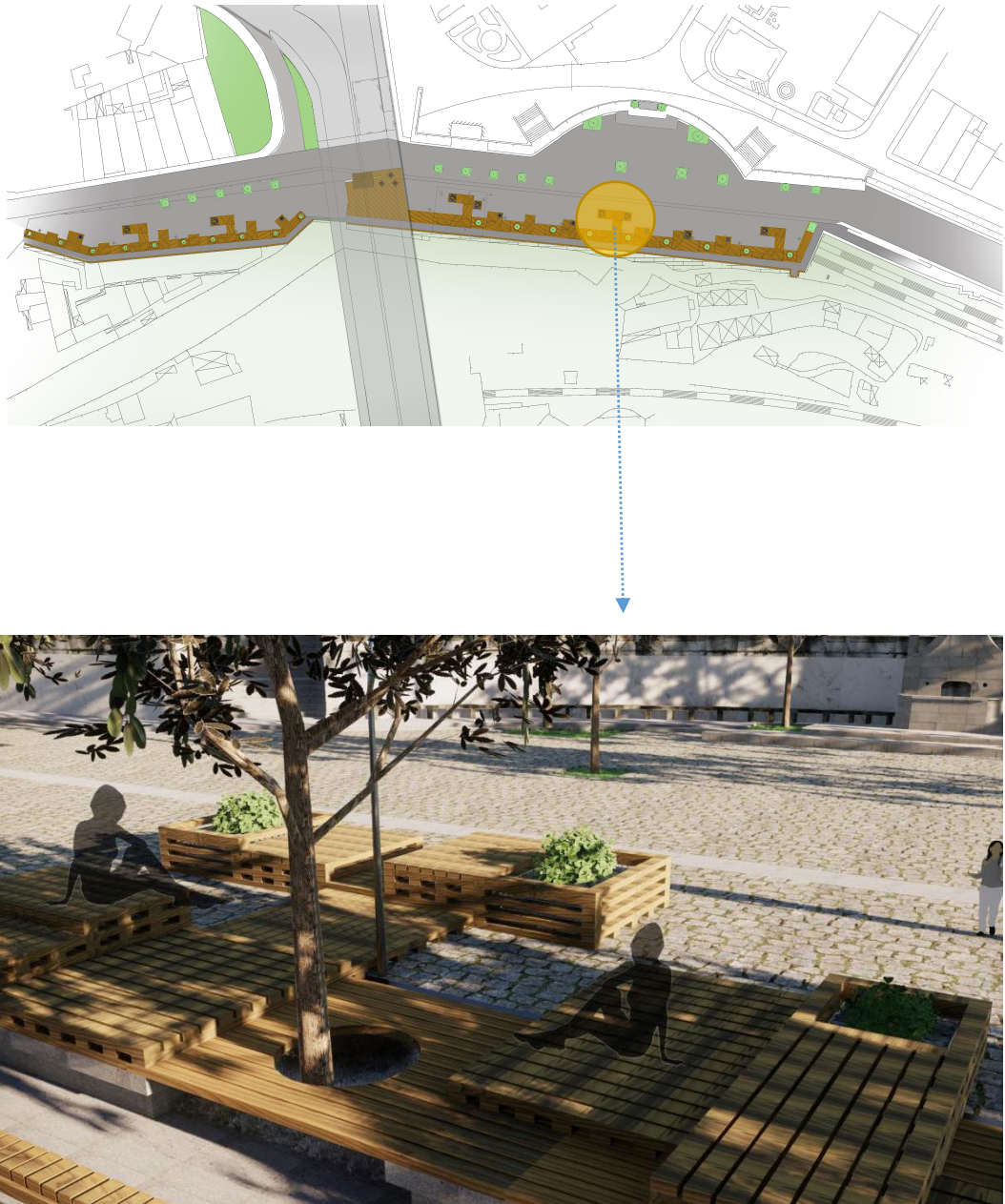


Fig. 60, Project design node renderings

## Project Design Node Rendering 04



Fig. 61, Project design node renderings

## Project Design Node Rendering 05

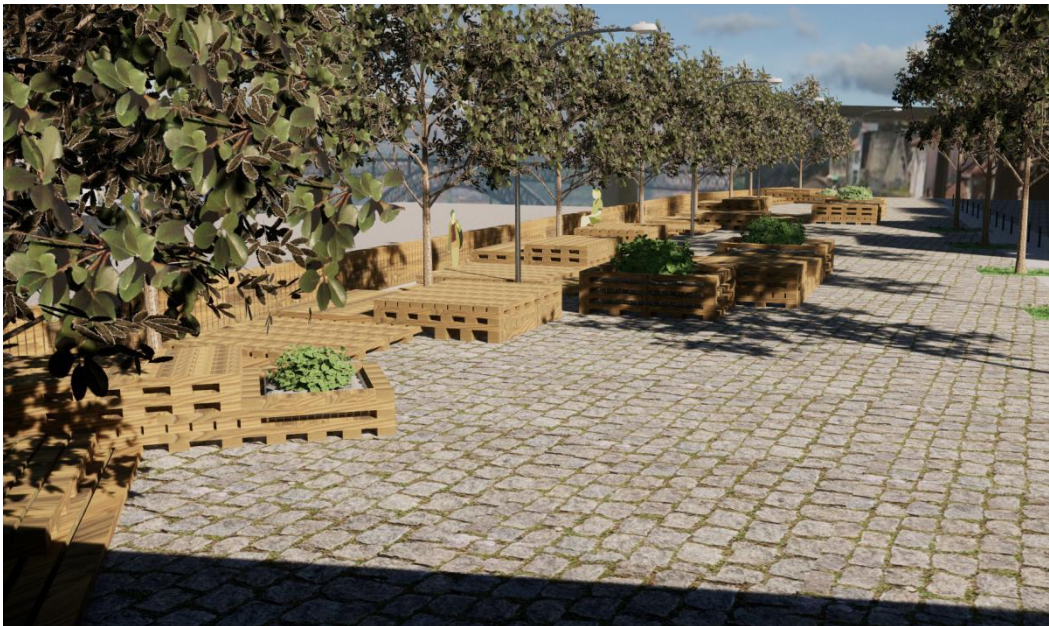
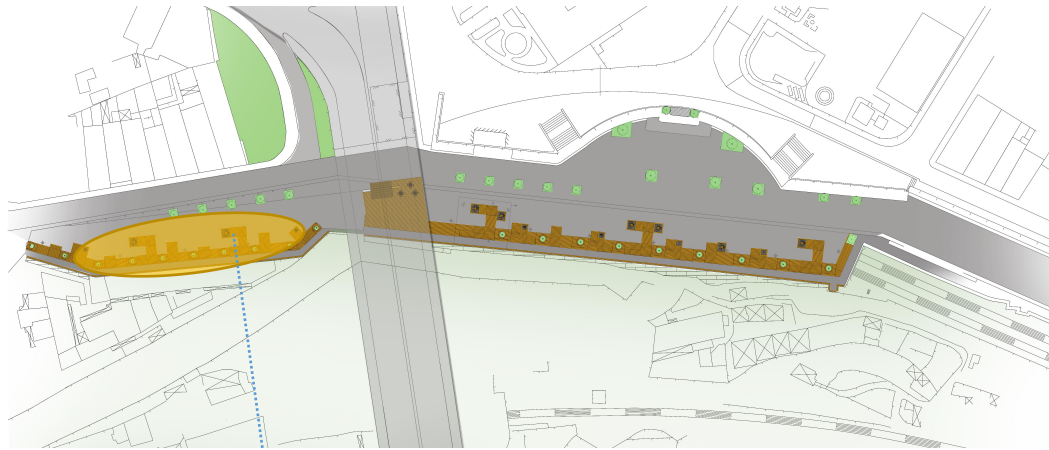


Fig. 62, Project design node renderings

## Project Design Node Rendering 06

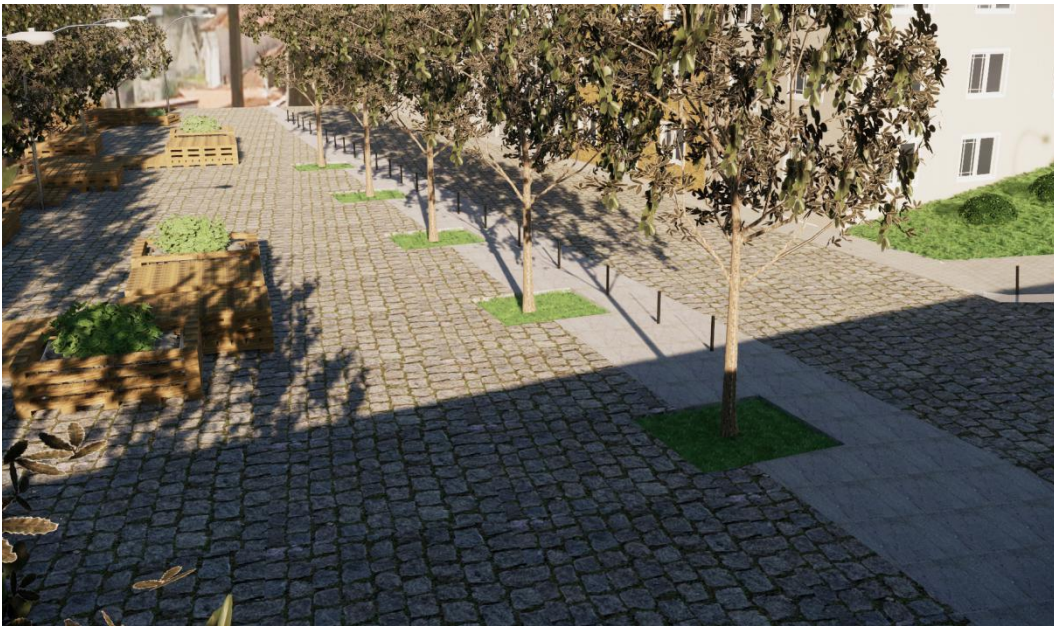


Fig. 63, Project design node renderings

# VII.

## Project Design Summary

For this project, public space design - On the whole, we used the 'line' design form in the design to connect the whole public space. The left and right sides of the space, including the design of space turning point in the lower part of the middle viaduct, make the two sides of the space in series with each other. Using the same 'line' elements and hardwood materials to connect in series to form a 'line' type public space, but at the same time, the design area is divided into several small nodes for a variety of forms of design. The "line" tree bed seat fusion design in space, which designs the seat into different undulating heights, forms a different visual sense of space, and makes different undulations and changes in the form of different nodes regularly while enhancing the spatial interest. You can enjoy different visual sensations at different heights of tree bed seats and have more intimate conversations with peers, face to face, shoulder to shoulder, back to back, etc. Enhanced the functionality of space. The extension of the seat adds small plant landscape sketches in different forms, which adds many colors and natural feelings to the city. Make people feel more comfortable and relaxed.

Similarly, the same hardwood material and 'line' elements are used to transform and design the stone wall along the side of the public space viewing platform of this project. Because the most primitive stone wall height only 90cm does not reach the safe scope, will cause the security hidden danger here. Therefore, the combination of wood in the design improves the original height to 110 cm, and achieves the function of safety protection. It not only strengthens the safety performance, but also enhances the visual aesthetic effect.

In the public street space area on the left, the planting pools of five trees of the same form and space on the right were planted with the same trees. The same form and the same spacing make the public space on both sides of the river not only connect with each other in the public space belt along the river, but also the space in the middle part connect with each other in this symmetrical form. Make the whole space combine with the good in form. More plants and green make the city closer to nature and give people a more comfortable feeling in the city.

The area under the middle viaduct is a very important area, which plays a role of link in the whole space. In this space, we use the space between two pillars to set up a small convenient coffee bar. The coffee bar and tree pool are laid at the right edge of the Viaduct with the same hardwood wood wood, 10 cm away from the ground, and 2 cm apart for walking safety. The coffee bar and tree pool are connected with the platform of the tree pool to form spatial interconnection. Install buried lamp in the gap 10 cm from the ground in the paving area. The light transmits upward through the interval between the wooden strips. The light is not good and the light is dim in the area under the viaduct. This design form and the setting of floor lamp make the brightness and

visual effect of this space better. Not only is it convenient for people to come to this space to rest and play, but also it is richer in aesthetics.

This design is based on the idea of the integration of city and human and natural environment. While retaining the historical and cultural features of the region, the design makes the space better integrate with city and human, and better fit the natural environment. It not only increases the functionality and practicability, but also gives people a sense of comfort and freedom. Make the continuous development of urban public space more perfect. Integrate design into life, and make progress with development.

# VIII.

## Attachment: Questionnaire Chart Analysis

This histogram is a summary chart for the crowd type suggestion direction

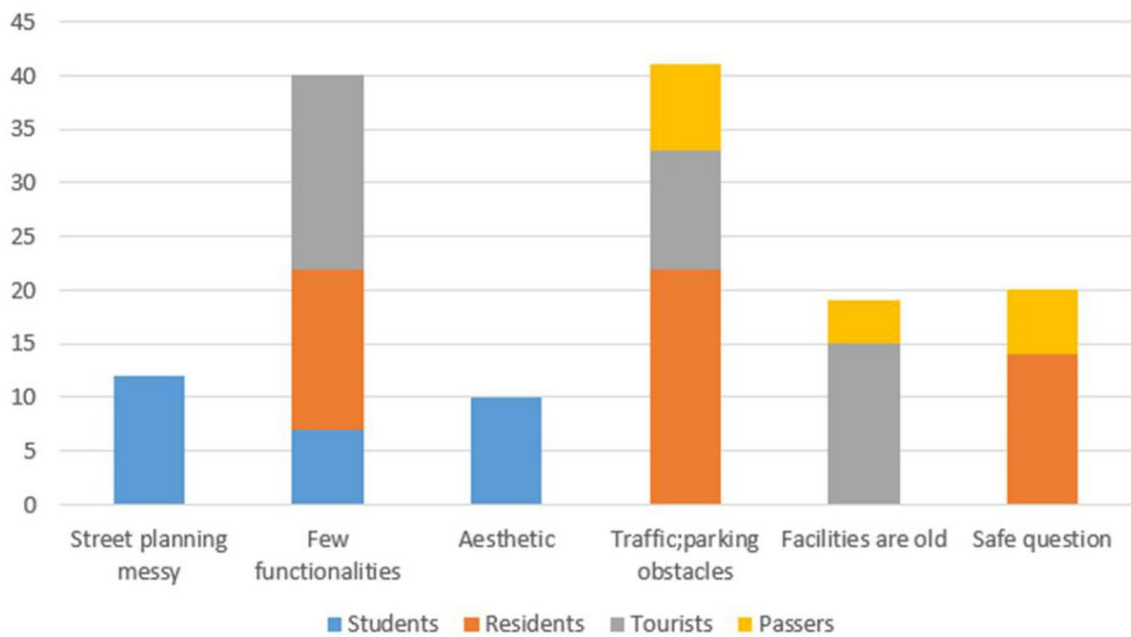
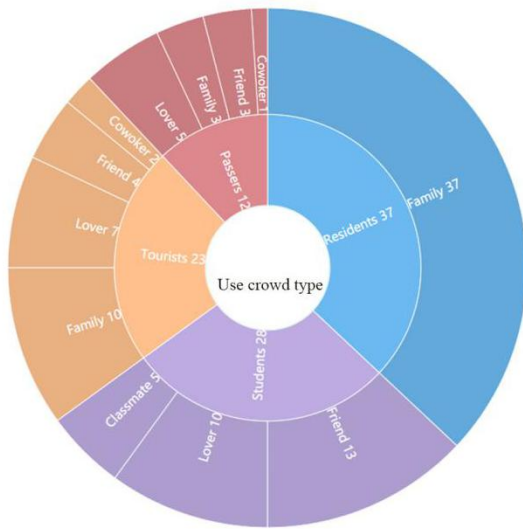
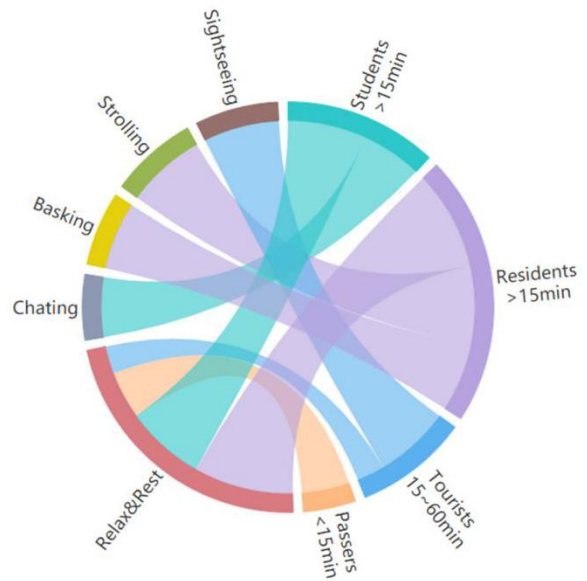


Fig. 64, Questionnaire Chart Analysis

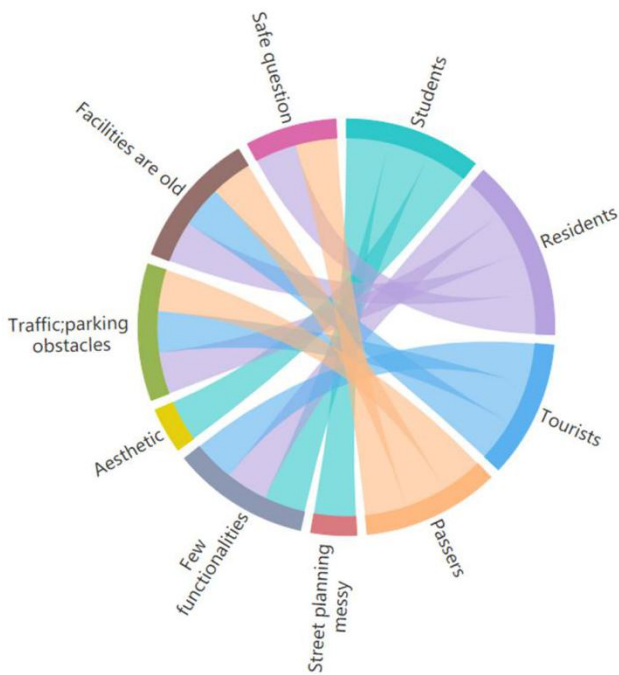
These four types of charts are the analysis of 100 data from a crowd sampling survey using this public space. From the type of crowd, the purpose of this space, the problems pointed out in this public space and the suggestions on the transformation design are analyzed in four aspects.



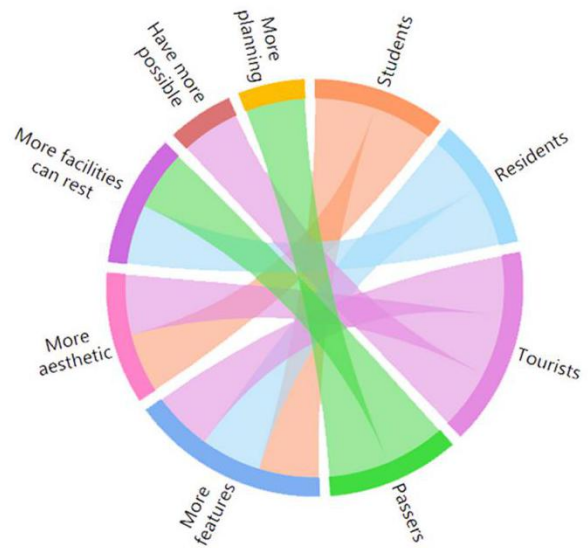
Use crowd type and data



Residence time and purpose of use of space



The crowd pointed out the data analysis of the problems in this public space



Data analysis of the directionality recommendations for this public space

Fig. 65, Questionnaire Chart Analysis

# IX.

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Research data base



# X.

## Attachments: Image citation description

- Fig. 1, Tree bed, China, [www.gai8.com](http://www.gai8.com), 06/05/2018
- Fig. 2, Tree bed, China, [www.gai8.com](http://www.gai8.com), 06/05/2018
- Fig. 3, Ground Buried Lamp, China, [b2b.hc360.com](http://b2b.hc360.com), 2016
- Fig. 4, Urban, Public Space, Urban Furniture and People correlation graph, Source, author self made, 16/10/2018
- Fig. 5, Lujiazui Pocket Park, Shanghai, China, [www.zhihu.com](http://www.zhihu.com), 26/04/2017
- Fig. 6, Lujiazui Pocket Park, Shanghai, China, [www.zhihu.com](http://www.zhihu.com), 26/04/2017
- Fig. 7, Chapultepec Cultural Corridor, Mexico, [www.timeoutmexico.mx](http://www.timeoutmexico.mx), 27/08/2015
- Fig. 8, Atlanta City Loop Corridor, USA, [www.jiemian.com](http://www.jiemian.com), 11/01/2018
- Fig. 9, New York Central Park, USA, [za.fxhp.com](http://za.fxhp.com), 28/12/2016
- Fig.10, European terrain, European, Source, author self made, 16/10/2018
- Fig. 11, Terrain profile, European, Source, author self made, 16/10/2018
- Fig. 12, Avenida dos Aliados Water Mirror, Porto, Portugal, [www.skyscanner.com.br](http://www.skyscanner.com.br), 2015
- Fig. 13, Douro River, Porto, Portugal, [www.skyscanner.com.br](http://www.skyscanner.com.br), 2015
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- Fig. 20, Trash can, [www.pinterest.pt](http://www.pinterest.pt), 2016
- Fig. 21, Urban newsstand, [www.pinterest.pt](http://www.pinterest.pt), 2014
- Fig. 22, Tree bed, [www.pinterest.pt](http://www.pinterest.pt), 2016
- Fig. 23, Create & Barrel Signage, <http://sinalizarblog.com>, 05/07/2011
- Fig. 24, Spring in the streets of Hokkaido University, Japan, <https://hokkaido.letsgojp.com>, 31/07/2015
- Fig. 25, Summer in the streets of Hokkaido University, Japan, <https://hokkaido.letsgojp.com>, 31/07/2015
- Fig. 26, Autumn in the streets of Hokkaido University, Japan, <https://hokkaido.letsgojp.com>, 31/07/2015
- Fig. 27, Winter in the streets of Hokkaido University, Japan, <https://hokkaido.letsgojp.com>, 31/07/2015
- Fig. 28, Rest in public space, [www.lifehacker.jp](http://www.lifehacker.jp), 22/11/2016
- Fig. 29, Watch the scenery, [cn.dreamstime.com](http://cn.dreamstime.com), 22/08/2015
- Fig. 30, Vibrant urban space, <http://old.landscape.cn>, 26/01/2018
- Fig. 31, Manhattan “Summer Street” event, Manhattan, USA, <http://old.landscape.cn>, 09/08/2009
- Fig. 32, Poznan Wolności Square Rally play, Poznan, Poland, <http://old.landscape.cn>, 22/02/2017
- Fig. 33, Interaction area map between FBAUP and project space, Porto, Portugal, Source, author self made, 16/10/2018
- Fig. 34, Location analysis chart of project site, Porto, Portugal, Source, author self made, 16/10/2018
- Fig. 35-Fig. 40, Project land node area original appearance, Source, author self filming, 19/06/2018

Fig. 41, The High Line Park in New York, USA, <http://www.th7.cn>, 30/07/2014

Fig. 42, The High Line Park in New York Phase 2, New York, USA, <http://www.th7.cn>, 30/07/2014

Fig. 43, The High Line Park Wide area of sight, New York, USA, <http://www.th7.cn>, 30/07/2014

Fig. 44, The High Line Park Flow of people, New York, USA, <http://www.th7.cn>, 30/07/2014

Fig. 45, The High Line Park Function, New York, USA, <http://www.th7.cn>, 30/07/2014

Fig. 46, The High Line Park Space aesthetics, New York, USA, <http://www.th7.cn>, 30/07/2014

Fig. 47, The High Line Park node plant pavement, New York, USA, <http://www.th7.cn>, 30/07/2014

Fig. 48, Schematic diagram of linear element design, Porto, Portugal, Source, author self made, 16/10/2018

Fig. 49, Hard wood- Pine Tree, Porto, Portugal, [www.google.pt](http://www.google.pt), 2016

Fig. 50, Stainless steel plate, Porto, Portugal, [www.google.pt](http://www.google.pt), 2015

Fig. 51, Cultivated soil, Porto, Portugal, [www.google.pt](http://www.google.pt), 2012

Fig. 52, Landscape stone, Porto, Portugal, [www.google.pt](http://www.google.pt), 2014

Fig. 53, Original design before the renovation, Porto, Portugal, Source, author self made, 07/11/2018

Fig. 54, Project Design Part Lighting Renderings, Porto, Portugal, Source, author self made, 11/11/2018

Fig. 55, Design completed area, Porto, Portugal, Source, author self made, 17/11/2018

Fig. 56-Fig. 57, Single node schematic 1, 2 , Porto, Portugal, Source, author self made, 17/11/2018

Fig. 58-Fig. 63, Project design node renderings, Porto, Portugal, Source, author self made, 17/11/2018

Fig. 64-Fig.65, Questionnaire Chart Analysis, Porto, Portugal, Source, author self made, 17/11/2018





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YEAR\_2018